EHMA 2024

Shaping and managing innovative health ecosystems

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ABSTRACT BOOK

EHMA
European Health Management Association

Institutul Național de Management
al Serviciilor de Sănătate

GUVERNUL ROMÂNIEI

The European Health Management Association

The European Health Management Association (EHMA) is a not-for-profit membership organisation. Active since 1982, our vision is excellent health management for a healthy Europe.

We support the spread of knowledge on effective health management. Our actions focus on health management capacity and capabilities and aim to support the successful implementation of health policy and practice. We are a recognised and respected amplifier of best practices in the evolution of health management, with a European and global reach. Through our efforts, we make a difference across Europe to improve health for all citizens.

We are open to all those committed to improving health and healthcare. We play a crucial role in engaging with the full European health management ecosystem. We are a highly accessible and well-established place where people can debate and engage in issues that affect them, where they feel they can advocate for change, and find solutions. Through our members and networks, we reach local, regional, national, and international levels.

About the EHMA Conference

The EHMA Conference is Europe's preeminent conference on health management. Each year it gathers the full healthcare ecosystem, including health managers and leaders, healthcare professionals, researchers, academics, industry representatives, and decision-makers from Europe, and beyond.

The EHMA Conference provides a platform to discuss the latest health management research, tools and evidence from renowned researchers, academics and professionals. It is concerned on translating research into practice. It creates opportunities for dialogue and exchange on solutions to ensure the sustainability and resilience of health systems.

The European Health Management Conference 2024

EHMA 2024 is the 29th edition of our Annual Conference. This year's conference theme 'Shaping and managing innovative health ecosystems' encompasses the entire spectrum of health megatrends. From the digital transformation of healthcare systems and services, to the ever-growing importance of sustainability, and the evolving skill sets required by the healthcare workforce, we aim to explore how the health sector is adapting to these changes.

We emphasise an ecosystem approach, promoting collaboration among stakeholders. Our aim is to facilitate dialogue on how different health care actors can work together and leverage each other's strengths to drive innovation and address pressing challenges.

Acknowledgements

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Abstract Reviewers

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Midwifery education in Europe: survey among WHO-Europe Member States

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Context: Strengthening midwifery education is key to the successful interventions to promote maternal and newborn lives.

Methods: This study was designed as a cross-sectional study to define status of nursing and midwifery workforce in WHO Europe member states in line with European strategic directions for strengthening nursing and midwifery towards Health 2020 goals. Data were collected between December 2020 and June 2021 from 29 countries. Analysis of data and comparison with literature led to validation of data between April and November, 2023, resulting in 22 countries' information being updated.

Results: 29 member states responded the survey. Nursing and midwifery education is overseen by Nursing and Midwifery Association/council in 7 member states. 21 member states offer at least a bachelor's degree in midwifery of which Sweden, Cyprus, Iceland and Portugal offer a master's degree as entry degree for midwifes. We identify at least 2 different educational pathways to become a midwife: as an independent profession at vocational or bachelor level, as a post-track study at bachelor or master level (Cyprus, Finland, Israel, Iceland, Sweden, Portugal and Spain).

This impacts the duration for midwifery education going from at least 3 years (in all vocational training and a large part of bachelor training) up to 4.5 years in Finland, to 5 years in Israel, to 5.5 years in Sweden, to 6 years in Cyprus, Iceland, to 7 years in Spain, to 8 years in Portugal to become a fully qualified midwife. The pathway might also have an impact on their title being registered midwife (RM) with exceptions such as Spain and Portugal, where they are more seen as specialist nurses.

Conclusions: Duration of midwifery education varies across countries.

Defining the possible economic impact of medical second opinions

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Context: Our hypothesis was that implementing a medical second opinion to a normal care trajectory would deliver a financial return-on-investment because of a decreased need for surgery, as shown by international literature. 2 questions were investigated: Can the Second Opinion be a tool to offer more appropriate, tailor-made care for each patient? Can the Second Opinion be an added value in the context of back operations, more efficient care and better management of the health care budget?

Methods: A database was created from Royal Doctors' low back pain cases (2017-mid 2021). Excluding complex postoperative cases, data included gender, age, initial diagnosis, diagnosis confirmation, and trajectory changes. Descriptive analysis was performed.

An activity-based costing (ABC) framework compared non-surgical and surgical trajectories. While a time-driven ABC wasn't feasible, our model explored potential cost reductions if the hypothesis held.

Results: Only one misdiagnosis was found among the 117 patient cases. For 74 of the 117 patient cases the diagnosis was ok, but the treatment was incorrect. For 42 of the 117 patient cases the diagnosis and treatment were ok. From a value-based perspective noticing that based on our dataset only 36 percent of the patients had the correct diagnosis and treatment is remarkable. In 6 of the 117 cases of our dataset the trajectory was changed from a surgical lumbar interbody fusion pathway to a non-invasive pathway. In 24 of the 117 cases (20 percent of the total dataset, 32,4 percent of the portion where the diagnosis was ok but treatment was not) the trajectory was changed to surgery. Based on our ABC-model there is a possible 22,6 percent decrease in costs when the surgical trajectory is switched to a conservative trajectory.

Discussion: Contrary to literature, our study revealed underuse rather than overuse, likely influenced by the Netherlands' more restricted healthcare budget. Young patients with extended absenteeism periods were predominant in our dataset. Redirecting them towards more invasive or surgical interventions could enhance workforce reintegration, ultimately reducing absenteeism costs. However, long-term data on financial and medical outcomes were lacking, both in our study and international literature. Consequently, it remains premature to conclude that nationwide implementation of medical second opinions yields genuine long-term financial benefits. Further research with extended follow-up periods is essential for conclusive insights.

Shaping new healthcare strategies by mapping out the internal innovation ecosystem in a tertiary hospital

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Context: In an era marked by unprecedented challenges, healthcare systems worldwide struggle with adapting to rapidly advancing medical technologies and navigating the intricacies of global health crises. Amidst this backdrop, effective governance, leadership and management are essential in the pursuit of novel strategies. The escalating demands on healthcare systems highlight the urgency for innovative approaches that not only address immediate challenges but also fortify the resilience of healthcare organisations. This study explores the internal innovation ecosystem within a tertiary hospital as a strategic avenue to inform governance, leadership, and management initiatives, offering timely insights to inform key decisions and reroute resources.

Methods: This study employed a mixed-methods approach, combining qualitative interviews with quantitative data analysis of innovation adoption patterns. It was conducted in three sequential phases over a three-month period:

- Phase 1: Commencing with a survey directed at hospital leaders and department heads, this phase sought overarching perspectives on innovation, governance, and leadership. Questions probed current strategies, perceived challenges, and aspirations, thus providing a foundational understanding for subsequent inquiries.
- Phase 2: The second phase involved a targeted survey among selected physicians and nurses, exploring frontline perspectives on internal innovation. Focus groups were then conducted to delve deeper into qualitative aspects identified in the survey.
- Phase 3: The final phase broadened the study's reach with an open survey to all hospital staff, capturing diverse viewpoints. This approach facilitated a holistic examination of the internal innovation landscape, ensuring varied roles and departments were represented.

Results: Over 120 different survey inputs were collected throughout the study. Preliminary findings reveal a complex internal innovation ecosystem, driven by committed leadership, multidisciplinary collaboration, and a culture of continuous improvement. However, challenges like siloed information flow and resource disparities were identified. Notably, divergences emerged between medical and surgical departments, revealing unique dynamics influencing innovation, preferences, and vision for it. Differences among job roles, spanning clinicians to support staff, further highlighted varied perspectives within the organisation. Likewise, seniority and responsibility within the institution seems to have an effect on long-term vision and the perception of the relevance that innovation might play in their fields. Understanding these nuances is crucial, as it allows for targeted strategies. Variances between departments and roles emphasise the need for tailored approaches in innovation diffusion and management practices.

Discussion: The study's findings highlight the need for an adaptive approach to healthcare innovation management. Recognising the divergences between healthcare areas and departments, as well as among varied job roles is pivotal for designing tailored strategies. Addressing challenges in information flow and resource distribution is essential for fostering a more cohesive innovation ecosystem. By acknowledging these insights, we believe it is possible to embrace a cultural transformation among healthcare professionals. This study offers actionable recommendations to enhance internal innovation and fortify related decisions. Future studies will investigate the replicability of this strategy in other healthcare organisations and contexts.

Hospitals vertically integrating with primary medical care practices: rationales and outcomes

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Context: In many health care systems, primary medical care is organisationally separate from hospital and other secondary care. But in places, including Denmark, Spain and the UK, there have been moves towards a form of 'vertical integration', where hospitals take responsibility for running primary medical care locally. The objectives of our study in this under-researched area were to determine the rationale for hospitals to run primary medical care practices (vertical integration) and the impact on patients' use of hospital services and patient experience. The setting is the National Health Service (NHS) in England but the results are of international relevance.

Methods: A mixed methods evaluation, combining statistical and qualitative analyses and including patient and public involvement, and local and national stakeholder workshops to test and validate findings. The quantitative research comprised: a review of evidence on where vertical integration has occurred; analysis of national survey data on patient experience; and analysis of national data on hospital activity preceding and following vertical integration, comparing integrated with control practices. Qualitative research comprised: document review; meeting observation; and two rounds of interviews with staff and patients at case study sites (three case studies in each round; n=52 staff in the first round and n=22 staff and 14 patients in the second round) to explore the rationale and implementation of vertical integration and its effect on patient experience.

Results: The main rationale of this type of vertical integration was to sustain primary medical care delivery in the face of difficulties recruiting and retaining staff. Vertical integration offered an opportunity for innovative, better integrated care and management of demand for hospital services. On average, vertically integrated practices had fewer patients and worse Quality and Outcomes Framework performance than other practices. Following vertical integration there was no step change in most aspects of patient experience of primary care but continuity of care worsened. Focus groups and interviews with staff and patients showed that, with vertical integration, health service improvements are introduced following a period of cultural interchange. Vertical integration was associated with modest reductions in rates of accident and emergency department attendances; hospital outpatient attendances; emergency inpatient admissions and readmissions. We found no impact on length of stay, overall inpatient admissions or inpatient admissions for ambulatory care sensitive conditions.

Discussion: We found that primary care practices being run by hospitals and other providers of secondary care are not typical of primary care practices generally. Occurrences of vertical integration of this type started in the NHS in England in 2015 and have increased, slowly, each year since but currently represent little more than 1% of all primary care practices nationally. Where it was implemented, not only did primary care practices remain open, but vertical integration of this type also led to modest reductions in use of hospital services, while having minor or no impact on patient experience of care. Given the non-typical nature of the locations where it has so far occurred, our analysis does not reveal a case for widespread roll-out of this kind of vertical integration between hospitals and primary care practices.

Measurement of work-life balance: a scoping review with a focus on the health sector

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Background: There is an agreement on the importance of measuring work-life balance, especially after the COVID-19 pandemic. However, the available tools to do so are not sufficient to address all dimensions, contexts, and professions.

Aim: The article reviews existing instruments that have been widely utilised to tap into the breadth and depth of work-life balance.

Evaluation: This is a perspective scoping review guided by PRISMA-ScR guidelines. Articles reporting on the measurement of work-life balance were reviewed. The authors performed the review based on agreed-upon search terms, inclusion and exclusion criteria, search databases, and the data extraction process.

Key issues: The existing tools appear to have divergent underpinning theoretical models, factors, structural/psychometric properties, and the number of accumulated citations. The existing tools also varied in terms of their target sector, with limited tools available for the analysis of work-life balance among healthcare professionals. We argue that while the existing tools provide a general base for the work-life balance measurement, it would be imperative to adjust those tools to the specific cultural and professional contexts. Future work-life balance measures should consider the changes imposed by atypical or disruptive events that have the potential to alter work-life balance, such as in the case of the COVID-19 pandemic. The onus is on researchers and policymakers to work collaboratively in each context to adapt, implement, and evaluate those tools as they become integrated into the matrix of labour market assessments in the future.

Conclusions: The article highlighted current gaps and improvement opportunities in the work-life balance measurement field.

Implications for healthcare and nursing management: The maintenance of work-life balance will remain an issue for years to come. Ensuring comprehensive and context-specific measurements would be essential to guide the evidence-based recommendations necessary to support the workforce across the various sectors of the economy in the future.

Effective patient engagement using online platform

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At the end of 2020, the Estonian Health Insurance Fund announced a competition for projects accelerating user-friendly remote services. The North Estonia Medical Centre project focussed on the better engagement of and support for cancer patients "*OnKontakt - cancer patient e-support*". All patients undergoing cancer treatment experience at least one side-effect of the treatment. In majority of cases, these effects can be alleviated with home remedies, but the symptoms' exacerbation can lead to emergency hospitalisation or even death of the patient (North Estonia Medical Centre, 2021).

The new remote service model *OnKontakt*, which used the *Kaiku* platform, enabled online reporting of side effects directly to the cancer centre at any time by completing a structured symptom questionnaire on the platform. The aim of the study was to investigate the quality of the remote service and its impact on the patient's health outcome, the user comfort of the applied technology, the impact on the organisation implementing the service, the impact of remote service on society and the economic impact of remote service.

Based on the answers to the questionnaire, the artificial intelligence automatically gave first feedback to the patient, which included: 1) evidence-based instructions for independent side effect mitigation; 2) if necessary, a recommendation to contact a healthcare professional or go directly to the ER; 3) prepared the patient for possible future events and for monitoring them; 4) gave the patient an overview of a usual pattern of symptom development compared to other patients receiving similar treatment. During the project it was common to use a chat window that both patients and nurses found to be a safe channel to communicate.

During the period 01.04.2022 - 30.06.2023, an intervention study was conducted with a control group. Randomised intervention and control groups were recruited with a total of 177 breast and colon cancer patients. In the study, the patients' quality of life and satisfaction with the service were evaluated. In addition, the remote service processes were compared between the intervention and the control group. MOMENTUM questionnaire and the subsequent workshop to discuss the results were conducted three times. Questionnaires, health records statistics and correlation analysis were used to analyse the results.

1. Patients and staff highly appreciated the usability of Kaiku's system, and at the end of the study, 77% of patients answered that the IT solution helped them cope independently with treatment-related ailments.
2. The results revealed that although there were no significant changes in quality of life in either group at the beginning and end of the study, in the third month the quality of life of the control group decreased compared to the intervention group.
3. Patients in the intervention group answered symptom questionnaires 1,739 times during the first six months of their stay at the service. Based on the answers given in the symptom questionnaire, it was possible to determine and document the severity of the side effect in a total of 22,436 cases.
4. With conventional treatment, patients get themselves to report side effects through different channels. Documented information is not structured and is fragmented. This in turn leads to strong barriers to secondary data use.

Onkontakt fulfilled all the MOMENTUM 18 critical success criteria. Due to the short duration of the project, it was not possible to demonstrate the difference in economic impact.

The SHIFT-SHARE framework: transforming tomorrow's healthcare workforce through strategic task shifting and sharing

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In response to the global workforce crisis, projected to reach up to 18 million providers by 2035, task shifting and task sharing (TS/S) are emerging as efficient strategies to optimise existing human resources in healthcare and ensure that services remain accessible and cost-effective. TS/S redistribute services from providers with higher skills-base to providers typically with fewer qualifications through organised competency-based skilling. Results from our global bibliographic analysis, spanning from 1970s to the present, affirms the significance of TS/S in healthcare and underscores its enduring relevance across contexts with varying income levels and disease conditions, including HIV care, mental health services, tuberculosis management and many more. A subsequent scoping review (Das et al, 2023) demonstrated the adaptability of TS/S during the COVID-19 pandemic and how it assisted in bridging acute service gaps globally. The WHO's "Global recommendations and guidelines" on task shifting (WHO, 2008) recommended that countries establish regulatory and implementation frameworks to expand TS/S in addressing public health issues. Despite this advice, implementation-focused frameworks for TS/S are lacking.

Implementation frameworks can offer conceptual roadmaps to administer change and navigate the complex processes of services delivery. We present our approach to constructing a new implementation framework for TS/S and the research being undertaken to evaluate its validity, applicability and real-world utility. Named as the 'Strategic Healthcare Implementation Framework for Task Shifting, Sharing and Resource Enhancement' or the SHIFT-SHARE model, it has been conceptualised to offer stepwise guidance on how to operationalise TS/S. The model has six cyclical phases, namely 1) 'Environmental scanning', 2) 'Priming', 3) 'Risk signal', 4) 'Capacity building', 5) 'Monitoring and evaluation', and 6) 'Maintenance and diffusion'. Clinical safety, patient-centredness, ethical considerations and stakeholder feedback underpin each stage of our framework. SHIFT-SHARE serves as a template to design and execute TS/S-based care. It can help appraise system and workforce organisations, enablers and hinderers, stakeholder perspectives, local contexts and determinants. It can assist in standardising processes, ensure adherence to best practices and can help replicate, scale or even adapt TS/S to specific contexts. It can also aid research by providing foundations to study movement of services between cadres and bring much-needed consistency in the language used to define goals, processes or report outcomes. such that it encourages agreement and collaboration on TS/S, even beyond academia.

These framework attributes make it a strong instrument for enhancing the efficiency, quality and cost-effectiveness of shifting and sharing of healthcare services between different cadres of providers. We invite conference attendees to explore our framework and share their valuable insights, contributing to the ongoing discourse on its application and potential enhancements.

Quality of care after a horizontal merger between two large academic hospitals

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Context: Western healthcare markets are characterised by ongoing merger and acquisition activity, but the influence on the quality of care varies significantly. Data on effects of academic hospital mergers are ill defined. This study aims to assess quality of care effects of an academic hospital merger in the Netherlands, that deploys a comprehensive - and gradual integration approach.

Methods: In this case study, statistical process control and interrupted time series analyses were performed to assess potential changes in quality of care post-merger. The primary outcome measure was all-cause in-hospital mortality or discharge to hospice, and secondary outcome measures were unplanned-30-day-same-hospital-readmissions, length of hospital stay, and patients' hospital rating. The source for these data were the hospitals' electronic health record system, and a combination of two patient experience surveys (Consumer Quality Index and Patient Experience Monitor). All adult, non-psychiatric patients, admitted between the 1 March 2016 and the 1 October 2022 were included for analysis.

Results: The mean (SD) age of the 573 813 included patients was 54.3 (18.9) years. The minority was female (277 817, 48.4%), and most admissions were acute (308 597, 53.8%). No merger related change in mortality was found in the first 20 months after the merger (limited to the pre-Covid-19 era). For this same period, the 30-day readmission incidence changed from an upward slope before the merger to a downward trend post-merger, and the length of stay shortened post-merger (immediate level-change -3.796% (95% CI, -5.776% to -1.816%) and trend-change -0.150% per month (95% CI, -0.307% to 0.007%)). Statistical process control analysis revealed an increase in patients' hospital rating after the merger, though this trend already emerged in the pre-merger period.

Discussion: This quality improvement study revealed that a full- and long-term integration strategy to a Dutch academic hospital merger was not associated with early changes in in-hospital mortality, and yielded slight improved results for secondary quality of care outcomes. A prior similar study found a temporary increase in mortality just after the merger, followed by improvements 2-3 years later. Two main differences between both cases are the merger strategies, and the larger margin for improvement in the latter case. The gradual post-merger integration strategy in the merger case of the present study possibly helped to mitigate the known adverse impact of major organisational change. Furthermore, several studies have documented a negative correlation between concentration of healthcare markets and quality of care. However, this study did not find a trend towards decreased quality, despite an increased market share in the top-care segment from 10-20% to 30-40%.

Exploring the safety culture and second victim experiences of Romanian nurses after adverse events

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Background: Healthcare adverse events (AEs) significantly impact professionals, often leading to emotional distress and lasting effects. Inadequate organisational support exacerbates these effects, necessitating structures like peer support programs. This study investigates the impact of AEs on nurses in Romania. It explores their experiences related to patient safety culture and the psychological impact of AEs. With a limited body of research on patient safety in Romania, this study addresses a crucial gap, highlighting the need for enhanced safety culture and support mechanisms for healthcare professionals, particularly in the context of AEs.

Methods: A cross-sectional study was conducted across 42 counties in Romania, targeting nurses. Using a convenience sample facilitated by the Order of Nurses, Midwives, and Medical Assistants in Romania, an online and onsite survey was disseminated. The survey explored AEs and related experiences. Participants were categorised by department type (medical, surgical, other), and data were collected between April and June 2022. Statistical analysis included chi-square tests, Student's t-tests, one-way ANOVA, and logistic regression, using SPSS version 29.0.

Results: This study surveyed 995 nurses in Romania, primarily aged 31-50 (67.8%). Over half (57.9%) reported near-miss incidents, and 30.8% were aware of serious adverse events. Nurses older than 50 had higher safety culture scores (20.98 vs. 20.45, p=0.024) than younger ones. Surgical departments scored significantly higher on anonymous incident reporting systems (p=0.021). About 12.5% of nurses had informed patients about adverse events, with higher safety culture scores increasing this likelihood (OR=1.1, 95% CI: 1.0-1.2). Common emotional responses to adverse events included guilt (59.2%), anxiety (53.3%), insomnia (53.0%), and tiredness (68.5%), with significant differences across departments. Higher safety culture scores were associated with reduced negative emotional responses. Additionally, 88.9% of nurses showed interest in training for coping with adverse events, highlighting the need for supportive interventions in healthcare settings.

Discussion: This study underscores the significant emotional and professional impact of AEs on nurses in Romania. The high incidence of near-miss incidents and serious AEs underscores ongoing challenges within healthcare environments. The positive perception of safety culture among nurses suggests a foundation for improvement. Training needs for nurses in coping with AEs and patient communication highlight areas for intervention. While providing valuable insights, the study's generalisability is limited due to its focus on nurses and potential biases in the sample. Future research should expand to include other healthcare professionals and address the identified limitations. Overall, this study contributes significantly to understanding the dynamics of patient safety culture in Romania and the necessity of structured support for healthcare professionals facing AEs.

Value-based healthcare implementation in the Netherlands: a quantitative analysis of multidisciplinary team performance

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Context: Many hospitals in The Netherlands have set up Integrated Practice Units (IPUs) or multidisciplinary Value Improvement (VI) teams around medical conditions to improve patient value. These teams are central in realising the transition to people-centred and value-based healthcare (VBHC); measuring and improving (patient reported) outcomes, implementing shared decision making, digital care pathways, value-based payment, and realising a cultural change. However, it remains unclear what the level of VBHC implementation is of these teams and no tools exist to evaluate and stimulate team performance. We therefore studied the performance of multidisciplinary VI teams in Dutch hospitals.

Methods: We developed a questionnaire based on the new strategic agenda for value transformation and real-world experiences with VBHC implementation. The questionnaire consists of 21 questions, mapped to seven domains, i.e. 'multidisciplinary teams', 'measure and improve outcomes', 'costs and reimbursements', 'collaboration and sharing', 'IT and data', 'culture and responsibility', and 'strategy and organisational policy'. Respondents rated their team on a 5-point Likert-type scale for each question. The questionnaire was sent out to members of 25 different VI teams. Median scores were calculated at the level of individual questions and average scores were calculated at the level of domains.

Results: The questionnaire was completed by 140 VI team members. The overall average score is 3.49, see Fig. 1 for average scores per domain. Median scores for all individual questions can be found in Table 1. Among the different domains, the 'culture and responsibility' domain obtained the highest average score (μ=4.11). This suggests that respondents experience a high level of trust among their team members with regard to discussing outcomes, and that they feel jointly responsible for quality of care delivered by their team (Mdn=4). The domain 'measure and improve outcomes' and the domain 'multidisciplinary team' obtained average scores that are slightly higher than the overall average (μ=3.78 and μ=3.76 respectively). For example, within these domains, respondents indicated that their team includes close to all medical and supporting staff that are involved in their care cycle (Mdn=4). The domains 'strategy and organisational policy,' 'collaboration and sharing,' and 'IT and data' obtained scores that are slightly lower than overall average (μ=3.41, μ=3.32, and μ=3.29 respectively). Respondents indicated that outcome data is real-time available, and that there is managerial support to improve outcomes (Mdn=4). The 'costs and reimbursement' domain obtained the lowest average score (μ=2.42) of all domains. This suggests that the implementation of the financial aspects of VBHC is lagging behind within VI teams. For example, respondents indicated that they experienced relatively low financial responsibility and limited ability to steer on cost and revenue streams (Mdn=2).

Discussion: Our results indicate activity in each of the VBHC implementation domains within multidisciplinary VI teams, with some variations between different domains. More attention should be given to the financial aspects of VBHC, including financial responsibility. This is in line with earlier research showing that VBHC implementation in The Netherlands focuses on outcome measurement and improvement and less on cost measurement and value-based payment. Additionally, there is a need for improved collaboration with patients and network partners throughout the care cycle. Future efforts should focus on these aspects in order to accelerate VBHC implementation. The questionnaire is available for IPUs and multidisciplinary teams internationally to evaluate team performance and foster improvements in the transition to people-centred value-based healthcare.

Measuring performance of the health care pathway for Hepatitis C: a population-based analysis on an Italian Region

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Context: Performance evaluation systems (PES) are essential for overseeing care pathways, promoting system accountability, minimising inequities, and enhancing the standard of healthcare. The "stave," a longstanding assessment tool, symbolises outcomes and provides a cohesive view of performance across diverse healthcare settings throughout the patient journey. This study aims to develop a PES for patients affected by the hepatitis C virus (HCV), consisting of four dimensions, namely diagnosis, linkage to care, treatment, and outcome. To the authors' knowledge, this marks the first attempt to create a tool enabling policymakers and clinicians to track patients across the entire regional healthcare journey, from diagnosis to treatment completion.

Methods: The study uses multiple data sources, including administrative healthcare data from the Tuscany Regional Healthcare System and patient-reported measures collected via questionnaires administered during hospital consultations. The indicators belonging to each of the dimensions were selected based on a literature review and adapted from the Technical Report "Monitoring and Evaluation for viral hepatitis B and C: Recommended Indicators and Framework" by the World Health Organization. Evaluation scores are established using international standards from literature or statistical distribution benchmarks. Table 1 summarises all HCV pathway indicators for 2021 and 2022 at both the Regional and Local Health Authority (LHA) levels.

Results: Regarding the dimension of prevention, the rate of screening services for 2022, was 4.2 facilities per 100,000 inhabitants, slightly lower than the previous year (4.5). Around 1.9% of the regional population underwent testing, and the genotyping test rate increased by 21% to 17.3. In the "Linkage to care" dimension, it took 34 days from the confirmed diagnosis to the first drug dispensing. The test prescription percentage by primary healthcare doctors was 76.1%. The time from the confirmatory HCV test to receiving results averaged 3 to 5 days, while the waiting time for a specialist visit after the diagnosis was approximately one month. Regarding accessibility, users found scheduling appointments with specialists easy. Patients also gave positive feedback on consultation with specialists regarding clear information and explanations about treatment, emotional support, helpfulness, and clinician involvement.

Discussion: The proposed PES for the HCV pathway facilitates a comprehensive assessment of each of the four stages, incorporating the patient's perspective by mapping their healthcare journey and integrating patient-reported measures. It serves as a valuable tool for evidence-based decision-making, aiding resource allocation and quality improvement at hospital and health district levels. For instance, it can address issues related to the timeliness and efficacy of linkage to care, ensuring equitable patient access to health services. However, limitations include challenges in data sourcing due to the absence of a patient registry and difficulties in identifying patients with positive screening/confirmatory tests. Computing indicators for the Outcome dimension using Patient-Reported Outcome Measures (PROMs) may also be hindered by a significant "loss to follow-up" population.

Health Technology Assessment of METAglut1™ test for the diagnosis of GLUT1 deficiency within paediatric setting

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Context: Glucose transporter type 1 deficiency syndrome (Glut1DS) is a rare genetic metabolic disorder characterised impaired glucose transport across the blood-brain barrier leading to neurological deficits. The rapid diagnosis is important to prevent Glut1DS complications. The lumbar puncture represents the traditional, yet invasive, diagnostic procedure. Genetic analysis, with long reporting times, further confirms the diagnosis. METAglut1™ is an innovative in vitro diagnostic test, supporting Glut1DS diagnosis, giving a response within 24-72 hours. Despite its strategic and clinical relevance, no consensus exists in the Italian setting with regard its use in the clinical practice.

Methods: A Health Technology Assessment (HTA) analysis was performed, to bring together evidence and other relevant and reliable information for hospital managers to guide good investment decisions, within Glut1DS setting. A narrative literature review was firstly conducted to define both the safety and efficacy parameters, concerning the comparison of the traditional and the innovative diagnostic tools. The patient diagnostic clinical pathways, considering METAglut1™ presence or absence, was economically valorised, and a budget impact analysis was developed to define METAglut1™ economic and financial sustainability. In conclusions, qualitative questionnaires were administered to a selected panel of healthcare professionals to collect their perceptions on the topic. The conduction of the HTA would be capable to answer to the following policy question: "Which are the main benefits related to METAglut1™ for the diagnosis of Glut1DS, considering not only the hospital perspective, but also the clinical benefit for patients and potentially generalisable in the European context?".

Results: Literature revealed that METAglut1™ is related to a higher and prompt Glut1DS detection rate. Despite lumbar puncture may cause headache, back pain or nausea, no impacts on hospital emerged for the management of such adverse events. Within a 12-month time horizon, the traditional diagnostic pathway weighted average cost is 1,539.70€ versus 5,049.23€ with the inclusion of METAglut1™. The budget impact analysis reported emerging costs ranging from 18% to 71%, strictly dependent on METAglut1™ penetration rate. However, in assuming a 7-year time horizon, a return on METAglut1™ initial investment emerged, given the opportunity to modify the patients' pathway, especially for children, having the opportunity to receive an early diagnosis. Healthcare professionals declared that the routinary use of METAglut1™ would optimise the overall patient management. Furthermore, important social benefits emerged, not only regarding an improvement in the patients and family's quality of life, but also in the decrease of productivity loss (-56%).

Discussion: Results revealed the potentialities of METAglut1™ in the improvement of the diagnostic pathway of such rare disease. Despite the need of additional investment that is absorbed in the long run given METAglut1™ capability to modify the patients' pathway thanks to an accurate and prompt diagnosis, a higher clinical benefit emerged with a consequent impact on the social point of view. However, since the presented results grounded on the definition of the standard diagnostic and clinical pathway declared by healthcare professionals involved and based on a Delphi approach, a real-life data collection would be required to make the results more robust and scalable, thus also considering a long-term time-horizon. In this view, the production of real-life information defining the METAglut1™ economic and organisational sustainability would support the development of an adequate reimbursement tariff within the specific Italian setting.

Drug-coated balloon for the treatment of shunt stenosis: preliminary results from an economic and organisational impact assessment

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Context: Maintaining vascular access is a priority for patients with chronic kidney disease (CKD) requiring haemodialysis, since these patients may experience episodes of fistula stenosis. Percutaneous transluminal angioplasty (PTA) represents the gold standard for the management of these occlusions. In the last few years, the support of Drug Coated Balloon (DCB) has emerged as a supplemental approach to PTA, presenting a higher efficacy and similar safety profile. Given a lack of a standardised approach, the study aims at defining the organisational and economic sustainability related to DCB therapy adoption for the management of CKD patients.

Methods: A process mapping technique was implemented, to define the economic resources absorption related to PTA alone or PTA+DCB procedures, considering a 12-month time horizon and assuming the hospital perspective. Patient's pathways (derived from the experiences and clinical pathways referring to Sette Laghi Varese Hospital) were divided into the following stages: pre-surgery activities, patients' admission, surgery, hospitalisation, and follow-up. Hospitalisation, clinical consultations, diagnostic tests and procedures, medical therapies, theatre room costs, equipment, medical devices/materials, and human resources involved in the process were accordingly valorised. Preliminary results here presented included the economic assessment of re-interventions, considering the most updated scientific evidence. Final results will revise this information, according to real-life data. The analysis also comprised the management of procedures-related adverse events. Based on the specific experts' practices, literature information related to the adverse events' occurrence rates were grouped into specific clusters: hematoma, stenosis, infection, thrombosis, and arteriovenous fistula site complication.

Results: Literature indicated an overall trend towards better outcomes in terms of Target Lesion Primary Patency (TLPP) in the PTA+DCB group *versus* PTA group, thus demonstrating the superior effectiveness of DCB for the treatment of dysfunctional arteriovenous dialysis fistulae, assuming a 12 and a 36-month time horizon. Preliminary results reported a total cost per patient of 1,952.96€ for PTA alone and 2,465.36€ for PTA+ DCB procedure. On average, literature revealed 0.85 and 0.54 re-intervention rate with PTA alone and PTA+DCB respectively, with a consequent resources' absorption of 1,654.27€ and 1,348.69€. Focusing on the management of procedure-related adverse events, no economic differences emerged (PTA: 757.82€ *versus* PTA+DCB: 783.24€). The economic assessment revealed the cost-effectiveness nature of PTA+DCB *versus* PTA (Cost-Effectiveness Value = 7,205.78 *versus* 10,011.58), indicating the capability of the PTA+DCB to optimise the overall patients' pathway (total costs: PTA+DCB=4,597.29€ *versus* PTA=4,365.05€) and guarantee a higher efficacy (TLPP: PTA+DCB=63.8% *versus* PTA=43.6%).

Discussion: To appreciate the advantages related to DCB implementation, it is necessary to assess the patients' clinical pathway based on a long-term time horizon, defining the number and typology of re-intervention to maintain the endovascular access, comparing PTA alone with PTA+DCB. As such, to enrich the research findings, a specific real-life data retrieval will be conducted based on administrative flow derived from the management control of Sette Laghi Varese Hospital and referring to hospitalisation, specialist procedures, and emergency department access. In addition to the revision of the economic resource's absorption per patient, a budget impact analysis will be implemented to define DCB implementation economic and financial sustainability, within the Italian clinical practice. These data will be utilised to understand the potential organisational benefits in terms of DCB capability to reduce length of stay and to reduce the theatre room slots, given a decrease in the overall re-intervention rate.

Use of a Geographic Information System (GIS) in the analysis of patients' access to the Permanent Centres of Family Physicians (PCFPs) in Bihor County

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Context: Access to healthcare is a broad and nuanced term that depends on both the people who need services and the healthcare system itself. The dimensions of access were categorised into spatial components and aspatial components. Access to healthcare can also be divided into two categories: potential (based entirely on the characteristics of the services that are offered) and realised (the actual usage data of the services is considered) provision of services. PCFPs are facilities that provide family medicine services such as consultations, administration of injectable treatment, and the treatment of minor medical and surgical emergencies. These services are available outside of regular GP working hours, particularly during nights and public holidays. The PCFP activity prevents the overloading of hospital emergency services by providing an alternative option for patients to receive emergency medical care. Presently, at the national level, we do not find data on the coverage of the population with this type of service (PCFP). The number of permanent centres in a county is not a true indicator, given that for the patient, accessibility is determined directly proportional to the distance from home to the medical unit. This paper explores the geographical dimension of access by calculating the potential access to the PCFP in Bihor County, based on the travel time between the localities of the county and the PCFP.

Methods: A geographic information system (GIS) was developed using QGIS software. The GIS includes several layers, including the county boundary, localities along with their population numbers, and the georeferenced addresses of the 32 PCFPs existing as of 12/31/2023. The ORS Tools plug-in was used to generate 15-minute isochrones with the travel mode characteristics set to drive-car. Using research and vector analysis tools in QGIS, we obtained data on the number of localities and the population living within 15 minutes of the PCFP.

Results: A number of 312 localities (68% of the country's localities) are at most 15 minutes away from a PCFP, which corresponds to 86% of the country's population. From the data analysis for each PCFP, the number of localities less than 15 minutes away is between 6 and 33, and the population corresponding to that distance is between 5988 and 215104 inhabitants. The results are presented in the form of maps.

Discussion: Based on the data analysed and the accessibility values obtained, a good PCFP coverage of the territory of Bihor County is noted. The use of GIS allows the identification of the population with more difficult access, from the perspective of travel time, but also the areas where new PCFPs can be opened for improved access. Further studies are needed on the accessibility achieved on each PCFP. This type of analysis can support health policymakers in ensuring optimal PCFPs coverage.

Perspectives on managing innovation readiness in long-term care: a Q-methodology study

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Background: The scarcity of resources in long-term care demands more than ever that organisations in this sector are prepared for innovation to ensure affordable access to care for older adults. Organisations that are innovation ready are more capable of implementing innovations. Thus, 'innovation readiness' indicates the level of maturity of an organisation to succeed in any type of innovation. Considering the challenges they face, long-term care organisations for older adults might benefit from more knowledge about how to become innovation ready. There is a need to better understand how stakeholders view innovation readiness in the long-term care sector. Our study explored perspectives among stakeholders on what is important for organisations in long-term care for older adults to become innovation ready.

Methods: Q-methodology, a mixed-methods approach, was used to investigate the views of 30 stakeholders connected to long-term care for older adults in the Netherlands: academics, (top)management, innovation managers, client representatives, staff, and consultants. Stakeholders ranked 36 innovation readiness factors, extracted from existing literature and qualitative research, according to the importance for organisations to become innovation ready, explained their ranking and reflected on the statement set (Table 1). By-person factor analysis was used to identify clusters in the ranking data. Together with the qualitative data from follow-up interviews, these clusters were interpreted and described as viewpoints.

Results: Four distinct viewpoints were identified on what is important for innovation readiness in long-term care: 1. 'supportive role of management' 2. 'participation of employees and client system' 3. 'setting the course and creating conditions' and 4. 'structuring decision-making, roles and responsibilities'. No additional innovation factors to those previously identified in the literature emerged from the interviews. In viewpoint 1 stakeholders express that the top of the organisation has to formulate the innovation strategy while simultaneously facilitating the climate to become innovation ready. Central in viewpoint 2 is the belief that participation of the client, the client system and employees in the innovation activities is most important. Viewpoint 3 focuses on organisational factors that are either conditional or supportive in becoming innovation ready. In viewpoint 4 stakeholders specify that, to become innovation ready, an organisation should foremost formulate the innovation ambition and determine innovation themes accordingly.

Conclusions: Although there seems to be consensus on the importance of all 36 innovation readiness factors, there is variety in the perspectives on what is most important to become innovation ready. Stakeholders suggested a temporal order of the innovation readiness factors, preferably starting with formulating the innovation ambition. Research into innovation readiness of healthcare organisations is a rather new field. These study's results could contribute to developing a scan, indicating the organisation's innovation readiness maturity, supporting a structured approach for managers to assess and improve the innovation readiness of their organisation.

Identity and influence: perceptions of role among workplace mentors in healthcare leadership development education

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Context: The context for the study is the aim to improve leadership practice of healthcare workers in the English NHS, who are engaged in a programme of study whilst inhabiting employed roles in the health system. This research looks at how degree apprenticeship mentors see themselves and their roles, and how the education and healthcare delivery environment and wider society affect these perceptions. The focus is to explore how human resources are managed to support the delivery of health services and the added value that leadership brings to that.

Methods: Given the objective of this research was to explore the subjective and identity-influenced personal narratives and lived experiences of mentors, the study was positioned within a constructivist ontological standpoint, acknowledging that the meanings of experiences are subjectively constructed by individuals (Charmaz, 2006). Accordingly, the research adopted an interpretivist epistemological stance, allowing a detailed exploration of the impact of mentors' identities on their experiences. Methods used were semi-structured interviews from a purposive sample across two providers of applied healthcare leadership development interventions; a systematic literature review; and re-analysis of secondary data, which comprised the evaluation of educational inputs that the healthcare leaders received during their programme of study.

Results: Results are emergent as the study remains ongoing. Early results indicate perceptions of a tension between coaching and mentoring of healthcare leadership students, where a workplace mentor will bring insider knowledge, but an academic mentor can challenge institutional thinking and encourage a greater degree of critical analysis and new ways of thinking without the confines of organisational norms. Emerging analysis also suggests that identity work can be positive, affirming, defining or stabilising, but may also be negative as it can be limiting, or something that separates one from others. The purpose of seeking to present this work as a scientific dialogue is to discuss emergent findings, explore themes and ideas and to receive feedback from conference participants.

Discussion: Identity is constructed, deconstructed and reconstructed as we explore and make sense of who we are and who we are in relation to others and the organisations we work with or for (Brown, 2015). It is crucial to factors, within an organisational setting, such as loyalty, commitment, group inter-relations, collaboration and motivation (Sveningsson and Alvesson, 2003). It can be affected by changes in the wider external landscape, such as policy change affecting our work (Henkel, 2005; Ylijoki and Ursin, 2013). Identity may be social (e.g. gender or nationality) or be associated with role (such as mentor, coach or lecturer) or occupation (Duemmler and Caprani, 2017) and they may be self-assigned or assigned by others (Brown, 2015). These identities may be more or less significant depending on the situation an individual may find themselves in, gender for example may not play a role, or a significant in how someone perceived themselves as a leader (Sveningsson and Alvesson, 2003). Furthermore, we tend to take on a different identity at work, which may, at times be incongruent our identity in our personal lives and create tension between the two (Watson, 2008). The extent to which workplace and/ or leadership development educational mentors engage in identity work is vital in developing insights into effective healthcare leadership development interventions. Sharing and testing the results of this study will therefore both be of wider interest and will improve the research itself.

An analysis of political determinants of health system adaptation to climate change in the Eastern Caribbean

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Context: Small Island developing States (SIDS) of the Eastern Caribbean are exceptionally vulnerable to the effects of climate change, in the face of rising temperatures, more intense hurricanes and coastline damage. This disturbing trend is likely to have a devastatingly negative impact on public health. Political decision-making practices in these territories significantly influence public policies and outcomes. The situation is no different in relation to the region's responses to the impacts of climate change. This study will investigate the complex interplay between politics and health system adaptation to climate change, focusing specifically on the context of Caribbean SIDS in an effort to identify patterns, challenges, and successful interventions.

Purpose: The paper aims to explore the role of political frameworks and policies in shaping health system adaptation strategies to climate change in the Eastern Caribbean SIDS. It also sets out to assess the potential influence of resource allocation decisions on implementing climate-resilient healthcare strategies such as improved infrastructure and technology. It will analyse the impact of legislative measures and regulatory frameworks in enhancing the adaptive capacity of health systems. It will further investigate the effectiveness of intersectoral collaboration facilitated by political decisions in building comprehensive and sustainable health adaptation strategies. In addition, it will evaluate the role of political leadership in inducing climate-resilient actions at the population level.

Methodology: This review study will utilise a qualitative analysis of policy documents, legislative texts, and interviews of key stakeholders among three selected countries- Grenada, Saint Lucia, and Barbados – as a representative sample of the Eastern Caribbean. It will also deduce information from Health National Adaption Plans for Climate Change developed in 2022 and 2023.

Expected Outcomes: This research aims to contribute valuable insights into the dynamics of political decision-making to health system adaptation to climate change in Caribbean SIDS. The findings will reveal that the structures, systems, principles, and policies that guide decision-making and governance within the Eastern Caribbean significantly influence health system climate adaptation and resilience strategies in the Eastern Caribbean. While there is evidence of some documented policies and programmes that address resilience within the health sector, it will support the claim that these policies and programmes need to be more cohesive and coherent, formally adopted, and supported by implementation and monitoring plans to make them more effective. The research will also indicate that there is a general lack of evidence of effective implementation of established policies and programmes, where health adaptation plans need to be better centralised and coordinated between all Ministry of Health (MOH) units. In addition, in examining the cross-sectional coordination effort, island states' health systems will exhibit a lack of a well-articulated multi-sectoral approach to health adaptation planning.

Value: There needs to be more literature on the political dynamics impacting health decision-making in shaping health systems, ultimately supporting the development of contextually relevant and effective healthcare policies. The paper will lend compelling support to how political decisions in the Caribbean SIDS play a crucial role in determining the resilience of their health systems in the face of climate change. It will provide directions to policymakers, senior government officials and the political directorate as a gateway to a transformative resilience agenda.

Care pathways for lung cancer: building a foundation for optimal care

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Context: The Lung Cancer Policy Network, a global multi-stakeholder initiative of experts in lung cancer, has developed a comprehensive report exploring the essential role care pathways play in delivering best-practice lung cancer care. Despite evidence showing high-quality care pathways can improve survival and outcomes, only a small number of countries and regions have established formal care pathways for lung cancer. Widespread adoption of care pathways is needed to improve treatment and outcomes for lung cancer, which is the leading cause of cancer-related deaths worldwide and predicted to account for over 15% of the total cost of cancer care between 2020-50.

Methods: The report was informed by a review of existing peer-reviewed and grey literature, interviews with nine experts across four continents, alongside insights from members of the Lung Cancer Policy Network. The report also incorporates practical case studies from Australia, Brazil, Canada, Japan, Norway, the Netherlands, Spain, the UK and the US. The report recommends ten key actions to support health system leaders and decision-makers to deliver high-quality lung cancer care through the implementation of effective, consensus-driven care pathways within health systems. Such care pathways have the potential to relieve some of the substantial global burden and poor outcomes of lung cancer, mitigate the current inequalities in access to high-quality lung cancer care, and increase earlier detection. Optimal care pathways also present the opportunity to ensure effective integration of diagnostic and treatment advances.

Results: This report sets out tangible actions to support the development of care pathways in the context of changing approaches to lung cancer care, and the needs of individual health systems and countries/regions. These recommendations include opportunities across the care pathway, such as: ensuring multidisciplinary care throughout the pathway; performing continuous monitoring and evaluation of care pathways; determining clear, time-defined targets for different stages of lung cancer care; and implementing evidence-based digital technologies that can assist systematic information management and sharing. Recommendations are also made for specific stages of the care pathway for lung cancer. These include the integration of low-dose computed tomography screening programmes (alongside smoking cessation support and pulmonary nodule evaluation protocols), introducing comprehensive prehabilitation and rehabilitation programmes, ensuring high-quality end-of-life care is an integral part of the pathway, and readily incorporating new biomarkers and targeted treatments into care pathways for lung cancer.

Discussion: The value of care pathways has not yet been universally acknowledged. This report aims to address this, drawing on real-world evidence in the context of lung cancer. Lung cancer care is multidisciplinary and complex, with many barriers to delivering equitable care. Effective care pathways (regularly updated to reflect best practice) can help deliver a holistic and high-quality experience for all people with lung cancer, driving improvements in outcomes and optimising use of infrastructure and resources. Additionally, care pathways could lessen the substantial social and economic burden of lung cancer on health systems. To effectively realise this opportunity, policymakers must assess and identify how to improve current practice, develop care pathways where they do not exist, and optimise these pathways accordingly. This report presents, to our knowledge, the first series of recommendations made to support implementation of high-quality care pathways for lung cancer around the world.

On intrinsic-extrinsic tensions of meaning in routines in primary healthcare

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The role of organisational routines, defined as "*repetitive, recognisable patterns of interdependent actions, carried out by multiple actors*" (Feldman & Pentland, 2003:95), in primary healthcare cannot be underestimated in that they are shown to not only uphold stability and continuity at work but also foster patient and workplace safety (Rytterström et al., 2011; Johansson et al., 2019). Routines constitute mindful and effortful accomplishments (Pentland & Rueter, 1994), which healthcare practitioners, such as doctors and nurses, must constantly enact while finding some sense of meaningfulness, or at least relevance, to do so. If practitioners find routines meaningless, there is a high risk that they will not be maintained, which can have clear negative consequences. Despite the criticality of routines for healthcare practice, the intricate relationship between meaningfulness and routines is shrouded in darkness, which is what motivates this research. More specifically, in this paper, we delve into the intrinsic-extrinsic tensions of perceived meaning in routines, considering both routine process and outcome. Theoretically, we build on the well-established foundations of organisational routines (e.g., Pentland & Rueter 1994; Feldman, 2000; 2016; Feldman & Pentland, 2003) in combination with the conceptual distinction between internal and external drives or motives (Morris et al., 2022). Empirically, the paper is qualitative in nature and based on 25 semi-structured interviews conducted with three occupational groups in three primary healthcare units in the same region in northern Sweden. The collected material has been analysed inductively using the notion of intrinsic-extrinsic tensions as sensitising concept (Bowen, 2006). The paper illustrates that primary health workers often struggle with tensions of meaning when narrating their experiences of organisational routines. While a routine can be intrinsically perceived as meaningless, the same routine can be perceived as extrinsically meaningful. We argue that this tension is triggered by a misalignment between the idea of the routine and its intended outcome, on the one hand, and the actual routine performance, on the other hand. While the routine performance is intended to contribute to achieving the routine outcome and maintain the overall routine pattern, the latter do not directly materialise in a way that reminds routine participants of the meaning behind their performances. Even if routine actions usually follow a meaningful order (Feldman et al., 2016), routine actions per se may not be perceived as meaningful. Our findings further show that practitioners do not always keep track of the routine pattern and outcome when performing routine actions, which may lead to perceiving the routine performance as meaningless. Our paper contributes to the literature on routine dynamics by identifying intrinsic-extrinsic tensions of meaning in routines which may jeopardise routine maintenance. This study has practical implications for the design of routines (Pentland & Feldman, 2008) that not only are efficient and effective but also bring intrinsic and extrinsic meaning to the work of healthcare practitioners.

How to implement multichannel interactions in healthcare? Lessons learnt from the experience of the rheumatology unit of Niguarda Hospital in Italy

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Background: In recent decades, healthcare has undergone transformative shifts with the adoption of digital innovations, spanning the transition from paper-based records to electronic health records (EMRs and EHRs), widespread telemedicine adoption, and the recent incorporation of AI-based tools and decision support systems. These technologies harbour the potential to revolutionise healthcare delivery. Despite increasing attention, recent research indicates persistently low implementation rates, often stemming from a lack of comprehension in planning, managing, and reinforcing changes when introducing new services. This study examines the successful implementation of telehealth services at the Rheumatology Unit of Niguarda Hospital in Milan, Italy. Serving as an exemplary case study, the unit's decade-long exploration of telehealth and multi-channel patient interactions culminated in a comprehensive telehealth initiative during the COVID-19 pandemic. This research seeks to extract valuable insights and managerial practices from this experience.

Objectives: This study aimed to illuminate the lessons learned from this implementation experience, identify the distinctive and successful elements, and derive managerial implications for future implementations.

Methods: We employed a realist evaluation approach to discern what worked, for whom, under what circumstances, and the underlying mechanisms that explain how outcomes were achieved and influenced by the context. We conducted eight semi-structured interviews with the unit director and staff members involved in different phases of the project, including clinicians, nurses, and administrative staff. These interviews were recorded and analysed using a customised framework for the analysis of change management practices (Kho, 2020), which identifies ten change steps divided into thirteen strategic practices and six operational practices that are vital during the preparatory, management, and reinforcement phases of change.

Results: Our study revealed the most significant actions taken by the rheumatology unit during the three major stages of change preparation, change management, and change reinforcement. Key strategic practices included establishing a plan, identifying champions, engaging with partners, and developing and articulating a clear vision during the preparatory phase. During the change management phase, critical practices involved communicating changes, gaining stakeholder trust and acceptance, and promoting ownership of the service through daily emails. Continuing to engage partners and stakeholders was crucial during the reinforcement phase. The study unveiled several key findings: a conducive context and a robust managerial structure were prerequisites for success. Clear leadership, specialised roles, team involvement, and regular communication were essential generative mechanisms. Involving end-users in defining the care pathway was pivotal, with patients making the final decisions on service usage. Engaging relevant stakeholders from the app's co-design phase was also critical. Lastly, adopting an incremental approach to change, introducing one change at a time, led to continuous improvement.

Discussion: The findings provide valuable insights telehealth implementation. The framework used can serve as a tool for retrospective analysis of past experiences and as a guide for future implementations and research. The lessons learned can inform the implementation of future telehealth initiatives, ultimately advancing the field of telehealth and enhancing healthcare delivery.

Managerial training in healthcare: a longitudinal analysis on Italian NHS professionals

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Context: Changes in organisational models and processes occurring in healthcare sector over the last 30 years have required healthcare professionals to assume innovative managerial competencies. Analysing a small group of healthcare professionals, this paper investigates the impact of managerial training on the development and implementation of competencies of current and future managers in Italian healthcare.

Methods: We collected data and conducted a longitudinal analysis on three different moments within a training camp, using a structured questionnaire based on Spencer and Spencer's (1995) competency model. In September 2023, we conducted a research involving 36 participants, reduced to 12 for the final analysis. Based on six competence categories, the questionnaire was administered in three time steps between September and October 2023.

Results: From our results it appears that managerial training differentially influences participants' confidence in their competencies, providing crucial indications for better projecting and training in healthcare. Besides that, the individual analysis reveals that each participant reacts differently to the training, thus underlining the importance of customised programs. Hence, positive correlations between competencies suggest the need to project healthcare training programs following a holistic approach. Finally, our results can be used to inform policymakers and institutions about how to better organise the training paths in healthcare and how to use the available resources to make future healthcare managers ready for the incoming challenges.

Discussion: The study explores the impact of management training on perceptions of competencies in a sample of healthcare professionals working in healthcare organisations. In general, it finds that training influences the development of competencies and also creates a dependency between competencies as a result. In particular, the study emphasises the need for a personalised approach to training, adapting it to the initial competencies and learning style of each individual. Positive correlations indicate that a holistic approach may be more effective. The lack of significant results in some models suggests the importance of considering additional factors. Visual representations of the data are tools for communicating with stakeholders, highlighting effectiveness and areas for improvement. Limitations are discussed, and they represent future directions for the development of the study.

Professional relationships in the context of community health centres: a systematic review

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Context: Interpersonal relationships among professionals in a Community Health Center (CHC) are a key pillar in order to deliver high-quality services and to respond patients' needs and expectations. For this reason, it becomes very important to monitor the relationships among health workers and how behaviors, practices and routines are implemented within the CHC. Despite the relevance of the topic, there have been few studies that have specifically examined the critical issues in the relationships that are created between professionals within CHC.

Methods: To fill this gap, we conducted a Systematic literature review to identify the types of interactions that currently exist among workers and the degree of knowledge on this topic. Adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Checklist guided our approach. To structure our investigation effectively, we adopted the Population, Intervention, Comparison, and Outcome (PICO) framework, a well-recognised methodology for formulating review questions. The central query guiding our exploration was: "What types of interactions, relationships, and social networks are observed among healthcare workers within community health centers?". For this systematic review, we searched in three databases: (1) PubMed, (2) Scopus, and (3) Web of Science. The search spanned from October 2023 to December 2023.

Results: Identified articles were input into the Rayyan software (https://www.rayyan.ai/), and a multi-phase screening process was applied. For all studies the present authors independently agreed which papers met the inclusion criteria. Where discrepancies emerged (n = 8 papers) the inclusion/exclusion of these studies was discussed together. For each eligible article, we extracted relevant information, including the first author, journal of publication, year of publication, and typology of interactions.

Based on our results we analysed least 6 different literature streams: Internal interactions between professionals, Interactions between professionals and internal administration, Interactions between professionals inside and outside the Community Health Centres, Relationship between professionals and patients, Increased communication as a result of reorganisational processes and Relationship between work environment and mental health of professionals.

Discussion: Our systematic review confirmed that the topic of the relationship in the context of CHC is still largely unexplored. Despite relations among employees are the core of every organisation, public or private, it seems that their nature and their characteristics of required further development. In addition, since today many organisations, and thus many professionals, works together to offer integrated care, we decided to distinguish between interorganisational relationships, i.e. those created and maintained inside community health center, and interorganisational relationships, developed between individuals working in CHC and other healthcare organisations.

By revising the conceptual underpinnings, key findings, and themes within each stream, this review aims to serve as a foundation for future research that capitalises on, and programmatically builds upon, the insights of prior work. Our final contribution is to advance an agenda for future research that leverages the confluent ideas at the intersection of leadership in and as networks.

Learning from a global review of health system resilience

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Context: The analysis of health system resilience has never been more important with the increasing frequency and severity of shocks to health systems. The forthcoming Elgar Handbook for Health System Resilience has been prepared to showcase the range of cutting-edge research from across the world and bring new insights and learning from different crises and contexts.

Methods: This presentation highlights the summary themes and conclusions from the twenty nine chapters of the Elgar Handbook. These cover theory, frameworks and different perspectives on health system resilience, as well as health system functions, learning from different shocks (economic, climate, conflict, and COVID-19) and preparing for the future. The key themes were presented and workshopped in Dublin, October 2023, by authors from each chapter and developed by the named authors.

Results: Health system resilience is a potent and useful concept which has shown a versatility and appeal across a range of health system crises. Nevertheless, it still needs to gain maturity with key challenges around understanding and measurement and the incorporation of power and equity in very different contexts. Furthermore, there is important mutual learning from the complex adaptive system research focus in Low and Middle Income Countries and the functional, economic approach in High Income Countries.

The Handbook highlights the nested nature of health system resilience and the importance of "response resilience" which evaluates how health systems cope with poor senior level decision-making to a shock. In particular, key strategies for handling austerity are outlined. The authors also emphasise the importance of understanding and managing the interplay of shocks and of protecting disadvantaged groups throughout. The chapter also highlights innovative research methods (system dynamic modelling, realist reviews and scenario-based stress testing) which yield rich understanding.

Discussion: There is an exciting future for health system resilience research, to continue exploring issues around definitions, contextual influences, the value of data, the dynamic nature of crises and their effects, and the tension and complementarity between top-down and bottom-up approaches to building required capacity. This will be vital to inform strategies to meet the challenge of existing and future crises and to ensure better health system performance and wellbeing of populations.

Mapping competency in public health training – experience of the Europubhealth consortium

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Context: Public health education aims to produce a competent workforce. The WHO-ASPHER framework proposes a set of relevant public health competencies organised in 10 sections (e.g. science practice, leadership, law, policies and ethics, etc.). The competency approach can be used for identifying gaps in the workforce, for designing job descriptions and more generally for supporting resource management. The competency approach may also guide the development of education and training programmes. As part of the Europubhealth (EPH) consortium, eight universities collaborate for the delivery of a 2-year international public health master course. The training pathway includes a first "foundation" year, with a choice of four options (components), and a second "specialisation" year with a choice of seven components. In 2020, EPH consortium decided to use the WHO-ASPHER framework in order to map the competencies addressed and the level of proficiency targeted by each component of its master's course.

Methods: A survey using an adapted version of the WHO-ASPHER framework was carried out among EPH consortium members. An 84-item questionnaire covering the whole WHO-ASPHER framework was sent to the 11 EPH component coordinators, asking them to rate the proficiency levels targeted at the end of their courses. Answers from each coordinator were summarised by calculating mean proficiency levels for each of the 10 competency sections. We used Bland & Altman plots to explore heterogeneity of answers and then calculated transformed scores to account for rating heterogeneity. We use tabulation and a heat map to explore patterns of proficiency levels across components.

Results: There were differences in overall proficiency levels between years with, as expected, higher scores in year two. Year one components reached medium to high proficiency scores for the sections "science practice", "health promotion" and "communication" with scores ranging from 2.6 to 3 (on a 1-low to 4-high scale). When compared with year one on a heat-map, year two components displayed more contrasted profiles, typically aiming for high proficiency level (i.e. scores above 3.5) on 3 out of the 10 sections of competencies. Except for the "collaborations and partnership" section, the training pathways offered by the EPH master course seem to offer opportunities for a high proficiency level in all domains of competencies.

Discussion: Despite the fact that cultural differences and individual subjectivity were likely to influence responses, the mapping proved a useful exercise to identify strengths and complementarities among the EPH consortium. The results suggest that the EPH master course is coherent and offers students opportunities to gain proficiency in most competencies relevant to public health practice. Applying a similar or adapted approach to evaluate the proficiency levels achieved by students at the end of their training appears as a logical next step.

A vertically integrated care pathway for dermatology patients: measuring outcomes against the quadruple aim framework

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Context: Global healthcare spending doubled from 2000 to 2019. To curb costs, improving care cost-effectiveness is crucial. Resource wastage occurs due to overlapping work between primary and secondary care, causing potentially delays and dissatisfaction. Evidence suggests vertically integrated care models enhance satisfaction, quality, and access. Professional satisfaction is often overlooked. Numerous studies explore healthcare integration, but few measures clinical outcomes, patient-reported outcomes, professional satisfaction, and costs forming the Quadruple aim simultaneously. This study aims to assess the potential benefits of integrating specialised expertise at the primary level to accomplish the goals defined in the Quadruple Aim framework.

Methods: This is an intervention study with a quasi-experimental research design. The study population (n=350) consists of patients with skin lesions in primary care. Patients in two centres form the intervention group for integrated care pathways, where the patient meets a specialist in dermatology already at primary care. Patients in a third health centre constitute the control group which follows the standard care pathway. The material was collected in 2021-22. Research parameters include diagnosis delay, delay in treatment initiation, malignant diagnosis/visits, malignancies/pathological samples taken, patient-reported outcomes (Promis10, Patient Enablement Instrument), satisfaction (NPS), professional satisfaction, and costs across the care pathway. The data is collected on patient records, financial system and patient and professional surveys. Linear regression is used to determine whether there is a statistically significant difference in the outcome variables between the groups. Case-mix adjustment is performed on the dataset. Statistical analysis is carried out using the R software.

Results: The preliminary results show that the delay in starting the treatment is significantly lower in the intervention group (30 vs 66 days, p=0,001). The number of contacts to the health care personnel until the diagnosis is significantly less in the intervention group (3,5 vs. 4,4, p<0,001). The work force resource usage per patient episode is less indicating lower cost for the commissioner. There are less biopsies taken in the intervention group, but the incidence of pre-malignant or malignant findings in pathoanatomical diagnosis (PAD) is three times higher than that in the control group. The intervention group shows higher Patient Reported Outcome grades measured by Patient Enablement Instrument, compared to the control group.

Discussion: The preliminary results of the trial are promising: the delays until the diagnosis and treatment start are shorter in the intervention. There is evidence that a specialist in the front line reduces the number of patients needed to treat (NNT) or excise (NNE) to find at least the most severe skin disease melanoma. In our study we showed that there were less resources spent per patient episode when a dermatologist worked in primary care. The accuracy of the biopsy was higher in the intervention group. The total cost per pre-malign or malign diagnosis and the cost per treated patient is to be calculated during the spring 2024. Patients seem to be more satisfied. Professional satisfaction survey will be reported later this spring. Based on the data analysed, the specialist in primary care model seems promising for skin change patients and probable financially profitable for the commissioner.

Collaborative governance for population health: best practices of a local initiative to reduce health inequalities

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Context: Reducing health inequality remains an important priority for healthcare institutions, researchers, and governments alike[1]. Quintuple Aim, a successor of Triple Aim, is an increasingly popular healthcare approach focuses on reducing health inequalities. Although the importance of leadership and an effective multi-stakeholder governance structure is often emphasised in the Quintuple Aim[2], little attention is paid to what the governance structure should look like specifically[3]. The aim of this study is to gain more insight into how the multi-stakeholder governance of a local network contributes to Quintuple Aim interventions. In particular, we will focus on which structural characteristics of collaborative governance facilitate or hamper the initiative.

Methods: We analyse the illustrative case of Healthy and Happy The Hague (HHTH), a collaborative network of stakeholders in the third largest city of the Netherlands. The aim of HHTH is to increase the health and well-being of residents in The Hague and decrease the health inequalities between different neighbourhoods. HHTH does this by implementing the Quintuple Aim. Data collection consisted of three elements: first, retrospectively, semi-structured interviews with eight participants of the network were conducted. In addition, we collected 55 hours of ethnographic observations of re-occurring meetings as well as over 60 policy documents. A deductive analysis method was used to test whether the existing theory is valid within the case study of HHTH. The analysis focused on the formal and informal characteristics of the collaborative governance network.

Results: The results demonstrate the importance of multi-stakeholder governance when implementing Quintuple Aim to reduce health inequalities. Specifically, both formal and informal governance characteristics are observed within the illustrative case study. The most important formal governance characteristics are multilevel collaboration, context-governance fit and adequate resources. The most important informal governance characteristics are incentives and commitment to collaborate, personal leadership, communication and knowledge acquisition. The multidisciplinary nature of the stakeholder group, including citizens, is of added value for the network. The citizens are of added value as stakeholders working on the challenges of the network, as well as contributing to the knowledge of the network[4]. Multidisciplinarity however, comes with its own challenges: due to the different backgrounds of the stakeholders, they should get to know each other's jargon in order to improve the communication. Also, we highlight the importance of leadership behaviour in networks.

Discussion: This article is among the first to illustrate the potential of combining Quintuple Aim and collaborative governance to identify governance characteristics that facilitate a local health network and its goals[5-9]. We conclude with three points of interest for policy makers of health networks. First, discuss the formalisation of the network at an early stage and choose a governance form that fits the context. Second, ensure flexibility of the network in terms of the themes that are worked on. Finally, find a balance between being an inclusive network that welcomes all potential stakeholders, and optimising the network's efficiency which implies a certain threshold regarding the number of stakeholders involved. Generally speaking, these types of collaborative networks aiming to reduce health inequalities are a continuous learning processes.

Quality improvement in Dutch nursing home care: results of a nationwide government-funded support programme

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Context: Throughout Europe, societal developments are challenging the ability of nursing homes to meet quality standards. To support nursing homes in quality improvement, the Dutch government launched a nationwide programme in 2018 entitled 'Dignity and pride on every location' (DOL). The main goal of the DOL programme was to contribute to 'sufficient time, attention and high quality care for nursing home residents'. In the programme, nursing home locations followed a tailored trajectory centred around intensive, on-site support from external expert coaches. Furthermore, targeted information on quality care was provided through the programme website, newsletters, theme-specific meetings and an annual conference.

Methods: In our study, we evaluated to what extent quality improvements were realised in the DOL-programme. Quality improvement was evaluated based on the the Dutch national Quality Framework for Nursing Home Care. This framework describes good quality care in eight themes ('person-centred care', 'living and well-being', 'resident safety', 'learning and improving quality', 'leadership, governance and management', 'responsive work force', 'use of resources', and 'use of information'). Quality of care at the start versus the end of the programme was quantified using a validated scan. This scan is based on a self-evaluation questionnaire distributed among staff, residents, relatives, volunteers and managers, followed by careful reflection guided by an independent scanner. In the scan report, scores are assigned to all eight themes, ranging from 1 ('inadequate') to 5 ('excellent'). In addition to the quantitative results, as a part of the self-evaluation questionnaire, respondents were asked to reflect on their satisfaction with the DOL-programme.

Results: Information on quality of care at the start versus the end of the programme was available for 272 nursing home locations. On average, significant quality improvements were achieved in all eight themes of the Quality Framework, with the themes of 'person-centred care' (from 2.9 to 3.6, p=<0.0001), 'resident safety' (from 2.8 to 3.6, p=<0.0001) and 'learning and improving quality' (from 2.3 to 3.1, p=<0.0001) showing the greatest increase. End scans showed a clear shift from scores 1 ('inadequate') and 2 ('poor') to scores 3 ('acceptable') and 4 ('good'). However, on all themes except 'person-centred care' and 'resident safety', around half of the locations still did not show scores of 4 ('good') or 5 ('excellent'). Fifty-two percent of the participating locations were satisfied and thirty-five percent very satisfied with participating in the DOL-programme. The systematic approach of the programme and the intensive coach support were regarded as important advantages.

Discussion: In line with the main goal of the DOL-programme, significant quality improvements were shown in all quality themes, including 'person-centred care' and 'resident safety'. Progress was more limited in the theme of 'living and well-being', which can be explained by the Corona epidemic: due to absenteeism and illness of staff, less attention could be given to a meaningful daily routine and volunteers and relatives were not allowed to visit. Less improvement was also seen in the theme of 'responsive work force', which may reflect the tight labour market and high turnover in healthcare. However, despite staff shortages, programme participants were able to realise more person-centred and safe care. The quality scan and the tailored support of the external coaches contributed to a sense of urgency for quality improvement, to a better understanding of which improvements to be made within the organisation and to the motivation to realise these improvements.

Key factors for effective multidisciplinary work in tumour boards linking team culture and communication to the perceived benefit for patients in cancer care

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Introduction: In Austria, multidisciplinary cancer meetings (MDTs or tumour boards) are considered the gold standard in cancer treatment due to their high financial, human, and time resources. Although much information is available on multidisciplinary teamwork in health care, evidence on its quality in cancer care is still missing. The study analysed team culture and communication and their relationship with the perceived value of tumour boards among health professionals and allowed conclusions to be drawn about the effectiveness of tumour boards in Austria. Results of a self-assessment tool developed for tumour boards, focusing on team culture and communication, are reported.

Methods: The online survey was conducted in nine MDTs with different entities in an academic hospital in Austria. To assess structures and processes of the MDTs the *Austrian Tumour Board Survey (ATS)*, which included 52 items in nine dimensions on a 5-point Likert scale and open questions for improvement strategies after each item was used. 81 health professionals completed the online survey (response rate of 45,7%) between January and August 2023. The data obtained were transferred to SPSS. Descriptive statistics and Spearman correlation were used to assess the team culture linked with two outcome variables concerning health professional's perception of the tumour board as a valuable tool in patient management. Analysis was theoretically grounded in a quality assessment framework for implementation strategies and outcomes.

Results: Spearman correlation showed that the dimension 'team culture and communication' had a significant correlation with the outcome variables 'perceived value of the tumour board for patient management' (ρ = .541, p < .001) and 'tumour boards result in better patient care' (ρ = .501, p < .001). Based on these results, it can be assumed that the better the team culture, the more likely the tumour board will be perceived as a useful instrument. Descriptive statistics suggest a neutral to positive mean score in the dimension 'team culture and communication' and the two outcome variables throughout the sample. Results can be compared between different tumour boards with different entities to show the strengths and potentials for improvement of team culture and communication.

Conclusion: The study revealed the critical role of MDTs in cancer care in terms of team culture and communication, and the benefits of tumour boards from the members' perspective. The survey identified opportunities for both quantitative and qualitative improvements in team culture and communication. While most participants expressed openness to improvement, they faced challenges related to organisation and resource shortages in their daily work, making it difficult to implement new teamwork strategies. By implementing the self-assessment tool in Austrian tumour boards, continuous improvement of tumour boards and multidisciplinary teamwork in cancer care is enabled. The study contributes to a deeper understanding of teamwork in tumour boards and raises awareness of the need for further research in the unique oncological setting. Further research is required to develop a standardised self-assessment tool for tumour boards. This tool can also be applied in other countries and contexts.

Leaver profiles and the role of precipitating events in leaving intensive care – A qualitative analysis of voluntary turnover of former ICU nurses from public hospitals in Austria

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Context: A healthcare system without nursing staff is inconceivable. Already, a reduced nurse-to-patient ratio possesses adverse outcomes on patient safety and the quality of delivered care (Chau et al., 2015; Milstein & Schreyoegg, 2020; WHO, 2000). However, the shortage of highly specialised intensive care nurses poses a significant problem, with perceived precipitating events (Holtom et al. 2017) as drivers for voluntary turnover. The study aims to (1) analyse the origin and role of shocks in the decision to leave and the impact of the interplay of individual reactions to shocks on leaving, and (2) develop various leaver profiles.

Methods: An exploratory qualitative study was undertaken to capture the experiences of former ICU nurses from eight public hospitals in Austria regarding perceived precipitating events and leaving decisions. Data were obtained from 25 semi-structured interviews. To reach former ICU nurses, purposive sampling and snowballing techniques were applied. The interview guide was checked for clarity by two ICU nurses, and piloting was conducted with a former ICU nurse. The interview was included in the final sample without any significant adjustments being required. Data collection was carried out from September to December 2023. Each interview was pseudonymised and transcribed using MAXQDA software, and transcripts were coded according to Gioia's (2013) methodology. The developed leaver profiles refer to the theoretical underpinnings of Lee & Mitchell (1994). In addition, the study was reported according to the Consolidated Criteria for Reporting Qualitative Studies (COREQ) checklist for qualitative research (Tong et al., 2007).

Results: Preliminary themes influencing the decision to leave the ICU can be assigned to different levels (individual, organisational, and environmental). Factors such as leadership qualities, futile care, interdisciplinary team conflicts, missed nursing care, autonomy and practising patient-centred care were the main reasons for leaving. Shocks were perceived as either positive, neutral or negative. However, half of the former nurses interviewed have remained in nursing, merely changing wards, whereas the other half left the profession entirely. 68% of the former ICU nurses refused to re-enter intensive care voluntarily. The remaining 32% indicated they would only consider returning if public hospitals optimised their organisational structures and working conditions. Data analysis also revealed the origin and role of shocks in the decision to leave, and the impact of the interplay of individual reactions to shocks on leaving. The analysis also resulted in a process model (Gioia et al., 2013) describing various leaver profiles.

Discussion: The factors influencing the decision to leave are multifaceted and affected by positive, neutral or negative shocks. This study underlines the importance of understanding how shocks influence the decision to leave and sheds some light on various leaver profiles. Thus, the paper makes the following contribution to the growing body of knowledge on turnover research among intensive care nurses: firstly, the study focuses on former ICU nurses and thus examines actors who have been neglected in prior investigations; secondly, it contributes to the discussion on context-specific factors for leaving intensive care by examining the Austrian context, a country with a hospital-centred healthcare system; and thirdly, it can contribute to the discussion on the decision of leaving by developing leaver profiles based on the empirical data and previous literature (Lee, T. & Mitchell, T., 1994).

Assessing patient and societal unmet health-related needs: the NEED (Needs Examination, Evaluation and Dissemination) assessment framework

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Context: The healthcare ecosystem is predominantly supply-driven, leading to a lack of innovation in financially less attractive health areas, inefficient use of public resources for healthcare and unmet patient and societal needs. This study developed a NEED (Needs Examination, Evaluation and Dissemination) framework to identify unmet health-related patient and societal needs for different health conditions, to inform and support the development of needs-driven healthcare policy and innovations. The feasibility and added value of this framework were tested by conducting two case studies in Belgium.

Methods: Two systematic literature reviews were conducted: one to update an already published literature review about tools for measuring patient needs; another to identify criteria for measuring societal needs based on searches in Ovid Medline® and Embase®. In April 2023, 22 Belgian stakeholders and experts reviewed selected societal needs criteria. The NEED framework incorporating literature-derived patient and societal needs criteria, underwent iterative discussions with the Health Minister, his Cabinet and federal health agencies in May-July 2023. The framework was applied in two case studies (Crohn's disease and malignant melanoma), following a specific methodology: 1) overall description of the disease based on scientific literature and clinical expert input, 2) online survey on unmet patient needs, 3) semi-structured interviews with affected individuals, 4) secondary data collection for each framework criterion, including scientific literature and public databases. The survey results and interview transcripts were analysed using descriptive statistics and thematic analysis, respectively.

Results: The literature reviews covered 52 studies. The NEED framework addresses patient, societal, and future needs across health, healthcare, and social domains. Patient-level criteria (12) include health (e.g., impact on quality of life), healthcare (e.g., burden of treatment), and social (e.g., social support). Societal needs criteria (9) encompass health (e.g., transmissibility), healthcare (e.g., value for money), and social (e.g., productivity losses). Future needs criteria (2) consider future burden of disease and economic burden. Each criterion is associated with one or more measurable indicators (total: 43) and data collection method. Equity is recognised as a transversal dimension, requiring unmet needs data disaggregated by population group. The case studies highlighted specific patient and societal unmet needs. For example, continuous abdominal pain and a high burden of fatigue and psychological symptoms were reported by individuals with Crohn's disease and a scarcity of dermatologists posing a barrier to timely care access was reported by melanoma patients.

Discussion: To the best of our knowledge, this is the first time that a transparent scientific framework containing criteria and indicators for assessing the unmet needs of patients and society has been developed. This lays the foundations for a major shift towards a more needs-driven healthcare policy and innovation. Through the case studies, the NEED framework allowed to spotlight the most crucial unmet needs of individuals living with Crohn's disease and melanoma in Belgium. This evidence can be used to assess if new health-related interventions address the highest unmet patient or societal needs for these two health conditions. However, challenges in ensuring an adequate sample size for the patient survey limit the generalisability of results from the two case studies.

Bridging gaps and building connections: the Social Care initiative in Cremona, Italy, supporting caregivers in elderly health

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Context: As the global healthcare system faces risks due to population ageing and declining autonomy, Cremona, Italy, with over 22% of the population aged 65+, deals with challenges exacerbated by limited healthcare access and intricate needs. The Social Care project, supported by Fondazione Cariplo, addresses caregivers' challenges in navigating fragmented health and social care services. Fostering collaboration among diverse stakeholders, the initiative strives for a sustainable solution. It ensures integrated care management, responding effectively to the intricate and evolving needs of the elderly while providing essential support for caregivers in this critical network. Moreover, it encourages methodological reflections on the project's stakeholders' engagement approach.

Methods: The Social Care project in Cremona adopts a participatory co-design approach, engaging public entities, private organisations, non-profit associations, cooperatives, foundations, and caregivers in a co-design process. To facilitate collaboration for shaping the "Social Care" platform, the project employed various engagement modalities, among which nine focus groups, 10 workshops, four surveys, and 20 individual interviews, tailored to stakeholders' social and political roles. Communication methods varied, encompassing formal presentations, informal discussions, and electronic correspondence. The iterative development process, inspired by the plan-do-check-act cycle, consisted of two main phases, during which the team worked autonomously in some stages and actively engaged stakeholders in others. This approach aimed at refining the platform through continuous improvement, utilising feedback from stakeholders to ensure a comprehensive and inclusive mapping of 75+ services in the region, which were then recorded in the Social Care database.

Results: The employed methodology yielded significant outcomes, reflected in the following key points throughout the project:
- Initial design workshops prompted numerous modifications. Stakeholders' feedback revealed the necessity to categorise services based on two primary criteria: the nature of the needs they address and their distinctive characteristics
- After initial workshops, a first validation check highlighted the effectiveness of these modifications.
- Subsequent design workshops led to further adjustments, refining the Social Care platform.
- The final iteration of the Social Care platform incorporates all modifications, resulting in a comprehensive and user-friendly solution.

Throughout these iterative processes, insights from meetings underscored the abundance of services for frail individuals, with 20+ registered service providers and 17 educated on platform usage. The Social Care platform emerged as a crucial resource, with a potential impact on community well-being, particularly emphasising the platform's pivotal role in bridging awareness gaps in the community.

Discussion: The Social Care project stands at the forefront of digital transformation in elderly care, embodying stakeholder collaboration to drive innovation. The participatory method, marked by substantial meeting turnouts, not only revealed previously unknown realities but also strengthened awareness and created connections among diverse stakeholders, while also allowing for the anticipation of potential platform usage challenges by stakeholders. Moving forward, the results guide the next steps, involving comprehensive engagement across the entire province with additional service providers, enhancing territorial service knowledge, and ensuring an optimal response to needs. The Social Care platform's capacity to record elderly community needs allows for a comprehensive understanding of their challenges and demands and also facilitates the evaluation of service responsiveness. It enables the identification of strengths, weaknesses, and potential gaps in the current service landscape. These detailed insights act as a guiding compass for future service development, contributing significantly to sustainable health ecosystems.

An unmet health-related needs evidence database and research infrastructure to guide healthcare policy and innovation

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Context: As there is no standard definition of unmet patient or societal needs, the NEED project (Needs Examination, Evaluation and Dissemination) defined a framework for assessing these needs. This study describes: (i) the development of an exploitable evidence database on patient and societal unmet health-related needs in various health conditions and (ii) the creation of a research infrastructure that will ensure the quality, reliability and usefulness of the unmet needs evidence database and coordinate unmet needs research.

Methods: The NEED framework defines explicit dimensions (patient, societal and future needs), domains (health, healthcare and social needs) and criteria (n=23) to identify patient and societal needs for different health conditions. Each criteria is associated with one or more indicators (n=43) assessing the extent to which the need is met. For each indicator, measurement and data collection methods were proposed. A mixed-method approach combining both primary and secondary data collection methods is used to populate the NEED database. Based on previous research and extensive consultations with (inter)national panels of experts, stakeholders and decision-makers, possible uses of the NEED database were discussed and a 4-step implementation model was developed for implementation of unmet needs research. The roles and responsibilities of a research infrastructure for the identification of unmet patient and societal needs were defined, using high-quality evidence and scientific standards as basic principles.

Results: Measurement methods were identified for some but not all patient and societal needs criteria. Primary data collection methods include a patient survey, interviews and expert opinions. These methods are mostly used for patient needs criteria and are based on previously developed standardised methodologies. Secondary data collection methods include literature reviews and the analysis of existing databases. The NEED database can be used by researchers, developers, research funders, regulators, HTA agencies, policy makers, patients or healthcare providers for prioritising areas for research, but also to assess the extent to which proposed 'solutions' meet the most pressing unmet needs of patients or society. The research infrastructure should coordinate unmet needs research, by (1) identifying conditions for unmet needs research, (2) prioritising research topics, (3) collecting evidence and constructing an evidence database and (4) disseminating the results. The research infrastructure should be responsible for quality control and maintenance of the evidence database.

Discussion: Once operational, the unmet patient and societal needs evidence database, anchored to the NEED framework, can serve different stakeholders and decision-makers for different purposes. It collects evidence on patient and societal unmet health-related needs for various health conditions, given current standard of care, independent of any new health-related product or service. For the consolidation of the unmet needs evidence database, a research infrastructure should be set up with a range of responsibilities, including the coordination of high-quality scientific data collection and targeted communication of the results to diverse stakeholders. The creation of an unmet needs evidence database and research infrastructure will significantly contribute to progressing towards a needs-driven healthcare innovation and policy.

Online presence of family doctors and institutions in primary healthcare

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Context: Healthcare is rapidly evolving, making online presence crucial for primary healthcare institutions. It's essential for connecting with consumers, promoting the institution's image, and conveying important health messages. Progress in this field relies on managers' openness, requiring significant financial and human resources. Physicians must recognise the importance of online presence for personal and institutional image, dedicating time and acquiring the necessary skills for effective virtual engagement. Embracing these changes is vital for success in the ever-changing healthcare landscape.

Methods: The following summarises data from three studies conducted at the School of Public Health Management of Nicolae Testemițanu State University of Medicine and Pharmacy of the Republic of Moldova during the period 2022-2023. The first study involved a representative sample of 326 primary healthcare managers, with 24.0% being male and 76.0% female, aiming to assess image management practices within primary healthcare institutions. The second study encompassed a sample of 331 family doctors, focusing on infodemic issues with substantial online involvement. The questionnaires were based on literature and were pre-tested. The third study, exploring doctors' professional use of social media, included 988 physicians selected to represent the country's main regions. Data collection utilised the EHRA-developed questionnaire, adapted to the study's needs.

Results: The research on managerial communication disclosed that 60.6% of managers employ corporate emails, while 56.3 utilise the institution's webpage, second only to meetings in popularity. Online platforms are favoured for public communication. Nearly half of managers reported having a budget for institutional promotion, with a third having a spokesperson and slightly more having a public relations department. Among family doctors, 92% use social media, primarily Facebook (88%), Viber (82%), and Youtube (64%), whereas Twitter (5%) and LinkedIn (2%) are less popular. Approximately 39% use 2-3 platforms, and 8% abstain, notably those over 65. Concerningly, 68.3% of doctors sharing COVID-19 information did so without verifying authenticity. Another study on doctors highlighted primary care practitioners' scepticism about social media's effectiveness for health communication, second only to departmental medicine, with respondents least emphasising personal image promotion and effective communication as advantages.

Discussion: Primary healthcare managers acknowledge the widespread use of online tools for both internal and external communication within the institution, endorsing email, the website, and social media. However, the study highlights a lack of marketing capabilities in this sector. In contrast, family doctors, despite using social media for personal purposes, face challenges in correctly disseminating health information and attach little importance to online promotion of personal and institutional images. Significant variations in attitudes were observed based on age and living environment, with older individuals and those in rural areas exhibiting increased reluctance toward online presence, attributed to limited access to technology and necessary skills.

Developing a predictive algorithm to personalise the communication of clinicians with chronically Ill elders in digital encounters – a conjoint analysis-based study within the patient-centred view

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Background: Chronically ill elderly patients are concerned about losing the personal connection with clinicians in digital encounters and clinicians are concerned about missing nonverbal cues that are important for the diagnosis jeopardising quality of care.

Aims: This study validated the expectations and preferences of chronically ill elderly patients regarding specific communication messages for communication with clinicians in telemedicine.

Methods: The sample comprised 600 elderly chronically ill patients who use telehealth. We used a conjoint-based experimental design to test numerous messages. The outcome variable is elder patient expectations from communication with clinicians in telemedicine. The independent variables were known categories of patient-clinician communication. Respondents rated each 24 vignettes of messages.

Results: Mathematical clustering yielded three mindsets, with statistically significant differences among them. Members of Mindset 1 were most concerned with non-verbal communication, members of Mindset 2 prefer communication that enhances the internal locus of control, and members of Mindset 3 have an external locus of control and strongly oppose any dialogue about their expectations from communication.

Conclusions: The use of the predictive algorithm that we developed, enables clinicians to identify the belonging of each chronically ill elderly patient in the clinic to a sample mindset, and to accordingly personalise the communication in the medical encounter while structuring the encounter with greater specificity, and enhancing patient-centred care.

The protective role of sense of coherence in resident physicians facing secondary trauma due to patient death in intensive care - A reflexive thematic analysis inquiry

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The salutogenic paradigm is increasingly used in research and practice but remains to be investigated in secondary trauma of health professionals. This qualitative study explored the main anchor of salutogenics, the sense of coherence, as a coping mechanism among resident physicians facing secondary trauma due to continuous exposure to the suffering and deaths of patients. Participants were sixteen resident physicians from intensive care units at emergency departments of two Israeli public tertiary hospitals. Data analysis employed reflexive thematic analysis. Findings suggest that while all residents described having comprehensibility, manageability, and meaningfulness differed among residents. Some residents thrived, coped well with secondary trauma, centred on patient emotional needs, and drew meaningfulness from the challenges. Other residents suffered while providing care, reported poor well-being, were too overwhelmed to centre patients, and doubted their career choices. Salutogenic-based interventions to cultivate the resilience of resident physicians experiencing secondary trauma are proposed.

Impact of malnutrition risk on patient outcomes and hospital costs

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Context: To start a continuous improvement virtuous circle, we aim to determine real influence of *malnutrition risk* on patient outcomes and hospital costs. Despite the huge amount of existing literature on disease related malnutrition influence on outcomes, clinicians and hospital managers have not fully embraced this knowledge. Our goal is to demonstrate that assessing the malnutrition risk within the first 48 hours of hospitalisation and taking prompt action to address this condition can have a significant impact on patient outcomes and overall hospital performance, resulting in important financial savings.

Methods: The recommended method for assessing disease-related malnutrition risk in Portuguese hospitals is the Nutritional Risk Screening 2002 questionnaire (NRS 2002). We collected data (Demographic, length of stay, comorbidities, case severity index, from DRG-APR (SIMH database) and from electronic records of inpatients screened using NRS 2002 in 2021 and 2022. 4345 inpatient episodes, based on the final NRS 2002, scored as No Nutritional Risk, or Nutritional Risk. To estimate the cost for each inpatient, we collected data on prescribed medicines and devices, using average prices. Same method for nutritional supplements. The cost of diagnostic and therapeutic procedures for inpatients was determined based on legally fixed prices, while indirect and human resources costs was allocated based on average costs and the number of days of hospitalisation. Data from IAMETRICs collected to determine Risk Adjusted Complication Index (RACI) for each inpatient.

Results: In 2021-2022, 82, 5% of inpatients screened, using NRS 2002, on internal medicine wards, were at risk of malnutrition. Average age of inpatients with at risk was 73 years, no risk 51 years. Mortality rate was of 18, 7% for risk and 0.41% for no-risk. Average LOS was respectively, 22, 6 and 8, 3 days. Average medicine consumption was respectively 4.180, 00€ and 2.314, 63€. Inpatient diagnostic and therapeutic procedures cost was respectively 1231, 00€ and 484, 90€. Cost of materials for pressure ulcers was respectively of 20, 98€ and 74€. RACI was respectively of 1, 7 and 1, 39. Severity index was respectively of 3 and 1, 6. Total episode cost was respectively of 15.807,38 €, and 7.195, 73€. 30 days readmission rate was respectively of 22, 5% and 14, 1%. Total hospital cost for inpatients at nutritional risk was 62.413.795 €.

Discussion: Nutritional risk is associated to poorer outcomes and higher hospitalisation costs, at Santo António hospital. We are demonstrating this relationship to clinical multidisciplinary teams and hospital management. Our next step is to evaluate the compliance rate of each ward with nutritional risk screening, using our business information system to create a "hospital nutritional barometer." We plan to implement a follow-up program to conduct clinical and nutritional evaluations and collect data on patient experience and quality of life related to nutritional status. With sufficient evidence, we aim to emphasise the importance of including nutritional status assessment in almost clinical pathways, across various healthcare settings. As the healthcare reform in Portugal evolves, we shall reinforce primary care surveillance for malnutrition risk, focusing on chronic disease patients and ≥65 year's population.

Circular economy practices in healthcare institutions: a bibliometric analysis

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Context: Healthcare institutions constitute a significant source of pollution due to the technologies and resources they consume, as well as the waste they generate. Implementing circular economy strategies, considered a component of sustainable development, in healthcare institutions is an innovative and feasible solution to issues such as reducing resource consumption and managing environmental consequences, promoting reuse and recycling. Circular economy practices in healthcare institutions not only contribute to environmental sustainability but also offer economic benefits by reducing resource consumption, promoting reuse, and enhancing overall efficiency. This study aims to retrospectively analyse publications on circular economy practices in healthcare institutions.

Methods: Keywords, inclusion and exclusion criteria, and database were determined in line with the purpose of the study. Studies published in the Web of Science database were searched in line with the PRISMA Guidelines for the keywords "Circular economy," "Circular*," "Reus*," "Remanufactur*," "Recycl*," "Reprocess*," "Sustainabl*", "Hospital," "Healthcare Institution," and "Health care Institution" in the title, abstract, and keywords of the publications, using boolean operators. Publications were identified according to criteria such as countries, authors, journals, and institutions, and analysed for country co-authorship, bibliographic coupling of documents, co-citation of sources, and keyword co-occurrences. A bibliometric analysis was performed using VOSviewer version 1.6.20 to cluster and visualise the areas that emerged related to the selected topics and criteria.

Results: As a result of the database research, it was found that a total of 237 papers by 1118 authors were published in 169 journals. These papers were published by authors affiliated with 553 institutions, funded by over 120 different agencies, and were published in 60 different countries. Publications spanning from 1991 to 2023, have witnessed significant growth, particularly with a notable surge starting from 2017 onwards. The research landscape is diverse, emphasising Environmental Sciences and Engineering, with some publications adopting a multidisciplinary approach, particularly in the Surgery and Anaesthesiology categories. The research is published in a diverse set of journals, with a notable presence in sustainability-focused journals and those related to waste management. Co-authorship country analysis revealed authors from the USA exhibited the highest collaboration frequency. Bibliographic coupling analysis revealed nine thematic clusters including Sustainable Practices in Operating Rooms, Waste Disposal, Life Cycle Assessments, and Carbon Footprint Analysis.

Discussion: This study contributes to the existing body of knowledge by presenting information that provides an overview of the current situation regarding the implementation of circular economy strategies in healthcare institutions. The growth in publications since 2017 reflects an increased awareness and commitment to sustainable healthcare practices. The bibliographic coupling method was used to create publication clusters, and the main focus and main topics in relevant publications were highlighted. The thematic clusters identified through bibliographic coupling offer a roadmap for future research, outlining key areas of focus and potential interdisciplinary collaborations. The study identifies the gaps, trends, and opportunities in the field, thereby guiding researchers, policymakers, and practitioners toward informed decision-making for a more sustainable future in healthcare.

Collaborative practices between general practitioners and secondary care specialists: a review of barriers and enablers

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Context: A strong relationship between General Practitioners and specialists is crucial for enhancing clinical outcomes and patient satisfaction, especially for those with long-term conditions, as well as system sustainability. Many national policies endorse such interprofessional collaborative practices, often corresponding with service redesign, nonetheless, they entail significant stakeholders' engagement, leadership dynamics, and cultural changes. These practices align with the shift towards proactive and preventive medicine instead of the traditional hospital-centric approach. The study aims to provide a framework based on the literature synthesis supporting healthcare decision-makers in redesigning the governance mechanisms and operations between primary and secondary care (community and hospital), incorporating insights from pre-existing models.

Methods: The literature review will be conducted using the PubMed, Scopus, and Web of Science databases, following the integrative review approach. The qualitative analysis of selected studies will be performed using the Critical Appraisal Skills Program (CASP) method questionnaire. The PRISMA Statement will be employed to report the results of the literature search. The included records will pertain to OECD countries. To critically analyse the articles, a grid will be developed to describe each study's institutional, organisational, and individual characteristics (e.g., contracting and funding models for General Practitioners).

Results: The literature review highlights different governance models adopted in specific contexts, facilitating the identification of their distinctive characteristics. Therefore, the anticipated outcomes include the formulation of a framework through literature synthesis that establishes connections among institutional, organisational, and individual factors, fostering the development of interprofessional collaboration.

Discussion: Existing healthcare systems, designed for acute care, struggle with the evolving needs of chronic patients. Interprofessional collaboration stands as a key standard ensuring safe, high-quality healthcare services across all professionals in terms of effectiveness, efficiency, appropriateness, and cost-effectiveness of delivery of services. Hence, bridging gaps through integrated services is vital. Research highlights some important milestones to reduce fragmentation and enhance care continuity. Particularly, strengthening healthcare collaboration requires a heightened mutual awareness of the roles of general practitioners and specialists, achievable through robust awareness campaigns and the legitimation of roles by the public regulator. Furthermore, fostering interoperability among stakeholders can be facilitated by establishing structures and intermediate roles between General Practitioners and specialists and using communication platforms. This is followed by institutional factors such as the general improvement in the health literacy of the population and the rethinking of reimbursement systems.

Skills for tomorrow's healthcare: a study on hospital staff in Türkiye

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Context: The health sector, which is constantly developing with new technologies and treatments, needs educated, qualified, and competent hospital staff to meet the changing needs of society and the world. The hospital staff is critical in building strong healthcare systems, therefore they must have the most up-to-date knowledge in their field. Developing the hospital staff with various skills such as communication, interdisciplinary and green skills, and the ability to use artificial intelligence will contribute to the sustainability and success of healthcare systems. This study aims to determine the current and needed skills of hospital staff.

Methods: The population of the study consisted of all employees working in a private hospital in Türkiye (N=381). The study aimed to include employees who voluntarily agreed to participate, without selecting a specific sample. The data were collected between December 10, 2023, and January 5, 2024, using a questionnaire created by the researchers based on the literature. The questionnaire was designed to assess employees' skill levels in digital and artificial intelligence (9 questions), communication (8 questions), interdisciplinary (4 questions), and green skills (6 questions), totalling 27 questions. A 5-point Likert scale was employed (1:strongly disagree, 5:strongly agree), and there was also a no opinion option. Additionally, some questions assessed employees' opinions about both the skills and the organisational practices related to employees' skills. The data were analysed using SPSS v.23, incorporating frequencies, percentages, and averages. Ethical committee permission was obtained before initiating the research.

Results: Of 150 participants, 62% were female, 52% were nurses and 46% were undergraduates. Participants, on average, scored 3.83±0.48 on the questionnaire, with mean scores of 3.57±0.68 for digital skills, 4.0±0.37 for communication skills, 4.02±0.55 for interdisciplinary skills, and 3.87±0.69 for green skills. Participants identified resilience, foreign language proficiency, interdisciplinary skills, communication skills, teamwork, and digital/AI skills as crucial for task success. Participants anticipate that, in the next 5-10 years, key skills in healthcare will include foreign language proficiency, digital/AI skills, green skills, problem-solving, and time management. The skills that the participants think are not sufficiently addressed in high school or university education are foreign language proficiency, green skills, resilience, time management, and patient-centred care. 80% of the participants stated that the organisation does not work on skills deficiency, 74% stated that there is no training on skills, and that the training provided is mostly related to communication skills.

Discussion: This study investigates the current and required skills of hospital staff in a private hospital in Türkiye. According to the study results, employees generally demonstrated high skill levels, with digital and artificial intelligence skills being the lowest. While employees highlighted the importance of foreign language proficiency for current and future success, they also emphasised the significance of digital and artificial intelligence skills. Participants expressed concerns about skill inadequacies in education and organisational support. This study contributes valuable insights into the hospital staff's skill landscape, emphasising the urgency of addressing educational and organisational deficiencies for the sustained growth of global healthcare systems. It will be possible for the hospital staff to be ready for the complex challenges they will face in the future and to cope with these challenges only by mastering up-to-date information and acquiring new skills foreseen by the sector.

Ethical pragmatism for innovative governance leadership - The new role of humanistic health coaching

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Context: Recent debates on new leadership models proposed an ethical switch in healthcare. The Italian Health Coaching Association, after philological research, produced a new methodology to support the ethical leadership professional development by applying the prerogatives of objective humanistic ethics in a pragmatic way. Based on this model, the management development was implemented in a broader and more powerful way, inserting all the elements needed for an optimal Healthcare Learning Organisation Governance, according with Maccoby Leadership standards. This preliminary health coaching experience seems to confirm many of the ethical-based hypothesis, producing performance improvement and beneficial contemporary effects on personal wellbeing.

Methods: A classic Leadership and Performance development platform service was integrated with a second parallel digital Mentor Coaching path inspired by "One Health" concept and pragmatic Ethics. Each short-term Executive Coaching process lasted 4 months, during which each Manager involved was supported by both an Executive Coach and a Health Coach Mentor. Ethical Mentor Coaching started earlier, with two preparation sessions, and ended later, with a final follow up session. Therefore the period covered by Mentor Coaching varied between 5 and 6 months. The Mentor Coach had the aim of setting up the Coaching path by preparing managers through a Values check using the Barrett Personal Value Assessment and delivering learning through Coaching by Values methodology. Each Manager, therefore, become aware of their own ethical Values system, considering them an important part of their Leadership. Ethical Mentor Coaching sessions lasted 30 minutes, while the Executive Coaching sessions lasted 45 minutes.

Results: The managers enrolled were 27. The coaching satisfaction rating obtained was very high: 4.9/5. In line with the new approach to the Coaching session path proposed by the Italian Health Coaching Association, the aim was to improve resilience and effectiveness. The final verification of these indicators confirmed in the final data a Performance growth and the Wellbeing improvement, exactly as idealised by the development model based on the concept of Pragmatic Humanistic Ethics of Health Coaching. This experience in the development of the Ethical Leadership focused above all on the level of personal effectiveness, through a deep skills development. Authenticity (+5.5), with a very high jump rating, which underlines the deconditioning power of the coaching approach on the mindset. Emotional Regulation (+2.85) highly requested and necessary in this VUCA scenario, followed by Time Management, Goal Setting, Centeredness, Conflict Management, Feedback and Delegation, which earn significant jump ratings.

Discussion: The entire sample of recruited managers had a vague and static perception of the organisational values system. None of them had tools to be able to work pragmatically on ethics. From this perspective, further support interventions needed to bring the effect of the development of Ethical Leadership to a systemic level, removing and replacing limiting beliefs and obsolete methods in favour of new behaviours capable of engaging, motivating and inspiring teams. The executive model crisis in healthcare generated a reactive ethical shift in the leadership development. Indeed, integrating Value Barrett assessment with Coaching by Values model was really effective. This experience confirms that a radical change in the management mindset produces immediate effects on the person in terms of performance and wellbeing. Attention is drawn to the need to consider objective pragmatic ethics as a powerful governance tool, useful for addressing the organisational transformation of the healthcare system.

End-of-life care for cancer patients: views and perceptions of community and hospital-based professionals

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Background: Aging population and the rise in chronic diseases are increasing the need and utilisation of End-of-Life Care (EOLC) worldwide[1]. In Italy, the average rate of cancer patients dying assisted by the Palliative Care (PC) network is of 28%, with marked regional variability and still limited integration between hospital and community-care[2]. In Tuscany region (Italy) the ratio of EOL cancer patients cared by PC network is 40% [3, 4], however EOLC unwarranted variation is large, affecting place of care/death, pain management, aggressive care[5]. The study describes the state-of-art of EOLC organisation and management, professional and patient/caregiver needs, considering adult cancer patients in Tuscany.

Methods: A multidisciplinary team of researchers developed two online surveys tailored to Directors of PC Functional-Units (FUs) at community level[6] and Directors of hospital-based medical-oncology units. The questionnaires were developed based on international literature and national/regional regulations. The first survey included 38 questions focused on cancer patients, covering the following sections: *a) services and procedures for the management of patients in EOL phase; b) patient needs as perceived by professionals and whether these needs were met; c) patient preferences about EOLC; d) role of caregiver in EOLC; e) perspective of professionals on EOLC for cancer patients*[6]. The second survey counted 39 questions covering sections *a),b),e),* with section *d)* embedded in section *"transition and territory"*. Questions were mostly closed-ended, few open. Data from completed questionnaires were analysed at Local Health Authority (LHA) and regional level. Feedback sessions on preliminary results were held with PC specialists and the heads of LHAs' oncology departments.

Results: All FUs' Directors replied to the survey (n=14), and 96% response rate was achieved from hospital units' Directors (n=25). The results highlight many dedicated services are available for EOL cancer patients, but EOLC delivery presents variability among and within LHAs concerning the team of professionals involved, transition routes among settings, presence of clinical-care pathways and tools adopted for predicting survival/PC needs. Interprofessional management of patients transferred from hospital to home/hospice often is not supported by information sharing systems. According to FUs' Directors, late referral to PC (79%) appears among main challenges of EOLC, and providing accurate information on disease course (86%) and support to caregivers (86%) are the prior needs to better address. Training of hospital/community personnel, creating shared pathways among organisations/professionals, and foster digital information sharing between hospitals and community-care are the most frequent suggestions to enhance EOLC for cancer patients by both FUs' and hospital units' Directors.

Discussion: The study results emphasise that, although PC and EOLC have been developed and organised around cancer patients, further efforts are needed to support care coordination and care continuity, taking advantage of larger use of information sharing systems and commonly designed care pathways to foster interprofessional collaboration. The surveys' results provide valuable insights into the current state of EOLC for cancer patients in Tuscany, considering the point of view of PC specialists and Directors of hospital medical-oncology units. The research results will be useful to guide future research and interventions to improve EOL quality of care and patient outcomes.

Operationalising patient-centredness using patient-reported experience measures in the Tuscany healthcare system

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Context: Nowadays, researchers and practitioners increasingly recognise the value of the patient-centred care approach, by considering patients and their needs and preferences, beyond the medical perspective and the traditional model often focused on treating illnesses (Eklund et al., 2019). Since there are several definitions of the patient-centredness' construct, we used the integrative model proposed by Scholl and colleagues (2014). They identified 15 dimensions of patient-centeredness and categorised them into principles (i.e. propositions which lay the foundations for patient-centred care), enablers (i.e. elements which foster patient-centred care), and activities (i.e. specific patient-centred behaviours) (Collins, 2014; de Silva, 2014; Morgan & Yoder, 2012).

The implementation of the patient-centredness can be complex and challenging, and measuring this approach can support in guiding its adoption. The aim of this study is to operationalise and test some measures of patient-centredness.

Method: We focused on the activities identified by Scholl and colleagues (2014), which are mapped at the micro-level of the organisations and regard patient information, patient involvement in care, involvement of family and friends, patient empowerment, physical support and emotional support.

We employed data collected in 2023 by the PREMs (Patient-reported Experience Measures) Observatory in Tuscany Region, which collects patient-reported data on the key aspects of hospitalisation experience in a continuous, digital and systematic way (De Rosis et al., 2020).

First, we operationalised the patient-centredness' construct by categorising the PREMs measures. Then, we applied a SEM model for validating and testing whether the latent variable "patient-centredness" is constructed on the observed measures.

Results: We operationalised the construct as follow: regarding "patient information" we considered clarity of information by medical and nursing staff; the PREMs survey include an explicit measure of "patient involvement in care"; "involvement of family and friends" is represented by the communication with caregivers; for "patient empowerment", we identified the measures related to provision of information to patients at discharge for self-care and compliance to therapies; the "physical support" dimension is measured by pain management and hospital comfort, namely silence and cleanliness of the ward; while the "emotional support" is operationalised in terms of respect and dignity, fear and anxieties management and do not ignore patients during the communication.

The results of the SEM model will be provided during the conference.

Discussion: The study offers insights into the operationalisation of the patient-centredness' construct, providing actionable measures to evaluate whether and how much systems and organisations are adopting this approach. Moreover, it provides preliminary evidence on the patient-centredness of the Tuscany healthcare system. By prioritising the needs and preferences of individuals, families and communities, the health systems become more responsive, reactive, equitable, by creating value and fostering improved well-being, experience and outcomes.

Magnet4Europe: results from a randomised intervention trial to improve clinician wellbeing in the healthcare workplace

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Context: In 2013, the EU launched a Joint Action on Mental Health and Wellbeing to champion mental health as a European public health priority and to develop tools to support Member States in improving conditions for the prevention, diagnosis and care of mental disorders in their countries. One of the populations most vulnerable to burnout and mental health issues is health professionals. Magnet4Europe is a four-year Horizon 2020 EU-funded project that aims to improve mental health and wellbeing among health professionals in Europe. The project officially started in January 2020 and formally completes in June 2024.

Methods: The study, led by KU Leuven (Belgium) and the University of Pennsylvania (USA) in collaboration with universities and organisations in participating countries, is the largest organisational redesign implementation science initiative in healthcare. More than 60 hospitals in six European countries (Belgium, England, Germany, Ireland, Norway, and Sweden) participated in the randomised wait-listed study where each hospital received the intervention. Every European hospital is supported by one-to-one twinning with an experienced Magnet recognised US-hospital. The intervention consists of implementing the Magnet® blueprint (used under license complements of ANCC), pre- and post-intervention gap analyses in meeting blueprint standards, co-created action plans, virtual and in-person learning collaboratives, actionable survey-based feedback reports, survey and qualitative research documentation of intervention dose received, and the creation of international and national networks. Impact on nurses' and physicians' mental health and wellbeing was surveyed at the start, middle and end of the initiative.

Results: Despite the intervention beginning in the height of the Covid-19 pandemic, most hospitals completed the 4-year intervention. Survey baseline findings among nurses and physicians (N=8000) in the 64 European hospitals show high prevalence of burnout, mental health issues, job dissatisfaction, and concerns about patient safety and care quality. Rates vary within and between countries. Better work environments are associated with significantly lower percentages of clinicians reporting unfavourable mental health and wellbeing as well as unfavourable patient safety and quality. Gap analyses pre-intervention show significant gaps in meeting Magnet blueprint standards of organisational excellence. Comparison of pre- and post-implementation gap analyses showed significant improvement in work environments in the majority of participating hospitals. At the EHMA conference, we will present the first results comparing post-test and baseline data evaluating if the intervention was able to improve mental health and wellbeing of physicians and nurses. Preliminary findings at this time are encouraging.

Discussion: The WHO Bucharest declaration on health and care workforce called for the protection of the mental and physical health and well-being of healthcare workers. Stress, burnout, and job resignations worsened during and after the Covid-19 pandemic. Magnet4Europe tests the feasibility and outcomes of implementing an evidence-based solution shown in previous research to improve healthcare work environments in over 500 hospitals internationally. Despite wide interest, the Magnet "solution" has not been widely adopted in Europe. Magnet4Europe fills this knowledge gap by evaluating the feasibility and effectiveness of implementation of the Magnet blueprint in a critical mass of European hospitals. Results show improvement in work environments among participating hospitals. We anticipate pre-post outcomes analyses will show improvement in clinician wellbeing and patient safety thus offering healthcare organisations a promising new direction for improving retention of nurses and physicians and addressing widespread concerns about patient safety and care quality.

Managing the value of care in daily clinical practice: expert roadmap by the Dutch value-based health care network Linnean

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Context: Worldwide healthcare organisations face the challenge to keep high quality care available and affordable to all. Value-Based Healthcare (VBHC) aims to optimise the value of care delivery on both the organisational (meso) and patient (micro) level, by improving patient outcomes in relation to their costs. So far, managers mostly focus on financial performance, whereas medical specialists focus on improving patient outcomes. Both worlds need to be combined. Healthcare organisations require guidelines to manage and steer on both patient outcomes *and* costs in real-time. We present a roadmap with key steps to manage the value of care in daily clinical practice.

Methods: the Linnean Initiative aims to speed up the implementation of VBHC, using an independent network of healthcare providers, patient representatives, researchers, and insurance and government bodies in the Netherlands. In 2023, 15 experts formed a dedicated Linnean working group to investigate how to improve patient outcomes relative to costs in VBHC. By participating in monthly meetings, the working group had three aims: 1) to assess what VBHC can learn from well-established methods such as cost-effectiveness analysis, 2) to identify methods in the literature for relating costs to outcomes in VBHC, and 3) to examine (inter)national frontrunners that steer on outcomes and costs in daily clinical practice. The findings were assimilated into a whitepaper, which was shared for consultation with a broader group of 20+ experts in the Netherlands. The contents of the whitepaper and feedback were distilled into a roadmap and presented in a webcast.

Results: Summarised, the roadmap describes the following steps: 1) Select a care pathway based on expert criteria, such as the potential for value improvement and the impact of the disease. 2) Compose a multidisciplinary team consisting of patients, healthcare professionals, IT, data professionals, and managers. Appoint both a medical and operational leader. 3) Design a dashboard to display measured outcomes and costs. 4) Decide on what method to use to relate outcomes to costs. This can be divided in: a) a two-dimensional approach that displays outcomes and costs in a matrix, or b) the estimation of a single value for cost-effectiveness, using for example Multi-Criteria Decision Analysis (MCDA). 5) Decide on a threshold for which additional outcomes are worth the additional costs and use this threshold to compare, for example, improvement initiatives. 6) Implement the dashboard for routine use in clinical practice. 7) Share lessons learned with other healthcare organisations.

Discussion: The roadmap guides healthcare organisations in managing the value of care in daily practice. It provides key steps for implementing dashboards that combine outcomes with costs in VBHC and supports healthcare organisations in continuously applying this information in decision-making on the value of care. In practice, (inter)national frontrunners have not yet implemented all steps of the roadmap. We, therefore, encourage healthcare organisations to start working with the roadmap so that we can gather more insight into whether the roadmap is complete and what works best. In 2024, the working group will continue its work on improving patient outcomes relative to costs in VBHC. To this extent, Linnean provides a platform for healthcare organisations to share learned lessons on how to ensure the involvement of all the right stakeholders, with sufficient time, tooling, and meeting structures in place to make binding decisions on how to improve upon patient value in healthcare.

Costs in value-based health care dashboards: a qualitative study on stakeholder objectives and requirements

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Context: An essential element of Value-Based Health Care (VBHC) is the use of dashboards to support the improvement of the value of care delivery in integrated practice units (IPU). VBHC defines value as patient-relevant outcomes relative to costs, but in practice, costs are often overlooked. Therefore, this study aimed to identify stakeholder objectives and requirements for the inclusion of costs in VBHC dashboards.

Methods: A qualitative study was performed at the organ transplant IPU of an academic hospital in the Netherlands. Data were collected using 15 semi-structured interviews and a focus group, with stakeholders from four categories: 1) healthcare professionals, 2) management, 3) finance and IT, and 4) patients. Transcripts were analysed using thematic analysis and deductive coding based on the framework of requirements analysis.

Results: We identified three objectives for the use of cost indicators in a VBHC dashboard. Health care professionals aimed to 1) identify costs and resources and 2) reduce low-value care, whereas management additionally saw a role in 3) monitoring the financial viability of an IPU. The required cost indicators depended on these objectives and could be categorised into four categories: cost of care activities, resources used to deliver care, income (e.g. reimbursements), and patient costs (e.g. out-of-pocket). The cost indicators should be reviewed monthly to quarterly in a recurring meeting, collectively by the care team and a financial expert. Furthermore, the costing model used to provide the data should accurately capture all costs in care delivery and provide up-to-date estimates. The dashboard interface should be embedded in existing IT systems. Last, the patient representatives identified productivity and out-of-pocket costs as relevant costs to patients.

Discussion: This study supports the use of cost indicators in VBHC dashboards through actionable objectives and requirements and helps further the implementation of VBHC in a hospital setting. The findings show that the functionalities of a VBHC dashboard should be adapted to the objective of the dashboard to create meaningful cost indicators. Future research should further explore the role of patient costs in data-driven improvement of VBHC delivery.

Women's preferences during childbirth in hospitals in the south-western Netherlands: a Q-methodology study

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Introduction: The number of deliveries in the Netherlands is expected to increase in the next 10 years. In contrast, capacity, in terms of staff and number of beds, is already pushed to limits, especially in southwestern Netherlands. This can possibly jeopardise the quality and safety of care with regard to errors, patient outcomes- and experiences. To come up with future-proof solutions for the organisation and policies for this, it is important to include the perspective of patients. The purpose of this study is to understand what women's preferences are in the matter of patient-centred care during hospital delivery.

Methods: Q-methodology is a mixed methods approach to study viewpoints about a subject in a certain population with a technique that combines qualitative and quantitative research methods. Twenty-nine statements on care and support during childbirth were constructed using the patient-centred care model with eight different categories. 30 (soon to be) mothers were purposively sampled to rank the statements from least to most important. By-factor analysis was performed to recognise patterns that, combined with interview data, were interpreted as indicative of preferences.

Results: Four factors were found in this study that identify women's preferences: 1) Good treatment from the health care provider to the patient, which manifests itself in particular in communication, information provision and education 2) Health care providers take individual patient preferences into account, which involves in particular taking into account the personal situation and possibility of shared decision-making, 3) Good organisation of care, in which patients like to see that health care providers coordinate well with each other and give the same information 4) Good access to care, when patients are about to give birth ensure that the desired care is available within appropriate time frames.

Discussion: Preferences about patient-centred intrapartum care vary among the population studied. These findings help understand what is most important to (expectant) parents during this lifelong event. Future research could build on this by exploring what the limits are for professionals in terms of feasibility to these patient preferences. A strength of this study is that it differs from previous studies based on the context, methodology and configuration of statements. A limitation of this study is that the perspective of vulnerable pregnant women may not have been adequately included and could possibly have led to different results.

Ethics versus economy in health care. How to avoid rationing by rethinking procurement management

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Context: The generic obligation of hospitals is to provide patient-centred, qualified and safe medical services. So, hospitals are forced to prevent patients from avoidable risks and harm. Hospitals are also required to contribute to a reduction of CO2 emissions because the health care sector is responsible for 4,4 % of the world-wide pollution burden. But, the situation many hospitals are confronted with is coined by budget restrictions and cost pressure. Against that background, rationing becomes reality in clinical processes, mostly in connection with the procurement of cheap but dysfunctional medical products. And, most of these products higher the carbon footprint.

Methods: An online-poll under 775 hospital managers and 148 decision-makers from industry was performed based on a structured questionnaire with the aim to identify the decision-making criteria dominantly used in the process of purchasing medical products.

The purpose of the study was to identify clinical processes were low-cost medical products with limited functionality are used due to budget restrictions with the consequence of threatening patient outcome and worsening the working conditions of physicians and nurses. Furthermore, an assessment system was developed based on the philosophy and the criteria typical for the Value-Based Health Care Approach. Subsequently, this assessment system was tested with selected medical products.

Results:

> The study results demonstrate that product price, purchasing costs and financial conditions are with a weighting of 35% the dominant decision-making criteria used by managers in procurement processes.

> High-performance medical products with positive effects on patient safety, patient outcome, handling advantages in the theatre and length of stay only have an 10% weighting impact on the procurement decision.

> Procurement decisions are influenced by sustainability criteria by a weighting of only 3%.

> Impact analyses of selected medical products e.g. ablation catheters, occluders, slings, clinical textiles and vascular prostheses show that under certain conditions high-performance products contribute to reducing CO2 emissions, to better patient outcome, to lower process costs (total costs of ownership) and to positive community effects in terms of less costs for sickness funds and better population health.

This despite the fact that high-performance products have higher purchasing prices compared to typical low-cost products with limited functionality.

Discussion: Budget restrictions and cost pressure are major reasons for procurement decisions that lead to rationing in medical services and to a decrease of community health. Referring to selected medical products the presentation will demonstrate how price-driven procurement leads to rationing and situations of ethical distortion, but also cause economic disadvantages under the aspect of a value-based procurement approach. It is recommended, to purchase medical products no longer oriented to the lowest price but to the value a product generates in terms of contributions to sustainability, avoidance of rationing, process efficiency, patient and community outcome.

Maintaining relations: a multiple case study on the use of digital communication tools in Belgian hospitals during the COVID-19 crisis

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During the COVID-19 crisis, hospital staff had to cope with a substantial flow of information, measures, and procedures from diverse internal and external sources (Peiffer-Smadja et al., 2020). Effective and efficient communication is put forward as a key feature in crisis management processes, setting aside relational elements. However, the sanitary measures made the usual face-to-face communication complex and sometimes inadequate, if not impossible (Mehta et al., 2020). Therefore, this study explores the intensification of the use of digital communication tools in hospitals during the COVID-19 crisis and explores the relational elements in organisational and managerial crisis practices.

A 'bricolaged' case study approach was adopted, which allows a useful indeterminacy to the relationship between inquiry and method. Not-knowing becomes a strength which is exploited by the bricoleur through a reflexive and constructive loop that permits the complexity of the lived world to be captured (Rogers, 2012). Qualitative data was collected in three hospitals (two university hospitals and one general hospital with a university character) between June 2021 and February 2023. In total 57 in-depth interviews and 6 focus groups were held. Participants were from diverse departments, both medical and non-medical, and occupied varying hierarchical positions in the hospitals. The discourses regarding the use of digital communication tools are analysed with a theoretical grounding in care ethics to study the relational practices during the COVID-19 crisis. Care ethics is used as a lens to investigate (crisis) management practices in hospitals and contribute to crisis management literature (Branicki, 2020).

A thematic exploration suggests that middle managers played an important role in transmission of information by intensifying digital communication. They had to make sense of the situation and consider the needs and demands of their team. In these difficult times, the participants expressed the need to maintain and/or develop relationships with each other. Digital communication was an important space in which to recreate and maintain relational links between actors. These spaces provided hospital staff with a place to vent their worries, share frustrations and keep "in touch". In certain cases, middle managers knowingly transgressed institutional rules to adapt to the situation to address the needs of their staff. However, adaptions do not necessarily become permanent, a "return to normal" is voiced after the height of the COVID-19 crisis and the use of the digital communication as it was understood during the crisis dissipates.

The COVID-19 crisis was an extraordinary event marked by uncertainty and instability which required the involvement of the entire hospital. In times of crisis, the importance of relational elements in work and the existing interdependence within the hospital is more visible. We put forward that the COVID-19 crisis put the organisation in hospitals in brackets to allow "appropriate" modes of action to emerge. The "usual" is suspended, to allow a revision of the everyday communication practices and practices that suit the situation to appear. Leading to a crisis management oriented towards situated knowledge and embedded in a relational logic by middle managers. Nevertheless, the adaptation remains rooted in the structure and praxis of the organisation. Furthermore, after the height of the COVID-19 crisis, the brackets disappear and the 'usual' remerges, suggesting that change in times of crisis may be a means to an end.

Exploring alignment: lean management and organisational strategy

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Context: Healthcare providers aim to improve patient outcomes and reduce costs. In order to realise these objectives, healthcare organisation adopt Lean Management (LM). LM is focused on increasing patient value through continuous process improvement. Studies have shown that LM can be effective in healthcare, but challenges remain. Healthcare providers face difficulties including the long-term sustainment of LM, and it is unclear to what extent LM practices align with the broader organisational strategy. In our study, we explore how LM practices align and contribute to strategic objectives in a healthcare context. We study an exemplary case and apply a change management perspective.

Methods: In order to complete our research objective we conducted a qualitative case study. For this research, we studied an exemplary case setting: a large university hospital with many years of LM experience. Primary data consisted of 22 interviews with key informants, such as nurses, internal consultants, and managers. Secondary data consisted of annual reports, policy documents, research notes, and on-site meetings. The qualitative data set was analysed through a process of first and second order coding. During the analysis, we applied our conceptual lens to structure and interpret our data and findings.

Results: The case site has explicitly adopted LM, as such one would expect the LM practices and overall organisational strategy to closely align. However, despite positive experiences of respondents with LM projects, the contribution of LM to broader strategic objectives is considered limited. We find various reasons, interviewees indicated that they struggled to find time for LM projects, and felt limited appreciation for their LM efforts. Overall, respondents indicated they did not experience (enough) support to establish a culture of continuous improvement, often seen as a cornerstone of LM. The interviewees mentioned a lack of communication of the strategic objectives, which in turn hampers alignment of LM projects. Ultimately, the results highlighted several barriers and facilitators that play a role in the alignment between strategy and LM, such as limited access to training (barrier), and the deliberate fostering of a culture of continuous improvement (facilitating).

Discussion: Previous studies have shown that LM can positively impact strategic objectives such as improving quality of patient care and optimisation of care processes. However, our research identified various barriers and facilitators that can hamper the alignment of LM and broader organisational strategy. We find that barriers including a lack of resources (e.g. time), a lack of follow-up on LM projects, a lack of support from management, and a lack of a culture of continuous improvement causes a minimal contribution of LM to the strategic goals of the organisation. We add to our current understanding by highlighting barriers and facilitators, some of which have been previously found, some of which are new. Moreover, our study adds to the line of research that is interested in LM sustainability, where we argue that for LM practices to be sustained over time a strong link between LM and organisational strategy is crucial.

From innovation to integration: a case study of digital health technologies in the Trentino healthcare system

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Context: Digital health technologies (DHTs), including Digital Therapeutics (DTx) are shifting from research to market, showcasing their transformation potential on healthcare. Despite ongoing efforts to develop and validate DHTs, integration into practice remains challenging. Moreover, while some EU countries have fostered DHTs integration, many, including Italy, are lagging. Italy lacks regulation for integration at scale by the National Health Service (NHS) - even though the 2023 establishment of the parliamentary intergroup on digital health facilitates the process. This study addresses this gap by proposing a framework for integrating DHTs within the Italian NHS, aiming at enhancing prevention, clinical outcomes, equitable treatment access.

Methods: This study employs insider Action Research (AR), involving the researcher in a study within their own professional sphere. It focuses on an empirical case study on the Trentino healthcare system, capitalising a supportive local institutional setting. The AR method follows the 4-factor Shani and Pasmore's AR framework. The *context* is the Digital Health Research hub of a public-private research foundation in Trentino, set in a dynamic international landscape advancing DHTs. Outstanding *relationship quality* shapes the model through continuous interactions with stakeholders via focus groups and desk research. The six-month AR *process* followed four phases. Reflection – inspired by the potential applicability in Trentino of the Scottish NHS, based on public procurement of DHTs from private companies. Plan – mapping of international experiences and barriers to adoption. Action – model development. Observe – engaging with political actors to prepare implementation. *Outcomes* comprise the intangible learning across the hosting organisation and the tangible framework creation.

Results: Starting from the mapping of international experiences and barriers to DHTs adoption, the AR resulted in a comprehensive framework designed to guide the integration of DHTs and DTx in the Italian NHS, tailored to the specific context of Trentino healthcare system. The framework unveiled four key attributes: i) health professionals involvement, ensuring their awareness and trust in DHTs, and their control of the DHT prescription and assessment phases; ii) patient risk stratification, aligned with the risk stratification of the Italian National Resilience and Recovery Plan, regulates DHTs integration into routine care pathways; iii) integration into care as usual, identifies how DHTs can be incorporated into standard care practices and pathways; iv) governance, outlines current legislation and speculates on likely developments, such as the emerging National Telemedicine Platform. Lastly, the model application to a specific DHT within the Trentino innovation ecosystem serves as an initial use case, prompting reflections on future refinements.

Discussion: The research examines the dynamic interplay between DHT advancements and their regulatory integration within the Trentino health system, considering Italy's evolving institutional landscape. While more prominent models like Germany's DiGA and France's PECAN receive considerable attention, other feasible approaches remain overshadowed. Drawing inspiration from the achievements of the Scotland model on mental care we acknowledge the successful integration of DHTs into clinical practice through public procurement. This offers valuable insights on DTx integration in other healthcare systems, such as Trentino's one. Positioned within the evolving landscape of DHTs and DTx, the proposed framework is forward-looking, aligning with imminent regulatory changes and addressing pivotal health service needs. Next steps include collaborating with local political authorities to detail the implementation pathway for driving DTx adoption within the broader context of the Italian NHS, with the prospect of expanding to other international settings that have yet to catch up.

Dealing with the digitalisation of healthcare: a patients' perspective

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Context: In Italy, Patient Advocacy Associations (PAAs) are non-profit organisations focusing on the representation and protection of patients' rights. With the advent of the Internet, PAAs have taken advantage of new opportunities for coordination through online forums (Nambisan et al., 2009). The relationship between patients and caregivers is subject to a dual nature (Van Gurp et al., 2013), requiring insights into trust and analysis of patients' technostress. This work examines how digital advances affect patient-provider relationships with an emphasis on patient advocacy associations (PAAs) in Italy.

Methods: This study uses a thorough questionnaire and a sample of 95 patients from different PAAs in Italy. Specifically, the sections included: general information; digital health activities; perception of technostress (scale of Ragu-Nathan, 2008); technical skills of patients, associative commitment (scale of Lomi et al., 2014); perceived stress in health workers (Elo et al., 2003); propensity to digital innovation. Privacy was ensured according to the European Data Protection Regulation 2016/679. 95 patients belonging to patient advocacy associations were administered the questionnaire between September and October 2023. They were predominantly female (64%) and affected by different disease. Most of the sample consisted of age groups between 40-50 years (31%) and over 60 years (30%). The diseases included diabetes (38%), rare diseases (37%), oncology (12%), and others.

Results: The results highlight the necessity for patient involvement in the implementation process and show that patients are typically in favour of the use of digital technologies in their care. Hence, this study shows the effects of digital innovations on the relationship between patients and health professionals. In particular, the results indicate that the majority of patients are in favour of counselling. Generally, patients make a large use of digital technologies, and most of them believe in a positive influence of these on the efficiency of care and clinical research. In addition, there is a high perception of stress among healthcare personnel. The analysis indicates a normal distribution, with a limited correlation between age and technostress. Finally, the relationship between patients' perceived stress and that of professionals shows a coincidence at the highest levels.

Discussion: This research highlights a fresh perspective on how patients deal with the digitalisation of health. The data collected allow us to assess patients' perceptions of counselling before the introduction of technological innovations and their involvement in the implementation of digital technologies. As patients show a lukewarm involvement, trust between professionals and patients may be increased by initiatives involving the latter more directly. Moreover, the positive evaluation of the efficiency of digital technologies reflects patients' understanding of the positive effect of technologies on care. However, a high degree of stress is observed among professionals as well as a medium-high degree of technostress among patients. This work contributes to the literature in a field where further research is needed. Indeed, this may be carried out on a larger scale including international comparisons. In the future, a network between patient associations could be explored and innovative solutions proposed, in order to reduce stress among professionals and increase digital competence of patients.

Measuring patient safety culture in Austrian hospitals: open communication as a key factor in improving handovers, teamwork, and adverse event reporting

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Context: Patient safety is crucial in reducing avoidable harm, minimising the likelihood of errors, and mitigating their impact on the well-being and health of patients. Moreover, it is an evolving field informed by research, debate, and real-word experience. Clear communication among health professionals is pivotal in minimising errors in patient safety culture. By providing precise instructions and sharing information, the probability of misunderstandings and errors can be reduced. The study aims to investigate the relationship between health professionals' communication and teamwork, adverse event reporting and patient safety. Additionally, the study examines the work areas concerning communication to identify potential differences.

Methods: The data were collected from June to September 2023. The validated *Patient Safety Climate Inventory Austria* (PaSKI AUT) was used to assess the level of patient safety in two Austrian hospitals. 1086 questionnaires were handed out to hospital staff by students of the Executive Master of Business Administration programme at the University of Klagenfurt. Of these, 554 questionnaires were returned (51% response rate). 526 questionnaires were used for further data analysis, as 28 questionnaires could not be meaningfully reconstructed due to missing value methods. The manually completed questionnaires were transferred into an SPSS file and then analysed using descriptive statistics and significance tests. Spearman correlation was used to assess the relationship between 'communication openness' and the scales 'teamwork within the clinic/department', 'frequency of reporting events', 'safe handovers and teamwork between clinics/department'. Kruskal-Wallis and post-hoc tests were used to assess whether there were differences across departments and job roles.

Results: The Spearman correlation revealed that the scale of 'communication openness' had a significant correlation with the scales of 'teamwork within the clinic/department' ($\rho = .32$, $p < .001$), 'frequency of reporting events' ($\rho = .32$, $p < .001$), and 'safe handovers, and teamwork between clinics/departments' ($\rho = .34$, $p < .001$). Additionally, a higher rating of 'communication openness' by hospital staff was associated with a higher patient safety rating ($\rho = .34$, $p < .001$). The Kruskal-Wallis and post-hoc tests identified significant differences. These differences were found between main areas of work (such as surgical departments and other medical departments etc.) and between job roles ($p < .05$). The level of 'communication openness' varied between different areas and job roles.

Discussion: The study has proven that communication is a key factor in improving patient safety culture and is positively related to successful teamwork. In addition, communication also promotes the frequency of reporting an adverse event, making it easier to prevent, identify, and correct a potential treatment error. Particular attention should be paid to clinic/departmental leadership, which can have a lasting impact on communication openness. Qualitative research can pave the way for suitable training measures, focusing on communication and team development methods.

Transitioning to reusable medical devices: requirements for material logistics infrastructures

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Context: Health care is a resource-intensive sector generating difficult-to-compose waste. Reducing waste and environmental impact requires circular strategies for reusing, repairing, reprocessing, or recycling medical devices (MDs). However, in the past 30 years, high-income nations in healthcare have downsized material logistics for reusable medical devices (RER MDs), leading to dependence on single-use (SU) MDs. Circular strategies, hence, must not only focus on the (re-)introduction of reusable medical devices but also on creating infrastructures for managing these devices. This study aimed to create a taxonomy for reusable medical devices (RER MDs) and their requirements for material logistics infrastructure solutions in hospital settings.

Methods: We derived data of medical devices and requirements for material logistics infrastructures from the HealthcareLCA database (Drew et al., 2022); an open-access repository for all healthcare-related Life Cycle Assessments (LCAs). The number of MDs and processes in this database have grown exponentially over the past two decades (Drew et al., 2022; McGain et al., 2020). As of December 2021, the *HealthcareLCA database* consists mostly of studies on MDs (40%), followed by pharmaceuticals (18%), procedures (11%), systems (11%), services (9%), medical interventions (5%), clinical investigations (3%), randomised controlled trails (1%), companies (1%), and industries (1%). Most studies follow a bottom-up approach, in which data is measured on the material input of a functional unit (72%); some used a top-down approach (13%). In addition, we reviewed additional literature and interviewed clinical and managerial staff in two leading Academic Hospitals in the Netherlands to derive cost estimates of using RER versus SU MDs.

Results: Most RER MDs have lower environmental impact and/or costs compared to SU MDs. We identified six material logistics infrastructure components: Transport (transportation steps of an MD through the hospital), 'Tracking and tracing' (type and tracking method of MD data to enable material logistics), 'Storage space' (space requirements to store MDs for reprocessing and repair), 'Reprocessing' and 'Repair' (required materials and equipment for reprocessing and repair), and 'Point of collection space' (space requirements for waste recycling, incineration, landfill or external reprocessing or repair). We identify eleven types of MDs with different requirements across these components: light disinfection (T1), high-level disinfection (T2 & T3), steam sterilisation (T4 & T5), hydrogen peroxide gas plasma sterilisation (T6 & T7), reprocessing endoscopes (T8 & T9), reprocessing medical textiles (T10), and reprocessing SU MDs (T11). Infrastructure requirements are lowest for devices requiring light disinfection, while devices internally repaired or reprocessed have highest infrastructure requirements.

Discussion: Transitioning towards RER MDs may lower the healthcare sector's environmental impact. However, transitioning towards reusable MD's requires significant changes to material logistics infrastructures. Previous research has defined value retention strategies and circular business models for different types of MDs based on their product value but lacked comprehensive inclusion of all MDs and their material logistics infrastructure requirements. Different studies also use different terminology. We present a novel taxonomy, which consolidates and builds on existing evidence from the emerging field of 'healthcare sustainability science'. For research, our taxonomy provides a comprehensive overview and analytical lens for exploring the requirements of transitioning towards reusable medical devices (RER MDs). Additionally, we aim to establish consistency in terminology to advance comparisons and consistency across future healthcare sustainability studies on RER MDs. For hospitals, our results detail the infrastructure requirements that should be carefully considered, when transitioning towards different RER MDs.

Rethinking patient flow improvement to rapidly reduce length of stay for improved access and affordability of care

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Context: A large Teaching Hospital (900 beds) in the northwest of England faced significant pressure to improve both access to and affordability of care. Various approaches to free up beds by improving patient flow to reduce length of stay (LOS) had been tried but only provided limited results. It was recognised that it did not have the ability to identify the biggest constraints in terms of managing patient flow, nor did it have the ability to effectively monitor flow through the hospital or an electronic workflow system that allowed leaders to efficiently synchronise and manage patient care to optimise flow.

Methods: A pilot study was undertaken to test whether a methodology based on the Theory of Constraints (TOC), could rapidly and significantly improve flow to reduce LOS. TOC states that in goal-oriented (complex) systems of dependent activities experiencing statistical fluctuation, only a few activities (constraints) govern the performance of the overall system. Thus, the goal was to show, in a patient-centred and clinically led way, where and how to continuously focus improvement for the greatest overall impact across the hospital. The approach was enabled by a digital patient flow system, showing a) in real-time the preferred order in which to work on patients to avoid patients waiting (synchronisation), b) which activity/resource that caused the most delays across the most patients (focus), and c) which patients were at risk of being delayed. This demonstrated that two activities caused most of delay. Focused improvement initiatives were started to quickly resolve these causes.

Results: An improvement approach was adopted to test the system on ten pilot wards involving multiple specialities. Four key indicators of flow were used to evaluate the performance on the pilot wards and identify where to focus improvement efforts. These where changes in the 30-day rolling averages of the:
1. Admissions and discharges (patient throughput): +13%; 39-->45 patients / day
2. LOS of patients who had left the hospital (Finished LOS; FLOS): -16%; 6.76-> 5.71 days
3. LOS of patients still in the hospital (active LOS; ALOS): -25%; 10.2-->7.7 days]
4. Bed days lost to delay.
   1. Focus: which activity is creating most delay across all patients
   2. Improvement potential: ~2600 bed days / month

The analysis covered a period of 10 weeks (Sept – Dec 2023), reflecting the earliest time period whereby the approach could be expected to show an impact, following a staggered implementation across the pilot wards.

Discussion: The results can be attributed to a combination of improved transparency regarding patients' delay, improved synchronisation of work and focused improvement initiatives. Evidence on which task by which resources that caused the most delay across most patients allowed for focusing of improvement efforts on the few constraints that mattered the most. The core elements underpinning these are:

1. Setting and making transparent, in real-time, patient-centred planned discharge days – including only expected clinical recovery time without delays, understanding when that isn't achieved and why.
2. A shared patient prioritisation list to synchronise the work of resources across a hospital, minimising the time patients spend waiting for the next activity to start.
3. An evidence-based approach to focused improvement based on a system's perspective, as opposed to attempting to improve patient flow in one area, pathway, or specialty at a time. This was supported by the core measurements of flow.

Health economic evaluations of vaccination strategies: an umbrella review

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Context: For equity in access to health services and resources allocation, health economic evaluation is a widely adopted methodology for assessing the additional value of a new vaccine in current national immunisation programmes. Several systematic reviews and meta-analyses have described the evidence on the cost-effectiveness of vaccination. However, the level of evidence and data systematisation remains unclear. This umbrella review aims to summarise the highest available evidence on economic evaluations about vaccination programmes worldwide.

Methods: Pubmed, Web of Science, and Scopus electronic platforms were searched for relevant systematic reviews. The Population, Intervention, Comparator, Outcome (PICO) framework was adopted to define the research question. The Population involved people aged eleven years old and over while the intervention was identified as national-, regional-, and local-level vaccination programmes. No comparator was considered. The outcomes were the incremental costs and incremental Disability-Adjusted Life Years (DALYs). Quality assessment, risk of bias and corrected coverage area were evaluated. A random-effects meta analytic synthesis of respective estimates with inverse variance study weighting was implemented, for the primary studies included by the reviews retrieved, regarding incremental costs and DALYs reported.

Results: 32 eligible systematic reviews, 2 with meta-analyses, were selected that meet the eligibility criteria. We expect to highlight the differences and elements of homogeneity of the different vaccination programmes, divided by country and type of vaccine.

Conclusions: The results presented in this umbrella review could be an important starting point to understand the importance of implementing effective vaccination strategies in a comprehensive scenario.

Impact of Telenursing on home care in Italy, by 2026

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Context: The Ministerial Decree n. 77/2022 represents the Italian strategic reform promoted by National Recovery and Resilience Plan (NRRP), which redesigns territorial healthcare network introducing new proactive care models to enhance public health and digital innovation such as Telenursing. It is a telemedicine service delivering nursing care directly to the patient's home, through digital health tools. Telenursing performed by nurses in primary care is aimed at improving proactive, personalised and proximity care to support patients and caregivers at home, enhancing home as a privileged place of care for people with chronic diseases and allowing personalised clinical support, even at a distance.

Methods: The NRRP significantly invests in the healthcare sector, with a strong emphasis on digital health services. Specifically, it allocates 1 bln euros to telemedicine, which includes telenursing services provided by family or community nurses. Additionally, 2.72 bln euros are allocated for home care enhancements. Telenursing, as part of the telemedicine investment, plays a critical role in this strategy. Expert working groups were established to develop the technical and IT specifications for telemedicine and to formulate guidelines for the digital home care model. These efforts culminate in the Ministerial Decrees of April 29th and September 30th 2022, outlining the detailed implementation plans for these investments. This integrated approach, led by AGENAS and the Italian Ministry of Health, aims to revolutionise home care in Italy by leveraging digital technology, particularly telenursing, to provide proactive and personalised healthcare services.

Results: In the revised NRRP plan, Italy aims to increase home care services significantly. By mid-2026, the goal is to cover at least 10% of the population over 65, a substantial increase from the current coverage which is less than 5% in various regions. To support this expansion, an additional 250 million euros have been allocated to home care, including telenursing. This increased funding is part of a larger 750 million euros reallocation to enhance both Home Care and Telemedicine. Telenursing, as a vital component of this plan, is expected to play a significant role in reaching the target of 842,000 elderly individuals by 2026. This focus on telenursing underlines its importance in delivering efficient and accessible care to the elderly, leveraging technology to meet the growing healthcare needs.

Discussion: The escalating relevance of telemedicine, spurred by aging populations, the chronic disease burden, and the COVID-19 pandemic, is reshaping healthcare in Italy. Focused on enhancing patient-centred care, the nation is channelling investments into primary care, notably home-based services and digital health solutions. Telenursing, executed by skilled nurses, is at the forefront of this transformation. This approach focuses on health monitoring, assessment, promotion, prevention, and education, benefiting not only patients with chronic conditions but also their caregivers. Through telenursing, Italy aims to diminish unnecessary hospital admissions and bridge the gap in geographic access to healthcare services. This strategy promises to elevate patient satisfaction, safety, and empowerment, heralding a new era in healthcare delivery.

The Italian national Artificial Intelligence platform to enhance health experience and outcomes

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Context: In the complex context of the Italian healthcare sector, the Artificial Intelligence (AI) platform is set up as a highly innovative infrastructure aimed at enabling services to support healthcare professionals, improving the ability to proactively take charge of patients and the health status of the population, and using innovative care processes. This approach will allow for better demand governance, including for programming purposes. In territorial care processes, AI can act as a facilitator for the continuity, access and personalisation of care, ensuring greater effectiveness and efficiency of the healthcare system.

Methods: AI is the focus of a major initiative that is among those envisaged in Mission 6 "Health" Component 1 of the PNRR with a funding of 50 million euros allocated for the creation of a AI platform to support primary care and aims to improve territorial health care, optimising and integrating the processes of taking charge of patients throughout the country, ensuring proximity and timeliness of action by the health service. The investment aims to support and facilitate the activities of primary care healthcare providers and facilitate access to and use of services by patients. The platform will in fact play a proactive role towards healthcare professionals and patients. A pilot project will be led throughout 2025 and subsequently it will be extended throughout the country with low upgrading costs.

Results: The pilot project of the Italian national AI platform will involve a sample of at least 1.000-1.500 General Practitioners (GPs) and 500 Family or Community Nurses (FCN) across all Italian urban zones and regions. During the pilot key aspects such as platform utilisation frequency (i.e. GPs engagement levels and regional disparities), its impact on diagnosis, and therapeutic methods will be assessed through dedicated KPIs. The pilot will be the occasion to test the function of the platform and to enhance and modify it accordingly to the needs of the professionals. By the beginning of 2026 the use of the platform will be further extended to reach at least 15.000 GPs, 7.500 FCNs and the general population, until reaching during the following years the entire population.

Discussion: The platform is expected to improve the experience of the patient, organisational aspects of care and clinical outcomes. Its implementation in the Italian healthcare system is a fundamental shift towards a more digitalised and AI-integrated approach in health. However, this progress is not without its challenges: the use of AI in healthcare raises important ethical and privacy issues. To ensure that patient data is used responsibly and securely, a strong commitment to data security and privacy protection is required. Decision support systems in the care of the individual must be conceived and used precisely as support tools for health professionals, who are entrusted with the competence of the medical act and whose knowledge, clinical experience, and critical reasoning skills cannot be replaced. Recognising these challenges, this transition is expected to significantly improve patients' access to healthcare services, with an emphasis on accuracy and timeliness of diagnoses and therapies for professionals.

Local health units in Portugal: key factors for successful implementation of an integrated care model

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Over the last few years, the health needs of the Portuguese population have suffered major changes, and this has generated strong pressure on healthcare services, with difficulties in access, quality of care and, consequently, user experience, despite the increase in healthcare budgets.

To respond to this problem, the Portuguese government decided to implement a new organisational model, local health units (LHUs). LHUs are a population-based management model in which healthcare is vertically integrated to achieve the triple aim, improve the health of the population, improve the user experience, and reduce healthcare costs.

A project was designed to monitor the implementation process of these LHUs. This project is divided into several steps and the first step has the following main objectives: to describe the state of the art of care integration and to carry out a diagnosis of the situation regarding LHUs.

To achieve this first objective of analysing the state of the art of integration, a systematic literature review was carried out with the aim of understanding healthcare integration and its relationship with the instruments and mechanisms for organising, financing, and evaluating the performance of integrated units, as well as defining the main aspects that should be worked on to ensure the success of this care integration initiative.

Based on this literature review, it was possible to divide the interventions into five main groups:

Strong leadership and team involvement, the alignment of all those involved in the process must be promoted, ensuring that they are well aware of what the project is and what its objectives are; awareness of the existence of long- and medium-term results, but with the need for short-term investments, integration processes require immediate investment, both financial and human, to support the transformation and reorganisation of structures and ways of working, but results only emerge in the medium to long term, which is why it is necessary to maintain consistency and commitment; creation of environments that encourage innovation; developing instruments for planning and managing the process itself, ensuring that things like funding and performance evaluation are in line with the strategic objectives set, and promoting adaptability and flexibility, no two places or populations are the same and so we can't expect an intervention to have the same results in all places, so there must be space for the teams on the field through a bottom-up approach adapt the interventions to the specific needs of each population.

This follow-up process is still under development, and after identifying the key success factors we will move on to analysing the zero point of integration, so that the main needs can be identified and through an adaptive process specific interventions can be designed to respond to the key factors identified.

Assessing equity in health care: a holistic framework to improve care pathways for people with Alzheimer's disease

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Context: Today's healthcare landscape faces a complex set of challenges. The phenomena of an ageing population, the increasing prevalence of chronic diseases and the complex interplay between physical and mental health are further increasing the demands on healthcare systems. As a result, the need for nuanced, targeted and equitable health care becomes paramount. Recognising the need to address inequalities, this work aims to develop a comprehensive equity framework to monitor inequalities associated with Alzheimer's disease patient pathways within a national health system.

Methods: The development of the proposed equity framework started with a scoping literature review, which provided key insights into different dimensions of equity and guided the subsequent design. The framework was then adapted according to expert opinion and applied in practice in a pilot case in the context of dementia, focusing on Alzheimer's disease. Interviews were conducted with a wide range of stakeholders, including neurologists, geriatricians, patient advocacy groups, and individuals involved in national health policy and planning. Their collective expertise helped to refine the components of the framework, ensuring relevance to real-world scenarios and addressing the specific challenges of the disease. To translate these findings into actionable measures, indicators linked to identified inequalities have been developed and are currently on validation through a two-round Delphi process involving a multi-perspective expert panel. This approach ensures the adaptability of the framework and positions it as a valuable tool for identifying and addressing health inequalities.

Results: The equity framework is composed by a systematic series of steps. First, it focuses on a detailed mapping of the patient care pathway, analysing key documents such as national and international guidelines and regional diagnostic and therapeutic pathways (PDTA). This steps will undergo robust expert validation to ensure accuracy. Recognising that inequalities are manifested not only in access to healthcare services, but also in the delivery of care and the final outcomes experienced by different patient populations, the framework identifies potential sources of inequality in three main categories: healthcare delivery (providers), health determinants (population-related factors such as economic and socio-demographic influences) and patient health status (e.g. disabilities, co-morbidities). The validation of indicators and the pilot study are in progress. The validated indicators will be the cornerstone for monitoring equity within the Alzheimer's disease care pathways.

Discussion: By addressing issues of access, delivery and outcomes, the equity framework will provide a systematic approach to assessing and reducing inequalities within healthcare systems in the Alzheimer's care pathway. A pilot study currently ongoing in three Italian centres for people with Alzheimer's disease (using the set of indicators developed according to the framework) will allow the diversity of the national health care system to be represented, thus improving the adaptability and relevance of the framework. By integrating these results into the process of monitoring care pathways, the equity framework can become a fundamental tool in the difficult search for equitable care to pursue societal value according to the value-based approach.

A national data driven approach to enhance regional collaborative governance in Dutch long term care

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Context: The aging population and a prognosed shortage of health professionals have created a need for improved regional governance in long-term care, essential for sustainability and resilience of regional health systems. To address this issue, the Dutch national programme RegioKracht ("RegionalStrength") focuses on enhancing collaboration and regional initiatives to tackle urgent challenges in long term care (for elderly and other individuals with limitations). Important themes include labour market, housing and digital innovations. This national programme incorporates a data drive approach, encompassing a self-scan (collecting data on governance, as well as a range of regional data), used for regional reports and reflective sessions with stakeholders.

Methods: The self-scan comprises a questionnaire addressing characteristics and drivers/obstacles of collaborative governance, based on a theoretical model. This questionnaire captures information from key stakeholders involved in regional governance of long term care. Participants are asked to indicate their perception of regional collaboration, including urgency, motivation, trust, strengths, and process characteristics. Responses are collected and analysed to inform subsequent reflective sessions in each region, to identify and discuss opportunities for improvement. In addition, regional data on demographics, care and support needs, and workforce needs and capacities are collected from existing data sources to provide participants a comprehensive understanding of the situation and developments in each region. By repeating this data-cycle in subsequent years, changes and trends can be monitored over time. This iterative approach allows for continuous improvement and optimisation, including systematic evaluation of the impact of this data driven approach.

Results: Further details of the self-scan and design of the regional reports, as well as preliminary results from the first data-cycle will be presented. These include response rates for questionnaires and participation rates and evaluations of reflection sessions. Furthermore, preliminary findings on status and improvement of regional governance will be presented, along with key descriptors of variability in regional contexts. These results provide valuable insights into whether this application of data driven technologies to improve regional collaboration in long-term care is feasible and of added value to these stakeholders. The self-scan and regional reports are considered a first version, to be further improved to better fit information needs as well as optimise the logistics of collecting data an sharing results with these stakeholders. A first impression of both strengths that can be built upon and weaknesses that need to be addressed, will also be presented.

Discussion: The presentation will involve a discussion of this concept of data driven enhancement of collaboration in regional governance, preliminary results and their implications for regional governance in long-term care. An important strength is the standardised and harmonised approach of collecting and presenting data on governance as well as regional situations and developments. By presenting the findings to regional collaboration tables, the aim is to stimulate dialogue and foster collective problem-solving.

This conference presentation represents an important step in the ongoing national programme RegioKracht to improve regional governance in long-term care. By utilising a self-scan and collecting comprehensive regional data, this programme seeks to empower stakeholders, enhance collaboration, and address urgent challenges in the provision of care for the elderly and individuals with limitations. The presentation of preliminary results offers a valuable opportunity to share knowledge and experiences, while also informing future initiatives and practices in the field of regional governance in long-term care.

A conceptual framework of six building blocks for successful development, acquisition and/or implementation of digital innovations in health care organisations: a governance perspective

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Context: Digital innovations have the potential to revolutionise healthcare delivery by improving quality, efficiency, and patient outcomes. However, adoption and scaling up of digital innovations in health care remains slow. To harness the full benefits of digital innovations, organisations need to adopt a comprehensive governance perspective and policy, providing for a fertile organisational ecosystem to enable effective and sustainable integration of digital innovations, well aligned with the organisation's strategic vision. Additionally, a more systematic approach is crucial in the development, implementation and scaling up of individual applications of digital innovations to maximise their impact for e.g. personalised care, quality improvement, business intelligence and (other) process optimisations.

Methods: A conceptual framework is proposed, encompassing six building blocks. This framework will serve as a solid basis for organisations to develop a clear vision and strategy on the use of data and digital technologies throughout the organisation, and for providing leadership in subsequent development, acquisition and/or implementation of viable data-driven applications.

1. Design and ownership of products/services through digital innovations that meet specific needs of healthcare organisations at various levels.
2. Change Management and Leadership to ensure successful adoption and integration of digital innovations.
3. Data Availability, including data strategy, data management and data policies.
4. From Raw Data to Actionable Insights, including data quality and validity issues, data analytics, decision making and process optimisation.
5. Alignment and compliance with the Product Life Cycle/Technology Readiness Level of digital innovations.
6. Evaluation and Health Technology Assessment strategies to guide decision making and determine the impact and value proposition of digital innovations.

Results: This presentation will outline and discuss the governance perspective and approach proposed for health care organisations to provide a fertile ecosystem for developing and/or implementing digital innovations. The six building blocks will be presented in more detail, highlighting their interdependencies and the critical role they play in systematic development, acquisition and/or scaling up of digital innovations.

Recommendations will also be offered from the (regional or national) health care policy perspective, to develop instruments that facilitate identification of (successful and failed) implementations, accelerate their dissemination and impact, and exchange of knowledge and documentation, according to the respective building blocks.

Discussion: Overall, this presentation aims to facilitate a comprehensive understanding of the governance perspective on digital innovations in healthcare. It will equip conference attendees with practical insights to guide their organisations at the strategic, tactical as well as operational level in effectively harnessing the potential of digital innovations and data-driven applications for improved healthcare outcomes. And also to appreciate their leadership role in the process of digital transformations not only within their own organisations, but also as member of the larger (regional or national) health care community.

A systematic review of the policy measures and instruments used in European countries to increase biosimilar uptake

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Context: Europe has been authorised biosimilar medicines since 2006, after the expiration of patents for reference biological medicines (1). These high-quality alternatives, approved through a centralised procedure conducted by the European Medicines Agency (EMA) (2), have resulted in estimated cumulative savings, based on list prices, of over €30 billion as of 2022 due to the impact of biosimilar competition in Europe (3). While biosimilar medicines can contribute to the sustainability of healthcare systems, their utilisation rate varies across European countries (3–8). This study aims to identify and systematise policy measures and instruments used in European countries to increase biosimilar market share.

Methods: A systematic review was conducted according to PRISMA 2020 recommendations (9), in three databases. Medline-PubMed, Web of Science and ScienceDirect databases were searched using inclusion criteria that required full articles published in English between January 2006 and November 2023. Reviews, letters, reports, editorials, comments or opinion articles, qualitative studies, incomplete articles, as well as studies referring to countries outside Europe, were excluded from this study. The quality of the included studies was assessed using the Joanna Briggs Institute (JBI) Checklist for cross-sectional studies (10). Data extraction included key study details such as authors, publication year, covered European countries, objectives, participants (for real-world evidence studies), and results (measures and/or instruments for increasing biosimilars market share). Protocol registration number: INPLASY2023120032.

Results: Of the 1137 articles, only 13 met the eligibility criteria for analysis. These selected articles encompassed a study of 28 European countries, and focus on supply-side and demand-side policy measures. Supply-side policies, including pricing regulation measures, were identified in 27 countries, with tendering, price-linkage, and internal reference price being the most commonly used. Tendering was employed by 27 countries for biosimilar procurement in inpatient settings (hospitals). Regarding demand-side policy measures and instruments, prescribing guidelines and recommendations were widely utilised. Some European countries also implemented physician incentives, quotas or target, and prescriptions by international non-proprietary names. Measures such as interchangeability and therapeutic or automatic substitution were also identified in European countries.

Discussion: The results of this systematic review reveal that the policy measures and instruments adopted by European countries to increase the biosimilars market share vary wildly. In Europe, diverse policy measures regulate biosimilar prices across outpatient and inpatient settings. Common approaches include internal reference prices and price-linkage. On the demand-side, biosimilar market share is influenced by physician incentives and prescribing guidelines, with switching recommended in several countries. Although limited, educational programs for physicians and patients enhance biosimilar adoption. It is expected that policy measures and instruments will continue to emerge from European countries, supporting health system sustainability and improving patient access to biological therapies. While automatic substitution was not recommended or applied, interchangeability and switching are becoming more relevant. It is important that the positive results from some countries serve as an example for the future of these medicines in the European market.

Is fee-for-service the best payment mechanism for one-day surgery care? Innovative approach based on adjusted DRG system

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One-day surgery care is most paid through a fee-for-service. This type of healthcare is provided not only by outpatient but also by inpatient providers in Slovakia. Both providers used the same payment mechanism for one-day surgery cases. The reimbursements consist of individually negotiated fee-for-service, between the healthcare provider and health insurance company. This study aimed to demonstrate the negative consequences of this system using data from Slovakia and to suggest recommendations for innovative, sustainable, and efficient financing and healthcare management of one-day surgery.

The analytical framework was developed based on a two-tiered approach. First, a comprehensive review of the existing literature was conducted to identify relevant frameworks on one-day surgery with a focus on its financing. Second, data about one-day surgery were collected by Slovak authorities in 2019 and 2022. The proposal of the new concept was created based on in-depth knowledge of the SK-DRG system, best practice reviews, and consultations with experts and stakeholders including healthcare providers and health insurance companies., using their practical experiences with reimbursement of one-day surgery in Slovakia.

Adverse effects of the payment mechanism are presented not only in shares of providing one-day surgery but also in the variability of reimbursement for the same medical procedure across health care providers. In 2019, the share of one-day tonsillectomy was 46% in Slovakia. Differences in reimbursement between inpatient and outpatient providers vary by 9% on average for one health insurance company and 21% for the other. Some medical procedures are reimbursed more to outpatient providers by 54% or 90%, while other medical procedures are reimbursed more to inpatient providers by similar percentages. This study proposes an innovative approach to building reimbursement mechanisms for outpatient care. The principle is the decision-making of reimbursement method - outpatient or inpatient reimbursement through software that categorises medical procedures in combination with diagnoses according to the level of complexity. Reimbursement is based on a modelled DRG system specifically tailored for outpatient healthcare, including DRG groups with cost weights and annual valorised base rates.

Our findings are in line with published OECD data, in which either data for Slovakia are not available or Slovakia shows a low share of one-day surgery care. Several countries describe best practices with financing selected one-day surgery medical procedures through the DRG system. The new concept is planning to finance the entire one-day surgery care through a new reimbursement mechanism. This approach diverges from the well-established principles governing the financing of one-day surgery care.

Implementing innovations in PHC: enablers and barriers to effective change management

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Primary healthcare (PHC) is an increasingly prominent health reform area in Europe. The implementation of PHC innovations is complex, requiring strong system governance, solid institutional change management, and provider ownership to ensure same services of good quality to all. Rising chronic conditions and costs and commitments to universal health coverage require PHC systems to become more proactive, enhance prevention and coordination and integrate care. At the frontline of care provision and delivered by a diverse workforce, PHC covers most health needs. COVID-19 highlighted PHC's potential and role in strengthening system resilience and sustainability.

PHC reforms vary, covering changes to services provided, workforce (e.g. new professionals, roles, skill-mixes), service delivery mechanisms and institutional relationships. Their introduction and uniform scale-up is challenging, involving multiple stakeholders in fragmented environments with diverse, independent (and intersectoral) providers. Extant lack of trust and cooperation among stakeholders and opposition to changes that conflict with self-interest or customs can undermine efforts. While much is known about organisational innovations, evidence on their implementation is limited.

The country expert (HSPM) network of the European Observatory has launched a cross-country study to better understand PHC reform implementation processes in European countries. While each country has its own methods, commonalities in reform type, implementation challenges and practices suggest several levels of influence and that sharing experiences, existing practices and available evidence is important to inform the development of effective policies and strategies to implement PHC reforms. At the macro level (health system), governance mechanisms, appropriate funding and a unified information system are important. Clinical guidelines and regulatory frameworks must also be considered. Change management functions at the meso level (institution) must be guaranteed. (Re)training and trust cultivation are necessary to introduce new services, tools and working arrangements at the micro level (individual). Patient perspectives must also be accounted for. This study explores both the conditions for successful implementation and their underlying enablers and barriers across levels. An ensuing analytical framework will be of actionable value as policymakers look to develop effective policies and strategies. This oral presentation will present the preliminary framework and foster discussion around enabling environments for PHC reform implementation. It furthermore aims to:

- Provide insights into recent experiences of implementation via country case studies.
- Present a preliminary analytical framework of levels of influence and possible actions towards implementation.
- Explore what's needed to strengthen state/regional capability for PHC change implementation Solicit active audience engagement on other country experiences to further the relevance of the framework.

Evaluation of health, social and educational needs of the children having type 1 diabetes: challenges and solutions

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According to International Diabetes Federation (IDF) diabetes cases has been increasing in the great majority of countries, worldwide. In 2022, there were about 8.75 (95% uncertainty interval 8.4–9.1) million individuals worldwide with type 1 diabetes: of these 1.52 million (17%) were younger than 20 years (IDF, 2022). The similar trend is indicated in Georgia, where type 1 diabetes is growing at 5.2% each year compared to 2% for type 2 diabetes. Today, 1 in every 58 families are impacted, where it was only 1 in 143 families in 1990 and will be 1 in 19 families in 2040 (Type 1 Diabetes Index, 2023). Out of 4,483 cases of type 1 diabetes registered in Georgia, 1,239 are aged 1-19 years old (IDF, 2022). However, the expansion of diabetes services for children with diabetes (CwD) has lagged far behind. At the same time, there is a highly unequal geographical distribution of care facilities for CwD in Georgia, the great majority of them is concentrated in the Capital. This need is exacerbated by a shortage of qualified paediatric endocrinologists in the regions, low awareness on diabetes management and low readiness of schools and kindergartens to manage CwD.

The overall purpose of this study is to evaluate health, educational and social needs of the children with type 1 diabetes (CwD) living in Georgia. The specific objective was to identify existing gaps in the state programs and/or system arrangements that prevent CwD having access to the necessary services. The study also aimed to develop the specific benchmark indicators to be evaluated at the end of the project implementation (supported by World Diabetes Foundation) in order to determine how the situation has changed.

A combination of mixed-research methods has been applied. Initially, qualitative study – focus group discussions (FGDs) and in-depth interviews were carried out. At the final stage, quantitative survey was performed with parents/caregivers of CwD. The following main topics were emerged in this study: social-economic issues of families of CwD, access to health services, management of diabetes at educational facilities, health literacy of parents and usage of innovative technologies in diabetes management.

Three FDGs were held with parents of the children with diabetes (CwD) and 9 in-depth interviews conducted with various stakeholders (paediatric endocrinologists, representatives of Ministry of Health, field experts). 170 parents/caregivers were interviewed using semi-structured questionnaires. Based on the results, number of recommendations were elaborated in addressing existing problems that CwD have in Georgia with regard to geographical accessibility to health services, management of diabetes at educational facilities, as well as, alleviation of socio-economic problems of families of CwD, parents' diabetes (health) literacy and proper management of the disease.

Conclusions: Consideration of these findings and recommendations can help to alleviate some of the everyday concerns of CwD and their parents/caregivers, enabling them to attain higher standards and better quality of life. It's crucial for all stakeholders to work together to address the needs and provide comprehensive support for CwD in Georgia.

Conceptualising 'essential' in oral health as a basis for defining an essential oral healthcare benefits basket in EU countries

Ms Béatrice Durvy[1,2], Mr Lukas Schöner[1], Ms Tamara Indira Reyes Ojopi[1], Prof Reinhard Busse[1], Dr Ruth Waitzberg[1,3]

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Context: In many countries, public health systems offer only partial coverage for oral health (OH), resulting in unmet needs and financial hardships for individuals. While efforts to enhance OH coverage and improve integration into public health systems are gaining momentum, the lack of consensus on defining 'essential' OH remains a challenge, as reflected in the heterogeneity of the various OH benefits baskets across Europe. This study aims to address this research gap by conceptualising the notion of 'essential' OH care from the perspectives of both OH experts and the general population across Europe.

Methods: This exploratory qualitative study collected data through focus group discussions with participants from Denmark, Estonia, France, Germany, Hungary, the Netherlands, Portugal, and the UK. An open-ended interview guide asked participants to define what is essential for their health and oral health. Thematic analysis was used to extract relevant inputs from the data. Intercoder validity was applied throughout the whole process: all transcripts were read and coded independently by three researchers, who then cross-validated and reconciled the coding. The coding process was half inductive and half deductive, with codes emerging from the transcripts combined with codes initially built based on the oral health services' framework (Winkelmann, Gómez Rossi, & van Ginneken, 2022). Codes were discussed, compared, and further developed repeatedly between the involved researchers into themes and categories.

Results: We found three main themes: (1) Basic needs and functions are essential, (2) Essential goes beyond basic needs and functions, and (3) OH is part of general health. Results show that participants' definition of 'essential' is a fluid and multidimensional concept. Essential was seen as individual-specific (i.e. vary with age, health status, gender) and context-specific (i.e. vary with culture, socio-economic status, over time). It aligns with the WHO OH definition, encompassing broad aspects of health. 'Essential' in OH was also associated with Maslow's hierarchy of needs pyramid. Many groups of OH services were viewed as 'essential', including preventive and emergency care. While debates arose regarding whether cosmetic services are 'essential', a consensus emerged on the strong link between individuals' oral aesthetics and psycho-social wellbeing. Participants stressed that enhancing overall OH outcomes requires achieving various goals within the OH system, including equitable access, responsiveness, and affordability.

Discussion: This work underscores the multidimensionality of OH and the complexity of defining what is 'essential' for OH care. Participants' consensual views about the role of oral aesthetics on psycho-social wellbeing reveal a potential discrepancy between current OH coverage and populations' concerns. Hence, findings highlight the importance of agreeing on such a definition as a prerequisite for establishing an OH care benefits basket.

Reference: Winkelmann J, Gómez Rossi J, van Ginneken E. Oral health care in Europe: Financing, access and provision. Health Syst Transit. 2022 Jun;24(2):1-176. PMID: 35833482.

Exploring criteria and perspectives to inform systematic and evidence-based prioritisation mechanisms for an oral health care benefits basket in EU countries

Mr Lukas Schöner[1], Ms Béatrice Durvy[1,2], Ms Tamara Indira Reyes Ojopi[1], Prof Reinhard Busse[1], Dr Ruth Waitzberg[1,3]

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Context: In many countries, there is limited public coverage for oral health (OH), resulting in unmet needs and financial hardships. The process of prioritising OH services and populations for public coverage is not transparent or systematic in most countries. This study aims to identify and inform policy-makers on OH experts' and general populations' preferences on criteria for defining OH benefits baskets, as well as on groups of services and populations to prioritise.

Methods: This exploratory study applied a qualitative approach and collected data through focus group discussions with OH experts and the general population from eight European countries. Data were analysed with a combination of thematic and content analysis. Intercoder validity was applied throughout the whole process: all transcripts were read, and coded independently by three researchers, who then cross-validated and reconciled the coding. The thematic analysis coding process was half inductive and half deductive, with codes emerging from the transcripts combined with codes initially built based on the oral health services' framework (Winkelmann, Gómez Rossi, & van Ginneken, 2022). Content analysis codes were divided into three categories: groups of services, population groups, and levels of 'qualifiers' ranging from "essential" to "non-essential". This helped draw conclusions about which services are relevant for whom. Codes were discussed, compared, and further developed repeatedly between the involved researchers and grouped into themes and categories.

Results: We found four themes: situational analysis, criteria for decision-making, decision-making process, and type of benefits basket. Participants highlighted the importance of considering the OH system's values, objectives and context when defining a prioritisation process. Multiple criteria for decision-making were deemed relevant, including services' contribution to OH, economic, people-centred, societal values, and feasibility criteria. Participants argued that the decision-making process should be evidence-based and involve various stakeholders; while highlighting that benefits baskets can vary from positive to negative lists of services, conditions, and/or population groups. Content analysis results show that preventive and emergency care were often prioritised, while treatment of prevalent OH conditions, diagnostics, and advanced oral services were considered less essential. Children and adolescents were highly prioritised, followed by high-risk individuals, older adults, and low-income populations. No population group was considered 'non-essential'. There was broad consensus over covering emergency and population-wide prevention for everyone, and individual prevention primarily for children.

Discussion: Our findings can support policymakers in the prioritisation process to consolidate OH benefits baskets while meeting health systems' objectives. The study advocates for equitable coverage, particularly for vulnerable populations, with a consensus on prioritising preventive measures and urgent care, especially for children.

Reference: Winkelmann J, Gómez Rossi J, van Ginneken E. Oral health care in Europe: Financing, access and provision. Health Syst Transit. 2022 Jun;24(2):1-176. PMID: 35833482.

Evaluation of perceptions and attitudes of doctors towards telemedicine

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Digital transformation and the Fourth Industrial Revolution triggered substantial changes in many industries, worldwide. Healthcare industry is not an exclusion in this regard. Digitalisation of healthcare and specifically digital health is becoming more important, year by year. Furthermore, COVID-19 pandemics dramatically increased importance of digital health. Telemedicine and specifically teleconsultations offer many benefits, such as, increased access to high quality healthcare services for individuals (especially for those living in rural areas), improved management of chronic conditions, cost efficiency, time saving for patients etc. However, despite all the benefits related with telemedicine, its adoption and uptake is relatively slow, especially in developing countries. One of the major barriers hindering telemedicine adoption is scepticism and lack of confidence among doctors providing these services. Subsequently, presented research was focused on this aspect of telemedicine, in Georgia.

The purpose of this study was to evaluate attitudes and perceptions of doctors towards telemedicine in Georgia and reveal challenges and barriers. The main question of the conducted research was - how acceptable telemedicine is for the doctors providing this service?

A combination of mixed-research methods has been applied. Initially qualitative research, focus group discussions were conducted with doctors and specialists providing telemedicine consultations to patients. Overall, three FGDs were held, in rooms equipped with relevant video/audio devices and other necessary materials. Convenience sampling was utilised for selecting participants. Respondents for FDGs were doctors from various specialties contracted by telemedicine clinics who had experience of virtual consultations. Respondents were from different specialties – endocrinologists, therapists, paediatricians, psychologists, cardiologists, dermatologists, neurologists, pulmonologists and gastroenterologists. Duration of interviews ranged from 40 minutes to 1.5 hour. From 6 to 10 doctors participated in each discussion. The FGDs were led by an experienced moderator using appropriate „Discussion guide" and supported by a research assistant. The assistant was pre-trained in FGD method and specific aspects of transcript preparation. All discussions were audio/video recorded and transcripts were prepared based on them. At the second stage, quantitative research- survey of doctors was performed. More specifically, telemedicine provider doctors were surveyed using online structured questionnaire. Recommended sample size (at 95% confidence level and 5% margin of error) was 100 doctors, since approximate number of doctors providing telemedicine services in Georgia is 1,200. Overall, 150 respondents filled out questionnaire and 142 were counted as valid for research purposes and analysed.

Analysis of results demonstrate, that scepticism and lack of confidence exists among doctors providing telemedicine services in Georgia. Moreover, there is a lack of qualification and specific skills for teleconsultations. Research revealed a lack of awareness and knowledge concerning specific characteristics and requirements of online consultations in doctors providing telemedicine services. Additionally, lack of possession of skills, for instance how to instruct patients for self-examination or how to collect more information during teleconsultations was also apparent.

Consequently, it is highly recommended to conduct trainings for doctors, to increase their awareness about areas of successful utilisation of telemedicine, its benefits and specific characteristics. Furthermore, increased qualification of doctors will increase their confidence, which in turn will be reflected on patients and accordingly increase trust towards telemedicine.

Factors influencing job satisfaction in the European health workforce: a Junior Doctors' perspective

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Context: Since the 1960's there has been an oscillating growth in the number of healthcare workers in the European Union. Despite the growth in numbers, Europe is experiencing problems in medical workforce planning, including long-term shortage of professionals, insufficient recruitment in some specialties, medical desertification, and recently rising struggles with workforce retention. There is a strong correlation between job dissatisfaction and intention to quit. The lack of satisfaction is mostly affected by burnout syndrome to which junior doctors are especially susceptible. We aimed to study work-related experiences of junior doctors to identify possible factors that influence attrition.

Methods: The European Junior Doctors' Association conducted a study between January and June 2023 with the aim of exploring European junior doctors' work-related experiences and the impact of those experiences on their personal and professional lives. The focus was set on identifying similarities in different member countries of the organisation, and to collect proposals for increasing their job satisfaction and contribute to the retention of junior doctors. The study was based on semi structured qualitative interviews with representatives from 24 national medical associations, who were purposely sampled to achieve parity or overrepresentation of the female gender. Gathered data was then analysed thematically to follow topics that were explored in the interviews: job satisfaction, wellbeing, job resignations, working experiences, quality of training, personal lives, gender inequalities, proposals, and specific issues. An informed consent process was carried out with all participants.

Results: Three cross-cutting elements were identified that affect junior doctors' job dissatisfaction across all 24 European countries: work-related experiences, training-related experiences and difficulties in work-life balance.
- Work-Related Experiences:
  o Work Overload: Excessive workload leading to physical and mental exhaustion.
  o Poor Working Environment: Stressful atmosphere, lack of recognition, and vulnerability to mistreatment.
  o Compensation Concerns: Inadequate remuneration for workload and responsibilities.
  o Lack of Flexibility: Hindrance to academic tasks, educational activities, and reconciling work with caregiving responsibilities.
  o Mobility & Employment Concerns: Frequent relocations and temporary employment causing dissatisfaction.
- Training-Related Experiences:
  o Overwhelming Workloads: Detrimental to the quality of postgraduate training.
  o Insufficient Supervision and Feedback: Lack of guidance impacting skill development.
  o Limited Time for Academic Activities: Constraining academic progression.
  o Inadequate Clinical Skills Development: Feeling of insufficient progress in training.
- Work-Life Balance:
  o Inflexible Schedules: Interfering with personal life, particularly caregiving responsibilities.
  o Career Impact: Decisions affecting work-life balance influencing career advancement.

Discussion: Over 30% of doctors in Europe are over the age of 60 and expected to retire in the next five years, highlighting the importance of ensuring the generational replacement of doctors. Growing demands for better work-life balance across European societies may be extending to the medical workforce. Instead of focusing on workforce recruitment, which has so far been the main strategy, more emphasis needs to be put on retention of the current workforce. This in turn demands changes in the existing system. Often the discussion around working conditions revolves around salaries, but as the results of our study show, salary is but one and certainly not the highest ranking factor influencing healthcare workforce retention. Collaborative action needs to be taken on both the national and the medical establishments level, without forgoing the need for personal accountability regarding the creation of suitable working conditions, workload and work environment.

Qualitative overview of the situation of Junior Doctors in Europe

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Context: The European Junior Doctors Association conducted a study to explore the impact of work experiences on junior doctors across Europe. This qualitative research aimed to understand how these experiences affect their professional and personal lives and to gather ideas for improving their working conditions and job satisfaction. Despite diverse healthcare systems and cultural values in Europe, the study unveiled a remarkable consensus among junior doctors regarding their central concerns and issues, transcending national differences.

Methods: This qualitative study involved seventeen semi-structured interviews with representatives from 24 National Medical Associations. The interviews aimed to delve into the experiences of junior doctors, focusing on gathering common experiences and suggestions for improvement across different European countries. The methodology was tailored to understand the universal themes that resonate across varied national healthcare systems, training structures, remuneration, and cultural backgrounds. The study's approach was comprehensive and inclusive, using thematic analysis to systematically assess the content of the interviews, ensuring a broad understanding of the challenges and aspirations faced by junior doctors in Europe.

Results: The study identified eight key trends across Europe:

1. Shared disappointment and job dissatisfaction: Widespread dissatisfaction with job conditions, irrespective of country.
2. Workload strains due to heightened demand: Excessive work demands leading to hurried decision-making and care quality concerns.
3. Generational shift: Preference for work-life balance over work-centric lifestyle, contrasting with previous generations.
4. Redefining professional calling: Desire for fair compensation and respect for personal time, moving away from the traditional notion of overworking as part of medical vocation.
5. Rising resignations from clinical roles: Increasing trend of junior doctors leaving clinical roles for alternative career paths.
6. Shift in specialty choices: Preference for specialties offering better working conditions, potentially affecting the attractiveness of medicine.
7. Gender inequalities: Challenges faced by female junior doctors, including career interruptions and workplace biases.
8. Cross-border mobility challenges: Migrant junior doctors encountering professional growth barriers and social integration difficulties.

Discussion: The study underscores systemic issues in the European medical field, particularly affecting junior doctors. The unanimity in themes across different countries points to widespread systemic challenges rather than isolated issues. The generational shift suggests a need for rethinking traditional medical roles and expectations, while the trend of resignations and altered career choices signals a looming crisis in medical workforce sustainability. Addressing gender inequalities and the specific challenges of migrant junior doctors is crucial for fostering a supportive and inclusive work environment. These findings necessitate comprehensive policy interventions and systemic reforms. Emphasising improved working conditions, equitable compensation, and fostering a balanced, equitable work culture is imperative to address the challenges faced by junior doctors and ensure the sustainability and effectiveness of the medical workforce in Europe.

Junior Doctors' proposals for healthcare workforce retention

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European Junior Doctors' Association, Belgium

Context: The European region is grappling with an increasing shortage of healthcare professionals, driven by a surge in service demand, even as the overall number of healthcare specialists continues to grow steadily. The European Junior Doctors' Association conducted a qualitative study to determine factors influencing healthcare workforce attrition all over Europe. The results indicated the need to focus on workforce retention in lieu of recruitment. A series of proposals were collected from participating junior doctors that would apply to the entire health care system and have a positive impact both for junior doctors as well as other professional groups.

Methods: A qualitative study based on semi structured interviews with representatives from 24 national medical associations was conducted by the European Junior Doctors' Association. The interviews aimed to delve into the experiences of junior doctors across nine categories: job satisfaction, wellbeing, job resignations, working experiences, quality of training, personal lives, gender inequalities, proposals, and specific issues. A thematic analysis followed with the focus on finding common experiences and suggestions that would have a wide positive impact across Europe.

Results: Suggestions to improve healthcare workforce retention were divided into five main categories:
General:
- Medical workforce as a priority issue in health policy agendas.
- The need for workforce planning and forecasting systems.
- Increased investment in the health workforce.
- Considering junior doctors' changing values around work.

Working conditions and work-life balance:
- Increased flexibility in work.
- Strategies to improve the working environment.
- Monitoring and reducing workloads.
- Monitoring compliance with EWTD.
- Adequate remuneration.
- Enhancing job stability.

Wellbeing and mental health:
- Need for indicators on wellbeing.
- Promotion of professional networking.
- Monitoring and increasing professional satisfaction.
- Developing strategies and protocols to prevent institutional violence.

Training:
- Protecting training of residents.
- Reducing variability in training.
- Ensuring time for training and supervision.
- Increasing accountability during residency.
- Supporting academic activities.

Inequalities:
- Reducing the gender gap in active professional careers.
- Achieving gender representation in positions of responsibility.
- Narrowing the pay gap.
- Increasing recruitment of women in underrepresented specialities.
- Educating health workers on inequalities.

Discussion: Suggestions for workforce retention focused heavily on the promotion of better working conditions, mental health and work-life balance. Although raising healthcare workforce recruitment is important, especially in certain fields like family medicine and psychiatry, our findings clearly showed the need to switch the focus from recruitment to policies promoting workforce retention. Junior doctors are in an especially vulnerable position due to having expectations from both training and rising demand for healthcare services. The new generation of doctors seem to have different expectations for work, seeing it as one more part of their lives, and valuing a good work-life balance. Flexibility and a supportive working environment, where equal opportunities are available for everyone and no one needs to be afraid of institutional violence, are also key components valued by junior doctors. Overall, there is a need for indicators to evaluate the actual state of the workforce, as without measurable data, administrative decisions will be lacking in evidence and ineffective. Finally, even though our study concentrates on junior doctors' experiences, presumably these proposals would have a positive impact on all professional groups in healthcare.

Automation of laboratory medicine: economic and organisational insights

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Context: Since up to 70% of medical choices are based on laboratory results, the quality and the accuracy related to the management of blood samples in the pre-analytical phase should be guaranteed. However, several errors (patient misidentifications, transcription or labelling errors, use of incorrect tubes) may occur in this phase, thus suggesting the implementation of automated solutions to minimise the errors in the process. This study aims at defining the economic and organisational sustainability of automated technologies developed within the Laboratory setting, to support phlebotomists in the draw phase, by detecting manual errors, thus enhancing the overall process efficiency.

Methods: The economic and organisational impact assessment compared Scenario 1 (absence of automated solutions) and Scenario 2 (presence of automated solutions, enabling a total laboratory automation -TLA-, for sample traceability, through the entire process). At first, the costs of the laboratory process (in terms of human resources, equipment, consumables and medical devices, and fixed costs) were determined, considering all the activities performed from the tube check-in to the validation of the results, with the integration of the management of the prevalent errors occurred during the process. Secondly, a budget impact analysis (BIA) was developed, defining TLA financial sustainability, assuming the hospital perspective over a 12-month time-horizon and considering a complete technological modification. The same analysis was conducted for the organisational assessment, to define a release in the time spent by human resources to perform the process. Information derived from real-life data of University Hospital of Padua in Veneto Region (Italy).

Results: The introduction of automated solutions, despite being more expensive in terms of equipment and consumables, would lead to an economic saving equal to 1.9% per process (8.54€ *versus* 8.75€). The most impacting item of costs is related to the human resources involved in the process, equal to 55% and 45%, respectively for Scenario 1 and Scenario 2. In processing 381,474 over a 12-month time horizon, the BIA reports a saving equal to -81,742.71 € (-2.45%), revealing TLA financial sustainability. From an organisational perspective, real-life data revealed a decrease in the time spent by healthcare professionals in the management of blood samples if automated solutions are adopted (Scenario 1: 8.50 minutes; Scenario 2: 6.50 minutes). Overall, the presence of automated solutions generates organisational savings equal to -13.055,68 hours, that could be devoted, based on a cost-opportunity approach, to process additional samples or to perform other core activities for a laboratory.

Discussion: Results revealed the strategic relevance of automated solutions' introduction within the Laboratory setting, with a real-life demonstration of TLA economic and organisational sustainability, generating an overall improvement of the process efficiency. This real-world evidence could be essential to communicate TLA core elements and economic and organisational benefits, since literature is mainly focused on efficacy and safety evidence. Moreover, practitioners could understand the reasons why they are called to use different technologies and why hospitals could invest in innovative technologies, even if the traditional approach seemed to be consolidated: in an era of spending reviews and paucity of resources, all strategies able to prevent a higher economic burden for hospitals, with a consequent improvement in patients' safety, and to re-engineer internal processes should be evaluated, and if affordable, implemented. To enlarge the results, further research are required, by investigating TLA perceived acceptability, through the involvement of healthcare professionals using these technologies.

The organisational and economic impact of the frequent users': re-designing the healthcare network within the hospital and the territorial settings

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Context: A major issue affecting the Italian National Healthcare System is the supply network's fragmentation in responding to several health needs. Emergency Departments (EDs) are the most challenging ward with respect to waiting time and overcrowding occurrence rate. National data show that 70% of EDs' visits are for less urgent clinical conditions (identified with white and green priority codes), with chronic conditions being a primary cause for patients' repeated access to healthcare services, contributing to the "frequent users" phenomenon. This study aims at defining the impact of this phenomenon from an organisational and economic perspective.

Methods: A real-life data collection was performed in 2022 within a health organisation located in the Northern Italy and articulated in different local hospitals. Firstly, a quantitative analysis was conducted analysing the EDs accesses in order to understand the sample of reference and the sub-sample of "frequent users" patients with at least three re-accesses during the year, focusing on the patients with chronic diseases. For this group, assistance time and an economic valuation were calculated. Another quantitative analysis was defined to evaluate the volume of hospital's admissions and outpatient services registered for this cohort of patients. Alongside a qualitative analysis to understand prevalent health needs All these analyses are proposed to provide operational support in developing a proactive model for managing frequent users, anticipating population needs.

Results: An initial sample of 9,126 individuals (representing 13,212 EDs' accesses) was analysed and identifying 780 patients with at least 3 accesses, for a total of 3,047 total accesses (23% of the annual total). Out of them, 168 patients presented chronic conditions. For the adequate management of such patients, 6,700 hours of assistance were detected, thus representing the organisational effort of 4.3 doctors. From an economic perspective, the hospital economic resources absorption, specifically referred to the human resources involved, accounted for 121,734€. Regarding hospitalisations, 64% of patients had at least one episode in 2022, totalling 194 admissions with an average stay of 13 days. Additionally, 131 patients (78% of the sample) accessed at least one outpatient specialist service, predominantly in oncology, radiology, and cardiology.

Discussion: The findings highlight the need for territorial healthcare facilities capable of supporting patient care, prompting a redesign of the service network and a transition of the healthcare system towards a proactive approach, focused on catering to different user groups based on their specific health and assistance needs. This is particularly relevant for EDs, where factors beyond clinical conditions, like patients' social and socio-economic status in less urgent cases, should be considered. It is essential to define alternative care pathways, incorporating multi-professional and proximal community-based facilities such as "Case della Comunità". These facilities can provide more accessible care directly within communities, helping to reduce inappropriate ED visits, a need that is increasingly pressing due to the shortage of healthcare and assistance professionals. Additionally, gathering patient data could enhance predictive algorithms and artificial intelligence tools, aiding in the reorganisation of healthcare activities at both the hospital and community levels.

Leveraging artificial intelligence for optimising transitional care

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Context: Transitions in care involving shifts between different care settings and healthcare providers are prevalent among patients with chronic diseases and multimorbidity. Unfortunately, these care transitions are frequently hindered by several challenges, such as fragmented care, medication errors, and inadequate communication among healthcare providers, resulting in adverse health outcomes. Various Artificial Intelligence (AI) tools are emerging as prospective innovations to optimise care continuity across settings and improve transitional care. This review aims to explore the current landscape of AI tools as potential solutions to address these challenges of transitional care.

Methods: A scoping review was conducted following the five stages of the Arksey and O'Malley framework. The PubMed/MEDLINE, Web of Science, and IEEE Xplore databases were systematically searched, and eligible studies published between the years 2013 and 2023 were retrieved. Data were extracted from the included studies, and for each AI tool identified, its elements were mapped to four categories of AI applications: support for discharge/follow-up, triage and prediction of models of care, interoperability/system navigation, and language translation. Additionally, the elements of the identified AI tools were mapped to eight core transitional care components: patient engagement, caregiver engagement, patient education, caregiver education, complexity management, care continuity, wellbeing, and accountability, as defined in the literature, to achieve a holistic care process. Data on the effects and overall potential impact of AI tools in enhancing transitional care, drawn from the included studies, were summarised narratively.

Results: Out of 159 studies identified, 15 were included in this review revealing fifteen different AI tools designed to improve care transitions between different settings. The majority of these tools focused on care transitions from hospital to home, followed by transitions between hospitals, and from emergency units to hospital. AI tools were dominantly applied in the context of transitional care to provide support for discharge/follow-up (9 AI tools) and to ensure interoperability/system navigation (11 AI tools). AI tools used for triage and prediction of models of care were the least applied (5 AI tools). Moreover, the applications of AI tools primarily contributed to enhancing care continuity (13 AI tools) and caregiver engagement (9 AI tools), both integral components of transitional care. Meanwhile, patient education and engagement were the least emphasised components of transitional care by AI tools, with only 4 AI tools addressing them. The potential health and system-level outcomes associated with the use of AI tools for transitional care included reduced hospital readmissions, continuous medical information flow, and cost-effective care.

Discussion: AI tools present promising and innovative solutions that hold the potential to significantly enhance transitional care across diverse settings through their versatile applications. Nonetheless, the challenges associated with implementing and integrating these tools into existing healthcare systems, along with their overall value proposition, pose ongoing complexities that warrant in-depth future investigation and exploration for future success.

Where two worlds collide: exploring the role of frontline managers in sustaining nurse well-being and retention

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Context: Hospitals worldwide face persistent challenges in sustaining adequate nursing staff levels due to high absenteeism and turnover of staff. Both scholars and organisations posit a central role for frontline managers in safeguarding team member well-being and fostering retention. While studies have focused on the role and behaviour that frontline managers should engage in, it remains unclear how frontline managers and their team members perceive the role of frontline managers in relation to well-being and retention of staff. Gaining insights into these perspectives is imperative to ensure that frontline managers are best able to support their team members.

Methods: We conducted an exploratory multiple case study among hospital frontline managers and the nurses in the Netherlands. The sample consists of 49 staff members (23 frontline managers and 26 of their nurses) from different departments (including acute care, nursing wards and outpatient clinic) in three hospitals (academic, teaching, general). All frontline managers had a nursing background. Interviews with frontline managers and nurses focused on the role of frontline managers in relation to supporting their team members, with a particular emphasis on addressing well-being and retention. Interviews with frontline managers also included managers perspectives on what is needed for them to better support nursing staff. We used an interpretive grounded theory approach to data analysis, analysing interview transcripts to define emergent themes from the data.

Results: Frontline managers and their team members see a pivotal role for frontline managers in supporting and sustaining staff. However, managers feel challenged in fulfilling this role, finding themselves caught between staff needs and directives imposed by higher management. Findings show that managers navigate this predicament through two primary strategies: (1) compensating for organisational shortcomings, exemplified by overextending their own work hours, always being available and taking on additional tasks; and (2) circumventing organisational mandates, such as surpassing prescribed communication norms, and involving nurses extensively in local decision-making processes. Team members recognise and value these efforts, yet feel that despite these efforts managers are unable to fulfil all expectations. To better fulfil their role, managers mention the need for more resources in terms of time, financial resources and training. Furthermore, they express the need for increased decision-making autonomy, enabling them to operate more strategically in the interest of their staff.

Discussion: Our findings suggest that frontline managers play an important role in supporting staff in well-being and retention, yet encounter challenges in effectively fulfilling this role due to incongruent expectations between the organisation's strategic apex and the operating core. While on the short-term these strategies offer short-term relief, recognising that frontline managers need to be better equipped is imperative for sustained well-being and retention of staff. Allocating additional resources to frontline managers or affording them greater autonomy in making strategic decisions can be initial steps. Ultimately, health care organisations would benefit from seeing frontline managers as vital links within the organisation and treating them accordingly.

How different performance information types drive decision-making in healthcare organisations: an experimental study

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Performance management (PM) was introduced in healthcare organisations to allow decision-makers to use information - i.e. so-called performance information (PI) - to guide the healthcare organisation toward achieving its objectives and improve accountability.

The literature, to date, has neglected to analyse how different types of performance information can influence decision-makers choices (Kroll, 2015). The present work aims to fill this gap through an experimental methodology (conjoint and best-worst scaling experiments).

Over the last decade, the evolution of PM systems in healthcare organisations has seen the integration of new performance measures based on patient-reported experience and outcomes (De Rosis et al., 2022) within traditional performance measurement systems – that usually adopt administrative and accounting data. Therefore, we aim to understand whether different types of PI (e.g. user-reported experience, administrative data, financial information) are used differently by healthcare managers and professionals in their decision-making processes. In particular, this work aims to address the following research question: Are health professionals keener to use user-based performance information, rather than traditional performance measures, when making decisions? To explore whether and to what extent performance information from different sources influences health professionals' decisions, two experiments were conducted using an online survey. The participants were health professionals working in private and public healthcare organisations in Sicily (Italy). In order to understand the preferences of professionals about different PI in their decision-making process, we conducted the conjoint experiment which allows us to best represent the actual preferences of individuals, and the best-worst scaling experiment whereby the respondent is asked to rank the indicators they consider to be most important. Although performance management systems are strongly oriented towards measuring performance through administrative data, our analysis shows that this last is actually considered less within the decision-making process of health professionals. Furthermore, it emerges from the survey that physicians prefer PI from accounting and patient data. However, although physicians state that they prioritise patient information (in best-worst scaling), in reality, this is contradicted by conjoint, which, as the literature suggests, is the instrument that best represents real preferences in a survey context.

Factors influencing the experience of empowerment in Flemish (proxy) budget holders: a regression analysis

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Context: The Flemish government has implemented a cash-for-care scheme in 2017, allocating a cash budget, voucher, or a combination of both to people with disabilities. Both people with physical and intellectual disabilities are eligible for a personal budget (PB). This policy shift aims to increase the empowerment levels of these PB holders, but the literature shows that personal (inherent to the PB holder) and contextual factors (inherent to the care system) potentially have an important impact. This study therefore reports on the empowerment level (PE score) among Flemish PB holders and its associated factors.

Methods: A survey was developed to measure the PE score in Flemish PB holders and also asked about their personal characteristics, PB characteristics, and factors inherent to the Flemish cash-for-care scheme. Respondents were recruited via multiple recruitment sources (policy, user-, and care organisations), using convenience sampling. Both PB holders themselves and proxies representing them, could complete the survey.

A factor analysis showed a two-factor solution for the PE scale: the cognitions 'meaning' and 'competence' (PE MC score) on the one hand, and the cognitions 'impact' and 'self-determination' (PE ISD score) on the other hand. Both subscales and total PE score were included in the analyses. Since the PE (sub)scale(s) were not normally distributed, data were analysed using non-parametric tests for nominal and categorical variables, and Kendall's tau for continuous data. Finally, hierarchical linear regression analyses were done to determine which contextual and personal factors affect the PE scores.

Results: The survey was completed by 224 (proxy) PB holders. Administrative complexity, financial transparency, advisory organisations use, educational level, private financial resources, disability type, and presence of an (in)formal care network show no significant association with the PE scores. However, regression analyses show that a positively rated knowledge of the care and wellbeing sector is positively associated with the PE scores. Cash- and combination users, and proxy respondents have higher PE scores than voucher users and people with disabilities as a respondent. Additionally, a positively rated information accessibility is associated with higher PE total and ISD scores, while no associations exists with the PE MC score. However, a negatively rated budget sufficiency and self-managing the PB (compared to delegating this administration) are positively associated with the PE MC score.

Discussion: Our results show that knowledge of the care and wellbeing sector and flexible PB use are the main predictors of all PE scores. Enhancing PB users' knowledge about the care system is thus a key objective when implementing a cash-for-care scheme. Moreover, information accessibility is also a predictor of the PE total and ISD score. Governments should thus keep in mind that factors inherent to the care system will affect empowerment levels. They should therefore focus on the provision of easily understandable information about the cash-for-care scheme and stimulate the care sector to be clear and transparent about the types of services they can offer. This way PB holders can more easily find their way in the system and experience empowerment. Finally, it is surprising that a negatively rated budget height is positively associated with the PE MC score, so future research should further explore this association.

InterRegSim – a government mandated network for simulation-based learning in Norway

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Simulation is a targeted and structured learning activity where the participants are dealing with situations similar to reality. Simulation is highly participant-active, where the experience is built through reflection in a debrief session. Simulation allows participants to develop their knowledge, skills and attitudes, and to analyse and react to realistic situations(1).

In 2020, the Norwegian government formally recognised simulation-based learning (SBL) as an important factor for improved patient safety in healthcare – and highlighted the need to coordinate SBL nationally (2). This was the background for establishing InterRegSim - a government mandated network for SBL in the public hospitals in Norway.

Norway is an elongated and scarcely populated country, where hospital-based simulationists traditionally have developed and performed their activities individually. Norway has a health system founded of the principle of universal access. It is funded by general taxes, and all residents are covered by a National Insurance Scheme. Almost every hospital in Norway isa public hospital, funded and owned by the state, and this operating model has been important in establishing the government mandated network.

Prior to the establishment of InterRegSim, each of Norway's four health trusts had their own RegSim – a regional coordinating unit for simulation in the public hospital systems. InterRegSim is constituted of each RegSim leader, in addition to four dedicated employees and two representatives from the trade unions.

InterRegSim reports to the regional Chief Executive Officers (CEOs) in the four Norwegian regional health trusts, with the first evaluation completed in October 2023. InterRegSim received a renewed mandate until 2026, when a new evaluation report will be delivered.

During the first years, the focus has been on clarifying the mandate, establishing working processes to ensure interregional involvement, and initiate deliveries, to ensure quality and to reduce unwanted variation in how SBL is carried out in the four health trusts.

Moving from here, InterRegSim will continue to deliver high-quality products and evidence-based recommendations. InterRegSim has also been given the mandate to further clarify the border rise of tasks between the regions (RegSim) and the interregional network (InterRegSim). Finding the right balance will be essential to maintain regional involvement while still avoiding unwanted regional variation in the implementation and use of SBL. Developing a strategy to ensure continued involvement from all health trusts, will be crucial to ensure a sustainable national network with the ultimate goal of increasing patient safety and increasing psychological safety among healthcare workers.

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The Joint Action HEROES - HEalth woRkfOrcE to meet health challengeS

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HEROES stands for "*health workforce to meet health challenges*" and invokes the way Health WorkForce (HWF) was called during the Covid-19 pandemic. The name of this Joint Action (JA) underlines the importance of HWF planning.

The aim is to improve the capacity of the EU Member States in terms of health workforce planning, as to ensure accessibility, sustainability, and resilience of healthcare services. An effective HWF planning could be part of the solution to the main challenges in all EU countries.

There is a panel of 19 countries participating in the Joint Action, stakeholder associations and other partners for a total of 50 partners. The JA started on 1st February 2023 and will end in January 2026 (36 months).

The main focus is on four key and transversal dimensions (tasks): HWF data (accessible and high quality), HWF Planning Forecasting Tools (robust and appropriate to estimate what the future supply and demand will be in different scenarios), HWF Planning Skills (increased ability) and the stakeholder involvement (optimise). It has a typical JA structure: Work Package (WP) 1 – Coordination, WP2 - communication and dissemination strategy, WP3 evaluation, WP4 sustainability of the project results and technical WPs 5-6-7 into which the 19 countries are distributed by cluster based on the type of national system of the country (public health system, social insurance system or a mix of public and private system) and on HWF migration; the idea is that they can learn from each other's good practices.

The JA development method is based on a stepwise approach: "AS IS", "TO BE" and "TO DO" phases whose results will be discussed with policy dialogues and briefs.

The first step, analysis of the current situation, is currently being finalised. So, there will be an overview of the starting point of the 19 participating countries and what challenges each country wants to overcome on the topic of health workforce in the four dimensions. In particular: type of data collected and sources, the data gaps, data validity, and data analysis, planning models and tools already existing describing HWF actual planning specifications (level, type of care, time horizon, type of professionals involved), skills and abilities of the staff in charge of HWF planning and the type of stakeholder involvement in place. Country-specific deficiencies, needs, experiences, and challenges will be highlighted at country level. A cross-country comparison aims to identify common challenges at cluster level, but more importantly to highlight good practices or interesting elements that can be discussed as potential means of improvement for other countries in the cluster. A cross-cluster comparison wants to share useful results before going through the other phases and create an Action Plan to improve the EU Member States' capacity on HWF planning.

'Managers are trained, not born': mapping and analysing graduate programs in healthcare management in Romania

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Context: In the ever-changing health sector, the health management workforce faces constant challenges bearing the weight of ensuring efficient performance. Pursuing graduate education, whether a master's or a postgraduate course, becomes pivotal for these professionals. The curriculum of a program serves as the backbone for shaping the skills of these future professionals. Recent debates in Romania express concerns about the readiness of healthcare managers. Despite numerous educational options, there's a lack of studies on current healthcare management graduate programs. Therefore, this study aims to map, analyse, and compare these programs in Romania against CAHME standards.

Methods: The mapping process started with a Google search, initiated up until January 2nd 2024, using the following key terms: "health management master", "degree", "post-graduate course". This step revealed few graduate educational programs in health management. Therefore, it was followed by a more comprehensive search, this time targeting cities where medical faculties are established. Afterward, a national-level exploration aimed at university clusters, examined faculties in related fields such as management, public administration, economy, law and social work. CAHME's accreditation standards and self-study handbook was retrieved from its official website. The curriculum from all the programs was collected directly from university websites, as well as information about program duration, teaching and learning methods, mission, vision and values. The websites were also scanned for information related to outcomes regarding employment rate and settings. Core subjects from all the curricula were then collated and compared among universities and across international recommendations.

Results: 17 graduate programs in healthcare management are offered by universities in Romania. Among these, 12 were identified as Master's degree programs, 3 post-university educational programs, while the remaining 2 were complementary studies in health services management. Among the identified programs, more than half are offered by medical faculties in their respective cities. All graduate programs differ in duration, as 6 of them extend over the course of 1 year, 6 over the 2-year interval, while the rest, depending on the type of program, can last between 4 months and 1.5 years. Prevalent among the identified courses were subjects in financial management, ethics, health systems, policy and legislation. No syllabus or description for each discipline could be identified within any of the programs. Provision of information regarding teaching methods was limited, and when identified and compared to CAHME recommendations, fell within the lower level of competency integration.

Discussion: This study aims to initiate a conversation about existing educational graduate programs in healthcare management in Romania. Given the practical nature of healthcare management, these programs must effectively bridge the gap between what the future health management workforce is taught and what is needed of them in order to succeed. In order to make well-informed decisions before committing to a program, it is crucial that institutional websites extend and provide the necessary informational context about the program itself. Compared to CAHME recommendations on the level of information that needs to be identified on institutional websites, Romania's graduate programs lack important aspects. Nonetheless, there was a noticeable absence of information regarding employment outcomes, including rates and specific settings.

Burnout among health professionals - effective interventions for effective management

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Background: The "burnout" syndrome, translated as "professional exhaustion", was included in the International Classification of Diseases of the World Health Organisation (WHO) during the 72nd world meeting and entered into force on 1 January 2022. The need for a scientific approach to the phenomenon of "burnout" among doctors in Romania was pointed out by the College of Physicians of the Municipality of Bucharest (CMMB) in a recent prevalence study that includes an x-ray of the reality faced by the personnel of the health system every day. In our study, we investigated individual and organisational factors related to burnout in order to derive lessons for addressing the burnout of medical and health allied professions working in health care settings in Romania.

Methods: All staff working in three hospitals from different regions (Satu Mare Emergency County Hospital, Carei Municipal Hospital, Negrești Oaș City Hospital and Satu Mare Pneumology Hospital from Satu-Mare county, Voila Psychiatry Hospital from Prahova county) were asked to fill in an online survey which consisted of the following: Demographic Data, Scale of Resources for Resilience, Short Scale for Resiliency, WHO Well-Being Scale, Oldenburg Burnout Inventory, PHQ 9, REQ Questionnaire, and Organisational Support. In addition, hospital managers filled in a second survey which elicited their opinion regarding the most adequate strategies for addressing burnout in an organisational context.

Results: The information was analysed in the context of each target group and region. While all categories of staff experience burnout to some degree, the associated factors were different. Workload, work schedules but also how professionals are spending their time afterwork contribute to burnout and increased resilience plays a role in burnout prevention. At an organisational level, providing education about burnout and increasing resilience in healthcare professionals by training specific skills are perceived as useful for preventing burnout.

Discussion: Failure to promptly detect burnout leads to the aggravation and maintenance of symptoms that will impact both the professional and the performance and efficiency of the health organisation and even the health sector as a whole. Burnout requires more attention from policy makers regarding its implications for the healthcare force but also for the patient and society as a whole. Effective management must be based on scientific evidence and lead to the implementation of effective measures to support professionals.

Capturing the voice of youth in hospital experiences: a Delphi study involving children, caregivers and experts

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Context: The active involvement of patients and their families in enhancing services is essential. Children and adolescents can have difficulties in making their voices being heard and typically feedback and experiences from caregivers and families are collected (Coyne, 2008; O'Neill J et al., 2018; Karisalmi et al., 2020; Wray et al., 2020). Therefore, the assessment and enhancement of healthcare services' quality currently do not align with the preferences, needs, and values of the paediatric patients (Picker Institute. Patient centered care 2015).

This study, conducted within the VoiCEs project (De Rosis et al., 2023), aimed to develop a standard set of Paediatic Patient-Reported Experience Measures (PREMs) through a collaborative, consensus-building process.

Methods: A Delphi methodology was developed with the direct stakeholders, researchers and hospital staff with different professional backgrounds (Hasson et al., 2000). The participatory consensus-building process was combined with other qualitative techniques, such as in-depth interviews with children, adolescents and their parents, in order to ensure their wider and deeper involvement in the research process.

Results: The participatory process allowed to achieve consensus among different experiences and competences and to identify a common tool to collect PREMs on hospitalisation for children and adolescents to be used in a systematic way. The consensus-building resulted in the development of different age-specific questionnaires, available in multiple languages, designed to collect feedback from paediatric patients and their caregivers during hospitalisation.

Discussion: This study emphasises the importance of engaging people for tailoring evaluation tools to different targets. The developed questionnaires will support healthcare organisations' efforts to properly collect the paediatric patients' feedback and to use them to improve healthcare services. The collaborative process has contributed to the development of a European Observatory of the paediatric experience with hospital stay.

Unitary collection tools, cost calculation and cost standard methodologies at hospital sector level. Case study: Romania

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Context: Nowadays, countries have developed effective systems for collecting, calculating and analysing hospital cost data. Exploitation of data obtained within such a system can be the basis for identifying consumption patterns for a certain pathology, calculating cost standards and periodic updating the set of relative values, and can support effective allocation, planning and financing policies. Medical practice will always vary and the purpose of identifying consumption patterns is to provide the opportunity to draw limits of normality regarding costs for a given medical practice. It is ideal for any medical system to have a real and valid possibility of correlating resource consumption with clinical standards of practice (algorithms, steps, resources, costs, etc.) for frequently encountered clinical typologies. The experiences of similar systems can be taken over, but their adaptation to territorial particularities is essential and necessary.

Methods: The CaPeSSCoSt 2020–2023 project, coordinated by the MoH, resulted in piloting the collection, calculation and unitary analysis of cost data at hospital level following the development of unitary tools, methods and methodologies. The piloting of the developed unitary methodologies (costs collection and calculation, calculation of cost standards) was realised by a unitary collection of costs from a representative sample of hospitals in Romania and by obtaining a first set of cost standards for the 20 most frequent pathologies, as well as by approving the methodologies. During the pilot, different consumption patterns were identified for each pathology, depending on clinical and economic characteristics, as well as other relevant aspects. The entire system was piloted, through the unitary collection of costs and the application of the methodology for calculating the cost standards developed within the project. All these methodologies and tools have been validated (by piloting) and approved.

Results: Currently, in Romania there is no cost information management system, but through recent initiatives (the experience of the CaPeSSCoSt project) we can appreciate that the premises for the use of such a system have been created, realised through:
- Development of a unitary method of cost data collection (simulated on cost data at the level of 2022 and improved method based on the real simulation),
- Elaboration of the methodology for unit calculation of cost data.
- Proposal for calculating hospital cost standards
- Methodology for grouping hospitalisation episodes

All these developed tools were also tested within the project for the 20 most common pathologies (50 pilot hospitals). The implementation by operationalising these tools within an integrated system that allows the correlation of cost data with clinical data will allow the establishment of strategic measures based on valid, real evidence regarding the standardisation of clinical practice (practice protocols) and the standardisation of cost data analysis.

Discussion: The current approach represents a first step in the development of a coherent framework for evaluation and financing based on valid data; this framework allows to correlate the medical practice with the costs related to real consumption. Romania's experience can be adapted to particular contexts. It signals the need to develop an integrated system for which it is necessary to develop in sequence, or at most in parallel, systems such as: National coding optimisation system (diagnostic coding standards and procedures); Hospital practice standardisation system (unitary methodology development and monitoring of the application of diagnostic and treatment protocols, Calculation system of cost standards +/- VR recalibration (for countries using the DRG system).

Multilevel governance in healthcare: examining regional responses to national policy healthcare reforms in Italy

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Background: The COVID-19 pandemic underscored the vulnerability of healthcare systems to emergencies due to the lack of coordination among healthcare settings and services, as well as the fragmentation in care models. In response, several European countries, including Italy, have undertaken reforms to enhance primary care and integrate services (WHO, 2023). In June 2022, Italy implemented Ministerial Decree No. 77 (MD77), which establishes new structural, organisational, and technological standards for healthcare territorial services. These standards align with the investments outlined in the National Recovery and Resilience Plan (PNRR) to foster consistency among regional healthcare systems and ensure greater unity.

MD77 emphasises the role of nationally defined policies in organising territorial healthcare, yet it grants substantial autonomy to regions and local healthcare authorities (LHAs) (Longo et al., 2023). The role of regions and LHAs extends beyond mere implementation; it involves defining the contents of local territorial care policies. This scenario illustrates a multilevel governance model, with the EU-funded PNRR providing resources, MD77 establishing national standards, and regions and LHAs adapting and implementing these standards at the local level.

Objectives and methodology: This research aims to comprehend the diverse strategies that are emerging in the 20 Italian regions in response to a national policy addressing the innovation of territorial healthcare. Specifically, the study seeks to understand how the Italian regions are interpreting and adopting MD77, and what is the relationship between regions and LHAs in formulating and implementing regional choices, as well as in defining the policy document for adopting MD77. To achieve this, ten regional contexts were thoroughly examined through a comparative analysis of regional documentation, using an ad-hoc framework, and through focus groups with regional representatives.

Main results: The findings reveal three distinct regional stances regarding the adoption of MD77 and the dialogue process with LHAs: i) formal adoption of MD77 in regional documents; ii) regional documents primarily describing the existing territorial model; iii) regional documents extensively reworking MD77 themes. Additionally, three approaches to involving LHAs in the process were identified: i) broad inclusion; ii) regional leadership in transforming local healthcare services; iii) an institutional approach. The research underscores the significance of the relationship between regions and LHAs within the multi-level governance framework of PNRR and MD77. It also highlights the pressure on the loosely coupled system of the National Health Service in managing changes in local models (Weick K. E., 1976; Borgonovi E., 2005).

People-centred health services: framework for ethical allocation of resources for priority interventions

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Context: Diseases with major impact on Romanian population health, considered national public health priorities, are the subject of various health resources and services: MoH national health programs, NHIF curative programs, specialised ambulatory care, hospital day-care, hospital admission. This disease-centred approach left many patients late diagnosed, poorly monitored and assessed, and sometimes treated with poor outcomes and loss of resources. Services received are funded mainly by National Health Insurance Fund (NHIF) and the MoH, but patients – especially those not registered in the National Health Programs (NHPs) - often need to pay out-of-pocket for certain lab tests, imagistic, interdisciplinary consultations, drugs, medical devices etc.

Methods: Perform a retrospective data analysis regarding utilisation of resources and services for the following priority diseases in Romania: cancer, hypertension and cardiovascular diseases, and diabetes mellitus. Analysis of current volume of health services, reimbursement methods and financial flows reported on National Health Programs for these pathologies. Perform an analysis of current distribution of specialist MDs and deficits per districts and regions for the priority diseases mentioned. Data sources: NHIF, NIHSM, MoH. Assess the relevant regulatory framework for the current NHPs, underlying the gaps and areas for improvement. Design a new integrated financial and of services model for NHP.

Results: We propose a new model of health care organisation, coordination, resource allocation and reimbursement for these national priority interventions, as based on patient healthcare needs, through a regional network of coordinator providers paid per case for integrated services provided to all registered patients. Prerequisites needed to be implemented first: Patient Health Electronic File, Electronic Disease Registers for all NHPs (currently under development), ambulatory DRG system, updated detailed practice guides for these diseases, and NHPs regulatory modifications. Implementation of this new model will allow the following: a better estimation, planning and allocation of resources necessary per district and region, equitable access to healthcare for all patients, avoiding overutilisation of certain services (e.g. medical tests, inpatient care episodes), limit unnecessary use of services, prevent complications and avoidable deaths, ensure patient traceability, patient-centred care and value-based healthcare.

Discussion: In a European country spending on health just 6.5% of GDP (compared to European average of 11%), better policies and priority interventions are necessary for priority conditions - cancer, hypertension and cardiovascular diseases, and diabetes mellitus, to respond to specific needs of population, to improve resource allocation, eliminate waste and use new technologies. Romanian people are entitled to receive appropriate, timely, effective and modern healthcare services, oriented to their needs and expectations, not to health system characteristics. Current NHPs and healthcare services for these diseases need to be revised and improved, based on the recent needs assessment achieved for the regional masterplans for health services, national and international good practices examples – such as the Australian model. The new model proposed for NHP priority interventions will ensure a better approach, organisation, coverage, outcomes and satisfaction of patients diagnosed with the diseases mentioned, and also certain measures of secondary, tertiary and quaternary prevention.

Advancing patient-centred breast cancer care: insights from the adoption of shared decision making and decision aids in Italy

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Introduction: In recent years, there has been a heightened focus on quality care in oncology, particularly in breast cancer, with the aim of optimising outcomes and enhancing patient satisfaction. Europe has made significant progress in establishing quality frameworks for specialised breast cancer centres, emphasising multidisciplinary approaches and personalised care pathways from diagnosis to treatment and beyond. Engaging patients in discussions about the recommendations of the multidisciplinary team for their treatment plan is crucial for reaching a shared decision that incorporates patient's preferences and desires. Effective communication and shared decision-making (SDM) are integral components of quality care, empowering patients to actively participate in treatment decisions. SDM requires strong communication skills, an understanding of the patient's context and their perspective on what constitutes a "good" treatment outcome. SDM is a hallmark of 'patient-centred care' and active patient involvement in breast cancer care. Explaining risks and options to patients, especially in a modern and complex practice, can be challenging, and current technological advancements can provide valuable tools for decision support, such as decision aids (DAs).

Methods: This study aims to analyse the adoption of patient engagement approaches, namely SDM approaches and DA tools, in clinical practice in Italy and identify determinants influencing the implementation of these strategies. The research employs a mixed-methods approach, combining an international survey, a focus group with representatives from seven selected Italian breast units, and two case studies from the UK and the Netherlands.

Results: Survey results reveal a preference for a "shared" communication style between patients and physicians in Italian and European breast units. However, only 42% of Italian clinicians report access to decision support tools, with 77% of them utilising such tools. DAs in Italy are predominantly paper-based, with a lag in the adoption of digital or web-based tools compared to the rest of Europe (9% in Italy versus 30% in the rest of Europe). A panel of specialists from seven Italian Breast Units supports survey findings, emphasising the significance of the clinician-patient relationship and communication in treatment customisation. Despite ample evidence in the international literature emphasising the standardisation of decision-making and the availability of tools to support this process, clinical practice in Italy persists in highlighting the importance of the clinician-patient relationship and trustful communication to customise treatment choices. Limited knowledge on SDM tools among Italian specialists suggests an early stage of adoption in breast cancer care in Italy, making it challenging to fully assess the potential benefits.

Discussion: Based on the Italian example, the study underscores the need for organisational-level quality improvement projects to enhance understanding and implementation of SDM in breast cancer clinical practice. Future efforts should consider organisational, professional, clinical, and informational factors to maximise the potential benefits of SDM approaches in this clinical area. This research provides valuable insights for enhancing patient-centred breast cancer care, bridging the gap between international evidence and clinical practice. The study advocates for a comprehensive approach to organisational improvement, recognising the multifaceted factors influencing the successful implementation of SDM in breast cancer care.

Care that should not be done. National comparison of adherence to national guidelines recommendations

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Swedish healthcare is facing several challenges, and is at risk of not being able to provide good quality care at the right time to all patients who need it. It is therefore important that resources are used efficiently. Measures that are not beneficial, and may even be harmful, also have associated costs. The use of these measures could end up crowding out other important care and treatment that could otherwise be provided to patients with greater need as well as other interventions that may be more effective. Phasing out measures that should not be used can hopefully increase access to care.

The patient safety perspective is also important when it comes to measures that should not be used. Examinations and treatments that are harmful cause unnecessary suffering and may even worsen the patient's state of health. From an equality perspective, it is also important that assessments and treatments are carried out in an equivalent manner in the country.

The results show that a common reason is that, after individual assessment, the benefit for the patient is considered to exceed the risks of the measure. On the other hand, such measures should be phased out in the first instance. In some cases, it is the patient's own wishes that cause doctors to prescribe a treatment that should not be done.

The Board's evaluation shows that there are both good examples and challenges for the regions to carry out a structured phase-out process. Good examples can be seen where the regions have described multiprofessional and team-based work. Another example is pharmacotherapy where there is already an established process, such as the reduced prescription of benzodiazepines for depression and anxiety, which is a positive development. In other areas there are challenges, such as arthroscopic surgery for osteoarthritis or suspected degenerative meniscus damage and knee pain. Here the results show that the regions need to work further to reduce the use of this measure, which is also a costly procedure.

Measures that should not be done is an area that has not received much attention in the past. For a long time, there has been a greater focus on following care that should be carried out, which is also seen in several of the guideline areas we have studied. With an increasingly strained situation in the regions, with challenges in terms of both finances and skills supply, there is every reason to work more actively on measures that should not be done according to the recommendations in the national guidelines.

The evaluation provides a basis for continued planning, both nationally and locally for the regions. Measures that, for various reasons, are still being done consume resources and can create displacement effects that need to be managed within the healthcare and dental care sectors. It takes active work and follow-up to phase out these measures. In some cases, more than communication and education is needed, such as adapting compensation systems and assignment descriptions. Financial incentives are also important in the phase-out, although financial savings should not drive priorities according to the national prioritisation model. Greater adherence to the recommendations can lead to lower costs in the long run.

General strategy for improving digital skills of the Italian health workforce

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Context: The Italian NRRP prioritises digital transformation in healthcare through Mission 6 'Health.' Objectives include enhancing the EHR nationwide and supporting telemedicine projects for remote assistance. Implementation falls under the Department of Digital Transformation, Ministry of Health, and Italian Regions. NRPP's measures can be integrated with specific actions to address the inadequate digital skills among healthcare professionals. Reports reveal significant gaps, with only 4% possessing sufficient digital skills, 53% making online appointments, and 37.6% of public operators accessing the EHR. Citizen awareness of the EHR stands at 60%, highlighting the challenge of promoting digital literacy in the healthcare sector.

Methods: The European Commission's Directorate-General for Structural Reform Support, through the Technical Support Instrument (TSI) and the support of Deloitte, collaborated with the Ministry of Health, the Department of Digital Transformation, AGENAS, ProMIS and the Regions in Italy to design a comprehensive strategy for enhancing digital skills in healthcare. Recognising the imperative nature of digital education in the evolving landscape of healthcare, the TSI devised the Digital Upskilling Life Cycle Model. This organisational model encompasses a national portfolio of essential digital competences for healthcare professionals, a personalised profiling methodology to tailor digital competency requirements, a national catalogue of digital health training initiatives, and an evaluation system to measure the impact of digital literacy on professionals' behaviour and healthcare outcomes. The initiative addresses the ongoing integration of technologies like cloud computing and artificial intelligence into healthcare processes, emphasising the need to cultivate professionals' skills for effective engagement in increasingly digitalised healthcare environments.

Results: The Digital Upskilling Lifecycle Model serves as the governing framework for implementing a sustainable digital health education approach within the NHS. Comprising six phases and specific tools, it guides stakeholders in defining and updating digital skills, identifying needs, planning and executing training initiatives, and monitoring outcomes. The Governance phase provides general recommendations for regional adoption, promoting flexibility. The Design phase establishes the National Digital Competence Portfolio, periodically updated, outlining required competences (see attached figure). It tailors training guidelines based on job characteristics using tools such as Digital Competence Addressing Matrices and Digital Personas. Planning involves identifying needs, orienting training, and formalising learner objectives. Execution translates plans into Regional initiatives, offering timely feedback to government levels. Monitoring evaluates results, identifies corrections, and supports subsequent digital health education cycles, emphasising continuous improvement and adaptability. The model ensures a comprehensive, adaptive, and outcome-focused approach to digital upskilling in the dynamic healthcare landscape.

Discussion: In Italy, there are 30 recognised health professions, allocated in 10 professional orders, with around 1.5 million registered professionals. The Digital Skills Strategy proposes to involve them in a Digital Education Programme embedded into the already existing compulsory CPD/LLL system. Each health professional will be able to define his / her ideal skills profile (digital persona) based on the profession, the role played in the organisational context and the generational profile to which he /she belongs, thus configuring the training objectives according to the skills gap. The proposed model guides the professional along the training path and at the same time assigns specific monitoring, management, evaluation and planning responsibilities to the organisational, regional and national levels of government. It is therefore advisable to establish a partnership under the EU Pact for Skills between the stakeholders to support the implementation of the strategy and to develop adequate 'skills intelligence'.

The hospital performance assessment by Pabon Lasso

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Background: While hospitals are the main units of medical activity in terms of volume of activity and complexity of care provided, it is proven that the hospital sector is the most resource consuming part of a health system, with over 50% of the total cost of healthcare.

The development and use of a performance evaluation framework for hospitals is considered an effective way to ensure high quality services and to identify health needs.

The Pabon Lasso model was applied to assess the performance of Romanian surgical hospital departments in the eight regions.

Methods: This cross-sectional study involved all public hospitals in Romania with surgical and emergency departments. The DRG National database was used for extracting data reported by hospitals. Hospitals were included in the eight categories related to the development regions. Only hospitals with surgical departments were included and for which the indicators could be calculated.

Three classical hospital performance indicators (average length of stay, bed occupancy rate and bed turnover) were used to be included in the linear regression model. The statistical software SPSS 27 was used for analysis and graphical analysis of the Pabon Lasso model.

Results: The variation range of the values for the three indicators (average length of stay, bed occupancy and bed turnover rates) were 5.2-6.93 days, 50-70% and over 60% respectively. Most hospitals were located in Zone III of the model, indicating a satisfactory level of efficiency, while a small part of all hospitals were located in Zone I that is specific for rather inefficiency and underutilisation of resources and another small part is located in Zone IV.

By applying the Pabon Lasso Model and the comparative analysis between regions in the Romanian context and at the level of surgical departments, we signal the necessity to use developed and validated methods for measuring and comparing hospital performance in order to provide decision making process with valid and scientific evidence.

Discussion: By applying a statistical model based on the calculation of three indicators (average duration of hospitalisation, utilisation rate, bed utilisation index) we can evaluate the performance of surgical departments in Romania.

The performance of Romanian hospitals is evaluated by a wider grid of indicators, but the use of these 3 complex indicators is essential for a quick and correct evaluation picture. That is why we consider it useful and necessary to extrapolate this analysis in the future to all categories of hospitals in Romania.

Future in-department research is necessary and must be focused on the national, regional particularities merged by this approach.

Artificial intelligence for mass screening of diabetic retinopathy: proceeding to national level in Ukraine during 2022-2023

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Diabetes Mellitus (DM) is one of the fastest-growing chronic diseases in the world. Diabetic retinopathy (DR) is a leading *preventable* vision impairment, associated with DM, but its damaging effects can be prevented only with timely screening and treatment. MedTech startup CheckEye was partnered with the leading national Filatov Institute of Eye Diseases and Ukrainian Diabetic Federation and was aimed at a creating cloud-based AI and machine learning-based DR diagnostic platform.

The platform analyses photographs of the patient's eye fundus, making diagnosis available to thousands of people, especially in rural, hard-to-reach areas, in the inner refugee person's (IDPs) communities where there is little access to specialised medical care. After conducting pilot screening in 2022, we continued implementation, now covering 6 regions (regions) of Ukraine. To date, we have completed a study in 7 regions of Ukraine. There were examined 1542 patients (3080 eyes). 683 of them have diabetes mellitus and 223 were diagnosed DR.

The proportion of patients in whom DR signs were identified, remained stable compared to the data obtained in the 2022 pilot project, and amounted to 30% of the total number screened.

During this phase, we were able to improve the quality of the screening platform, and today we achieved detecting DR with 93% sensitivity and 86% specificity with an AI-driven solution during the screening of an eye fundus (previously 90% and 83%, respectively). One of the technological tools used to improve quality was the combination of two neural networks, which now work in concert to obtain the most accurate result.

Since the Ukrainian healthcare system is highly decentralised, and the situation of a full-scale war creates even greater heterogeneity of healthcare providers in different regions. During the implementation of the screening project, we developed different organisational formats for screening, taking into account the status, location and resources of a particular partner. The experience gained will allow us to successfully scale up screening projects to other regions of Ukraine, striving for national coverage.

Organised mass screening for diabetic retinopathy is a key factor in preventing a number of other severe complications of DM in advanced stages. With this modern disruptive tool we will reduce the economic burden of vision impairment for families, communities, Healthcare system, and Ukrainian government.

A case study on the mental health of children in the United Arab Emirates

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Background: Affecting the mental health of children in the UAE, COVID-19 is a real obstacle. Kids' typical schedules shift when they skip school. Mental health in the UAE has progressed, but there is still a long way to go, particularly for young people. Mental health services in the area are complicated due to a lack of providers, disjointed regulations, and societal stigma. Surprisingly, the COVID-19 pandemic has led to an unprecedented surge in mental health patients seeking treatment in the UAE. Despite these challenges, the mental health system can still improve in the face of the epidemic.

Aim: This case study looks at how the COVID-19 pandemic affected mental health policy in the UAE and how knowledge translation products were created to help kids cope with the pandemic.

Methods: First, a policy brief was prepared to address the issue of schoolchildren's lack of access to mental health care. Second, a national policy dialogue was convened. Third, the policy brief and dialogue were evaluated. Fourth, a post-dialogue survey was administered. These knowledge translation (KT) tools were utilised in this case study.

Results: A policy brief outlining three components of a policy approach to address the issue was developed from key stakeholder findings, knowledge translation products, and a thorough evidence synthesis. This policy brief was sent out to 22 people before the conversation in order to set the stage. Among the factors that the policy brief's evidence and participants favoured, the most prominent one was the need to incorporate mental health into primary health care (PHC) services. Over the following six months, stakeholders established a national task force, trained PHC personnel, and revised the national essential medicine list to include mental medications, among other implementation actions, according to the post-dialogue survey. As a result of the dialogue, researchers, policymakers, and stakeholders were better able to work together, and they increased their demand for and awareness of KT tools through subsequent workshops and meetings that focused on implementation.

Conclusion: There would be more evidence to support evidence-based health policy if studies on the positive effects of KT on bettering health outcomes were to be replicated. The main points would cover how to make decisions in difficult situations or during emergencies, how to analyse the results of a policy change while keeping the momentum going, why stakeholder input is valuable, and how to use press tracing to get better evidence for policymaking.

Assessing the added value of algorithmic decision-making in healthcare practices – A comparison between ADS and pharmaceuticals

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In the Netherlands and other countries alike, policymakers, researchers, and other stakeholders have high expectations of algorithmic decision-making systems (ADS) in healthcare. These technologies are perceived solutions for problems regarding the sustainability of Dutch healthcare in the context of scarcity of personnel, finances and solidarity. Despite this, their uptake within healthcare progresses slowly. This is often ascribed to limited evidence of added clinical value and a resulting lack of trust among healthcare professionals. While value assessment of digital technologies, including ADS, is still very much in development, value assessment approaches of pharmaceuticals have a longer history, both in the Netherlands and internationally.

This paper therefore analyses how value of ADS in Dutch healthcare is assessed and why and how this differs from the assessment of pharmaceuticals, both within a regulatory context and within healthcare practice. We used a qualitative research design consisting of a literature review of papers and policy documents on ADS in healthcare and seven interviews with different experts on the development, use, funding and regulation of ADS in healthcare. In addition, the author observed a symposium where radiologists discussed dilemmas on how to assess the added value of ADS in their field. We coded and analysed our data abductively using Atlas-Ti.

We found that, while health technology assessment (HTA) has become an established approach for informing Dutch reimbursement decision-making, its use is largely restricted to expensive out-patient pharmaceuticals. In-patient pharmaceuticals and medical devices are rarely assessed. This is also because traditional HTA-methods based on RCTs are ill-suited for these two technologies. RCTs require large and homogeneous patient populations and standardised settings. Therefore, other methods are being developed that are more flexible, iterative, and collaborative and focus on different stages in the lifecycles of technologies which enables dealing with uncertainties. The multiple applications and focus on diagnostics of ADS make value assessment even more complicated than for complex pharmaceuticals.

In addition, regulation is progressing slowly while ADS in healthcare is quickly technologically advancing. Regulatory assessment of ADS is largely restricted to the launch phase and focusses on technical safety and efficacy. The collection of evidence on added value in specific clinical settings through post-market surveillance is largely absent or not made publicly transparent through peer-reviewed publications. For healthcare professionals, providers, and regulators it is therefore difficult to identify valuable ADS. For pharmaceuticals, the collection of real-world evidence is relatively more common. To be less dependent on industry and develop technologies that fit their care practices, university hospitals also develop their own ADS and pharmaceuticals. In both cases, these endeavours are complicated by their relatively limited financial and personnel resources compared to large technology vendors and pharmaceutical companies.

We found that there are many similarities between ADS and new pharmaceuticals to learn from for regulating, funding, developing and using ADS. New HTA approaches for ADS are similar as for new pharmaceuticals, but approaches for both are still developing. Specific characteristics that make ADS different from pharmaceuticals might require even more flexible value assessment approaches. These new approaches come however with a risk of too soft regulation fostering technology-driven innovation, driven by opportunities to make profits rather than to meet clinical needs, which can have several adverse consequences.

Monitoring and evaluation of regional masterplans for health services in Romania

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Context: National Health Strategy 2030 *Together for health* (NHS) was approved in Romania by Government Decision 1004/2023. This is the most important document for the healthcare system in the following years, also considering European context. 8 regional Masterplans for health services (RMHS) have been recently developed to properly support and coordinate NHS implementation of health interventions in Romania. Currently each public central institution uses their own indicators for reporting and reimbursing health care services, but there is no national integrated system, neither linked directly to national strategic objectives. There is no comprehensive dataset of healthcare indicators collected and analysed at national level, no unitary IT application.

Methods: Perform a literature review regarding the selection and use of suitable indicators for a comprehensive monitoring and assessment of the implementation of RMHS. Eurostat, OECD and EHCI also confer a general framework for assessment. Critical appraisal of the indicators currently used in Romania for health services evaluation and reimbursement. Develop a complete dataset of indicators for monitoring and evaluation of health services, structured per levels of care, including: definition, type, division, intervention area, formula, unit of measure, necessary data, data sources, links with other indicators, target value. Perform a retrospective data analysis regarding the values of indicators already in use for health services in Romania 2019-2023, comparative analysis, and estimate trends for the critical ones. Data sources: National Institute of Statistics, Ministry of Health, National Health Insurance Fund, National Institute for Health Services Management, National Institute of Public Health.

Results: This paper is aimed to develop a relevant, operational and comprehensive system of indicators for M&E implementation of RMHS in Romania, including data collection tools and reporting tools. This-complex system of performance indicators is to support evidence-based health policies and decisions, planning resources and health interventions within Romanian healthcare system for the next 7 years. Within OPAC Project *Creating the strategic and operational framework for planning and reorganising health services as national and regional level*, we designed a comprehensive set of indicators to monitor and evaluate implementation of the 8 regional Masterplans. 148 indicators are selected, studied and analysed: primary healthcare 14 indicators, dental care 7, pharmacy 3, clinical ambulatory 9, paraclinical ambulatory 4, ambulance emergency care 8, hospital daycare 7, hospital infrastructure 70, hospital acute care admissions 17, chronic care admissions 9. Indicators already in use for reporting and reimbursing health services are analysed, while others are progress indicators.

Discussion: Major NHS objectives: sustainability and resilience of public health system, incl. financially; increasing healthy life expectancy and quality of life; reducing mortality and morbidity associated with major communicable diseases; improve available, equitable and timely access to safe, cost-effective health services & technologies; increasing health authorities' governance capacity; integrated policy for medical professionals training, developing, motivating, retention; improving system objectivity, accountability, transparency; integrated network of health services based on needs assessment; integrate medical research & innovation to improve health status; improving quality of care by investing in health infrastructure. Several indicators are in use for reporting and reimbursing health services, but not integrated databases, neither linked to national health objectives; few are used in decision making. There is no national dataset of healthcare indicators collected and analysed. Therefore, a comprehensive system of indicators relevant to each level of care is necessary to monitor and evaluate NHS interventions - unitary IT application generating critical reports.

A health workforce forecasting tool to support and promote dialogue between stakeholders in Italy

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Context: In Italy, there are about 1.5 million professionals (including the inactive) in the health care labour market. They are divided into 30 recognised health professions registered in 9 professional bodies. One of the main levers for managing this market is the so called "numerus clausus" (restriction of access to university courses). A national law establishes that the annual number of student intakes must be based on the estimation of the future demand for health professionals, to be agreed between the Ministry of Health and the 19 Regions and 2 Autonomous Provinces, after consulting the representatives of the 30 health professions.

Methods: This process is complicated not only by the well-known variables to be taken into account in the exercise of 'anticipating' the balance between supply and demand, but also by the large number of stakeholders involved: there are more than a thousand people are involved each year, both regionally and nationally, in the decision-making of the number of student intakes for the 30 health professions. For this reason, the Italian Ministry of Health decided in 2012 to develop a tool to facilitate the involvement of stakeholders and to provide more accurate estimates of health workforce needs. It therefore participated in the EU Joint Action on Health Workforce Planning and Forecasting (2013-2016), analysing seven European best practices and then developed a forecasting tool (based on stock and flow models), which was tested in a pilot project for five health professions. The analysis and the pilot results were reported in a Handbook.

Results: The forecasting tool developed during the pilot project was subsequently extended to all 30 health professions. It is based on a spreadsheet (Excel), has a user-friendly graphical interface (see figure) and includes 8 variables (6 for supply and 2 for demand). For each variable, the Ministry of Health, in collaboration with the National Statistics Institute (ISTAT), the CPD/LLL Registry of Health Professionals and the Professional Orders, feeds and updates the data annually, creating national and regional packages: for each of the 30 health professions, one national tool and 21 regional tools are created, for a total of 660 packages. In this way, it ensures that the decision-making processes, which are initially carried out at regional level and then at national level, it is based on the same principles, the same variables, fed by the same certified data, but respecting regional and professional specificities.

Discussion: The forecasting tool developed by the Ministry of Health was formalised in a Government-Regions agreement in 2016. Since then, it has continued to be used not only by stimulating a constructive dialogue between stakeholders on future supply and demand scenarios, but also by triggering a virtuous circle of improvement on data and data sources for planning purposes, both on the supply and demand side. On the supply side, for example, an official Programme has been launched by ISTAT to create, through data linkage, an individual database of active health professionals. In addition, the Ministry of Health, ISTAT, Emilia-Romagna Region, Marche Region and the Professional Order of the Allied Health Professions are partners of the European Joint Action HEROES (2023-2026), with the aim to improve the demand side variables of the tool, as well as to improve the planning skills of the representatives of the stakeholders involved in the decision-making process.

Navigating the path to trust in AI tools and their use in cardiac care settings: a survey of consultant cardiologists in the UK

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Context: The use of artificial intelligence tools (AI) alongside clinicians' judgement for the diagnosis of heart diseases remains relatively low due to trust issues, the perceived risk of using AI, and certain personal characteristics of users. Given a paucity of research on AI adoption for cardiac care, we applied a structural equation model (SEM) to examine the path to trust in AI and the path from trust to an intention to use AI in future (AI-Use). Moreover, we examined the relationships between the perceived risk of using AI for patient care, substitution threats posed by AI, individual innovativeness, and peer influence and AI-Use.

Methods: We conducted a cross-sectional survey of consultant cardiologists in the UK. We collected data from a convenient sample of cardiologists through an online survey platform. We included 61 participants in the final analysis. We used a formative SEM analysis approach to validate a measurement model and to test our path model. Due to the small sample size, we used partial least square SEM to assess the measurement and path models. We utilised an overall goodness of fit (GoF), which accounts for both the measurement model and structural model quality, for model selection. We also used qualitative content analysis to extract themes on the enablers and barriers of AI-use and the risks attributed to using AI in cardiac care. We performed analyses in the R programme.

Results: We identified an SEM model with the highest GoF at 63% through model selection. Though the final model's items markedly reduced compared with the initial conceptual model (GoF=51%), it embraced all latent constructs such as factors of perceived trustworthiness, trust, and AI-use that were introduced in the conceptual model. The final model explained 70% of the variance in trust and 37% of the variance in AI-Use. The perceived ability of the AI tool, which refers to the accuracy and reliability of the model, made the largest contribution to trust (β=0.55, p<.001). Lower benevolence (i.e., an increased lack of good intention of AI) was associated with lower trust (β=−0.19, p<.05). Among the constructs that were used to explain AI-use, only trust in AI was a significant contributor (β=0.48, p<.001), with higher trust being linked to increased future use. The main themes of the perceived risk of using AI were the risk of inaccurate diagnosis or treatment (n=20), the risk of adverse events (n = 15), and the risk of litigation and legal responsibility (n=6). The accuracy of AI diagnosis was mentioned as an enabler and barrier to using AI tools.

Discussion: An improved GoF of the final model suggests that the constructs and their relationships better capture the underlying theoretical framework. Addressing specific concerns related to accuracy and adverse events, while fostering trust in AI systems, will be essential for ensuring the seamless integration of these technologies into routine clinical practices, ultimately leading to improved patient outcomes.

H-PASS – Designing a multi-country training program to improve digital and transversal skills in healthcare

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The advent of digital transformation has caused paradigmatic shifts in care provision, influencing doctor-client or team relationships through the proliferated utilisation of digital solutions. The main objective of the H-PASS project is to design and pilot a training programme focusing on digital and transversal skills and up-to-date and evolving knowledge, responding to the emerged skills gaps. H-PASS is a project under EU4Health with 13 partners participating in the delivery from 6 European countries, including Cyprus, Greece, Hungary, Italy, Lithuania, and Romania. The training is to have locally adaptable modular structure delivered through a state-of-the-art pedagogical methodology, including a VR learning environment within a blended learning setup. By engaging a diverse spectrum of health professions, including medical doctors, nurses, and pharmacists, the project aims at interprofessional education collaboration development as well.

The methods for training needs assessment included a 1) needs assessment questionnaire applied in all participating countries (465), 2) central desk research focusing on the main themes of HWF competence frameworks and development (86), 3) local desk research focusing on publications and policy documents at the national level, including grey literature and documents in the national language (53), and the mapping of existing relevant trainings (38), as well as 4) stakeholder interviews and focus group discussions to maximise the impact of the project. Planning with the participating partners involved step-by-step discussions of the inputs (including partners' educational resources, and accreditation information) and plans in the form of online meetings monthly.

The result of the planning process is a modular training structure that can serve both central and local training goals, with an engaging training methodology. The structure includes 4 modules with the option of creating local module(s) as well, complemented with an onboarding module and a VR learning environment supporting the learning synthesis and assessment. The training modules are 1) Adaptation to digital transformation, 2) Communication, teams, and culture in digital times, 3) Improving processes in the healthcare system, and 4) Data in healthcare. All modules have a) digital competence, b) transversal competence, and c) action dimension. The modules are built on pre-defined learning outcomes divided into knowledge, skill, and attitude elements that are assigned to the thematic components, where all components can involve local training contents fulfilling the defined learning outcomes.

The design and the structural characteristics of the training within the H-PASS project provide an internationally relevant practice that can serve as a benchmark for future trainings designed on the international level. The presentation on the project aims to address design process challenges and solutions as well as how the proposed structure supports the project's complexity of training contexts.

From hotel to hospital: technological transfer and process innovation in the housekeeping department

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Context: In this article, we analyse an innovative solution implemented by the Swiss multisite hospital Ente Ospedaliero Cantonale (EOC), which introduced a digital platform to enhance the management of housekeeping as a pilot project at the Lugano Regional Hospital. The objective is to illustrate how this innovation has improved staff safety and satisfaction, service quality, operational management, while reducing delays and costs.

Methods: First, a short literature review was conducted to seize the role cleaning staff within hospitals. Indeed, their responsibilities go beyond aesthetic concerns to have a direct impact on patient well-being and the prevention of Healthcare-Associated Infections (HAIs). The literature reflects the importance of their role and the need to optimise the management of these resources. The process in place before the implementation of the new digital platform for managing housekeeping was then mapped through various interviews with stakeholders and observational moments. Subsequently, the new process was outlined, identifying all the activities that were no longer necessary and highlighting all the advantages generated by this innovative solution.

Results: The introduction of this digital platform has generated significant added value on multiple levels. Firstly, the safety of domestic economy service collaborators has greatly improved. By having clear and constantly updated indications regarding the status of rooms (i.e., isolations and infectious diseases), as well as digital standard operating procedures accessible at any time, the risk of contagion is significantly reduced. Additionally, successfully determining, through environmental investigations conducted by the Infection Prevention and Personnel Medicine Service, which collaborators may have been in contact with infected patients has notably decreased the clinical care process and associated costs.

Internal communication has also significantly improved through the use of the platform, as well as personnel and activity management with complete real-time monitoring. The team leader and the service manager can assign rooms to collaborators for cleaning and monitor the activities performed. Simultaneously, collaborators can report anomalies and non-conformities. Using the tablets provided to all domestic economy service collaborators, they can send maintenance requests to the technical service, attaching photographs. Furthermore, activities and time spent by both collaborators and team leaders have been considerably reduced. This has allowed the latter to focus on quality controls, ultimately increasing patient satisfaction. Having images of how the room should be prepared also enhances the standardisation of provided quality. Finally, thanks to the platform, it is possible to develop a multitude of statistics and reports useful for management. These data also contribute to an improvement in the quality of the hospital's cost accounting, enabling a more precise allocation of domestic economy service costs.

Discussion: This project highlights how a digital innovation, developed by transferring and further developing a solution adopted in the hotel sector to the hospital sector, has generated significant added value for the organisation, collaborators, and patients on various fronts. Moreover, this platform still has development potential, allowing for numerous future improvements. This project also aims to emphasise the importance of domestic economy, cleaning, and hygiene in the hospital field, underscoring its central role in the quality of care. A role often relegated to the background but unquestionably deserving attention and investment, as evident in the substantial benefits it can bring to the organisation, collaborators, and patients.

Transforming healthcare: unveiling and tackling medical deserts – the OASES project

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Context: To understand and address the challenge of medical deserts, a series of pilot studies was carried out across seven diverse countries – Cyprus, Finland, France, Hungary, Italy, Republic of Moldova, and Romania. These endeavours aimed not only to identify the contours of the problem but also to forge strategies that could transform these healthcare deserts into well-served areas. This paper provides a description of how the pilot studies were conducted and of the results they produced, followed by recommendations on how to mitigate medical deserts. The studies unearthed a critical lesson on the pivotal role of data quality.

Methods: Upon delving into multiple statistical databases, discrepancies surfaced, emphasising the need for a nuanced approach and the convergence of diverse data sources. This underscored the significance of triangulation, including already existing data, consensus building exercises and qualitative evaluation, ensuring a more holistic grasp of the complexities at play. The use of triangulation in the pilot studies was not just a methodological choice; it was a strategic approach to address the intricate nature of medical deserts. It aimed to ensure that the analysis was not one-dimensional but rather multidimensional, capturing the richness and diversity of the phenomenon of medical deserts and providing a more holistic understanding of the complexities involved.

Results: Across these varied landscapes, the studies revealed the omnipresence of medical deserts, underscoring their pervasive nature. We identified medical deserts, recognising that each country faced a peculiar manifestation of this challenge. However, effective strategies necessitate more than just collaboration; they require effective communication. Stakeholders, primarily reliant on professional information channels, faced a gap in awareness regarding recent policy actions and mitigation steps, which was partially addressed on the short time by the pilot studies. Extending beyond immediate interventions, stakeholders emphasised the need to recruit specialists, broadening the scope of primary care. This strategic move, they believed, held the key to improving care efficiency and quality in the long run.

Discussion: In conclusion, the research recognised the inherent complexity of mitigating medical deserts. It acknowledged the challenging terrain policymakers and stakeholders navigate and highlighted ongoing initiatives, programs, financial supports, and regulations in motion. It also reminded us that time is a crucial element; success and transformation of deserted areas into well-served regions demand a patient and persistent commitment to the cause. In essence, the narrative woven through these studies emphasises not just the challenges, but the resilience and adaptability required to script a transformative healthcare future.

The socioeconomic impact of in-silico methods for implantable medical devices: a conceptual framework

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Context: In the evolving landscape of medical technology, the study explores the transformative potential of in-silico technologies, specifically virtual cohorts, and digital twins, for implantable medical devices. So far, the focus has been on development, verification and validation of in-silico models but impacts on the economy and society have been hardly investigated. Further, there is a lack of a concept how the impact of in-silico models on socioeconomic factors can be evaluated. As part of the EU-funded project SIMCOR, we therefore developed a conceptual framework to describe the impact channels from primal effects along the product development cycle to numerous socioeconomic endpoints. We will also report on our current state of work to develop quantitative assessment models.

Methods: We applied an iterative process to build concepts from data (literature, interviews, focus groups) and set them in relation to each other using the method described in Jabareen (2009). Initially, we conducted a comprehensive literature research on the topic of in-silico technologies and their impact on product development that will be published as a scoping review. Information from the literature were complemented with expert interviews and focus groups with stakeholders from academia, industry, regulatory bodies, healthcare professionals and patients. Repeated steps of literature work, exploratory interviews and frequent discussion sessions among the research team led to the presented framework. The resulting framework was validated through feedback from experts from the project consortium.

Results: The conceptual framework describes the whole network of impacts from the technical changes brought about by the use of in-silico technologies (primal effects) along the product development cycle up until the socio-economic endpoints. These are allocated to four different levels, namely 'Firm', 'Market', 'Health System' and 'Society'. The conceptual framework indicates that in-silico methods could not only accelerate product development and reduce costs, but also patient safety is expected to be improved, innovations are supported and the price for a medical treatment might decrease. Underrepresented patient groups may also benefit from the use of the technology, as it expands the possibilities to augment the number of individuals in clinical trials and model rarer anatomical configurations. Since the whole conceptual framework has multiple complex impact channels that create a kind of network, each impact channel is explained with its ramifications.

Discussion: The conceptual framework serves as a basis for the quantification of the impacts of in-silico technologies on firm, market, health system, and society and, consequently, the potential benefits as well as disadvantages can be estimated and better classified from different perspectives. Therefore, as a next step in the SIMCOR project, the conceptual framework will be populated with empirical information and used to develop models to assess the actual impact that might arise from using in-silico technologies. The talk will therefore also present the state of model development at the time of the conference.

Enhancing coronary patient recovery through digital Integration: a cardiology service initiative in Portugal, +closetoyourheart

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The recovery from an Acute Myocardial Infarction is a multifaceted process that not only involves several stages and interventions but also necessitates significant lifestyle changes, often leading to feelings of vulnerability and insecurity. The Cardiology Service faces challenges such as high bed occupancy and rapid patient turnover, coupled with barriers in effective patient awareness and low health literacy. These issues are crucial for patient empowerment post-discharge, emphasising the need for improved follow-up mechanisms, health literacy, and comprehensive care management. Our project seeks to address these challenges through the innovative integration of digital tools and telehealth services.

In the dynamic field of healthcare, the Cardiology Service at Local Health Unit of Coimbra, is pioneering an approach to improve the recovery process of coronary patients, especially after myocardial infarction (MI). This initiative focuses on leveraging digital tools and telehealth to optimise patient care and management post-discharge. The primary objective is to enhance health literacy, empower patients in their recovery journey, and establish a seamless transition from hospital to home care. The program includes the development and implementation of a specialised module within the institution app, tailored for post-Acute Coronary Syndrome (ACS) patient support. This ensures digital accessibility of personalised patient information and facilitates comprehensive patient follow-up in line with the European Society of Cardiology guidelines. The initiative also encompasses the establishment of a detailed clinical follow-up protocol for MI patients, aiming to apply this protocol to at least 25% of these patients within the first year. An essential component of this strategy involves integrating and coordinating efforts among various health and social care institutions to provide a holistic care approach.

Annually, Local Health Unit of Coimbra handles approximately 4000 coronary consultations and 500 acute coronary syndrome admissions. However, the challenges of high patient turnover and limited health literacy among patients have highlighted the need for improved post-hospitalisation care strategies. Currently, patient re-evaluation often occurs up to three months post-discharge, potentially delaying critical health literacy and treatment adherence interventions. By implementing this project, Local Health Unit of Coimbra aims to address these gaps effectively, offering timely and pertinent patient education and support.

The expected outcomes of this innovative approach include improved patient understanding and management of their condition, increased adherence to therapeutic regimes, and better overall health outcomes. This initiative is anticipated to significantly reduce hospital readmission rates, encourage healthier lifestyle choices among patients, and enhance chronic disease management. Ultimately, this project is not just about treating a condition but about transforming the patient experience, improving quality of life, and contributing to a more efficient and effective healthcare system.

Addressing medical malpractice in Romania: an ecological analysis

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Context: The current study aims to quantify medical malpractice incidents by specialty, identifying specialties with higher incidence of reports and sanctions. The study offers insights into the patterns and trends of malpractice across different medical fields, contributing to a better understanding of the risk factors and implications for healthcare quality and policy in Romania. Additionally, it addresses the broader issue of medical malpractice in Romania, highlighting its impact on both healthcare providers and patients, thereby underscoring the urgency of addressing these challenges to enhance the overall standard of medical care.

Methods: This study provides an ecological analysis of medical malpractice in Romania, using data from the National College of Physicians and the Romanian National Institute of Statistics. The dataset includes malpractice reports and sanctions from 2015 to 2022 across various medical specialties and the total number of physicians în each medical specialty. Annual trends were analysed using the Estimated Annual Percentage Change for reported cases and sanctions. A linear regression model assessed the annual trend, converting the slope coefficient into EAPC. Pearson's correlation coefficient was used to examine the relationship between reports and sanctions annually. The study also identified the top five specialties regarding total counts and proportional rates of reports and sanctions, providing a focused view of the areas with the most significant malpractice issues.

Results: The study showed that in the period 2015-2022, there was an annual increase of 9.07% in reported malpractice cases (p-value: 0.2767) and a 0.78% increase in sanctions (p-value: 0.9081), though these increases were not statistically significant. There was a moderate positive correlation (0.687) between reported cases and sanctions, but it was not statistically significant (p-value: 0.060). The top five specialties for reports were General Surgery (294 cases), Obstetrics-Gynaecology (238 cases), Anaesthesiology and Intensive Therapy (141 cases), Cardiology/Internal Medicine (136 cases), and Family Medicine (135 cases). Although Obstetrics-Gynaecology had the highest rate of reported cases (11.07 per 1000 physicians) and sanctions (1.78 per 1000 physicians), General Surgery and Family Medicine also showed significant rates. General Surgery followed with 10.21 reports and 1.11 sanctions per 1000 physicians, while Family Medicine had 9.93 reports and 0.73 sanctions per 1000 physicians.

Discussion: The findings indicate a trend of increasing medical malpractice reporting in Romania, with specialties like Obstetrics-Gynaecology and General Surgery being particularly prone to both complaints and sanctions. The statistical insignificance of these trends calls for further research into underlying factors. The study highlights the need to continuously monitor malpractice patterns to enhance healthcare quality and patient safety. It also emphasises the role of specialty-specific data in shaping policies and interventions to mitigate medical malpractice risks effectively. These insights are very important for healthcare administrators, policymakers, and medical practitioners in Romania to address malpractice concerns proactively. Crucially, insights from healthcare professionals who call for a change in the malpractice monitoring and reporting system align with these findings. A more efficient system could increase patient trust, addressing the challenges highlighted in the current Romanian medical malpractice landscape.

Applying circular and green economy principles amongst hospitals: the case of an acute teaching hospital in Malta

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Context: According to the Association of American Medical Colleges, hospitals and labs emit 4.4% of the world's greenhouse gas emissions and are responsible for more than 5 million tons of waste each year. The integration of Circular and Green Economy (CGE) principles within healthcare systems stands as a paramount strategy in addressing environmental sustainability challenges. Hospitals have emerged as pioneers in adopting CGE principles to mitigate environmental impact while enhancing operational efficiency. Through robust waste reduction and management strategies, hospitals have minimised waste generation by repurposing and recycling medical equipment, embracing reusable materials, and implementing meticulous hazardous waste segregation protocols. Such initiatives have not only minimised environmental footprint but have also contributed significantly to cost savings within these healthcare facilities.

Methods: Against this background, this work aims to investigate how CGE principles are being integrated in a hospital setting. A qualitative approach was adopted. Document analysis was conducted on both available literature and internal hospital documents (including annual reports and hospital data) of an acute teaching hospital in Malta.

Results: Results show that a number of CGE initiatives are currently being implemented by the analysed hospital. For instance, certain hospital wards are measuring how many bags of waste are discarded every week. The existing system is yellow bags for incineration and domestic bags for all waste – where yellow bags for incineration are only used for heavily soiled materials. Bags for clean paper and plastic were introduced and the remaining waste material is discarded in bags for domestic refuse. Furthermore, educational campaigns were carried out amongst staff at different levels (i.e. cleaners, nurses and doctors). QR codes were applied on bins in order allow users to see a short video on what should be discarded and where. Pilot projects were initiated in different hospital areas and are planned to be expanded in the near future. There are plans for further CGE and environmentally friendly measures within the hospital.

Conclusions: In conclusion, the integration of CGE principles within hospitals demonstrates a paradigm shift towards sustainable healthcare systems. The evidence presented underscores the efficacy of these initiatives in not only reducing environmental impact but also in fostering economic viability and resilience within healthcare infrastructures.

Transition to independent practitioner: impact of an intervention to support newly qualified pharmacists

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Context: Transition from learner to independent practitioner is challenging, with newly qualified pharmacists (NQPs) experiencing difficulties taking up their authority while working with a high degree of autonomy and accountability. This is particularly demanding for those working in community pharmacies where despite having positional power, NQPs often work as the sole pharmacist, experiencing isolation from peers and opportunities to benchmark their practice. As a consequence, transition creates isostrain, with the workplace experienced as a "noxious" environment. In this paper, we consider the impact of the NQP Pathway, an intervention in England designed to support NQPs' development and transition to independent practice.

Methods: The evaluation used Normalisation Process Theory (NPT), a framework for evaluating if and how complex interventions can be embedded in practice. NPT constructs were mapped against three evaluation themes (*purpose, resources and supervision*) and subsequently used to inform data collection. Semi-structured interviews were conducted online (using MS Teams) with NQPs on the Pathway (n=7) and NQP supervisors (S) (n=14). Interviews explored understanding of the *purpose* and benefits of the Pathway, perceived value of Pathway components (online learning *resources*, an e-portfolio, and *supervision* (remote or in the workplace)), and challenges in completing the Pathway. Interviews were audio-recorded with consent, transcribed verbatim and anonymised before being analysed using NPT constructs. Our analysis sought to draw out the Pathway's impact on learners and to identify the factors that promote or inhibit the implementation and integration of learning from the Pathway into routine work.

Results: Findings suggest learners and supervisors were clear about the *purpose* of the Pathway. *Resources* were viewed as dispersed across e-learning platforms which created confusion; recording reflection in the e-portfolio was experienced as challenging by some. *Supervision* was seen as instrumental in supporting the transition period and a notable benefit of the Pathway. However, perceived Pathway benefits varied according to NQPs' work setting. Those in community pharmacies valued being provided with social support to connect with peers that mitigated professional isolation. Hospital NQPs valued the contribution of the Pathway to career progression. For all NQPs, supervision enabled application of learning in practice, facilitated development of advanced skills, which positively impacted on patient care. Overall, the Pathway helped learners gain clinical, management, and leadership skills, contributing to NQPs feeling more able to take up their authority. Yet the quality of supervision varied, with likely impact on transition.

Discussion: Transition for NQPs takes place in high-strain jobs, where workplace demands are also high. Interventions such as the NQP Pathway have a role to play in nurturing learners, affording them with a sense of psychological safety, with supervision in particular contributing to impact and integration of learning into routine practice. As health systems look to workforce solutions such as extending the scope of practice of health professions to address rising demands for healthcare, interventions that support the transition of newly qualified professionals to take on management and leadership roles will be critical.

A scoping review on the impact of electronic health records (EHRs) implementation on health service productivity

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Context: This review explores the relationship effect of implementing electronic health records (EHR) on health service productivity and the role of the productivity paradox of IT. Governments and medical organisations identify EHRs as an essential system for meeting healthcare demands and the productivity growth set out by the 2019 NHS Long Term Plan. There is a large body of literature studying the benefits and drawbacks of EHRs, but the body of high-quality evidence focussing on health service productivity pales in comparison. Additionally, the impact of EHR implementation on wider managerial aims should be considered to enable successful implementation of EHR systems. The central research question of this project is "What does the existing literature find on the impact of EHR implementation on health service productivity?" The project aims to clarify the discussion on how EHR system implementation affects health service productivity by identifying, synthesising, and summarising the existing literature.

Methods: This project identifies, synthesises, and summarises the existing literature relating to EHR implementation and health service productivity through a scoping review. The literature search was conducted using four databases and four grey literature sources. Studies were included if written in the English language, published between 2012-2022 and measured one or more productivity factors. A dataset of 24 studies was generated.

Results: The included literature explores the productivity benefits and drawbacks of EHR implementation, using five key productivity outcomes: workload, time, user experience, efficiency, and financial impacts. This analysis revealed that a potential drawback of EHR implementation was a loss of labour productivity (LP). Studies in the dataset commonly used workload and time distribution (particularly time spent on documentation using EHRS) to measure LP and found both to increase after EHR implementation. An important drawback to EHRs is the cost of implementation: the three studies found the large implementation costs were a barrier to EHR adoption. The studies reporting on revenue present mixed data making results inconclusive, which suggests implementation costs are larger than revenue gains from EHR use. In-depth analysis explained the heterogeneous findings resulting from the influence of the productivity paradox of IT.

Discussion: This review offers two contributions: firstly, it is supportive of suggestions that health services experience the effects of the productivity paradox when implementing EHRs, and secondly, strategies to mitigate the influence of the paradox should be considered before implementation. As EHRs are being increasingly implemented in health services globally, health service managers must prepare adequately to face the productivity challenges associated with implementation. Effective EHR implementation strategies, targeted for the resolution of the causal factors of the productivity paradox, can help minimise productivity loss in the short term and sooner achieve the desired benefits of EHR systems in practice. These strategies include leadership engagement, developing human capital and integrating systems.

Clinical leadership: the importance of the broader context for change initiatives

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Context: Talented medical professionals from Dutch hospitals have been participating in a post academic leadership program (Imagine2) for 8 years. The participants' own drive is important: the motivation to really want to make a difference in patient care. Because of executive involvement, the leadership program offers a learning environment in which physicians can grow personally and carry out a change initiative. Topics of change initiatives are for example: regional cooperation, shared decision-making, prevention, efficient working, organising care with and around the patient, joy in work, digital health. The leadership program is well assessed and the learning curve for participants is steep.

Methods: After 8 years of Imagine2, with 114 participants and just as many implemented change initiatives, interesting questions arise. Preliminary research is done to identify main issues. We have analysed more than 50 interviews with participants during the leadership program as well as their change initiatives. In addition, we have interviewed 10 participants on their experiences in the period after the leadership program ended. The next steps involve a more extensive literature study and in-depth interviews with alumni and executives.

Results: We found that when the leadership program ends, clinical leaders will continue to improve patient care with enthusiasm. However, without the leadership program, physicians struggle to organise necessary conditions for change. Working agreements and structures are more of a hindrance than a help. This makes continuous improvement too dependent on talented physicians with personal leadership and who dare to push boundaries. Moreover, realising change initiatives without necessary conditions can lead to increased stress and workload among healthcare professionals (De Koeijer et al., 2022), which is also indicated by our respondents. Also, a team must be open to change and should be embedded in the broader context of the organisation, which also has a direct relationship with change (Maassen et al. 2020;2021). However, respondents felt alone in their change ambitions because it often led to lower production initially.

Discussion: However, there appears to be a gap between hospital policy on the one hand and change initiatives on the other, which means that single initiatives succeed, but a broader transition and dissemination of these initiatives is difficult to realise (De Bree & Stoopendaal, 2018; Köhler et al., 2019). How can this gap be bridged to achieve a climate of continuous improvement and internalised change initiatives? A recent review of transitions in healthcare shows that much is still unknown about this (Cote-Boileau et al., 2019). Our preliminary research brings us insights which we would like to enrich and validate with other researchers to determine appropriate and relevant angles for follow-up research.

Developing diabetes and severe mental health disorders dashboard for informed decision-making, managerial insight, and optimising health system effectiveness

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Background: In accordance with its strategic effectiveness steering model, the wellbeing services county of Keski-Uusimaa has opted to initiate two distinct diagnostic-based effectiveness pilots: diabetes pilot and severe mental health disorders (SMHD) pilot. The incidence of both diabetes and SMHD is anticipated to rise in the upcoming years both in Finland and globally. The elevated costs linked to diabetes result from the considerable number of affected individuals. Whereas, treating SMHD proves expensive, even with a smaller patient population. There is a need to formulate and implement effective strategies for the enhanced management of diabetes and SMHD within the population.

Methods: Leveraging the International ICHOM framework for diabetes and severe mental health disorders, our primary objective is the development and implementation of a comprehensive dashboard for both of diseases. In the case of serious mental health disorders, the dashboard view is shared between primary care (Keusote) and specialty care, the psychiatry clinic of Hyvinkää hospital of Helsinki and Uusimaa hospital district (HUS).

In the collaborative development of the dashboard, workshops were conducted involving the special healthcare experts involved in the treatment of these diseases (specialists and nurses) and the management level. Through these sessions, diverse use cases were identified to ascertain the specific purposes the dashboard needed to address, and the measurement were carefully validated. Furthermore, during this process, a crucial realisation emerged - there was a pressing need to incorporate patient-reported outcomes measures and clinician-reported outcomes measures, components not previously available in the health service infrastructure of the Keusote.

Results: Through the deployment of these disease specific dashboards, we anticipate providing policymakers, healthcare professionals, and patients in wellbeing services county with a dynamic and data-driven tool for informed decision-making, proactive care management, and the continuous improvement of diabetes outcomes within the population. In addition, recognising the ICHOM framework as a useful tool in the development of the diabetes dashboard not only underscores the initiative's commitment to robust methodology but also positions the resulting tool within a broader global context of best practices in health outcomes measurement.

Discussion: The proposed dashboards, developed through collaborative efforts and incorporating patient-reported outcomes, are positioned to be a valuable asset in addressing the challenges posed by the selected diseases within the population of the wellbeing services county. Foremost, with Finland undergoing a significant health and social care reform and adapting to a new financial model, these dashboards may facilitate the delivery of cost-effective care. The emphasis on informed decision-making and ongoing improvement indicates a proactive and comprehensive approach to diabetes care and the management of severe mental health disorders in Finland. Following the pilot phase, the insights derived from the pilot programs will be incorporated into the development of an effectiveness steering model.

Addressing cardiovascular diseases in Romania: an analysis to develop strategies for healthcare workforce in cardiology

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Context: Cardiovascular diseases are one of the main causes of death in Romania. In 2020, cardiovascular diseases represented more than half of all deaths in Romania, including 18,8% from ischemic heart diseases and 13,9% from strokes. At the European level, these illnesses are responsible for 29% of premature deaths in women and 33% in men before the age of 70. The identified risk factors are hypertension and high cholesterol, lack of physical activity, obesity or smoking, which require specialised medical attention to improve patient care.

Methods: We used data from the Activity of Health Care Units in Romania in order to assess the number of cardiologists and data from the European Society of Cardiology to analyse the incidence for both males and females, from 2015 to 2019. The National Strategy for Combating Cardiovascular and Cardiocerebral Diseases, published for public consultation by the Ministry of Health in Romania was analysed to explore the needs for prevention and objectives for lowering cardiovascular diseases from 2023 to 2030, compared to the European benchmarks.

Results: When it comes to the number of cardiologists in Romania, we must highlight the need for specialised healthcare professionals. While an increase by 23% in the number of cardiologists from 1 704 in 2015 to 2 095 in 2019, however, in the North-West region there were only 312. The incidence rate of cardiovascular diseases in 2015 per 100,000 population was 779,9, compared to the European Union, whose incidence was 644. In 2019, the numbers show minimal variation in Romania, where the incidence was 776,4 compared to 610 in the European Union. Romania reported in 2015 a number of 6 986,1 new cases of cardiovascular diseases, slightly more than the EU's 6 415, while in 2019 Romania had 7 140,8 new cases, exceeding the EU's 6 271,1. Regarding policies, the National Health Strategy from 2023 to 2030 included several goals for preventing cardiovascular diseases.

Discussion: In order to improve the health of the population and lower the incidence rate of cardiovascular diseases, it is crucial to ensure an equitable distribution of healthcare professionals in the regions of Romania to guarantee equal access to prevention and treatment. Unlike university hospitals, county and city hospitals have a shortage of cardiologists, due to migration or to private systems. The causes for low activity in the field of interventional cardiology are the insufficient number of centres, uneven distribution of centres at the national level and inadequate funding. The access to cardiovascular prevention can be influenced by some factors such as financial resources, geographical area, level of education or stigma. Possible solutions could be to increase the allocation of funds for non-communicable diseases and to develop awareness and early detection campaigns for primary and secondary prevention, especially in small cities.

Learnings from >150 improvement projects in Dutch healthcare: internalising continuous improvement

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Context: There are challenges of access to healthcare services and of enhancing the quality of care and patient safety while reducing costs (Hundal *et al.*, 2021; McDermott *et al.*, 2021). These challenges, amplified during the Covid-19 pandemic, make healthcare an attractive domain for operations management (Barjis, 2011). There is, however, a need for more empirical research on the application operations management methodologies in healthcare (Bertolaccini *et al.*, 2015; Ko *et al.*, 2016; Da Silva *et al.*, 2017; Wilson *et al.*, 2018; Antony *et al.*, 2018; Bhat *et al.*, 2022).

Methods: We analysed 156 improvement projects carried out by participants of a postgraduate education program in the period 2019-2023. 42 projects took place in mental healthcare, 9 projects in care for disabled people, 18 projects in care for elderly, 33 projects in hospitals, 16 projects in organisations that combine secondary and tertiary care and 38 projects in other kinds of organisations such as primary care or knowledge institutes.

Results: 84% of the healthcare organisations used LEAN for their improvement projects. The other organisations embraced methodologies such as Value Based Healthcare, Quadruple Aim, or Theory of Constraints. Tools such as Value Stream Mapping, 5S and Critical to Quality indicators were applied most regularly. Intended results of the projects were mainly improved process performance and improved satisfaction of patients. When looking at the implementation phase of the projects, participants describe challenges such as resistance to change, difficult transfer from project to line responsibility and lack of focus in the organisation to implement projects.

Discussion: Adopting continuous improvement in such a way that it becomes a permanent part of the organisation's routines can be described as internalisation (Kostova and Roth, 2002). Radnor et al. (2012) argue that the narrow focus on "hard" operations management practices has led healthcare to neglect soft" practices, i.e. those concerning people and relationships (Mamata et al., 2015). This in line with our findings that improvement projects mainly focus on tools and techniques derived from operations management methodologies, which results in challenges during the implementation phase. We argue for a systems approach that encompasses interrelated "hard" and "soft" improvement practices (Bortolotti et al., 2015; De Koeijer et al., 2022).

What we like to discuss with other researchers: We are well aware that there is a significant bias in the analysed assignments. How can we use this data for relevant research?

The Qualitician: a new profession in the field of healthcare quality and risk management at European level

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Context: The evolving landscape of health professions, coupled with European reports emphasising the quality of care[1], revealed a significant workforce deficit in the healthcare sector[2]. Professionals such as quality specialists, managers, and employees responsible for quality in medical establishments were identified as key catalysts for the required paradigm shift. Amidst the prevailing challenges in the healthcare workforce, this project emerged as a vocational retraining solution which may also include migrants and asylum seekers who had previously undertaken all or part of their medical training in their home countries.

Methods: This collaborative effort involved nine partners from France, Greece, and Romania. The three countries collaboratively identified shared elements and country-specific nuances, distributing production tasks among technical groups – comprised of quality managers and healthcare educators. Results were validated through transnational steering committee meetings, involving other partners in the respective countries. Adopting a Competency-Based Approach, the project's development revolved around understanding professional activities linked to target jobs in quality management as both the source and destination of the learning targeted by the training process. This approach dictated a training engineering method grounded in job analysis, defining a repository of professional activities for the target job type. This repository, detailing missions, activities, tasks, and skills, formed the basis for constructing a certification framework and subsequently a training framework, integrating knowledge and know-how based on the targeted skills in quality management of healthcare.

Results: The project yielded four notable deliverables: 1) Modular Training System: Implemented a lifelong training system in France, Greece, and Romania with 12 modules covering Quality Management, Organisation of Healthcare Facilities, Patient Safety, Communication, Internal Audits, and Professional Ethics. 2) Competency Framework for Healthcare Qualiticians: Defined eight functions for healthcare Qualiticians, including raising awareness, compliance assessment, quality improvement planning, formalisation of procedures, organisational steps in quality, risk management, and satisfaction survey participation. 3) Training and Certification Standards: Developed standards for healthcare Qualitician training at EQF (European Qualifications Framework)[3] levels 5 and 6, comprising specific learning units (e.g., Quality Management Basics, Auditing) and 25 competences to be acquired by learners. 4) Training Evaluation: Conducted training product testing on 25 trainers and 118 students, receiving positive feedback on the relevance of the covered topics to their hospital work.

Discussion: The project's achievements mark a significant leap in healthcare quality and risk management, particularly noteworthy given its implementation across three diverse countries with distinct standards and legislation. The modular training system's cross-national applicability showcases a nuanced understanding of varied healthcare contexts. Addressing critical topics like patient safety, quality management, and professional ethics, the initiative tailored competencies for healthcare Qualiticians, acknowledging the multifaceted nature of their roles. The establishment of training and certification standards, tailored to different competency levels, demonstrates adaptability to diverse regulatory landscapes. Successfully navigating the intricacies of standards and legislation in France, Greece, and Romania, the project not only strengthened the healthcare workforce but also underscored the importance of tailored approaches to quality improvement. Positive feedback from trainers and students reflects the program's success in preparing professionals amidst varied regulatory environments, fostering patient-centred medicine, and informing effective policy and governance.

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Exploring opportunities and assessing the impact of external interventions in the redesign of an ED in Warsaw

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In the context of a redesign of the ED of a hospital in Warsaw, we developed a model to analyse the right dimensioning of the ED depending on the typology of patients arriving, the different possible modes of care and the utilisation of different ED resources. After completing the internal analysis, that is, what were the correct dimensions of technical and professional resources o cover different demands, we opened the perspective and explored an external analysis of the factors that are usually not controlled by the ED managers but have a big influence on the ED performance. We analysed the whole patient journey, from the moment the need arises (accident, emergency, …) until the patient is discharged from the ED, either to go back home, to an external institution (e.g., long-term care) or admitted to the hospital ward. Finally, we developed a system dynamics model to evaluate the impact of some of these external interventions on the performance of the ED and concluded that some of the external interventions can have a bigger impact than what is usually done in planning and managing resources within the ED proper.

Perceived need and help-seeking for psychosocial support among health and social care professionals: a systematic review

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Context: Health and social care workers are facing multiple challenges. Decreasing workforce, fast-aging population, continuous stressful work itself and pandemics may increase burden and stress among health and social care professionals. Preventing work-related mental health issues is fundamental to sustain workforce and improve quality of care. We investigate how health and social care workers have experienced need for psychosocial support and how many of workers in need of help has actually seeked for it. Aim is to ascertain, how large-scale these issues are and secondary, how large costs do they cause to the health and social care industry.

Methods: We conducted a systematic review by searching literature about perceived need and help-seeking among health and social care professionals. Articles were searched systematically from PubMed, PsycInfo and Cinahl. We included articles that had quantitative outcome and were written in English, Finnish, Swedish, French or German. Articles selected must had been peer reviewed and had full text available. Covidence tool was independently used by two researchers to screen the results. We used the Quadruble aim framework to categorise the results.

Results: Our preliminary findings show that the perceived need for mental health support among health and social care workers is major. Many of those in need of help did not seek for it for various reasons, such as stigma. Also, the supply of mental health services provided by employers may be insufficient or they are not provided in many cases. However, measuring direct costs of work-related mental health issues proved to be complex.

Discussion: This study highlights the need for psychosocial support in health and social care field among workers. It is highly important to recognise this need not only for sustaining and improving health and social care professionals' mental health but also for continued delivery of health and social care services and thereby patient safety. Recognising the dichotomy between perceived need and already provided mental health support is important, so that employers are able to improve better support systems for workers and thereby sustain the workforce in health and social care field.

How to establish a clinical pathway - a proposal for the access of infantile haemangioma cases to health care

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Context: Infantile haemangioma is a benign childhood tumour. Romanian physicians have adopted the most recent treatment guidelines in current clinical practice. Despite their agreement and adoption of the gold standard recommended therapy the national health insurance fund has only started reimbursing a course of a 6-month treatment only recently in Romania, from December 2022. Until then the cost of treatment was covered by the family. This research proposes to develop a clinical pathway and guide with the aim to improve treatment access for patients with infantile haemangioma.

Methods: The research proposal uses a mixed methodology with steps undertaken from 2020 onwards: validation of a disease specific quality of life instrument for patients and their families; assessment of the quality of life for a group of patients with infantile hemangioma under 2 years of age and their family, and a twofold assessment of a contemporaneous financial burden of the disease before and after December 2022: of family budgets as well as the healthcare provider's financial position. A proposed quality of life questionnaire was assessed for its classical psychometrics criteria prior to December 2022: acceptability, reliability and validity and was culturally adapted in a group of N=123 patients under 2 years of age diagnosed with infantile hemangioma. Interviews were used to assess the financial burden: families and healthcare providers.

Outcome and estimated results: Physicians who diagnosed the infantile hemangioma were practising in the following specialties: neonatologists and paediatricians (54% of cases), general practitioners (21%) and other specialists (25%) by other specialists. The choice of attendance for the recommended specialist physician was made by 54% of families. Families raised important issues related to the financial burden: difficulties in juggling the family budget, running into financial difficulties, admitting to socially emerging and within-family problems and difficulties. The subscale of the parents' emotional status scored highest at start of treatment. In terms of financial burden 27% of patients' relatives considered that the price of the treatment influenced the choice of accepted prescribed therapy. Limited access to related additional services were noted e.g. cardiology referrals.

Discussion: Infantile hemargioma is a complex pathology which requires a multidisciplinary team for diagnosis and treatment. Clinical pathways have their practical utility: they guide physicians with day to day case management as well as with the overall prescribed therapeutic plan. In turn this may assist with the therapy's financial and administration process, such as the reimbursement scheme for compensated prescriptions. That was highlighted by the lack of adequate reimbursement or compensated prescriptions raised by half of the families before December 2022. A defined set of criteria will be listed for the development of a newly proposed guideline and clinical pathway for this pathology.

Monitoring patient safety culture with the AHRQ HSOPC V2.0 in an emergency hospital

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Context: Patient safety culture is a critical issue influencing staff behaviour regarding prevention and management of potential and effective adverse events. The AHRQ Hospital Survey of Patient Safety V2.0 issued in 2019, improves the features of the previous V1.0, released in 2004, which was applied in our 913-bed hospital in Bucharest (Romania) in 2019. The present study aims to explore patient safety culture using the HSOPSC V2.0.

Methods: The HSOPSC V2, composed of 33 items, was translated into Romanian and pre-tested on a few staff members. Then it was distributed, via web, to all hospital staff. The response rate was 33.11%.

After excluding the "don't know"/"does not apply" options, we computed the percentage of positive responses (PPR) for each item. A PPR higher than 75% indicate high level of development of patient safety culture, while a PPR below 50% indicate an area needing improvement.

Results: Most respondents were nurses (46,2%), followed by doctors (25,7%) and other staff (28,1%). Respondents were prevalently females (86,2%) and 87,5% of the respondents had direct interaction with patients. Most respondents had more than 11-year work experience in the hospital (43,9%), followed by those with less than 5-year experience (38,3%). Most respondents (49,5%) worked more than 30 hours/week and 46,1% worked more than 40 hours/week.

PPR were higher 75% for ten items (A1, A8, B1, B2, B3, C2, C3, C4, C6, F5) and they were lower than 50% for five items (A2, A3, A7, A10, F3). Overall, 58,3% respondents consider patient safety in their hospital as being "very good"/"excellent". Most respondents did not report any adverse event in the last year (66,6%) and 33,4% reported at least 1 adverse event.

Discussion: The most important positive aspects resulting from the research are the following: staff work as an effective team; staff members discuss the errors occurred, they speak off if they see something happen that affects patient safety and they are informed about changes based on reported errors; during shift change important patient information is not left out. However, there is still room for further improvement, especially with respect to: the number of staff members and of hours worked; the staff that blaming when an error occurred rather than focusing on learning and the fact that the hospital management seems interested in patient safety after an adverse event occurs.

The next step of this research is psychometric validation of the Romanian HSOPS-V2.0, to identify which dimensions of safety culture still need improvement, to assess their time trend and the effectiveness of the actions taken after the application of the HSOPS-V1.0 in 2019.

Strategies and impacts of health workforce migration in post-EU accession Romania

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Context: This analysis delves into the intricate dynamics of health workforce migration in Romania, a phenomenon significantly influenced by the country's accession to the European Union in 2007. It offers an insightful exploration of the resultant challenges and strategic responses, including policy interventions and their implications on healthcare delivery and workforce stability.

Methods: Employing a mixed-method approach, the study analyses various datasets and reports, including WHO assessments, OECD migration statistics, and Romanian national health data. It also incorporates qualitative insights from policy documents and articles, providing a multi-dimensional view of the migration trends, their causes, and impacts. The study synthesises these diverse sources to offer a nuanced understanding of the Romanian health workforce's evolution in recent years.

Results: The findings reveal significant migration trends, particularly post-EU accession, with healthcare professionals increasingly moving to other European countries. Substantial shifts in the Romanian healthcare labour market are observed, marked by shortages in specific medical fields. However, the significant academic capacity and increase in residency positions, which generated a steady supply, alongside recent policy interventions, including salary increases and improved working conditions, have begun to mitigate migration rates. The study highlights the complex interplay between migration, policy responses, and healthcare system sustainability.

Discussion: This study underscores the critical need for multifaceted policy interventions to manage healthcare workforce migration effectively. It emphasises the importance of balancing workforce supply with equitable distribution, particularly in rural areas. The insights from Romania's experience provide valuable lessons for other countries facing similar challenges, highlighting the role of strategic policy-making in stabilising the health workforce and ensuring robust healthcare delivery.

Increasing health workforce resilience – evidence and lessons learnt on task shifting from the TaSHI project

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Healthcare systems in Europe often face significant shortages or unequal coverage of health professionals. Not only sociodemographic changes, but also epidemiological health challenges shape current and future workforces. Workforce planning and appropriate management supports better planning, forecasting and preparation for various future scenarios.

"Empowering EU Health Policies in Task Shifting" - TaSHI - is a EU-funded project that promotes evidence-based reforms in the health workforce field by designing and developing operational tools for the policy environment. TaSHI aims to provide a novel understanding and up-to-date knowledge on task shifting and on transferability and uptake of good practices in task shifting implementation.

In the TaSHI project, multiple research methods were in the several research steps undertaken. First mapping exercise was executed by screening the academic literature and EU project documents on task shifting and focus-group interviews with key experts were held to gather information on useful tools, methods and practices in task shifting. Next, a common framework was developed to design learning materials on task shifting, following a standard stepwise approach to summarise conclusions and maximise lessons learned from six case studies that were conducted. Pilot implementation sites in five European countries implemented these learning materials that were tailored to the specific task shifting initiatives in the countries and sectors.

Based on the findings of the TaSHI project, we can conclude that several factors are necessary to realise a task shifting-supportive environment and organisational climate. Some of the pre-requisites are suitable leadership, necessary resources, appropriate referral and documentation, evidence based guidelines and communication. The core and unavoidable factor is the open culture towards task shifting. Changing culture as a common goal evolves around shaping the mindset, attitudes and cultural sensitivity.

The TaSHI project designed practical tools to foster task shifting culture in the healthcare sector. In terms of upskilling the workforce, the "Curriculum for task shifting in healthcare" and training materials support understanding of practice and implementation. Also, the TaSHI "Guidebook on task shifting" and the "Set of recommendations" that was developed, support implementing effective strategies to enhance organisational resilience and developing task shifting-supportive environment and organisational climate. Finally, the TaSHI Booklet effectively promotes task shifting as a useful strategy, and awareness raising of workforce planners, leaders and managers to recognise the potential of task shifting.

One essential aim of task shifting is to expand access to services with increased workforce efficiency, and more rational and optimal workflows. Task shifting contributes to more effective organisation of care and management of human resources for health at different levels. Task shifting supports facing workforce shortages by better utilisation of the current staff, better use of current skills of various health professionals including job crafting, carving and enrichment. More collaborative interprofessional teams lead to more integrated and person-centred care models. Improved collaboration of professional teams can result in improved resilience of the workforce. In terms of retention, task shifting enables health professionals to have extended roles, new scope of practice that increases motivation and job satisfaction. Along these, we see higher work engagement and lower exhaustion and burnout.

Empowering self-management: translation and content validation through expert judgement of the Heart Failure Symptom Tracker (HFaST) tool for the Portuguese population

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Context: Heart Failure (HF) stands as a global public health challenge, imposing a substantial economic burden, with rising morbidity and mortality rates. The ageing population has increased HF prevalence to over 64 million worldwide, affecting around 4.4% of the Portuguese population. Effective symptom management and self-monitoring education are crucial for improving quality of life. European Society of Cardiology guidelines emphasise these measures to reduce HF hospitalisation and mortality. Recognising the potential of digital health technologies, the translation and cross-cultural adaptation of the HFaST tool is promising for the Portuguese HF patients to raise awareness, revolutionise self-management and reduce unnecessary hospitalisations.

Methods: In this cross-section descriptive study, we first obtained authorisation from the authors to use the HFaST tool. European Portuguese translation and cross-cultural adaptation underwent a qualitative methodology based on the guidelines of Beaton D. et al. Translation (T1, T2), synthesis (T12), back-translation (BT1, BT2), and expert judgement ensured equivalence and content validity. A non-probabilistic convenience sample of 10 experts, including healthcare professionals with different backgrounds, evaluated the clarity and relevance of all the items of the pre-final version through an online survey, in which qualitative observations were also considered. Necessary adjustments were made, and a pre-test involved a sample of 25 professionals with different professional backgrounds to assess item comprehensibility. This methodological approach guarantees the linguistic and cultural appropriateness of the Portuguese version of the HFaST tool.

Results: T1 and T2 variations arose in Likert scale options, with T12 synthesising "um pouco" and "ligeiramente" as the optimal translations for "slightly" and "somewhat." Back-translation showed consistency, aligning closely with the original HFaST tool. Expert judgment resulted in content validity index (I-CVI) scores of 0.7 and 1.00 for clarity and relevance on the instructions, respectively, supporting adjustments for brevity. Likert scale clarity and relevance I-CVI ranged from 0.5 to 0.9, leading to eliminating two items for potential patient confusion. Fleiss' k values of 0.548 and 0.570, respectively, indicating a moderate strength of agreement, supported this decision. Equivalence between the original and translated versions gathered substantial to almost perfect agreement, having Fleiss' k values ranging from 0.678 to 1.000. The overall scale content validity index was 0.88. Pre-test achieved a high comprehensibility of 96%. These results guided the final development of the Portuguese version of the HFaST tool.

Discussion: This study presents the translation and cross-cultural adaptation of the HFaST instrument into European Portuguese, emphasising the complex process of adapting health assessment tools for diverse linguistic and cultural contexts. Results reveal a reasonable agreement with the original version, although disagreement in the size of the Likert scale led to modification, reducing it to a 6-point format. The adjusted scale, focusing on symptoms, has its new score ranging from 1 to 27, indicating worse health status with higher scores. Notably, the HFaST tool promotes patient self-monitoring in HF, aligning with the global shift towards mHealth technologies for chronic disease management. The study's strengths are its potential contribution to risk prediction models and hospital readmission management. Educational initiatives are crucial to optimise effectiveness. Furthermore, assessing psychometric properties in a clinical context should be a priority for future research, ensuring a sustained impact on patient outcomes.

Exploring essential skills for professionals in cross-over learning: an exploratory study

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Professionals are facing the impact of major societal and technological developments in healthcare every day as almost endless technological opportunities and an ever-increasing complexity of healthcare provision put a burden on an already stressed-out workforce. Professionals are also the most important actors in trying to manage those challenges. To ensure that professionals are equipped to do so, they need knowledge, skills and the ability to act upon new knowledge. This is not an easy endeavor, especially so when that knowledge lies beyond the scope of a single field, sector or organisation (e.g. Van Duijn, 2022; Van Vooren, 2024) As current challenges are too complex to be taken up by a single actor, professionals increasingly need to learn from others in interdisciplinary collaboration and cross-sector knowledge exchanges.

In this ongoing research project, we focus on a particular skill set that professionals and managers need for that: cross-over learning skills. From innovation literature, we see that new ideas and valuable innovations in one sector need to be translated to professionals' own respective fields in order to be useful (Tatnall, 2009).The aim of this research is to investigate the essential skills required to make successful crossovers. The focus is therefore on acquiring a better understanding of how professionals and managers in healthcare *do* cross-over learning in practice. What skills do they need to be able to participate (or facilitate) successfully in cross-sector learning and what challenges do they face in trying to learn from sectors beyond their own?

Data collection in this study consists of interviews and observations. Professionals and managers who have participated in cross-sector learning will be interviewed about their experiences with a focus on skills perceived as vital for cross-sector learning, the challenges they faced and strategies the strategies they used to overcome obstacles. Additionally, we will participate in some cross-sector educational initiatives to get an improved understanding of the practice of cross-sector learning. Collected data will undergo thematic analysis based on literature on interdisciplinary learning, cross-sector collaboration, and professional skill development.

Preliminary results show that professionals are most challenged in that they really need a certain amount of open-mindedness, curiosity and the skills to reflect properly on their experiences to really integrate it in one's own context. Challenges they face are dealing with contextual differences, cultural variations and vocabulary and jargon differences. These challenges do not only make the translation of what is learned more difficult but also describe what is needed in order to be ready to successfully participate in cross-sector learning.

The study's significance lies in its potential to offer insights into fostering a more adaptable and dynamic workforce. Understanding the essential skills and challenges in cross-sector learning can inform educational programs, professional development initiatives, and organisational strategies to enhance interdisciplinary collaboration and innovation.

Implementing of a model of digital healthcare ecosystem based on blockchain technology – a pilot study

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Blockchain represents a technology that provides significant possibilities for improving the functioning of digital health systems. The main advantages of blockchain, which can be utilised to ensure the security of health data as well as information exchanged by stakeholders of the healthcare ecosystem, are: data access flexibility, privacy, decentralised storage, transparency, immutability, authentication, disintermediation, verifiability, programmability, and interconnection.

For the previously proposed model of a digital health ecosystem based on blockchain technology, we have developed a decentralised Web3 application, which demonstrates key functionalities for the patients, doctors and administrative personnel who participate in the business transactions and data exchange between identified stakeholders. The main technologies used in the application development included Ethereum blockchain network, Interplanetary File System (IPFS), MongoDB Atlas and JavaScript. Metamask add-on software was used for coupling the application with Ethereum accounts and corresponding smart contracts deployed in blockchain.

The developed application was implemented and monitored in a private healthcare organisation in the Republic of Serbia. The testing period lasted for 30 days, and it included the phases of initiation, stabilisation and functional use. During that period, the patients and hospital personnel had the opportunity to actively use the application and its components. The test data were fictional, in accordance with the patient data and institution's operations protection policies. Evaluation of the proposed model included both evaluation of implemented application and identification of key factors that influence the implementation process, including the mapping of important cause-and-effect relationships.

Applied technical solutions, which ensure the functioning of the proposed model, were tested and evaluated in relation to system quality, information quality, service quality, system use, and user satisfaction through defined appropriate key performance identifiers. The analysis of the results obtained by surveying in the post-implementation period indicates high satisfaction with the application of the proposed software and technical solutions. Further analysis of the evaluation data identified the key motivating factors for the adoption of blockchain technology in the healthcare sector, namely: expected effort, social impact, price value and expected performance. These constructs should be the basis for a promotional strategy for the application of blockchain technology in the healthcare sector of the Republic of Serbia.

How to map and improve colorectal cancer patients' journey? A healthcare innovation project using design thinking

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Context: The patient journey refers to the sequence of events experienced by the patient as soon as the need for care is identified. Covers all points of contact throughout the health system, from scheduling appointments to carrying out examinations, treatments or surgical interventions, and continuity of care. It is a continuous process that must take into account all parts of the healthcare ecosystem, from professionals, patients and families and other stakeholders. There are several factors that affect the patient's journey, with impact on quality and safety. The aim of this innovation project was to improve colorectal cancer patients' journey undergoing surgery.

Methods: This innovation project was structured in 4 steps: 1 - Diagnosis of the current path and identification of areas where to act; 2 – Project with built-in change management plan; 3 - Implementation; and 4 - Assessment of impact and results. Two methodological references were used:
- DESIGN THINKING (Empathise – Define – Ideate – Prototype – Test) to boost the collaborative and innovative construction of the project;
- and ADKAR model (Awareness – Desire – Knowledge – Abilities – Reinforcement) to outline the path that needs to be taken with people so that they commit and adhere to the changes.

Interviews were conducted with healthcare professionals, patients and families involved in the care journey, for a full comprehensive picture . This project was endorsed by the Innovation Department of a Portuguese Tertiary Hospital, with the support of a management and innovation advisory team.

Results: In step 1, an exhaustive analysis of each stage of the patient's journey was carried out, connecting the different perspectives from healthcare professionals, administrative staff and patients and their families, to identify the current bottlenecks. Our analysis, showed that 57% of patients exceeded the maximum time of 90 days between diagnosis and surgery, established by the Ordinance no. 137/2017 of Portuguese government, with a median time from diagnosis to surgery of 131 days. The main causes identified for these delays were mainly: lack of coordination between different departments within the hospital, slow and untimely communication between primary and secondary care during referral processes, as well as a lack of efficiency in administrative tasks. After identifying the specific organisational opportunities for improvement, a project was designed to target each specific missing link in order to improve the waiting time for colorectal cancer surgery.

Discussion: Ordinance No. 153/2017 establishes that the time elapsed between diagnosis of colorectal cancer and surgery must not exceed 90 days. Nonetheless, the median time from diagnosis to surgery in our sample was 131 days. This project showed that the main causes for these delays were related to organisational aspects. Stepping into the patient's shoes was a completely different way of understanding their experience and some of the hidden bottlenecks for high quality and timely care. It allowed us to diagnose the real waiting times and clarifying the high priority areas for intervention. In this case, they were the referral process from primary care to secondary care, and the collaboration mechanisms between specialties inside the hospital. It gave us the opportunity to identify the daily and specific barriers that patients and healthcare professionals face, immediately highlighting possible solutions for the improvement project. With the diagnosis phase finished, the project is now being implemented to test novel approaches engaging patients, healthcare professional and managers, to improve the patient journey and bring the waiting time under the 90 days.

Unleashing potential: examining how professional healthcare educators develop talent and empower professional and managerial excellence

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Continuous talent development in healthcare is an important determinant that not only influences patient outcomes and medical innovation, but also staff recruitment and retention. While workforce shortages grow and burnout-rates rise at almost the same pace, initiatives to ensure that healthcare staff remain active in the healthcare sector are widespread. Professionals and managers recognise the importance of continuous skill development in a professional career as a consequence. Life-long learning goes beyond acquiring new knowledge only, it is also about learning new skills, improving professional attitude and leadership capabilities.

Talent development in healthcare is rooted in formal education and training and in ongoing professional growth in the workplace. Continual medical education takes many forms that together ensure that professionals augment their competencies. In this research we focus on a specific kind of education by analysing how professional educators stimulate talent development and empower (managerial) excellence in formal education programs. In this research we are interested in how talent development in these programs takes place and what role the professional educators play in that process.

Although, organisations often select participants of formal programs, it is the educator that fosters the further development of professionals and managerial talent within these programs. This research aims to improve the understanding of how educators influence, stimulate en guide professionals towards effective professional and managerial leadership development. Talent development relies on how the mindset of the professionals is with respect to their professional development. How professionals set goals, search for new challenges, react to disappointments, create their own learning moments and how they deal with feedback, determines whether professionals can grow in their performance (De Koning & Heuvingh, 2023; Janssen & Putters, 2022). This research analyses how professional educators facilitate, stimulate, or unintentionally hamper these processes and, as a consequence of that, how they perceive their role as educator.

Preliminary results show that they employ a wide range of strategies to oversee and support professionals in the development of their talents. Through consistent interaction with participants, educators discern individual strengths, developmental needs, and career aspiration and based their tailored strategies on those impressions. They mainly encourage individuals to engage in reflective practices, enabling them to derive insights from experiences and translate them to their work practice. Further research focuses on interviews and participant observations within structured educational programs for healthcare professionals. We will interview professionals, managers and professional educators to gain a better understanding of how talent development is fostered in practice.

In conclusion, professional educators in healthcare employ a multifaceted approach to supervise and support professionals and managers in the further development of their talents and as such contribute to the participants' journey towards being more effective. As such, this research contributes to literature on talent development and professional education.

Valuation and perception of the costs of climate change on health

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Context: Climate change affects our societies and lives through our economies, our livelihoods, and our health. Economic losses of climate change are estimated at $23 trillion, largely through externalities due to premature mortality, health-care expenditure, and health-related work losses. Even if there are established methods to quantify the health economic burden, there is limited information on how people perceive this information. The current study aimed to examine different health cost evaluation methods and observe perceptions of stakeholders in the climate change context. The current study aimed to examine how to evaluate the health care costs and the external costs of climate change by analysing different calculation methods and observing its perceptions among experts, policy- and decisionmakers and non-governmental (NGO) sector representatives.

Methods: The participatory research approach of the World Café with 41 participants of a workshop was applied to explore four topics associated with valuing the costs of climate change: (1) "Actual health-care cost or willingness to pay – what is better indicator of costs?", (2) "How cost-effective are mitigation and adaptation measures?", (3) "How external costs concept could be integrated into policies?", (4) "How to make public better understand the costs of climate change?" The data were analysed following an inductive approach. For analysis of recorded data, we established a matrix that included the questions and responses from the representatives. In content analysis we summarised the identified main themes (ethics, methods, data, communication, holistic approach, political agenda and best practice) and subthemes.

Results: Despite the willingness to pay approach being widely applied, many experts see direct health-care costs as a more explicit indicator of costs; however, this might underestimate the full social costs. The participants experienced difficulties accepting and understanding cost estimates indicating very high externalities as percentages of GDP. The cost-effectiveness of mitigation and adaptation measures was challenged by the query that costs incurring now, but benefits happening later as it can be with building bike lanes or dams. The policies should favour environmentally friendly activities as making cycling more convenient in the cities with the health benefits in monetary terms while limiting car driving. Public could better understand the costs of climate change with a tool mapping how solutions influence different sectors and showing monetarised benefits for health.

Discussion: Estimating the price tag of climate change on human health is not critical but challenging. The methods, how experts communicate, and present numbers prove to be crucial both for politicians when setting up political agenda and building trust towards public. During the World Café discussions, it was suggested that using stories can be more effective when communicating with the public. The need for well-presented science and data quality was stressed as a crucial theme by all participants. Especially for some experts it was more critical to have any relevant existing data. For others it was about having updated data and that packaging data is right so it can be used in decision- and policy making. Enhancing health, climate change and external costs literacy among the public, policymakers, and the media is essential for better understanding the comprehensive effects of policies on environmental burdens.

Attitudes and experiences of junior doctors and nursing staff in relation to consent practices in an acute hospital

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Context: Informed consent is a legal and ethical principle that ensures individuals' right to participate in making decisions regarding their medical care with full knowledge of the risks, benefits, and alternatives is observed and safeguarded. For consent to be valid, it must be given voluntarily, sufficient information conveyed and the patient must have capacity to make the specific decision at that time. The Health Service Executive (HSE) National Consent Policy (2022) assigns the responsibility of obtaining informed consent to trained and knowledgeable healthcare professionals. This study gathered insights from doctors and nurses, regarding their attitudes and experiences in seeking patient consent as part of a hospital-wide co-design improvement programme of consent practices utilising the HSE People's Need Defining Change framework.

Methods: Two separate surveys were co-designed for doctors and nurses by the project team with medical students and nurses. The surveys consisted of sets of 23 and 16 yes/no, multiple-choice, and short free-text options using questions from the literature and previous surveys. The surveys were distributed electronically, participation was voluntary and responses were gathered anonymously from doctors (2022) and nurses (2023). The data was cleaned and analysed using descriptive techniques, with support from Microsoft Excel. The percentage of responses was calculated based on the total number of responses for each question. To analyse the free text responses, content analysis was used. Two authors double-coded the responses, following published methods.

Findings: Out of the 80 SHOs and 68 interns in the hospital, 17 SHOs and 39 interns completed the survey, giving response rates of 21% and 57% respectively. Out of 1927 nurses employed by the Hospital, 184 responded, giving a response rate of 10%. 95% of doctors who responded reported that they had been tasked by their senior team member to discuss consent with patients, 29% felt they had received adequate training, 24% felt they received adequate support and supervision and 21% felt they had adequate opportunities to observe senior clinicians obtain consent. 15% of doctors who responded reported that they had seen or attended the intervention/ procedure before discussing consent with a patient. 40% of responding doctors reported that they felt confident discussing consent independently. The barriers to good consent practices that the doctors identified included the 'appropriateness of the clinician taking consenting', 'limited access to patient information', and 'limited time'. 47% of nurses who responded had engaged in verbal consent discussions with patients. 45% felt adequately knowledgeable about the intervention/procedure, 42% felt they had received information on good consent practices and 47% felt they needed further training on specific aspects of consent practices particularly in managing the situation where a patient's capacity to decide was a concern. The barriers nurses identified included lack of adequate time (18%), language/ communication barriers (18%), and their lack of experience and education (11%).

Discussion: In the survey, there were common themes in the barriers that were identified by both nurses and doctors in undertaking effective consent discussions. Both participating groups also identified additional training and supervision as a key requirement in improving and supporting better practice. As the National Policy identifies that trained and knowledgeable healthcare professionals are responsible for this aspect of care, healthcare organisations and providers should consider the value of investing time and resources into ensuring that staff are enabled and supported to undertake safe, effective, and person-centred consent discussions with patients.

Perceived need and help-seeking for psychological support among health and social care professionals: a survey and analysis

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Context: Medical, healthcare and social welfare professionals operate in high-stress work environments, often confronting challenging situations that can impact their mental well-being and the quality of care, also leading to days of absence due to various mental health problems for the professionals. This study addresses the critical issue of the need and availability of easy-access mental health support for these professionals with the focus on the accessibility and use of conversational/therapeutic mental health interventions. We are also evaluating the amounts of days of absence from work due to work-related stressful situations in these different professional groups.

Methods: A mixed-questions survey was employed, combining quantitative questions and a fewer clarifying qualitative answers. Survey was distributed through multiple Finnish professional associations among a diverse sample of healthcare professionals in the August and September of 2024, capturing data on the work-related mental health burdens of different social and health care professional groups, the availability, utilisation and knowledge of mental health resources for professionals and perceived need for those support systems. 144 out of the 6865 answerers were licenced physicians, 5171 were different types of professional nurses, 1118 were other types of healthcare and social welfare professionals such as physical therapists, midwives and social welfare workers and 432 were students, most of whom were already working on the field.

Results: Out of all of the 6865 participants in this study a 73% reported having experienced work-related distressing situations after which they would have liked to discuss with a helper from outside of their workplace, when only 23% reported having received it from the employer so that they may continue their work as usual and another 22% had searched the help elsewhere to stay working as usual. Out of all the participants, 22% reported having had to take days off due to these distressing situations. For physicians, this percent was 20%, taking the average of 20 days off the past year whereas for non-physician professionals these numbers were 23% with an average of 31 days off respectively. Our quantitative data also provides insights into the prevalence of different stressors and the knowledge of the availability of different support services.

Discussion: This study highlights the complex interplay between healthcare professionals' mental health needs and easy-access fast mental health support for medical professionals, which does not seem to meet the demand. Mental health problems caused by distressing situation at work have severe impact on the employers and public sector from economic standpoint: In Finland for physicians alone, the annual cost of lost work due to work-related mental health load can be approximated to be around 25-60 million euros year in sick-days, and for all of the healthcare workers, the annual cost rises to several hundred million euros. On top of this, while more difficult to research, high work-related stress leads ultimately to worse patient care and less productive workdays even when it does not result in sick days. Insights from this research can inform strategies aimed at enhancing mental health support within the healthcare workforce.

Health workforce shortages in Europe: projections and solutions

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Context: There is probably not one best way to estimate the size of current and future shortages for the health workforce in Europe. Methods for health workforce planning and forecasting seem to converge however, and international data has become more available to enable stock and flow modelling of workforces cross-nationally. Still, demand projections remains a complex challenge, as both norms for minimal required capacities are scarce and incorporating different trends that drive healthcare needs and usage tend to overestimate the future demand for health workers.

Methods: We used trend data from Eurostat and the National Health Workforce Account portal for physicians and nurses, to build the dataset for cross-national analyses and forecasting. Initially, the 35 countries in the WHO-defined European region were included, while for 20 countries a full dataset could composed to execute stock and flow projections for the period 2023-2033. Several variables for extrapolating outflow and inflow due to domestic and foreign training were constructed to conduct the projections. For the health workforce demand projections four different scenarios are defined, two by projecting demographic and epidemiological trends, two from 'back casting' Sustainable Development Goals (SDG) indicators. By simulation techniques, we explored the required change in inflow and outflow indicators, as well as demand and production norms, to reduce shortages in 2033 to a minimal level.

Results: The results show that cross-national differences in the projected shortages for physicians and nurses are considerable, showing different clusters of countries in the 'mix' of these shortages (in terms of doctor-to-nurse, density ratios and pace of shortages growth. The simulations also show that the required adjustments in inflow from domestic training to reduce shortages deem to be unrealistic, therefore combinations of adjusting other supply and demand factors is needed. Also, the 'optimal mix' of policy solutions differ between countries and occupation, supporting the common that there is no 'one size fits' solution for the looming hearth workforce crises.

Discussion: In this paper we projected the supply and demand of physicians and nurses in the European region, interpret the differences between these two main group health workforce groups, and explore a number of solutions at the demand and supply side to eventually minimise expected shortages in the next ten years. Results show that cross-national comparison provides relevant insights for the different policies required to mitigate and solve the health workforce shortage in Europe.

Understanding failures in patient safety in hospitals in England using Labour Process Theory (LPT)

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Context: We consider the use of LPT as an analytical tool, to provide new insights into well-publicised failings in maternity services, within the NHS in England. The presentation will provide a brief overview of LPT and outline the features, which, together, provide a framework that is particularly suitable for the analysis of these issues. This critique yields fresh insights into what happened, but also possible reasons why women and their babies were harmed. We conclude that this theoretical framework has potential to offer new understandings, across different healthcare systems, about why patient safety failures occur and how they might be prevented.

Methods: LPT is a well-established theoretical framework that has been used over recent decades to understand the labour process of workers (Braverman, 1974). In recent years, LPT has been used to analyse service work, including care-giving labour, such as nursing work (Ackroyd & Bolton, 1999; Smith et al., 2008). Here, we will outline how LPT can be used to provide critical insight into the mechanisms used to manage and control the workload and work pace of healthcare workers and how this can be used to increase 'productivity' and control, to the detriment of workers' autonomy and their ability to provide quality care. We suggest narrative analysis (Franzosi, 1998, Kandasamy 2021) as an appropriate method for exploring the recent failures in hospital maternity services in England, which provides the foundation for further analysis using LPT.

Results: Our central findings are that LPT as an analytical framework is useful to provide insights into incidents of failings in care delivery, within the NHS in England. Concepts such as work intensification, work extensification and forms of consent and resistance are identified as possible precursors to failures in care delivery. These concepts' use as devices to produce a fresh understanding of the complex events surrounding failing in care delivery are explored. Also, we highlight a development to LPT, that theorises a relationship between a (healthcare) worker and their patient. This is a constructed relationship, which we suggest may provide some understanding of the behaviour of healthcare workers in environments where there is a significant focus on cost and task efficiency; a common feature of contemporary, healthcare systems.

Discussion: We argue that using narrative analysis of documents produced after-the-fact and drawing on LPT as an analytical device, a critical and novel perspective can be developed around incidents of failure, in the delivery of quality, patient-centred care. We suggest that the use of LPT as an analytical lens is a valuable, additional tool for managers and researchers in healthcare systems who wish to understand better when, why and how things go wrong. We maintain that the illumination and understanding (using LPT) of these incidents may help to prevent situations of inadequate care (that can lead to patient safety issues and actual harm) in the future.

University of Medicine and Pharmacy 'Carol Davila' - between tradition and innovative ways of social responsibility

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Context: University of Medicine and Pharmacy 'Carol Davila' from Bucharest has a very prestigious, valuable tradition, being the oldest and largest public medical university of Romania. The university is also a constant partner of the Ministry of Health in the efforts to modulate the functions of the Romanian health system and to achieve universal coverage, equity in access and improved quality of care for all. We aimed to describe the roles assumed by our university in achieving better health for all.

Methods: This is a review of the main quality assurance indicators and a synthesis of main projects of the University of Medicine and Pharmacy "Carol Davila" from Bucharest.

Results: Carol Davila University is widely recognised for the high academic standards, selectivity in admissions, and social prestige. More than 21000 students and residents are enrolled in its academic programs: ten bachelor programs (in Romanian, English or French), four masters, doctoral programs in Medicine, Dental Medicine, Pharmacy and residency training in all medical specialties. Students and the over 2000 academic staff are involved in challenging projects of social responsibility (blood donation, rural health assessments, basic life support courses in schools and, during COVID pandemic, marathon of vaccination). Staff members are participating in specialty commissions of the Ministry of Health, in international committees and working groups, contributing to the national and global progress. During last years, the university initiated strategic projects such as the genomic medicine, and the national institute of genomics. University coordinates an active, wide partnership with relevant stakeholders, develops the national genomics infrastructure and operationalises the national network on genomic medicine. Currently, the university is engaged in a new challenge – to take over the management of a public hospital. The international accreditation is a valuable proof of the value of its teaching, research and social engagement.

Discussion: Based on hard work, commitment, innovation and inclusion, the University of Medicine and Pharmacy 'Carol Davila' from Bucharest is strongly engaged in accomplishing its mission and in achieving better health and better life for all.

The screening challenge - how to respond to the new EU Council Recommendation on strengthening cancer prevention through early detection

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Context: Recently the Council of the European Union adopted a recommendation on cancer prevention, encouraging the Member States to provide screening for breast, cervical and colorectal cancer for 90% of the population meeting the risk criteria, till 2025. Romania has lowest rates of participation to all three screenings. However, cancer screening has been recognised as a public health priority and a series of screening pilot projects have been implemented. This paper aimed to explore the cancer screening implementation, and to capitalise the lessons learned with the view to scale the access to cancer screening in the next years.

Methods: We reviewed the projects' documents and implementation reports upon the following criteria: way of organisation, stakeholders and roles, tools used, target beneficiaries and eligibility criteria, determinants of participation to screening and diagnosis.

Results: Pilot screening projects have been implemented for cervical, breast and colorectal cancer during 2018/2019 – 2023, with EU financial support. For each type of cancer a series of three or four projects has been planned. In each case, the first project was focused on preparatory steps, consisting in the development of the specific screening strategies, testing algorithms, and informational systems and also in providing training for the health staff involved in screening. The following projects were focused on direct provision of the screening services and, for the same type of cancer, they were replicated in four to six out of the eight regions of Romania, while being coordinated by clinical institutes of excellence for the respective type of cancer, and with partners like National Institute of Public Health (generally responsible for the information system, training and health information campaigns) and different civil society organisation have been involved.

Discussion: The EU technical guidelines have been used in all three cancers' screening for defining the beneficiaries and for choosing the screening tests. The mobilisation for screening has been done via family doctors in most of the cases or/and information campaign. Mobile units have been used in most of the projects. All projects met their targets as number of beneficiaries. All pilot screening projects revealed systemic problems and valuable lessons to learn for the future plans of scaling up the cancer screening in the spirit of the EU Recommendation.

Unveiling the complexities: challenges in managing multimorbid home care clients

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Context: The demand for home care is expected to grow in the following years, driven by the rise of an aging population and the preference for receiving care at home. Multimorbid home care clients encounter managerial challenges (disruptions) linked to fragmented care, encompassing communication barriers, coordination issues, risk of medical errors, and lack of clarity regarding the entirety of the services and care provided. Given the pivotal role home care professionals have in clients' social and healthcare service networks in Finland, this study specifically examines their experiences.

Methods: Our aim in this study is to explore managerial challenges, referred to as disruptions, in the care and service networks of home care patients. In this study, we define disruptions as unplanned, adverse effects in care and service delivery, excluding accidents. Building on prior research, we aim to identify and assess disruptions faced by home care professionals (nurses, physicians, and therapists). Utilising an electronic survey, we study issues regarding information sharing, care coordination, perceptions of care, and time allocation. Our focus is on the interfaces between home care and other services and participants are asked to evaluate the frequency and severity of disruptions they face. The survey, scheduled for spring 2024, covers four well-being counties (approx. 20% of Finland's home care clients) with both urban and rural areas. Before forwarding the survey, we discuss the study's feasibility and relevance with a small group of professionals before widespread distribution.

Results: With this study, we assess how often disruptions occur related to 1) receiving and locating essential information through Electronic Patient Record systems, and 2) sharing perceptions of care within service and care networks. Additionally, we 3) map out care and service interfaces related to home care wherein disruptions typically occur, such as emergency departments, primary care, and hospitals. Furthermore, we evaluate 4) the perceived severity of disruptions and 5) the time spent on handling disruptions, including activities like resolving unclear situations by contacting other personnel and responding to client inquiries related to their care management.

Discussion: With this survey, we pursue to highlight the challenges that arise in caring for chronically ill multimorbid home care patients who simultaneously access various health and social care services alongside home care. By gathering information from diverse occupations and multiple home care units, we identify shared areas for improvement beyond individual units, ensuring broader applicability of the results. The findings of the study can be used in developing practical interventions such as enhancing the quality of care and improving patient safety.

New tools to respond to HTA challenge in Romania – Health economics postgraduate program for health professionals

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Context: Health technology assessment (HTA) is a multidisciplinary process used to orient the resource allocation in health to alternatives which are most likely improve the people health in accordance to its values and preferences. The use of HTA increased constantly worldwide and in EU. In Romania, there is a high interest to develop the national framework for HTA, considering the country context, with health indicators behind the EU average, low health expenditure and limited public trust in the health system. In this context, the health professionals need adapted training for being able to understand and use the HTA benefits and tools.

Methods: University of Medicine and Pharmacy "Carol Davila" from Bucharest, in partnership with University of Medicine, Pharmacy, Sciences and Technology "George Emil Palade" from Targu Mures and University of Medicine and Pharmacy 'Iuliu Hatieganu' from Cluj-Napoca have developed and piloted a postgraduate program in health economics, designed for health professionals with different educational background, working in health care and health administration organisation. The program aimed to develop the participants' capacity to use modern techniques of health economic, health management and applied statistics for health decision-making.

Results: The postgraduate program has been developed in the framework of the EU financed project. The curriculum included eight modules (Economy and health economics; Risk factors for population health; Demand and supply for health; Financing and payment for health services; Economic evaluation techniques; Decision-making process; Legislation and ethics; the European context of HTA) with a total of 100 hours, of which half for teaching and assisted practical work and half for individual work. Topics' files have been developed for each module, including the topic's description and prerequisites, the professional and transversal competences, the content of the module and the methods of assessment. The teaching materials and the assessment tools have been developed with the support of national and international experts in the field of economics and health. Each university selected a pool of faculty staff to provide the new program. A 30 hours postgraduate course was provided for the staff, in order to ensure a common vision on the program's goal, modules, teaching methods (problem-based learning, guided instruction, project-based learning, role-plays and simulation) and master materials. Each of the three universities provided the program independently, but based on the same curriculum and core-materials. The participants were selected through open procedure, based on defined criteria. Over 95% of the selected participants graduated the programme and have been certified.

Discussion: The new postgraduate program attracted many health professionals interested in health economics and HTA. Most of them were women and the median age was 47 years. About 42% of the participants had medical background and about 55% worked in health administration, while the rest in health services. Most of the participants appreciated the program as useful and with practical applicability in their professional tasks. The lessons learned in this pilot experience could serve as a valuable basis for scaling up the provision of this postgraduate program in the three universities, as well as in other academic organisations.

Harnessing large language models (LLMs) for structured clinical data extraction: a tool for informed decision-making in healthcare management

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Context: Important clinical or administrative data are not usually captured in a structured form in the hospital's EMR or EHR, leading to compromised data integrity. This lack of software capability creates inefficiencies in both analytical processes and decision-making, affecting research and managerial operations of the institutions that should rely on powerful real-world data-capturing infrastructure. Large language models (LLMs) are becoming an increasingly valuable tool in healthcare. One facet of LLMs' prowess is extracting critical information from clinical notes as structured variables that can be used in data analysis.

Methods: Using a custom Python script and thorough prompt engineering, we tasked GPT-3.5 from OpenAI, a state-of-the-art LLM, with extracting 24 different variables from a set of 860 discharge notes in an oncology clinic. Manual data curation was performed by two physicians and two trained medical students in order to obtain a gold standard dataset for comparison of results. A locally installed OCR algorithm was used to extract data from the discharge notes that were exported in PDF format from the EMR. All personal information was deleted before only the relevant clinical parts were sent as chunks of free text to the OpenAI API.

Results: GPT-3.5 demonstrated remarkable performance in extracting histological diagnosis, achieving an accuracy of 93% with high precision (96%) and recall (97%). Histological classification of cancer cases is superior to the one performed using just DRG diagnosis codes and brings more value to any clinical analysis at institutional level. Moreover, GPT-3.5 exhibited an accuracy of 82%, with impressive precision and recall rates at 95% when it came to cancer stage extraction. The balanced F1 score of 92% highlights its potential in correctly performing cancer staging. Even higher results were obtained for numerical variables like biomarkers and other laboratory tests values extraction.

Discussion: These findings demonstrate the potential of GPT and LLMs in general in extracting consistent structured clinical data. Hospital managers can benefit from these enhanced data capabilities to drive informed decision-making, optimise resources and even improve the quality of care thereby enhancing patient satisfaction. Other use cases in the realm of health management include extraction of hospital-acquired infections data that can improve patient care through data analysis and predictions.

Planning process of integrated and sustainable social and health services network for 500,000 inhabitants - Case Pirkanmaa

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Context: In this study we present planning process and methodology used in reforming the social and health services network of Pirkanmaa. The Wellbeing services county of Pirkanmaa was established by joining publicly funded social and health services of 23 municipalities and the hospital district. Forthcoming years will be challenging; demand of services is increasing, availability of personnel is already difficult, and the funding does not increase as demand and costs increases. The services network reform is essential in order to cope with the challenges, and also to improve customer orientation, availability, and accessibility of the services for 500 000 inhabitants.

Methods: The main goals and objectives of the services network reform are defined in Pirkanmaa strategy. The principles and priorities of the planning process were specified in strategy implementation plan. The methodology of the planning process of the reform included:

- Evaluation of current services network and channels.
- Analysis of use of all social and health services.
- Analysis of the availability of all personnel groups.
- Analysis of funding until 2035.
- Evaluation of the magnitude of the changes needed to cope with the challenges and to achieve the goals.
- Evaluation of the potential of new services and service channels.
- Establishing service network reform management team and project management office.
- Division of the reform into subcategories and prioritisation of the subcategories.
- Establishing subcategory specific planning groups.

Results: Through the transparent planning process and solid methodology, The Wellbeing services county of Pirkanmaa was able to carry out the entire planning and decision making process, start the implementation and achieve the first results in 12 months. Involvement of inhabitants, personnel, political bodies and stakeholders during the planning process were crucial for commitment. Internal and external communication plan should have stronger emphasis in the methodology. Project management office is essential during planning and execution in order to keep the focus in priorities and to monitor the process.

Discussion: Solid methodology and transparent planning process were essential for determined and goal-oriented planning of the reform. They were also crucial to support political decision-making and to ensure the acceptability of changes among citizens and personnel. The reform planning and decision-making were able to be done in extremely tight schedule. In coming years, the implementation and execution of the service network reform will define whether Pirkanmaa is able overcome the challenges and at the same time to improve the satisfaction of residents and personnel.

How to create integrated healthcare pathways: Integrar+ Program

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Context: In Portugal, we are witnessing a strategic change in care organisations, integrating hospital care and primary health care - the creation of Local Health Units (ULS). The Coimbra Healthcare Integrated Delivery System in Portugal (ULSC), with a workforce of over 11000, unifies public health, primary care, and specialised services to ensure seamless and comprehensive patient care. Its integrated approach enhances efficiency and patient outcomes. Emphasising innovation, the system collaborates with academic and research institutions, fostering advancements in healthcare. As a model of integrated care, Coimbra aims to be a benchmark for future healthcare systems globally.

Methods: "How to create integrated pathways in the ULS?" is the central question of the Integrar+ Program, which was built with the aim of creating and reinforcing, from day one at the ULS Coimbra, a new culture of collaboration and integration of citizen-centred care. The program is divided into 2 main phases: phase 1 - Bootcamp - In one day session 10 teams will receive the methodological bases and tools to characterise the patient's journey, quantify the problems and select the most critical, design the preliminary project and prepare the communication for the final presentation; phase 2 – two winners teams will be support in implementing the designed solution, according to their needs, and deepening the skills needed to implement the project, according to the resources of each service.

Results: Each working group will identify a therapeutic area or type of care or patient that could benefit from better coordination and integration of care, such as a therapeutic area (HF, stroke, etc.) or a specific process, promoting citizen-centred care on the one hand and collaborative work between professionals on the other. The creation of this programme will make it possible to better integrate all levels of care, covering all sectors of prevention and the entire life cycle of the person, by encouraging health professionals to share and implement ideas for improvement. The plan is for the integration of the different services at ULS Coimbra to be a project that involves all health professionals and all services.

Discussion: The implementation of the Integrar+ Program will lead to the reinforcement of a patient-focused and collaborative culture throughout the ULS structure, the mapping of the entire patient journey, identifying current areas with potential for improvement in order to create truly integrated pathways, the development of problem analysis and innovation skills in ULS professionals, the design and implementation of innovation projects focused on optimising the patient journey, contributing to greater involvement of ULS professionals and services in its innovation ecosystem.

The skill-mix instrument for general practices: tool for strategic HR management

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Context: General practices are the cornerstone facilities to deliver and sustain primary care. At the same time, general practices face increasing demands; not only by an increasing number patients with more complex health problems, but also from substitution of specialised care and the strong increase of mental and social care needs in their patient populations. This conflicts with the limited resources of general practices to develop strategic HR policies, to attract and retain health personnel and build solid and balanced teams to ensure continuous, direct accessible and high quality primary care.

Methods: In 2023, an interactive web tool was launched to support general practices in the Netherlands to develop strategic HR policies from a skill-mix perspective. The tool uses personnel data from 700 Dutch general practices, enabling users to compare their skill-mix of functions and capacities with tailored benchmark groups. In addition, users can compare their human resources challenges in terms of recruitment, retention and team composition with other practices. In another module, patient demand and workload projections are shown for the service areas of the general practices. The skill-mix instrument and tool finally provides specific recommendations to improve the HR policy of the practice, tailored to the functions and type of challenge the practice is or will be confronted with.

Results: The experiences of 200 users (mostly Dutch general practice owners and managers) are evaluated against the goals and functionalities of the skill-mix instrument. While most experiences were positive, users differed in their expectations and expressed specific needs how to execute skill-mix changes and implement task shifting in (their) practice. New requirements to further develop the tool were defined, in particular to support cost-benefit analyses of strategic HR decisions such as the employment of new functions and shifting and re-allocating tasks within teams. The technical and functional design of the instrument was also evaluated from the user experiences, while stakeholder recommendations were taken into account to anticipate in the changing landscape of primary care in the Netherlands.

Discussion: The skill-mix instrument developed for general practices in the Netherlands shows to have an added value in inspiring, supporting and advising the strategic HR policy of this critical health service in primary care. The team and skill-mix perspective provide practice managers and owners new insights that overcome short-term oriented personnel decisions and a 'silo' view on functions and occupations. Still, the first launching and user experiences of the instrument shows opportunities for further improvement. Applying the instrument in other countries can be a next step to explore how its added value can also be shown in other health care systems.

Reforming the health and care workforce landscape: a case study of the Romanian National Recovery and Resilience Plan

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Context: Romania's healthcare system faces many challenges in Human Resources in Health (HRH) to include capacity gaps in certain medical specialties and professions, imbalances in the geographical distribution of medical staff and their skillsets and health care services. To address these challenges, a national framework for HRH was needed. Romania National Recovery and Resilience Plan (NRRP) was approved by the European Commission Decision on 3 November 2021. The Ministry of Health (MoH) is the national agency responsible for the implementation of the reforms and investments of the NRRP related to Health and Digital Transformation and investments. For the implementation of Reform 3, Capacity building for health services management and human resources management in health, the MoH and national institutions benefitted from the technical expertise of the WHO Regional Office for Europe.

Methods: Romania's healthcare system faces many challenges in the area of human resources. To address these challenges, a national framework was needed. In August 2022, a Health Labour Market Assessment (HLMA) was done with the support of the WHO/Europe to better understand the drivers and gaps for HRH management. HLMA included assessment of the economic context, supply and demand and stakeholder analysis, policy dialogue and engagement with the relevant national stakeholders as well as analysis of the Romanian health workforce characteristics. As a result, the Multiannual Strategic Plan for Human Resources in Health and five Sectoral Action Plans were developed and endorsed by the MoH and Romanian Government.

Results: Several policy recommendations were proposed to include assurance of quality workforce data, empowering the HRH Planning Unit with the appropriate governance support, developing formal and systematic stakeholder relationships and establishing an inter-agency committee to promote coordination and policy development. A Multiannual Strategic Plan was sought to include five sectorial plans which came into force through a Government Ordinance in June 2022. The sectoral plans address five key areas with the health care system (primary care, community care, hospital care, ambulatory care and public health) and key issues such as initial training, continuing professional development, skill mix, task sharing and task shifting. The plans have horizontal objectives, as well as specific to sector strategic objectives and recommended actions, and they outline the policy options and actions recommended by participating stakeholders and experts to support the Ministry in meeting these objectives. Thus, the strategy and the action plans represent the necessary framework in Romania to advance the human resources in health agenda in the country.

Discussion: The multiannual strategic plan for HRH operationalised in the sectoral action plans, the engagement of the national stakeholders and the technical assistance from WHO/Europe, with funding available from the NRRP, are a leap forward from Romania. HRH data and governance could be strengthened to support the HRH Planning Unit. Collaboration between MoH and key national stakeholders could be improved given the strong willingness and commitment to engage and participate in ongoing dialogue to promote leadership, investment, planning and further legislative and policy reforms in Romania. Further technical assistance from WHO will contribute to the implementation of the activities set out in the sectoral plans. Looking into the future, the mission of Ministry of Health and relevant national stakeholders is to concentrate and better coordinate efforts to enable implementation of the action plans HRH, with actions to be taken at legislative level, funding and academic.

Implementing quality of care indicators in Romanian hospitals: development and piloting

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Context: Ensuring high-quality and safe hospital care is critical to a well-functioning health system. Like other countries, Romania faces challenges in maintaining service delivery and improving the quality of care (QoC) provided in its hospitals. These challenges impact patient experiences and health outcomes. To address this, the Ministry of Health (MoH) in Romania launched a series of healthcare reforms including a new funding mechanism that aims to incentivise hospitals to improve QoC (Health Quality Fund (HQF)). This work reports on the process and the result of defining and piloting a core set of QoC indicators for Romanian hospitals.

Methods: This work was conducted by the WHO Athens Office on Quality of Care and Patient Safety in the process of supporting the Romanian MoH to improve the quality and safety of hospital services. The core indicators were designed to measure and improve the QoC in Romanian hospitals. The development of the QoC indicator set involved a multi-phase process that included a comprehensive situational analysis, stakeholder engagement and policy dialogue to identify priority areas, and the evidence-based definition of a core set of indicators. Next, a pilot study was conducted to evaluate the feasibility and potential impact of the QoC indicator set in six Romanian hospitals. The pilot study involved developing an IT platform, collecting data, and conducting stakeholder workshops (including surveys) to discuss initial results and experience.

Results: The QoC indicators for Romanian hospitals prioritise four key areas: patient safety, patient experience, healthcare workforce training, and clinical effectiveness. The set of 25 QoC indicators was selected based on their relevance to the HQF's objectives and their feasibility in collecting and managing data. Following a two-months pilot study in six hospitals, all hospitals collected and submitted data for over 80% of the applicable indicators, with two hospitals reaching 100%, and an average completion rate of 90.06%. Data for 235/260 indicator intervals were collected (90.38%). Considering the needs and priorities of the Romanian healthcare system, all four indicator areas were rated similarly relevant. The pilot study also identified a number of challenges, such as the need for a supportive legislative framework, further training and support for hospitals to collect and interpret data, and the need to ensure that QoC indicators are aligned with each hospital's specific needs and context.

Discussion: Results of the development and piloting processes provide evidence that a QoC indicator set can be implemented successfully in Romanian hospitals. However, the study also identified a number of challenges that will need to be addressed in order to ensure the successful national implementation of the QoC indicator set. Training and support are one. Hospitals need to be provided with adequate training and support to collect and interpret QoC data. A robust and stable legal environment is another critical factor, ensuring the use of QoC indicators is fair and transparent. Finally, alignment with the local context is to be considered. These QoC indicators will stimulate alignment with the specific needs and context of the Romanian healthcare system, individual hospitals and their patients. By using QoC indicators to measure and improve care, Romanian hospitals can move towards a more patient-centred and effective healthcare system.

Pay-for-Performance and Pay-for-Quality models for hospitals: a rapid environmental scan

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WHO Athens Quality of Care and Patient Safety Office, WHO Europe, Greece

Context: Pay-for-Performance and Pay-for-Quality (P4P/P4Q) models are payment systems that reward hospitals for providing high-quality care. Their development and implementation are rooted in the use of performance data and indicators. P4P/P4Q models have become increasingly popular in recent years as a way to improve the quality and safety of care and reduce costs. This rapid environmental scan (RES) provides an overview of the literature on P4P/P4Q models for hospitals, encompassing their design, implementation, and potential effects on quality of care and patient safety.

Methods: This RES was conducted by the WHO Office on Quality of Care and Patient Safety to support ongoing work in countries of the WHO/EURO region. It focused on studies published in peer-reviewed journals from 2004 to 2023, based on quantitative and qualitative research methodologies. Search terms included "hospital(s)", "pay for performance", "pay for quality", "models", "implementation", "impact", and certain variations of these. The focus was on peer-reviewed literature, with some grey literature documents used from trusted sources, such as OECD, RAND and CMS. PubMed and Google Scholar were used for the primary search, which was expanded through reference-list snowballing. Analysis was conducted through abstract screening and full-text review, including detailed notetaking and contrasting and comparing notes made. The analysis focused on producing an overview of P4P/P4Q models used worldwide, development and implementation considerations and their potential effect on the quality of care, patient safety and financial measures.

Results: P4P/P4Q models are increasingly used to incentivise healthcare providers to improve the quality of care. While there is still room for improvement, these models have been shown to positively impact quality and safety indicators, especially those on patient satisfaction. The design and implementation of P4P/P4Q models can influence their effectiveness. This RES identified key developmental and implementation considerations, such as clearly defined and clinically relevant performance measures, meaningful financial incentives, effective measurement and feedback systems, supportive organisational culture and addressing unintended consequences. It also mapped different implementation approaches, focusing on incentive structures, target populations, incentive levels, performance measures and risk adjustments. Scanned literature also suggested a number of recommended steps to developing a P4P/P4Q hospital model in a country, using an already developed, adopted and piloted core set of indicators, focusing on patient safety and experience, healthcare workforce training and effective care.

Discussion: P4P/P4Q models incentivise providers to prioritise and improve the quality and safety of care. These models have shown positive effects, particularly on patient satisfaction. Careful consideration of key design and implementation factors is crucial to maximise their effectiveness. Clarity and clinical relevance of performance measures are paramount. Financial incentives can provide a strong motivator for improvement. Their structure and level should be carefully calibrated to avoid unintended consequences such as gaming or neglecting other aspects of care. Effective measurement and feedback systems are essential for tracking progress, providing timely feedback, and identifying areas for improvement. A supportive organisational culture that embraces change and promotes collaboration is crucial for sustained performance improvement. Risk adjustments should account for patient characteristics and socioeconomic factors that may influence outcomes. A core set of indicators focused on patient safety and experience, healthcare workforce training, and effective care can serve as a foundation for developing a robust P4P/P4Q hospital model.

Health and climate: from environmental sustainability to economic sustainability

Ms Rosa Vidal, Mr Carles Oliete, Ms Roser Fernández

La Unió, Spain

Context: La Unió is an association comprising 115 entities dedicated to delivering healthcare and social services, 750 facilities, approximately 70,000 professionals, and collaborating with more than 40 companies, La Unió serves as a dynamic force in the healthcare sector. The inception of the "Health and Climate" project within La Unió underscores a proactive stance towards addressing pressing environmental challenges, aligning seamlessly with the association's overarching commitment to societal welfare and sustainable development.

The "Health and Climate" project operates on a multifaceted approach aimed at catalysing transformative change within the healthcare landscape. Its primary goals encompass raising awareness among stakeholders, disseminating knowledge on regulatory frameworks, monitoring key performance indicators, sharing exemplary practices, and advocating for sustainable healthcare policies. At its core, the project endeavors to serve as a steadfast advocate for La Unió's members, fostering meaningful dialogues with governmental bodies, interest groups, and global initiatives to promote environmentally responsible healthcare practices.

Methods: The "Health and Climate" project employs a multifaceted approach to achieve its objectives. Firstly, we have meticulously selected internationally and nationally recognised indicators to assess environmental impact and sustainability within healthcare facilities. Secondly, we have initiated a comprehensive data collection process across our member entities to track performance and identify areas for improvement. Thirdly, our project involves disseminating findings through regular reports, showcasing best practices, and facilitating knowledge-sharing among stakeholders. Additionally, we are actively engaging with policymakers and accreditation bodies to integrate environmental considerations into healthcare standards and practices.

Results: Through the implementation of our project, we have uncovered the intricate interplay between healthcare operations and climate action. By introducing standardised indicators tailored to the Catalan context, we have enabled healthcare providers to proactively address environmental challenges while enhancing operational efficiency. Our efforts have yielded tangible outcomes, including the identification of innovative strategies to minimise carbon footprint, optimise resource utilisation, and promote sustainable procurement practices. Furthermore, we have successfully shared the strategic vision of the Catalan Union of Hospitals and disseminated exemplary case studies that demonstrate the feasibility and benefits of sustainable healthcare practices.

Discussion: As global awareness of climate change continues to escalate, the imperative for healthcare organisations to prioritise sustainability has never been more apparent. By embracing the principles of environmental stewardship and economic sustainability, we not only fulfil our ethical obligations but also safeguard the health and well-being of current and future generations. Moving forward, it is incumbent upon healthcare professionals and organisations to demonstrate unwavering commitment to sustainability, both through individual actions and collective advocacy efforts. Together, we can effect meaningful change and forge a path towards a healthier, more sustainable future for all.

Hospital Universitari Mollet, a Net Zero centre

Dr Jaume Duran, Mr Miguel Angel Martínez, Ms Natalia Allué

Fundació Sanitària Mollet, Spain

Context: Fundació Sanitària Mollet (FSM), is a non-for-profit public provider institution that delivers health and social services to 165,000 citizens in Catalonia, Spain. Our aim is to improve the lives of our people, committing ourselves not only to health, but also to environment, reducing our environmental impact. The strategic objective for 2023 was to achieve an activity with neutral direct emissions, and we obtained an 85% in direct emissions reduction. The remaining 15% of direct emissions, mainly from the consumption of natural gas, were offset by promoting one of the projects of the Catalan Climate Change Office CO2 Offset Program.

Materials and Methods: The culture of quality and continuous improvement, have made it possible to compile through dashboards enough indicators to carry out the actions that would have the greatest impact to reduce the carbon footprint. In the Route to Net Zero we have identified the great impact actions, most of them are implemented and others planned:

1. Electricity 100% from renewable sources since 2013.
2. Building and facilities sustainability: Geothermal energy, Photovoltaic Installation, Sustainable Roofs, Rainwater collection, Radiant Ceilings, and so on.
3. Zero-emission transport: fleet of electric vehicles and parking for electric bicycles and scooters.
4. Healthy and sustainable food: food from the rural area near the Hospital.
5. Low-emission medical devices: reusable surgical clothing, anaesthetic gas filters.
6. Sustainable management of medical waste: segregation of 29 types of waste, reusable biological containers.
7. Efficiency of the health system: automated medication cabinets, avoiding duplication of diagnostic tests, avoiding unnecessary trips.

Results: To achieve this objective, the three actions with the greatest impact that have been established are the reduction of emissions; governance, culture and education; and be a Healthy Entity. The best result obtained has been the great commitment of the governance that goes hand in hand with the participation of the process leaders and all the professionals, and instilling the philosophy while thinking of sustainability in all the actions carried out by the FSM, either in its processes, facilities or equipment, as can be seen in the attached infographic. Also, a sustainability survey show the high commitment of the Hospital workers since the participation has been 57%. Likewise, a high commitment to the climate agenda and the Green Hospital program is determined, to the question *"Do you think it is necessary for the FSM to achieve the challenge of 0 emissions?"* the result was 8.7 out of 10.

Discussion: Human health is inseparable from the health of the planet and its resources. The World Health Organisation reminds us that when we talk about a climate crisis, we are talking about a health crisis. Defining a Net Zero roadmap is necessary to identify the key aspects that will have the greatest impact on both health and the environment. Likewise, establishing a coherent planning of the actions with the greatest impact will allow the reduction of emissions in a more efficient way. In addition, it is necessary that the route to Net Zero be known by the governance and that all the professionals and process leaders be informed, so that the green culture and the strategy of the fight against climate change is integrated in all the areas of the institution.

KAROLINSKA INSTITUTET MEDICAL MANAGEMENT CENTER (MMC) & EHMA RESEARCH AWARD

Adoption, adaptation, and abandonment of value-based health care - A longitudinal case-study of a Swedish University Hospital

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Context: Research has shown that organisations tend to adapt their adoption strategies to emphasise those Value-Based healthcare (VBHC) concepts that best fit their (health system) goals and contextual circumstances. These choices on how to operationalise the VBHC framework challenge current health care business models and, compared to a process of "active adaptation", this "piece-meal adoption" largely isolates the implementation to the organisation itself, which can lead to failed adaptation and abandonment. These failures are seldom reported in the literature, which prevents learning essential for successful scale-up and spread.

Aim: This is a longitudinal case study of the development of VBHC at the Karolinska University Hospital. Our aim was to explore how three VBHC management innovations - a new operating model, digital outcomes steering cards, and patient flow leadership teams - were adopted, adapted, and abandoned at Karolinska and how these processes influenced care delivery and improvement efforts in outcomes and costs over time.

Methods: Qualitative data were collected from more than 100 official public documents and internal presentations from Karolinska and Region Stockholm covering the period from 2011-2022, and two rounds of semi-structured interviews with a group of 32 study participants. – a first round of 21 participant, between April and December of 2018 with a sample of senior and mid-level managers instrumental to the initial VBHC adoption, and a second round of 11 participants between June 2020 and March 2021, with a sample of patient flow groups to explore the adaptation and abandonment phases. The qualitative data collected was condensed into a case description that summarises key events, observed effects related to the adoption, adaptation and abandonment of VBHC, and formulates tentative explanations for the findings.

Results: We found that VBHC adoption was driven by a coalition of interests, serving as the enforcement link for several management logics, power structures and development strategies in the hospital ecosystem. Adaptation was required early in the adoption process – the specialisation mandate made it more difficult to provide multidisciplinary care, and the decentralisation of management to patient flows conflicted with the organisation's systems, financial model and cultural values. Abandonment was characterised by two phenomena: a return to previous practices; and the "silent death" of many VBHC artifacts, which were quietly obliterated from the collective organisational memory.

Discussion: The value agenda is comprised of six components, which themselves are not exclusive of VBHC. Which of these constitute its irreducible 'hard core' and which must adapt to optimise its effectiveness? Adopters interpret that every component of VBHC can be adapted (a wide "soft periphery"). Defining the "hard core" of VBHC – the well-defined and fixed elements that characterise fidelity – may encourage integrity to the VBHC agenda, reduce piece-meal adoption, and providing a better opportunity for scale-up and spread.

A managerial perspective on value-based health care: understanding the roles of management, teamwork, and leadership in hospitals

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Context: Worldwide, healthcare systems are facing challenges related to unpredictable quality of care, insufficient coordination between healthcare domains and increasing expenditure. One of the strategies broadly embraced as an answer to these challenges is Value-Based Health Care (VBHC). Despite the intuitive appeal of VBHC, we are currently not equipped with sufficient knowledge on the process through which VBHC can be implemented and on how restructuring organisational structures into Integrated Practice Units (IPUs) affects the daily practice of healthcare professionals. The aim of this PhD thesis was to understand how VBHC is implemented in hospitals and how professionals work collectively in IPUs.

Methods: Different methods were used to answer a wide variety of research questions. A scoping review was conducted to identify how VBHC is conceptualised in the literature and how it is implemented in practice. With the use of qualitative research methods (document analyses and interviews) we next explored how two hospitals approached VBHC implementation and how it was experienced by those involved. In the second part of the research, we studied how professionals work according to VBHC principles in IPUs. Surveys were used to test hypotheses formulated on the relationship between team characteristics and interprofessional collaboration in IPUs. Further, interviews were conducted to explore how IPU members perceived IPU composition and its assumed interprofessional collaboration. Finally, to explore the role of leadership in fostering the collaborative nature of IPUs, interviews were conducted with IPU members with and without leadership positions.

Results: Our research highlighted the interpretative variability of VBHC, with diverse translations and implementations across hospitals. The analysis of two hospitals demonstrated implementation to occur through alternating exploration and expansion phases, where managerial bodies aimed to balance driving change and facilitating professional adaptation to change. Similarly, healthcare professionals requested the freedom to adjust VBHC to their practice while, simultaneously, desired structural guidance. We found that, in IPUs, the number of professional groups at meetings was related to the quality of interprofessional collaboration. Also, we found a lack of common perspective on the IPUs' composition and the collaboration between IPU members. Among others, this was due to different views on task interdependence and limited knowledge of one another's expertise. Finally, formal leadership structures influenced the emergence of shared leadership in IPUs, with one formal leader enhancing, and multiple leaders inhibiting, IPU members' opportunities and felt need for leadership demonstration.

Discussion: The sub-studies indicated that VBHC remains a management concept without much theoretical substantiation. This has advantages and disadvantages. VBHC being a multifaced concept allows researchers and practitioners the flexibility to interpret it in various ways. However, a conceptualisation of VBHC is needed that allows scholars to study and collect evidence on a shared phenomenon, but, simultaneously, allows for contextual variation in practice. Alongside contributions to the literature on VBHC and (healthcare) management, our research findings are relevant for hospital managers and professionals because they provide knowledge about their role in VBHC implementation. Furthermore, they give insight into how professionals work collectively in IPUs, and how organisations can support and facilitate such condition-based care delivery. Future studies are required that examine the potential of VBHC, involving the success of different VBHC implementation approaches and the organisational conditions that contribute to the success of IPU practice.

A new approach to health management: the implementation of population health management from theory to practice

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Population health management (PHM) is a data-driven approach from a population health perspective. The main actions are population segmentation and risk stratification using population health data, often routine healthcare data. With this approach a chosen population is divided into segments. Then, each segment can be risk stratified to identify groups of individuals with a similar risk on a predefined adverse health outcome. With this information, and the input of the population itself, an intervention can be designed to improve the care and support that fits the needs of the individuals in each risk stratum. While the concept of PHM has been known for a while in scientific literature, its implementation is difficult to get off the ground. In the complexity of healthcare systems, the main research question was 'how to put PHM into practice'? In the studies brought together in this thesis a diverse set of methods is applied. Firstly, a scoping review was performed to assess existing literature. It describes over 80 items on finance, data management, and governance amongst others that support PHM implementation. These items do not point out which kind of interventions for specific subpopulations are needed at what time, but they show which structural actions can underpin a sustainable change in the region to choose the best interventions for the population. Secondly, an adjusted Delphi method was applied to include expert knowledge on these items. This led to the development of the PHM Maturity Index (PHM-MI). Thirdly, a case study method was chosen to pilot the PHM-MI in an Australian PHM initiative. This research demonstrated how the PHM-MI can support change and provide strategical guidance to next steps in PHM implementation. Lastly, the researcher was embedded in a Dutch project and adopted an action research methodology to support the team and acquire new knowledge. The results hereof indicate that continuous learning and reflection are necessary because of the complexity of the change. Combining the results from these four studies, the findings provide support for successful PHM implementation across different health systems. While working with stakeholders on the change in healthcare, several instruments, such as the PHM-MI or reflection tools, can promote progress. However, the main suggestion would be to truly connect with the population, providers, and policy makers to establish together what is needed for the neighbourhood or region and how that could be provided, creating a shared purpose. To do so, the start should always be a broadly supported definition of the population. Further research could add to these results by looking for possibilities to objectify the success of PHM and connect this to maturity of implementation. For this, policy makers and stakeholders should provide a test region with full freedom in PHM execution.

Factors influencing the experience of client-centredness in Flemish (proxy) budget holders: a moderation analysis

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Context: Governments aim to stimulate empowerment by implementing cash-for-care schemes so that care users experience more decisional power over their care and support. Such a policy is theorised to reflect client-centred care, a pivotal theme in policy and practice. The Flemish Government therefore introduced in 2017 personal budgets (PB), in het form of cash, voucher or a combination of both, in the disability care sector. This paper aims to explore the link between the level of empowerment (PE score) and client-centred care (CCCQ score) among Flemish PB holders and whether other factors affect this experience too.

Methods: Convenience sampling with multiple recruitment sources (via policy, user-, and care organisation support) was used to recruit participants. Respondents consisted of Flemish PB holders or proxies representing the PB holder. The survey aimed to measure the PE and CCCQ score. Additionally, sociodemographic variables and contextual factors (PB characteristics and characteristics of the Flemish disability care system) were asked.

A factor analysis showed a two-factor solution for the CCCQ, namely the experienced conduct by caregiver and experienced autonomy in the care relationship, so both subscales were analysed asides the total CCCQ. The CCCQ and subscales were not normally distributed. Data were therefore analysed using non-parametric tests for nominal and categorical variables, and Kendall's tau for continuous data. Finally, our model, hypothesising that the interaction terms of the PE score and contextual factors will affect the CCCQ score, was tested using hierarchical linear regression analyses.

Results: The survey was completed by 224 (proxy) PB holders. In the model without interactions terms, a positively rated budget height and PE-score are positively associated with CCCQ total and autonomy score. The model with interaction terms shows that respondent type and the interaction term of budget height with PE score are predictors of CCCQ total and autonomy scores. Search for a suitable caregiver and the interaction term of PB administrator with PE score are predictors of CCCQ total and conduct by caregiver scores. PB holders with insufficient budgets will have higher CCCQ scores when their PE score is high. When self-managing the PB, higher PE scores are more strongly associated with higher CCCQ scores. Finally, a positively rated financial situation is positively associated with CCCQ autonomy score. However, CCCQ scores are not associated with PB allocation type, information accessibility, or the interaction terms of these variables with PE score.

Discussion: Our results show that the interaction term of budget height with PE score is a predictor of CCCQ total and autonomy scores, and the interaction term of PB administrator with PE score of CCCQ total and conduct by caregiver scores. Governments, implementing cash-for-care schemes, should thus focus on providing budgets that are sufficiently high to cover all care needs when they want to fulfil their policy aim of client-centred care. Additionally, our results show the importance of involving the budget holder in managing their PB. However, this involvement should always be adapted to the needs and capabilities of the person with disabilities. Finally, the interaction terms of PE score with PB allocation type and with information accessibility are not significant predictors of all CCCQ scores. The link between empowerment and client-centeredness thus remains a complex interaction. Future research should therefore further explore which other contextual factors affect this relation.

Understanding barriers and facilitators to access breast and cervical cancer screening services in Turkish women: a qualitative exploration

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Context: Breast cancer remains the leading cause of cancer-related fatalities in women globally, with cervical cancer following closely behind. Numerous nations have implemented cancer screening programs as a vital public health measure to mitigate the mortality and morbidity associated with these cancers. Despite the importance of such programs, women's keen interest in screening significantly influences their success. This qualitative thesis aims to investigate women's perceptions of the barriers to and facilitators of access to breast and cervical cancer screening services.

Methods: The study employed a basic qualitative research design and purposeful sampling. Individual interviews (n=19) and focus group discussions (n=6) were conducted at a primary healthcare centre and a Cancer Early Detection, Screening, and Education Center in a province in northern Turkey. A semi-structured interview form was developed based on the conceptual framework and literature. Following participant consent, interviews were recorded, transcribed verbatim, and analysed using NVivo 12 qualitative analysis software, employing content analysis to identify themes, categories, and codes.

Results: The study revealed a comprehensive model categorised into six themes and 24 subcategories. These themes encompassed "individual characteristics," "service delivery system," "psychological characteristics," "environmental and sociocultural factors," "geographical characteristics," and "health policy." These themes reflected women's perspectives on factors either hindering or facilitating their access to breast and cervical cancer screening services.

Discussion: Under the theme of individual characteristics, participants often expressed a lack of perceived risk, leading to a diminished sense of the need for screening. The service delivery system theme highlighted factors such as extended waiting times and healthcare provider behaviour as common hindrances to access. Psychological characteristics revealed prevalent fears and anxieties surrounding the screening process. Environmental and sociocultural factors were discussed within the context of gendered service providers, while geographical characteristics touched upon distance and transportation issues. Health policy considerations encompassed funding and health education, acting as both barriers and facilitators to access. In conclusion, this study identified both similarities and differences compared to existing literature, uncovering specific findings such as women's misconceptions about cancer and screening services, gynaecological table fear rooted in negative childbirth experiences, and challenges in accessing screening services, particularly in rural areas. The study recommends further research in diverse contexts and encourages policymakers to address funding, education, workforce, supply, and personnel training for enhanced screening service accessibility.

POSTERS

Digital health focus and activities of Universities of Applied Sciences' home-based incubators

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Context: Universities of Applied Sciences' (UAS) home-based incubators have the potential to address digital health challenges by providing essential resources to startups. This literature review aims to outline the role of UAS home-based incubators, understand their current focus and activities, and identify the structures needed to address digital health regional challenges.

Methods: We conducted a targeted literature review, which is non-systematic literature review and is meant to be an informative, rather than all-encompassing, review of the literature for our research questions. With this review we aimed to identify trends and better understand the current state of a field.

We used Google Scholar for the terms, ROLE OF UNIVERSITIES OF APPLIED SCIENCES IN REGIONAL INNOVATION, Digital Health. We also used snowballing to find relevant documents. In addition, we used ChatGPT for the question ROLE OF UNIVERSITIES OF APPLIED SCIENCES IN REGIONAL INNOVATION AND DIGITAL HEALTH. The review focused on regional challenges of digital health, the needs defined, and university business incubators and their regional ecosystems.

Results: Universities of applied sciences and their focus on practically oriented higher education, present an important element of tertiary education within the life science sector. In respect to the various disciplines within life sciences, they provide strong links to either the public or private health sector and include entrepreneurial training. This can also address the regional needs and challenges with regard to digital health. Key barriers for UAS incubators include misalignment in tempo between HEIs and industry, cultural clashes in priorities, and lack of researcher entrepreneurship capacity. Shared challenges across regions include digital community care, health digitalisation, digital literacy, lifelong learning, digital support systems, and patient-centred solutions.

Discussion: UAS home-base incubators have the potential to significantly address digital health regional challenges by providing incubation support for startups, offering a supportive environment for growth, encouraging innovation, and facilitating collaboration between startups and academic researchers. These incubators can play a crucial role in addressing the identified challenges and needs in the digital health sector by providing resources such as office space, mentorship, networking opportunities, funding, and access to technical expertise.

Leadership competencies needed in digital health services in hospital: a qualitative interview study with leaders and service developers in Finland

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Context: Healthcare leaders have faced competence challenges in a highly demanding hospital context because the digital technologies are revolutionising and creating completely new functions. The role of leaders at all levels in hospitals is the design, implementation, and guidance of digital health services. Digital transformation, developing and implementing of new digital services and their utilisation requires different leadership competencies. Leadership competencies refer to knowledge, skills, abilities, capabilities, and attitudes which leaders need in their work. There is limited evidence of leadership competencies in hospital context.

Method: The study aimed to describe leaders' and service developers' perceptions of leadership competencies needed in digital health services in the university hospital. The study applies descriptive qualitative design. A semi-structured interviews of nurse leaders (n=20) and service developers (n=10) were conducted in autumn 2021 in one Finnish university hospital where digital health services were utilised. The leaders were chosen by purposive sampling and a snowball sampling approach was used to recruit service developers. Data were collected through six focus groups interviews with nurse leaders and individual interviews with service developers remotely using Microsoft Teams. The participants were frontline nurse leaders, head nurses (n=9) and assistant head nurses (n=8), middle managers (n=3) and service developers were professionals in either health care or information technology. A semi-structured interview guide covered questions of digitalisation, competence, management, and leadership. The interviews were transcribed, and data were analysed using content analysis.

Results: The analysis summaries the leaders' and service developers' perceptions of leadership competencies needed in digital health services in hospital setting. Leadership competence consisted of ability to managing of large entities, human capital, and digital change. In addition, leadership competence included the qualities of leaders which were openness to digitalisation, digital capability, collaboration skills, and ability to affect personnel's perceptions towards digitalisation. Leaders needed process management and administrative skills and the ability to manage human resources and professionals' competence. Leaders should have open-minded towards digitalisation and leaders themselves had to have sufficient digital capability. Leaders needed communication skills and the ability to create a safe organisational atmosphere to support digital changes. Leading digital technologies required ability to work in multi-professional digital development groups. Leaders needed ability to create and communicate a vision of digitalisation and understand patients' expectations for digital services.

Discussion: The results highlight the competence and training needs of healthcare leaders related to digitisation. As the hospital industry continues to become more digitalised, leaders will need to have competence to lead differently. Leaders need to manage larger entities and have progressive attitude towards reforms and optimistic determination in the development of digital health services. Healthcare digitalisation has changed leadership competencies requiring the training of leaders to adapt to these changes. Healthcare leaders need to understand the possibilities and threats of digitalisation to better support digital health services that improve healthcare personnel's work and patients' needs. While no absolute set of leadership competencies is necessary in all leadership situations, certain knowledge, skills, and abilities seem to be more critical than others in digital health services in hospital setting. The results can be utilised in management and leadership in digital health services in hospital setting, and in educational purposes.

Competencies development and requirements of public hospital managers in Moldova

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Context: Hospitals must continuously adapt to external or internal factors, including demographic, and epidemiological peculiarities, the implementation of new technologies, changes in financing conditions, competition, human resource assurance level, and other health reforms. To ensure functionality, competitiveness, and institutional efficiency during transition or adaptation, institutions need to change their vision and approach. They must develop new skills and managerial behaviours. The purpose of this study is to evaluate the requirements for hospital managers and identify the optimal model for developing management competencies in the Republic of Moldova.

Methods: We conducted a descriptive mixed survey, incorporating both quantitative and qualitative components to assess the perception of the hospital managers and stakeholders. The quantitative aspect involved a cross-sectional survey that employed a self-administered questionnaire, between October 2022-January 2023. Respondents were asked to rate the importance of each proposed competency in their job, to indicate their proficiency and need in each skill, and to suggest the best way to achieve it. The questionnaire was distributed via e-mail to managers of all public hospitals (68 institutions), regardless of capacity or type of activity. The qualitative component comprised two stages: in-depth interviews were conducted to assess hospital managers' opinions, and the main stakeholders' opinions were evaluated through 4 focus groups – Public Health master students, Local Authorities representatives, Central Authorities representatives, and members of the Public Health School staff. Data analysis consisted of descriptive and analytical statistics, with data triangulation.

Results: The response rate for the quantitative survey was 83.8%. Notably, hospital managers in Moldova tend to be relatively young, with 56.1% aged up to 54 years. A significant majority (71.9%) have over 20 years of experience in the healthcare system, while 33.3% have accumulated 6-10 years of leadership experience. All interviewed managers hold higher medical education, with 89.5% having pursued specific managerial studies. Among them, 54.4% possess a Master's degree, and 35.09% underwent training through postgraduate modules. When asked about challenges and knowledge needs, a considerable number of directors (89.5%) acknowledged facing varying degrees of vulnerability in financial and legal fields. This circumstance determined them to pursue further studies. Regarding effective training methods, both managers and stakeholders considered Master's studies the most impactful. Continuing education modules were also rated as effective (28%), albeit less appealing as they were perceived to be not entirely aligned with managers' needs.

Discussion: The research highlighted the valuable application of the international competence framework for self-assessment of knowledge or training needs within the current context of Moldova's Health System organisation. To cultivate competitive and competent leaders, managerial training should be systematically incorporated at all stages of a manager's development, starting from university studies. Furthermore, there is a necessity to identify and select candidates for managerial roles based on performance and managerial skills. Such evaluation can serve as a tool not only to streamline the manager development and selection process but also to establish a registry of managerial human potential. Despite the high level of professional training and managerial experience held by hospital managers, many encountered varying degrees of vulnerability in specific areas. Consequently, regardless of the field of training and level of expertise, managers require supportive tools such as administrative committees or the audit committees to ensure effective management.

Healthcare professionals 'perceptions on institutional integrity in district hospitals in the Republic of Moldova

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Context: Corruption in healthcare refers to the phenomenon of the abuse of professional power for personal gain and involves ethically questionable behaviour that undermines public trust in the healthcare system. The cumulative impact of corruption in healthcare systems is the significant increase in mortality rates. Since the endorsement of Integrity Law in 2017, the fight against corruption in the healthcare setting in the Republic of Moldova has been based on establishing integrity standards within healthcare institutions and fostering appropriate attitudes through education to guide professionals in the performance of their duties.

Methods: Against this backdrop, our objective was to explore the perceptions of medical staff regarding integrity within regional hospital institutions, and to identify possible strengths and weaknesses of measures ensuring institutional integrity in regional hospitals. The study, characterised as cross-sectional and descriptive, included the entirety of medical professionals from six regional hospitals in the country, with two hospitals selected for each of the three geographical regions. Selection criteria encompassed the presence of an operating block, a perinatal centre, as well as departments for anaesthesia/intensive care and traumatology. Among the 900 questionnaires distributed, 703 were completed, with 525 (74.7%) by nurses, 175 (24.9%) by doctors, and 3 (0.4%) unspecified. The study questionnaire, developed based on specialised literature, comprised 32 semi-open and closed questions, including single and multiple-choice, scale-type queries aimed at gauging opinions, attitudes, and experiences/practices regarding institutional integrity. The study was conducted from October 2022 to March 2023.

Results: According to the study's findings, 28% of respondents had not participated in any training on institutional integrity. Correspondingly, 30% of respondents failed to define institutional integrity as being determined by the legally and ethically correct behaviour of both leaders and employees collectively. In contrast, a significant 93% of respondents faced challenges in defining the concept of personal integrity. Of the total respondents, 53.1% believe that legal recommendations and integrity standards are fully implemented in regional hospitals across the country, while 46.9% feel that the measures taken at the institutional level to ensure an integrity climate are either insufficiently implemented or are carried out formally. Approximately 40% of respondents either completely or partially agree that there is no corruption in hospital institutions. Meanwhile, about 60% remain neutral (27.7%) or express either total or partial disagreement (32.3%) regarding the absence of corruption in hospitals.

Discussions: Education proves to be an effective means of raising awareness about institutional integrity. By training healthcare professionals in institutional integrity standards, they gain the foundational knowledge to assess the institutional climate and identify signs of corruption within their workplace (as indicated by 60% of respondents in the study who appear to be aware of corruption within their institutions). The study further reveals that certain aspects of institutional integrity are universally recognised as crucial by the majority of respondents, while opinions on other aspects remain divided. For instance, approximately 88% of respondents either completely or partially agree with the importance of "professional promotion based on merit". Whereas, only about 59% of participants express non-acceptance concerning "requesting and accepting gifts in healthcare institutions". Further investigation of the varying degrees of intolerance towards different forms of corruption among healthcare workers in hospitals is recommended.

Implementing a sustainable and integrated management system at the level of hospitals, ambulatory clinics, and private medical cabinets by creating skills in quality management for medical doctors and administrators

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Swiss TPH, Switzerland

Our aim it is to share a reach experience gained from 2011 to 2023 in various projects of implementation of Management Systems like: Quality Management, Environmental, OH&S and Anty Bribery at the level of different sized medical units within different European countries and to present the main factors of sustainability for these systems to become a benefit to implementers and not a burden.

During the presentation we will share ideas and basic concepts that should constitute the base of these systems.

We will give complete examples of transforming these theoretical concepts into practical and implementable tools.

An important path of the presentation is to reveal innovative inputs that motivate this endeavour, the obstacles encountered in the way of implementation and some successful solutions for outcoming these barriers. One of our goals is to make these efforts of implementation sustainable by developing functional and reliable integrated management systems and to make them indeed useful for their users.

Another main direction of the presentation is to underline the importance of medical doctors and workers in health systems in being professional in management systems too.

At the end we will tackle a few sensitive aspects like sustainability of these management systems, their costs of implementation and maintenance (human, material and financial) and last but not list main benefits of it by few examples of success.

Improving access for junior staff to historic and ongoing QIPs within the Belfast School of Dentistry

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Context: The project was chosen to address the knowledge gap, and lack of access to QIPs found at the Belfast School of Dentistry (SOD). Junior staff last year led 100% of the QIPs undertaken in the SOD, yet with high training programme turnover each year, there is no system in place to facilitate previous QIPs to be built upon, expanded into new departments, avoid duplication, and prevent knowledge loss.

Methods: The outcome measure chosen was the number of QIPs accessible by junior staff independent of another staff member. The balancing outcome was ease of access rated from 0-10 (10 being the best).This was chosen to ensure that changes made to access did not become obstructive to using the database created. A driver diagram was used to identify possible changes and we chose to use Plan-Do-Study-Act (PDSA) quality improvement methodology to identify whether the interventions made a positive change. A sample of staff completed a questionnaire each week. Creating the database involved the gathering of a minimum dataset for submissions with input from the clinical effectiveness team and a focus group of junior staff.

Results: At each PDSA cycle there was a statistically significant change in outcome measure. Baseline data showed two thirds of staff had access to no QIPs and the remaining third had access to 1. Following the creation of the database the average across 6 weeks became 3.5 projects. For PDSA Cycle 2, awareness of the database and how to access it was raised at teaching and audit meetings resulting in an increase to 6.2. At PDSA Cycle 3 the database was moved onto the intranet this resulted in new submissions and at present 100% of junior staff have access to a minimum of 13 projects and this number rises regularly as more projects are submitted to the database. The balancing measure also showed improvement between cycles with an increase from 4/10 to 5.3/10 PDSA 1 to 2, and the switch to a digital format resulted in a large increase to an average rating of 8.9/10.

Discussion: Through this QIP we have contributed towards continuing improvement of the quality of care provided by our service, as well as contributed to improving training for those within the trust. This project is ongoing as the database needs to be kept up-to-date regularly as more projects are submitted, and I would expect to see a continued increase. We have also added this to the induction programme for new starters this should allow the database to prove a useful ongoing source of knowledge in the future. We are also implementing an exit survey for those leaving to collect any feedback and suggestions in order to ascertain the utility of the database long term.

The outcomes of managed entry agreements in Romania from 2015 to 2022

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Managed Entry Agreements (MEA) are contracts between governments/payers and pharmaceutical companies done at a special discounted price, volumes and/or health outcomes to mitigate the uncertainty regarding a medicine's relative effectiveness, cost-effectiveness, or budget impact. A contribution to the knowledge in the field is provided by this article's analysis of eight years of implementation in Romania, which reveals data on the volumes, budgets and utilisation in various therapeutic areas. A descriptive analysis of the existing MEAs in Romania was performed, measuring the outcomes of MEA development in terms of the number of drugs reimbursed, the therapeutic areas covered, the treated patients and the resources allocated. In Romania, the MEAs are performed as Cost-Volume contracts (financial-based contracts) or Cost-Volume-Results contracts (outcome-based contracts). The number of drugs having MEA increased yearly in the period of 2015 and 2022, from 6 to 79 and from 2 to 12 therapeutic areas. The main drugs with Cost-Volume contracts, in 2022, were in the therapeutic areas of oncology, neurology and rare diseases. The Cost-Volume-Results contracts were used only in hepatitis C. The no. of patients treated with MEA drugs increased from 10 in 2015 to 250,726 patients in 2022. In Romania, the MEAs are, in 2022, a frequent pathway to the public reimbursement of new drugs, covering 16.82% of the total drug budget and representing 48.2% of the total innovative drugs entered to the market. MEAs proved to be a solid ground for the reimbursement of new drugs. The future steps for MEA are already envisaged in terms of new types of agreements that could bring additional benefits for the health care system and patients.

Strategic planning of hospital infrastructure – Romanian model

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Context: The major deficiencies currently faced by the Romanian health system in terms of infrastructure and medical equipment have a negative impact on the ability to provide high quality health services. A good strategic planning of the health services must also consider the planning of the hospital infrastructure. Investments in the hospital infrastructure will be effective and efficient if there is a synchronisation of investment projects with national health objectives and health services master plans.

Methods: Identification and analysis of strategic documents in the field of health and normative acts in force to highlight aspects related to hospital infrastructure. The presented model is based on: the National Health Strategy 2023-2030; The Regional Health Service Master Plans and their Implementation Methodology - the infrastructure component, developed within the project "Creation of the strategic and operational framework for the planning and reorganisation of health services at the national and regional level" coordinated by the MoH. The information contained in the current strategic planning model refers to: structures, responsibilities, stages, potential sources of funding, technical documentation.

Results: Synchronisation and successful implementation of various investment projects within the presented model requires the existence of the following:

- Central entity for the management of priority investments in the infrastructure (National Agency for Health Infrastructure Development);
- National investment plan coordinated by the MoH: a multicriteria analysis, objectives and criteria for prioritising investment projects;
- Centralised information system with investment requirements;
- Support tools (methodologies, procedures, trainings, type sheets - investment projects, portal dedicated to investment management);
- Specific funding sources (partnerships Ministry of Health – Administrative-Territorial Units (MoH-UAT); state aid schemes that allow private investments);
- Funding framework contracts (MoH-UAT) for Ministry of Health co-financed investments;
- MoH-UAT partnerships for the correlation of investments financed by UAT from local budgets with the national investment plan;
- Standardised technical-economic documentation, including design, construction of new buildings, modernisation/extension.

The implementation of the model requires careful monitoring of the achievement of key targets such as: electronic database for collection, in function; planned infrastructure investments; investment management portal; transparent selection criteria for financing/co-financing; infrastructure investment co-financing framework contracts; investments linked to the objectives of the national health investment plan; unitary framework design constructions/interventions on hospitals.

Discussion: Strategic, periodic and rigorous planning of infrastructure in the hospital sector calls for cross-sectoral and interdisciplinary collaboration. It must be based on a real, clear, detailed picture of the current status, at the level of each hospital unit, and on the clear establishment of the path to be followed to reach the targets set in the implementation plan. The implementation of monitoring requires analyses, tools that allow data collection, the operationalisation of a warning system with performance indicators, a monitoring plan. The strategic planning with the investment plan must be correlated, with regional or national applicability. In Romania, the current planning model is included in the strategic documents, and the implementation of the National Health Strategy 2023-2030 will validate the current model and lead to possible improvements.

Cardiovascular screening program in Romania

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Context: According to WHO, Cardiovascular diseases (CVDs) are taking an estimated 17.9 million lives each year. In the European Union, CVD remains the leading cause of death, with some countries reporting a slowdown in the reduction in mortality rates and others an increase in premature death from CVD. In Romania, the mortality rate caused by ischemic heart disease was more than twice higher than the EU average. Cardiovascular diseases screening is an essential aspect of preventive healthcare, aimed at identifying risk factors and early signs of cardiovascular problems.

Methods: The project "Totul pentru inima ta" - screening program for the identification of cardiovascular risk factors was conducted over a period of three years with 5 partners from all around the country. It was headed by the National Institute of Public Health, together with several partners, the Institute for Cardiovascular Diseases Timisoara, Emergency Institute for Cardiovascular Diseases and Transplant Targu Mures, Romanian Society of Cardiology and two non-governmental organisations, Romanian Association for Health Promotion and The Coalition of Organisations of Patients with Chronic diseases from Romania.

710 general practitioners (GPs) were included in the program based on an acquisition procedure. They screened patients from their list, aged over 40 years old and without any record of cardiovascular diseases. Screening for cardiovascular risk factors also included people belonging to vulnerable groups. Patients with a known history of acute myocardial infarction, stroke, cardiomyopathies, severe valvulopathies and heart failure were excluded from the program.

Results: 710 GPs were involved in the project and 146,157 patients completed the screening program. The screening program included two consultations at the GP and laboratory investigations. During the first check-up, the GP took the anamnesis and estimated the SCORE risk in order to detect people at high risk and scheduled the patient for laboratory investigations. During the second consultation, the SCORE assessment was completed based on the laboratory results. Following this evaluation, approximately 10% of the patients were included in the very high risk after applying the SCORE diagram. They were directed towards 8 screening centres established in the eight Development Regions of Romania (Timisoara, Craiova Bucharest, Constanta, Targu Mures, Cluj-Napoca and Iasi), where the patients benefited from additional investigations (Electrocardiogram, Echocardiography, ankle-brachial index measurement) and treatment from a cardiologist if necessary. All patients were included in a National Registry of patients with cardiovascular risk.

Discussion: The development of a screening program at a national level will lead to a decrease in the incidence of cardiovascular diseases, the severity of cardiovascular disease cases, as well as a reduction in the number and severity of their complications, with the consequence of reducing the need for hospital care, the costs related to them and the disabilities caused by the complications. All eight screening centres were developed in public hospitals. This will allow for a continuation of the screening activity even after the project is finalised. Each GP will still be able to address patients to the screening centres by prior appointment according to a predetermined schedule. This will lead to an early detection and treatment of potentially severe cardiovascular diseases, thus decreasing the burden on the public health system.

Software development for TB outcome management

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Context: Tuberculosis still remains to this day a public health problem within Romania's boarders, and there are still some issues regarding the optimal approach that better attunes with the country's healthcare profile. The main objective of this study was to create a series of mathematical models that could determine the correlation and dependences of input-output parameters for an efficient tuberculosis management.

Methods: The process began with the development of a complete factorial experiment ($CFE2^3$) that uses a complex system of equations designed to operate under two strict conditions (to have the largest possible value of the determination coefficient R2 and to have a significant equation curve for each interaction that it studies). Thus, the selected equations were all monotone and continuous on the studied intervals. Based on the values of carefully curated indicators that were extracted from the National TB reports form 2013-2021, a total of forty measurements were performed. Each measurement calculated the R2 value and generated the dependency curves and the residual values, while simultaneously establishing the statistical significance by calculating the *p* value and the Fischer score. A second mathematical regression model was operated under the response surface technique in order to establish the connection between inputs and outputs at a 3:1 ratio, while one input value was dependent.

Results: The experiment successfully established links between different certain inputs and outputs based on the R2 coefficient levels higher than 0.75. Twenty-four dependencies ranked from 0.7517 to 0.9958, out of a maximum R2 value of 1.00, were discovered based upon the input-output interactions within the proposed factorial model based on the $y=f(x_1,x_2,x_3)$ equation. The other sixteen experimental values within the program matrix were deemed insufficiently precise by having R2 values ranging from 0.0722 to 0.6466, but the trend fluctuations that they indicate may be taken into consideration for further analysis. Furthermore, the response surface plot graphs offered similar results of the findings especially after generating their contour plots that made the readings much evident, backing up the two-dimensional model's dependency results.

Discussion: This software proved its usefulness in establishing links between the output parameters (TB fatality rate, number of deceased TB patients, number of new and relapsed cases, number of TB cases in children aged 0-14 years or number of MDR/XDR TB cases) and the inputs (the number of patients that had an X-ray of BK examination, the number of patients that had been monitored with an X-ray or a BK test or the number of examined individuals). This software was developed to also be adaptable to any types of parameters, only requiring a few conditional modifications to be used for other predictions within the system.

Health care between Artificial Intelligence and 'nature-based' solution - finding a sustainable pathways

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Artificial intelligence and digitalisation has arisen as a subject in many areas and segments of human existence, and it is a particularly important issue in the health sector.

In the EU Year of Skills, the importance of digital skills on one hand, and sustainability skills on the other, within the health sector is particularly highlighted (as is confirmed by the BeWell project). And while great progress is being made in the field of technologies intended for the health sector, at the same time the risks and threats in nature due to climate change, catastrophic events and challenges in the energy supply, but also water (thus essential resources for the functioning of health systems) are intensifying.

The 21st century of high technologies and the digital revolution seems unable to fence itself off and overcome basic challenges and threats to functioning. On the one hand, the health sector is being intensively modernised, and on the other, the fragility of the health sector is growing.

Due to the pandemic, we have seen how little time it takes for systems to be disrupted. Climate change and catastrophic events can cause faster and more intense disruption ("earthquake") of the health sector. Lack of electricity and water, even on a smaller scale, can cause huge consequences.

At the same time, disruption in the production of medicines and in the supply of drugs can be the result of difficulties in the pharmaceutical industry, but also due to natural disasters and humanitarian disasters (which, unfortunately, is present today in several hotspots). The lack of medicines, on the one hand, and their ineffectiveness as a threat (for example of antimicrobial resistance - AMR) is recognised as a challenge not only for the health sector, but also wider as a challenge for One health approach

For example, Serbia experienced disrupted functioning of the health care system due to floods, difficulties in electricity supply in the relatively recent past. These and similar experiences should be an inspiration for system adaptation and improvement of resilience.

It is therefore important to consider the possibilities of treatment and assistance even in the disturbed conditions that the future may bring us. Thinking about "nature-based" and alternative ("nature inspired") solutions in healthcare, as well as in other sectors, is imposed. Preparedness for situations that are unwanted, but not impossible, is very necessary. Taking into account various future scenarios it is important to consider "nature based" and "nature inspired" solutions for strengthening resilience of the healthcare system, as well as preparedness of the health professionals and population.

The imperative that is imposed, is that we need to develop readiness, awareness and skills in two directions: in the direction of improving digital skills and sustainability skills following modern technologies. On the other hand, during the education process, learning towards "nature based" "nature inspired" and alternative solutions must not be neglected. It is important to be ready to apply both approaches sometimes in parallel to keep the health care system as stable as possible, in case of different, but very realistic and possible future scenarios.

Geographical disparities in Romania's out-of-hours medical centres: mapping the urban-rural divide in healthcare access

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Context: In Romania, the establishment of Out-of-Hours centres (OOH-Cs) in the mid-2000s was an innovation in healthcare delivery and an alignment with existing trends in health systems worldwide. The establishment of OOH-Cs was aimed at providing accessible medical care during non-business hours of GPs/ family doctors. This study focused on the geographic distribution of OOH-Cs and examined disparities in healthcare access between urban and rural areas. This research is critical in understanding how OOH-Cs are addressing or perpetuating the urban-rural divide in healthcare accessibility, which is an important issue in Romania's contemporary healthcare ecosystem.

Methods: The methodology was designed to provide a better understanding of the impact of geographic distribution on accessibility and efficacy of OOH-Cs. The study used a distribution mapping of the OOH-Cs across Romania, and correlated their locations with available population data, urban and rural classifications. We incorporate a qualitative component, consisting of interviews conducted with a purposive sample of 16 healthcare providers from both urban and rural settings. The interviews aimed to gather insights into the perceived accessibility and effectiveness of OOH-Cs.

Results: The distribution mapping identified a disparity in the distribution of OOH-Cs, with a higher concentration in urban areas compared to rural regions. Statistical data indicated that rural areas, despite having lower population densities, often faced higher healthcare service demand unmet by the current OOH-Cs network. Interviews with rural healthcare providers highlighted challenges such as longer travel times to OOH-Cs and limited availability of services. Conversely, urban OOH-Cs were found to be more accessible and offered a broader range of services. These geographic disparities have significant implications for healthcare equity, particularly affecting vulnerable populations in rural areas. Recommendations for future practice have been developed based on the study results.

Discussion: The findings of this study provide new insights into the geographic inequalities in Romania's OOH-Cs network, highlighting a pressing need to address the urban-rural divide in healthcare access. This research contributes to the field by bringing attention to how geographic factors influence healthcare delivery and accessibility. While the study's results are directly relevant for Romania they also offer valuable lessons for other countries facing similar disparities in healthcare access. The quality and novelty of the research consists in its comprehensive approach, combining mapping analysis with qualitative insights to paint a detailed picture of the current state of healthcare access in Romania. The study provides new information on a critical aspect of healthcare management and policy-making, emphasising the need for equitable distribution of healthcare resources. The study results contribute to the advancement of global knowledge in healthcare equity and accessibility and provide support for future advocacy and policy interventions.

Nurse leaders' perceptions of the competencies needed in post-pandemic era in a hospital setting

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Context: The global COVID-19 pandemic has challenged healthcare leaders in unprecedented and unpredictable ways. COVID-19 created a unique opportunity to see how healthcare systems and leadership responded to a rapidly evolving crisis worldwide. High sick leave rates, growing intention to leave among healthcare professionals and medical debt burden increased by the pandemic challenges the capability of healthcare systems worldwide. The pandemic caused various changes in hospital operations and procedures. The change to 'new normal' after pandemic requires new and different competencies that differ from traditional leadership and management competencies in a hospital setting.

Methods: The purpose of this study was to describe nurse leaders' perceptions of the competencies needed in post-pandemic era in a hospital setting. The study used qualitative descriptive design. A semi-structured individual interviews of nurse leaders (n=20) was conducted between June to October 2021 in one central hospital in Finland hitting by COVID-19 in the early phase of the pandemic. A purposive sampling was used. Interviews were conducted remotely using video and audio-conferencing platform. Most (80%) of the participants were frontline managers (head nurses and assistant head nurses), and the rest were middle managers (nurse directors). The mean age was 51 years and mean leadership experience was 10 years. The semi-structured interview guide included questions of change and crisis management, wellbeing at work and social support in a hospital setting. The data were analysed using inductive content analysis.

Results: The analysis summaries the nurse leaders' perceptions of the competencies needed for post-pandemic era in a hospital setting. Managing post-pandemic situations requires good change management and leadership competencies, crisis management capability and competencies to promote well-being. The need for good change management and leadership competencies after pandemic includes human and transparent leadership with open and timely communication to professionals. It also requires the ability to manage the changing situations between workforce and workload in a hospital setting. In the post-pandemic era, nurse leaders need an ability to adapt the learned crisis experiences into the guiding principles of future crisis management. Nurse leaders highlighted the need for competencies to promote both work units and leaders' own well-being after the challenging period of the COVID-19 pandemic. The emotional support received from the leader's own supervisor and colleagues for post-pandemic era was perceived as a significant form of social support in management work.

Discussion: Managing post-pandemic situations requires new and different competencies of nurse leaders regarding change management and leadership competencies, crisis management capability and competencies to promote well-being at work. The COVID-19 pandemic changed the working culture of nurse leaders, and they need knowledge and skills beyond their previous management competence also in post-pandemic era. Nursing leadership is perceived to be very important in successful change implementation and management in hospital organisation. The openness in leadership enables the success of the change. Healthcare organisations are facing numerous crises and, consequently, crisis management competencies are becoming more important in future leadership. After the challenging pandemic era, nursing leadership should focus on promoting well-being in hospital settings to improve sustainability. Leaders need social support in demanding and complex operating environments such as hospitals. The results can be utilised in nursing leadership in post-pandemic era in a hospital setting, and in education of leaders.

Establishing patient advocacy in cancer care in Austria: the alliance of oncological patient organisations

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Although the Austrian health care system in general maintains a high standard of structures and processes in cancer care, patient outcomes continue to lag in a global comparison.

To eliminate potential inefficiencies in Austrian healthcare, it is important to bring the patient perspective to the forefront of cancer care, especially to achieve more efficient processes and better outcomes for cancer patients. However, patient organisations and self-help groups are too divided to have so far, a significant impact on care at different levels of the system. This would enable negotiations with stakeholders at an equal level. The aim of the project was to establish an alliance of oncological patient organisations with clearly defined goals and to strengthen the representation of patients and especially patient advocacy in Austria.

Twelve semi-structured interviews and ten strategic workshops were conducted with the leaders of twelve oncological patient organisations about their goals, structures, and challenges. The information obtained was processed using qualitative research approaches so that the common vision, mission, and strategy was formulated on a normative basis for cooperation and the Alliance of Oncological Patient Organisations was founded. In the upcoming years, the Alliance will concentrate on specific areas of cancer care, such as increasing the number of patients participating in clinical trials, as well as improving follow-up care and rehabilitation. The methodology is based on Locke and Latham's goal setting theory, 'health in all policies', 'patient involvement' and 'coopetition'. A systematic and applied approach, including a literature review and stakeholder research, was used to integrate the Alliance into the national health landscape and ensure its strategic focus. To adhere to the concept of health in all policies, it is important to involve health professionals and experts from different policy areas such as health, social affairs, education, economy and environment, who have a strong interest in the well-being of cancer survivors, in the design process. The next stage was to enable patient organisations to establish more effective multi-stakeholder structures by creating a policy framework for all relevant sectors.

This contribution highlights the work of the Alliance of Oncological Patient Organisations in Austria, in accordance with the Health in All Policies framework for cancer care and derived health goals for cancer patients. The patient and survivor perspective were given special emphasis, and the influence of patient organisations in Austrian cancer care is strengthened. The Alliance has created a framework for cancer care and targets to prioritise patient outcomes, generate high-level political commitment, and empower patient organisations to drive incremental system change and pilot innovations in cancer care. A dedicated tool will support the allocation of resources for prevention and health promotion projects linked to the developed health policy framework for cancer care.

Public hospital 'virtual integration' in France - Did mandates modify managers' manners?

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The 2016 GHT reform in France mandated territorial groupings for public hospitals, introducing contractual obligations, disclosure requirements, and sanctions for non-compliance to foster vertical integration—or "virtual integration" due to the organisation's absence of legal personality. However, these constraints were not overly binding and there were no compensation schemes to incentive managers' cooperative behaviour. Based on agency theory, our main hypothesis suggests that introducing constraints alone did not serve as a necessary shock to alter managers' non-cooperative behaviours.

We argue that patients' flows provide adequate insight into cross-organisational care coordination at the territorial level. Using a difference-in-difference setting on hospital-level data (2013-2019), we found that the flow of patients transferred between public hospitals of the same grouping did not significantly increased after the reform. We neither found much support for the alternative hypothesis of specialisation among establishments within the GHT.

We interpret these results as a consequence of weak integration. The reform challenges the effectiveness of "meaningless mandates" without incentives to achieve coordinated care between agents.

Health governance for small states in the European region: a scoping review

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Context: Small states are defined by WHO's Small Countries Initiative (SCI) as countries with a population less than 2 million. These countries face a number of issues that include difficulties with workforce, procurement, specialist services, vulnerability to natural disasters, a lack of economies of scale, and a dependence on larger neighbouring states. A number of the challenges facing the health systems of small states are to do with money or resources, but also relate to issues of governance. We therefore asked: what governance mechanisms have SCI states used to address key problems facing small state health systems?

Methods: Our team conducted a scoping review of the literature on small states and their problems as a scoping review is adapted to the small, scattered, and often non-academic literature that discusses the health policies of small states and the lack of agreement on basic questions. The study used WHO-Europe's Small Countries Initiative (SCI) membership: Andorra, Cyprus, Estonia, Iceland, Latvia, Luxembourg, Malta, Monaco, Montenegro, San Marino and Slovenia. We first identified shared health policy challenges attributable to smallness, and then the governance dimensions of those problems and answers, using an iterative process of discussion to refine the categories of problems and identify gaps that would need to be filled by additional review. The authors completed an analysis of the current governance literature with sources including secondary literature from WHO reports, legal documents regarding governance practices, policy documents, and Health in Transition and country reports.

Results: This process showed three key areas in which small states have distinctive problems with a governance dimension. Two problems, in the language of Health Services Performance Assessment, involve the generation and management of resources: procurement of medicines and devices, and workforce. In both cases small size creates distinctive problems with potential governance solutions. One is to do with service delivery, namely organising the provision of services that cannot reasonably be provided within the country. The final one is purely governance: the ability of small states to affect their environment, whether in broad international forums or in relations with larger neighbours. We refer to this category of problem as international voice and solutions to it can help address problems in the other two areas. Policy solutions exist for all of these identified problems including finding common interests and shared solutions with other small countries.

Discussion: Our literature analysis showed that countries within the SCI have four prevalent health care issues within the surrounding context of procurement, workforce, and governance: procuring medicines and services; training and maintaining an adequate health care workforce; providing services that might not have sufficient workforce or economies of scale; and exercising international voice. These issues are often responded to in one or more broad types of governance: procurement through piggybacking off larger countries; formal use of the EU; and the effort to identify common interests and shared solutions. EU member states have far more voice in shaping their environment and a far more integrated broad market than non-members. There are several limitations to this study including the countries' income level, geographical location, and being limited to the WHO's SCI countries. Though small countries face a multitude of challenges, many of these may be overcome through governance policy solutions.

Innovative approach to continuous professional education of healthcare professionals

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Context: Facing ever-increasing challenges, including burnout and staff turnover, healthcare professionals in Serbia necessitate tailored development to help improve their resilience. The Galenika Academy initiated a two-cycle project to enhance organisational and personal skills of participants. The first cycle focused on community pharmacists, addressing development of soft skills and resilience. The second cycle, broadened its focus to encompass all healthcare professionals dealing with burnout and the second victim's phenomenon. A multiprofessional group of experts crafted best educational practices, while implementing a project tailored to meet these crucial requirements.

Methods: Developed collaboratively by the Faculty of Pharmacy (University of Belgrade), EduMed (Association for Continuous Medical Education), and Galenika ad Belgrade, the Galenika Academy has developed a two-cycle approach. The first one, tailored for public pharmacists, featured webinars, accredited tests, courses, and meetings. Topics were aligned with the FIP Global Competency Framework, majoring in Organisation and Management, and Professional/Personal skills. The second cycle expanded resilience education to all healthcare professionals with five webinars and accredited tests for working license renewal. Two nationally accredited courses focused on employee development in pharmacies and resilience for all healthcare professionals. Implementation included delivery of webinars during pharmacies' working hours, *via* EduMed online platform. Accredited tests were permanently available within the Galiverse application facilitating subsequent certification while automated record-keeping ensured compliance with legislative requirements for continuous professional education in Serbia.

Results: Starting in 2021 *via* online platform, Galenika Academy accommodated 25 webinars, 15 accredited tests, two courses, and one meeting. Subsequently, the Galiverse digital application was developed ensuring 24/7 availability of all webinar recordings and tests. Over the period of three years, the evaluation recorded more than 10,000 visits with a consistent rise in participation and a notable 77% success rate in test completions. In the first cycle, the initiative achieved significant engagement, fostering crucial skills. Within the second cycle, over 6,000 healthcare professionals participated in webinars and tests, signifying a widespread dedication to resilience development. This indicates the project effectiveness in extending its impact beyond community pharmacists, and contributing to professional growth of the broader healthcare communities.

Discussion: The Galenika Academy, distinguished as a pioneer in the country and region, has proven its important role in improving daily healthcare practices while cultivating essential skills for the future. Its success is rooted in a tailored approach, aligned with global framework recommendations for critical skills development. It had a favourable impact on various healthcare professionals. Accreditation by the Health Council of Serbia embraced working license renewal while the existence of Galiverse digital application enabled ongoing free access to all educational materials. Future endeavours entail adapting to specific needs of healthcare institutions and evaluating the program's impact on participants resilience while influencing positive healthcare outcomes.

Preliminary results related to the introduction of total laboratory automation for microbiology activities

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Context: Total Laboratory Automation (TLA) systems have transformed diagnostic microbiology by automating specimen processing, plate streaking, incubation, and digital visualisation of multiple specimen types, also providing standardised processing and reducing hands-on time in testing, with important benefit in turnaround time for reporting culture-based tests. Limited evidence exists in the Italian setting regarding TLA sustainability within microbiology (from collection to results reporting activities), requiring an in-depth analysis, with the design of a specific key-performance indicator (KPI) dashboard, paying attention to all the efficiency, economic, social, equity and organisational benefits, useful to support decision-makers in acquiring such innovative technology.

Methods: The KPI dashboard was designed to compare the following scenarios.
- Scenario 1. Microbiological lab: manual streaking, conventional incubation system, automatic ID method (biochemical) and AST instrument.
- Scenario 2. Presence of lab automation solution: streaking with magnetic particles, incubation, digital reading (assisted interpretation), colony picking and automatic MALDI preparation, automatic ID method (biochemical/MALDI) and automatic AST instrument, considering an initial learning curve of the healthcare professionals involved in the use of TLA.

Real-life retrospective and prospective data were collected concerning efficiency, accessibility, and organisational factors, all related to the different phases of total laboratory automation integration, based on specific information already available in the Laboratory Information System (LIS). Data were related to timing to perform microbiology activities, details of inoculation activity and secondary plates processing, and potential processing errors. Data referred to the Di Venere Hospital-Carbonara of Bari (Apulia Region), where the innovative technologies under assessment were introduced in October 2023.

Results: Preliminary results report significant advantages concerning the introduction of TLA for microbiology activities. Focusing on timing and considering a single laboratory shift, TLA would lead to relevant decrease in the overall timing devoted to i) inoculation activities (-44%); ii) reading the plates (-17%), and ii) validate the results (-75%). In general, the time to report presents a 50% decrease for both urine and blood samples. The same benefits are shown regarding the management of secondary plates, specifically about ID picking time, time to MALDI target preparation and time to MALDI results: the above-mentioned activities are thus automated and integrated with TLA systems. From an efficacy perspective, no errors were detected in Scenario 2. In addition, focusing on healthcare professional safety, the number of touch points during the shift form personal involved, has halved over the time, thus reducing the healthcare professionals' risk exposure to potentially infectious and harmful biological materials.

Discussion: Preliminary results demonstrate TLA potentialities in the management of microbiology procedures overall improvement, enhancing the isolation process quality and uniformity, and delivering more precise outcomes in a reduced time. However, the results here presented focused on a time-period in which TLA learning curve is not completed yet, thus being underestimated and with a high potential of improving laboratory performance. In addition, TLA demonstrated a high capacity to empower the efficiency and organisational capacity of the Laboratory, without additional investment in human resources. As such, to make the results more robust, a further real-life data collection will be performed during March 2024, after six months from TLA introduction within the clinical practice. In general terms, an in-dept analysis of this topic focusing within the microbiology setting is relevant, since rapid turnaround times are critical for the treatment of life-threatening infections, for whom an overall optimisation of the process is required.

Which are the organisational, efficiency and patient-specific factors impacting on the length of stay (LOS) in the emergency departments?

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Context: Emergency Departments (EDs) are worldwide critical healthcare services, and their efficiency must be studied, also in relation to hospitals' overall productivity. A key metric is represented by the total length of stay (LOS), from admission to discharge, already studied as an important measure, affecting patients' satisfaction, quality of care, and resources' allocation. Recent studies have highlighted various factors influencing LOS in EDs, ranging from patient-specific characteristics to systemic and operational aspects. The present research aims to quantify how organisational, efficiency and clinical factors could impact on the patients' LOS, starting from the literature but adding real-world specific data.

Methods: Real-life data, referring to an ED located in the Northern Italy, were collected considering a specific time horizon between 01/01/2023 and 31/08/2023, focusing both on adult and paediatric ED accesses (N=39,880 unique ED accesses). A preliminary correlation analysis was performed to understand the relationship among the different variables. Then, a quantile regression model was performed to define a nuanced assessment across different patient LOS distributions (considered as dependent variable). This method provides a more detailed understanding than the traditional mean regression, addressing the heterogeneity in patients' cases and care complexity within the EDs. The considered independent variables are patients' age, number of patients with a red code present in the ED, discharge's typology and priority code defined at the discharge from the EDs, arrival modality, number of healthcare professionals in charge, overcrowding situation measured with the NEDOCS indicator (Weiss et al., 2004). The analyses were performed using R Studio.

Results: The correlation analysis revealed that the number of healthcare services performed (β=+0.03, p-value < 0.05), the patient's code at discharge (β=+0.06, p-value < 0.05), the patients' age (β=+0.12, p-value < 0.05) and the number of doctors in charge (β=+0.09, p-value < 0.05) are positively correlated with the LOS. The NEDOCS score (β=−0.07, p-value < 0.05) has a negative relation with patients' LOS. The quantile regression analysis revealed that the included dependent variable could be considered as significant predictors for LOS (p-value < 0.05, for all the variables). The arrival's mode had the most substantial positive effect, with an estimated coefficient of 77.1, while the number of doctors inversely influenced the outcome, with a coefficient of −5.03. The presence of red code's patients and the number of doctors inversely influenced the outcome, respectively with a coefficient of −0.73 and −5.03. The residual plot reveals a generally adequate model fit.

Discussion: The findings underscore the multifaceted nature of factors influencing patients' LOS in Emergency Departments (EDs). Consistent with previous research (Weiss et al., 2004), the inferential analyses highlight the significant role of efficiency and clinical variables, such as the number of healthcare services performed and the patients' condition at discharge, in determining and affecting the LOS. Notably, the negative coefficient of the NEDOCS score in the regression model aligns with previous studies, emphasising the impact of overcrowding on patients' flow and on the service efficiency (Morley et al., 2018). The inverse relationship between the number of doctors and LOS suggests that increased medical staffing may advance the patients' processing, a finding that confirms the work of Hoot and Aronsky (2008) on ED throughput. The quantile regression analysis provided a complete understanding of these relationships, affirming the importance of considering different patient needs, operational contexts, and organisational features in EDs' management.

Navigating conceptual ambiguity; understanding key concepts in innovation processes in healthcare organisations

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The management of innovation - the process of introducing new technologies, products and processes - is about ensuring that innovations are implemented and have a valuable impact on healthcare practice (Hekkert et al., 2007; Janssen, 2015). Healthcare innovation is a critical driver of progress, enabling the sector to address emerging challenges, improve patient outcomes, and enhance operational efficiencies. Because of this relevance, it is important that there is a certain level of agreement on the central concepts in the debate on innovation management. Currently, the authors see a worrying level of conceptual ambiguity in literature on innovation management, when applied to the organisational level.

Although this may seem a purely academic problem, the conceptual ambiguity has an impact on practice where professionals, managers and others work on the daily enactment of valuable innovations. Conceptual confusion could lead to worrisome outcomes, which is why an improved understanding of the differences between key concepts on innovation management is therefore crucial.

In this research we aim to entangle the diffusion on concepts of innovation on the organisational level, which is conceptualised differently in literature (Van den Hoed et al 2022). Whereas innovation is often conceptualised as a process in which organisations generate, develop, and implement novel ideas or solutions in practice (Janssen, 2015), on an organisational level the conceptualisations differs. In this research we focus on the concept of 'innovation readiness' and 'innovation capacity' in order to understand the ability of an organisation to be successful in innovation on the long term and in a repetitive manner.

'Innovation readiness' encompasses a strategic course for, leadership for, commitment to and a climate for innovation (Van den Hoed., et al. 2022), 'innovation capacity' represents an organisation's inherent ability to generate, assimilate, and utilise innovation effectively and sustainably over time (Prajogo & Ahmed, 2006). Both describe how organisations create an environment conducive to fostering innovation with a slightly different focus: the immediate state to the organisation's broader capabilities.

In this study we aim to bring some conceptual clarity in these different approaches. We do so by a literature study and by organising focus groups with experts in the field. In the literature study we focused on defining the core elements and differences between the most important concepts. In the expert groups we would like to elaborate on the result from the literature. The aim is not to come to a new concept but to show the differences between the main concepts that describe an organisation's ability to innovate.

Although the conceptual differences illustrate the multifaceted nature of innovation we believe, however, that that a clearer understanding of the core concepts could empower healthcare organisations to navigate the complexities of innovation and make meaningful impact that benefit patients, providers, and the entire healthcare system.

Establish a seamless workflow for KK Women's and Children's Hospital (KKH) paediatric patients on the same-day admission (SDA)

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Background: Currently KKH admits approximately 100 SDA patients monthly (average 5/day). Patients are required to go multiples stops before being admitted to OT for elective surgery, and as a results of: Non-standardised SDA admission process; Lengthy bed assignment wait; Prolonged consent and pre-op assessment delays. Solution: 3workstreams established for One Stop Centre (OSC) with streamlined services, reducing motion, and standardising pre-op assessment/reporting times. Three workstreams (Infrastructure, process flow, in-patient flow) established. Utilised flowcharts, defined measures (2 outcomes, 3 process, 2 balancing), and employed control charts to track patient journey and identify areas for improvement. Pre & post MUSIQ Assessment conducted to understand local context impact.

Primary Aim: To reduce average wait time for Same Day Admission (SDA) paediatric patient from Admission to OT from 158mins to less than 90mins by Sept 2023.

Secondary Aim: To review the total time needed for pre-op procedures so to provide more appropriate arrival time which currently >3hrs
Project Start Date: 9 Jun 2022
Project End Date: 28 Sept 2023
Sample Size: All SDA patients, average 5 patients a day, >12months data point

Methodology: Driver diagram was used to identify the primary and secondary causes as well as the change concepts to address the gaps identified. Gantt chart was used to track progress of renovation as well as 5 PDSA cycles were carried out and planned experimentation for each intervention were studied.
- Cycle 1.1: Tested Direct Admission to SDA-WD44 as a holding area for Paediatric SDA cases (1-12 Aug).
- Cycle 1.2: Collected additional data on Admission to OT wait time for Ortho, GS, and ENT SDA cases (Dec-Feb).
- Cycle 1.3: Piloted SDA first cases, direct Admission to OT (Feb, Mar).
- Cycle 1.4: Completed renovation, piloted all SDA cases, informed patients to arrive 1.5hrs before surgery time at one location (May).
- Cycle 2: Standardised pre-op calling template for Day surgery and clinics on assessment, instructing patients to arrive 1.5hrs before surgery time (May).

Results: Ortho, GS, and ENT cases saw a 49% reduction in admission to OT wait time (158mins to 81mins). Process improvements: registration time reduced from 17mins to 16mins, transfer time from admission cut from 34mins to 13mins, clerking and pre-assessment time dropped from 79mins to 31mins. SDA cancellation maintained at 12%. Lastly, with no longer needed to assign bed before surgery, patient need not wait at admission office for long time and better utilised the bed capacity.

Conclusion: With the improved facilities and new workflow, it has provided the team opportunity to explore converting more elective cases to SDA, the committee has analysed the existing data for the 3 specialties (ENT, GS, Ortho) which 27% of the cases could have converted into SDA instead of admitted the day before. This new workflow and converting of cases will also be implemented for other specialties in phases. Both tangible and intangible saving were observed in the improvement, as the cycle times have reduced significantly, staff do not require to constantly attend to the patients to provide updates, doctors do not need to travel far to review patient and consent taking, beds utilisation has improved and more importantly, enhanced the staff and patient experience which provide good reputation and align with KKH mission "To lead in excellent, holistic and compassionate care for Women & Children."

Lessons learnt from the COVID-19 vaccination campaigns in Veneto Region: population vaccination centres as support for the traditional outpatient model

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Context: The COVID-19 pandemic prompted global efforts to accelerate vaccination campaigns, necessitating innovative strategies for widespread administration. This study focuses on the Veneto Region's approach, integrating Population Vaccination Centres (PVCs) with the traditional outpatient model. Among the evolving landscape of the pandemic, this dual-model strategy aimed to enhance accessibility and streamline vaccine administration. The context outlines the rational for this novel approach, emphasising the need for adaptability in response to dynamic vaccination needs and logistical considerations.

Methods: The Veneto Region implemented a drive-in vaccination strategy in the summer 2020, extending into subsequent years, to efficiently administer vaccines during the SARS-CoV-2 pandemic. Equipped with heating solutions and tensile structures, both drive-in and building-based PVCs were endured against adverse weather. The vaccination campaign, organised by age groups, initially prioritised elderly individuals, transitioning to large buildings as vaccine supplies increased. Healthcare workers, volunteers and private entities played a fundamental role in vaccine preparation, distribution, and PVC management. Comprehensive Recovery Campaigns repurposed resources for routine vaccinations, including anti-TBE, anti-HPV, and anti-pneumococcal vaccines. By June 30, 2023 156 anti-SARS-CoV-2 vaccinations for vulnerable target population showed minimal adverse reactions (0.1%). These recovery campaigns highlighted the strategy's adaptability in addressing different healthcare needs.

Results: The Veneto Region innovative drive-in vaccination method demonstrated a remarkable success. The adoption of drive-ins, starting from the external area of Belluno Hub Hospital, also facilitated the administration of 152 anti-TBE vaccine doses in summer season. Thanks to the efficiency and safety demonstrated, additional drive-ins were activated in various provincial areas, enabling the recovery of adolescent vaccinations and managing the anti-flu and anti-pneumococcal campaigns. The success continued over 2021, with new drive-in centres facilitating the administration of over 300,000 doses of the anti-SARS-CoV-2 vaccine. The drive-ins also fitted for anti-TBE vaccination sessions and vaccinations covered by the Italian immunisation schedule. Notably, an open-day in March 2021 recorded 2028 vaccines administered within four active drive-ins, equivalent to one vaccination per minute. In 2022, a decrease in anti-SARS-CoV-2 vaccinations allowed increased use of PVCs for routine vaccinations, and in 2023, PVCs continued managing anti-TBE campaigns, vaccinations intended for adults, and catch-up for adolescents, with 19,843 administrations recorded in the first six months of 2023. The anti-SARS-CoV-2 vaccination campaign posed unprecedented organisational challenges, requiring a substantial effort coordinated by the Prevention Departments across Health Authorities. The experience gained becomes an essential element for future pandemics, ensuring readiness for population vaccination campaigns, as outlined in the new regional pandemic plan (PANFLU) in Veneto. The dynamic nature of the campaign, influenced by fluctuating vaccine availability and different demand across age groups, necessitated agile vaccination solutions.

Discussion: The comparison with the traditional outpatient model showed that the adopted innovative solutions, requiring additional logistical support, enabled the delivery of triple the number of vaccinations in a single day. The drive-in method improved accessibility, reaching different population targets, including the elderly and those with reduced mobility. The extraordinary anti-SARS-CoV-2 vaccination campaign prompted a re-evaluation of traditional operational models, emphasising the need for the sustained use of innovative practices in routine vaccination. Our experience also highlighted the importance of effective communication channels, digital transition, and collaborative partnerships with the private industry - a valuable paradigm shift for the health promotion. Similarities with other international experiences underscore the generalisability of these outcomes, supporting the effectiveness of the adopted strategies in distinguished contexts.

Health technologies and digital transformation: a bibliometric analysis of the 100 most cited articles

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Context: This bibliometric analysis aims to identify and highlight the 100 most-cited articles with significant effects on crucial topics in the academic literature on health technologies and digital transformation. This study seeks to create a valuable resource for researchers, academics, and industry professionals by defining key sources in this field. By focusing on articles that stand out with citation numbers, this bibliometric analysis intends to emphasise pioneering works in the academic literature on health technologies and digital transformation. The aim is to assist researchers, academics, and industry professionals in identifying essential references in this rapidly evolving field.

Methods: In the study, the three stages of the bibliometric mapping method, one of the bibliometric analysis methods, namely study design, data collection, and data analysis, were followed. During the data collection process, the Web of Science database, commonly used among bibliographic databases, was employed according to the determined scanning strategy. The research was not subjected to time or language limitations. The search conducted in the databases resulted in a total of 1055 items, which were then arranged starting from the most cited. After applying inclusion and exclusion criteria, independently by two researchers, the top 100 most-cited studies were included in the analysis through a joint decision. The R-based bibliometrix program was used for data analysis.

Results: As a result of the analyses, it has been observed that the annual scientific production of the studies on the subject has increased since 2012, with an annual growth rate of 4.89%, and the average article age is 6.54 years. It has been noted that the average number of citations per document is 68.45. The average citation count per document was 4.7 in 2017 and increased to 46.8 in 2023. International co-authorship was found to be 37%. According to the analysis based on Bradford's Law, the most influential source in the list of core sources is the Journal of Medical Internet Research (n=7). Cooperation between countries was mostly between the United Kingdom and Germany (n=7). The most cited countries are the USA (n=2291) and the UK (n=1219), China (n=693) respectively. The first three most frequently used keywords are system (n=19), management (n=13), technology (n=10), big data (n=9).

Discussion: Health technologies and digital transformation have emerged as indispensable cornerstones within the contemporary healthcare landscape. Scientific inquiry within this domain has played a pivotal role in comprehending the far-reaching implications of these technologies on diverse facets of healthcare, including hospital management, patient care, diagnostic methodologies, and overall healthcare services. The outcomes of these investigations yield profound insights that prove instrumental for researchers and industry professionals grappling with the intricacies of health technologies and digital transformation. In essence, these findings serve as a compass, guiding stakeholders through the dynamic expanse of this evolving field. In conclusion, the results derived from the bibliometric analysis offer a valuable lens into the prevailing state and trajectories of research in health technologies. The discernible trends of escalating citation impact, burgeoning international collaborations, and the identification of influential sources and keywords collectively furnish a strategic roadmap for researchers and industry practitioners navigating the swiftly transforming terrain of health technologies and digital transformation.

Efficiency of the single visit model in dental care in comparison to care plan-based models in Finnish municipalities

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Context: Long waiting times and congestion have long been an issue in Finnish public dental care. Insufficient resources are often proposed as the reason for these issues. In this study, we compared the efficiency of the care plan-based model of working in Finnish municipalities to the single visit model in use by a private provider, which aims at producing everything that is needed by a routine patient in as few separate visits as possible. In addition to differences in efficiency, we aimed at defining the percentage of patients requiring only routine treatment in the municipalities that could in theory be treated using the single visit model.

Methods: This study is a registry-based data-analysis, which used data gathered from patient information systems on patient visits and the procedures done during those visits. In addition, data on resources used as full-time equivalents (FTE's) was collected. The data on municipal dental operations was gathered from the Finnish cities Jyväskylä and Espoo between 1.1.–31.12.2013. The data on the single visit model was collected from the private dental clinic Hygga (then Megaklinikka) from the same time period. Experts in dental care were utilised in choosing the correct outcome measures and to make sure the datasets were comparable. Procedures were case mix adjusted.

Results: The single visit model allowed for almost double the number of procedures to be produced per full-time equivalent when compared to the municipalities. On average, between four and five procedures were done on both the patients of the municipalities and those of Hygga. During a single visit, the single visit model produced on average 80% more procedures, resulting in 44% less visits per patient when compared to the municipalities. Out of all the municipal adult patients, a majority were classified as routine patients.

Conclusions: The current model of working in Finnish public dental care is not the most efficient one in treating all the patients. The single visit model offers a clearly more efficient way of treating routine patients. A clear majority of adult patients required only routine treatment. By utilising the single visit model to fulfil the routine needs of municipal dental care, we could most probably increase the overall efficiency of the Finnish public dental care.

Adoption and Scale-Up Framework for innovative interventions and its adaptation to SAVE-COR

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Context: SAVE-COR project, co-funded by EIT Health (EITHealth PGA220385), started in 2021 to address existing limitations in the diagnosis and treatment of arrhythmias, by introducing an innovative non-invasive cardiac mapping technology, to improve efficacy of clinical interventions, reduce costs associated and improve quality of life. One third of adults are projected to suffer at least one cardiac arrhythmia during their lifetime (Hindricks et al., 2020). Innovation is key for improving quality of care and outcomes. Furthermore, there is a need to understand the innovation adoption process and to implement systematic innovation management in healthcare covering the entire process (Flessa et al.,2021).

Methods: For that purpose, the Adoption and Scale-Up Evaluation Framework was defined, improved and applied across several co-funded pre-commercial procurement, public procurement of innovation, community of practice, innovation adoption and education programme actions coordinated and/or participated by the Innovation and Prospective Unit at AQuAS (Figure 1). These steps are key to deploy and implement an innovative intervention that responds to an unmet need obtaining the expected results going through the sequential assessment of the demand needs, the market readiness and feasibility, the demand feasibility and viability and the intervention assessment and appraisal. The Adoption and Scale-Up Framework was developed as a self-evaluation tool and was completed by SAVE-COR key stakeholders specifying details and the grade of development at each stage.

Results: The Adoption and Scale-up basal self-assessment showed the status of SAVE-COR interventions. The need desirability assessment domain showed additional effort was necessary to correctly define the clinical demand. Key actions were performed to define and prioritise requirements and define the different pathologies journey maps according to different stakeholders (patients, healthcare professionals and technology provider). The application of the theory of change identified the expected results and enabled the generation of the business case for SAVE-COR interventions. The assessment of the innovators readiness and feasibility showed that no further actions were required. Now, SAVE-COR interventions are ready to perform the next steps to assess the adopters feasibility and viability. Furthermore, SAVE-COR interventions were classified according to their adoption and scale up readiness level (Figure 2).

Discussion: SAVE-COR project is an ambitious project aiming to define the adoptability model of a novel solution enabling to non-invasively identify the cardiac regions where a patient's arrhythmia originates. SAVE-COR interventions adoption will impact healthcare professionals through the entire arrhythmia pathway and patient outcomes. The Adoption and Scale-Up Framework is a novel framework that allows the assessment of innovative interventions and plan key actions to prepare them for future Adoption and Scale-Up. Each domain and subdomain maturity may vary depending on the innovative intervention being assessed and who is leading it. In SAVE-COR project the leader is Corify Care, an innovative company who is looking for the strategic fit of their novel technology. The Adoption and Scale-Up Framework has the potential to be a tool to systemise innovation adoption and management in the healthcare sector.

"Primum non nocere" - why do some patients not benefit from their GP visit?

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Context: Patient Enablement Instrument (PEI) is a PROM, used to measure the outcomes or quality of healthcare services. Tolvanen (2020) validated a single-item version, which consists of the question "As a result of your visit to the doctor today, do you feel you are able to cope with your illness…" and options range from "much better" (2) to "less" (-1). It seems worrying that some patients don't seem to benefit from the visit vis-à-vis coping, and some are coping even worse than before. Our research question is: what sorts of patients do not benefit from their visit, as measured via PEI?

Methods: This is a quantitative, explorative study. The private healthcare provider Mehiläinen uses PEI in both publicly and privately funded services via SMS. In this research, we will utilise Mehiläinen's PEI data, NPS data, and EMR data from years 2021-2023 to study the details of the visits which resulted in a 0 or -1 PEI score to find out if some commonalities can be found. For example, are there demographic similarities? Are certain diagnoses more likely to yield a non-beneficial visit? Is it a patient experience issue, that is: does the low PEI coincide with a low NPS? Do these patients return within the next few years (and is there a difference in this aspect between publicly and privately funded services)?

Results: The data is being gathered and results will be available in late 2024. Some preliminary results will likely be available by the time of the conference.

Discussion: The aim of this study is to improve services through knowledge of the factors that contribute to a GP visit being assessed as non-beneficial (or even harmful) by the patient. A preliminary analysis by Mehiläinen shows that as many as 24% of patients score 0…-1 on PEI, which raises concerns about the effectiveness of care. By shedding light on the underlying factors of these poorly rated visits, we expect to enable the service provider to increase the effectiveness of their services, which is of particular importance in publicly funded services. While the portion of -1 scores is low in the preliminary analysis, it is particularly worrying, and raises questions about patient safety as well. "Primum non nocere" does not seem to *be a reality for these patients.*

Towards a comprehensive framework for assessing and adopting genomics innovations in cancer across Europe

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Context: The health-tech sector has made significant strides in cancer healthcare, leading to wide improvements in diagnostic technologies & treatments. Notably, genomics has advanced cancer services comprehensively. Despite progress, implementation across EU health systems poses challenges in equity, accessibility, and sustainability which are addressed in the EU's Beating Cancer Plan (EBCP). The EBCP funded Can.Heal project (EU-funded GA: 101080009) plays a pivotal role in developing genomics use cases and needed infrastructure, both for public health as well as clinical applications, and aligned with the plan's initiatives. It focuses on ELSI requirements, training, liquid biopsy standards, and evaluation frameworks for value-based innovations in public health genomics and clinical diagnostics & treatments.

Methods: The Can.Heal project envisioned a specialised task force comprising three institutions each focused respectively on one of the evaluation dimensions: equity, innovation adoption & scale-up readiness (IASR), and Dynamic Multidimensional Impact Assessment (DMIA). This effort aimed to create a unique and innovative framework for assessing the adoption of value-based innovations, addressing equity issues, and health technology assessment concepts. The collaborative assessment intends to recommend a roadmap for successful adoption and scalability, emphasising equity and sustainability within the Can.Heal project and transferable to health-tech ecosystems (Figure 1). To our knowledge, there aren't similar initiatives ongoing. The framework's primary outcome is a tool, segmented into three dimensions and further broken down into domains and subdomains. This structure addresses specific topics within each dimension by grouping statements, allowing for a comprehensive set of key actions throughout use cases development. Each statement's performance is assessed in defined/planned and executed/delivered categories.

Results: Crafted meticulously through interactions among members and engagement with stakeholders, the framework unfolded in three stages: teams frameworks' upskilling, basal assessment via questionnaire and follow-up assessment based on adherence to tool conclusions. The collected information will be systematically analysed and conclusions delivered to use cases teams to enforce it. Grouping statements into dimensions provides a holistic view, and qualitative comments enrich the overall perspective (Figure 2). The scoring methodology considers quanti-qualitative aspects. This comprehensive approach, involving scores and Can.Heal stakeholders feedback, contributes to crafting a robust roadmap. The roadmap will be reassessed to measure adherence to key actions recommendations and track progress. To evaluate the framework, a set of indicators has been designed and Can.Heal stakeholders sessions are planned to assess its functionality, ensuring a thorough examination of its effectiveness.

Discussion: The evaluation of Can.Heal use cases surpass traditional assessments, focusing on an integral perspective for innovative interventions, accelerating their implementation across health systems. The equity perspective ensures interventions avoid biases and misrepresentation through collaborating with social experts to address gender, cultural, socioeconomic, and religious issues. The DMIA perspective in genomics considers organisational efficiency, data reuse, and sample management, beyond clinical and economic aspects. The IASR perspective proposes comprehensive actions; ensuring components align with desirability, viability, and feasibility. Noteworthy is Can.Heal's unique composition with over 47 public EU-entities fostering innovation. The framework aims to serve as a roadmap, adhering to common European principles while accommodating national and regional health ecosystem particularities. Evaluating adherence to equity and sustainability, the framework comprehensively addresses these concerns from design to delivery. Embracing a value-based healthcare perspective, it measures defined needs, stakeholder engagement, and feasibility, outlining an optimal pathway for successful intervention deployment. This Framework can support next research steps, and steering towards cost-effective and accessible technologies in oncology.

The creation of a cost indicator and the implementation of green energy policies in Italian healthcare: a case study

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In recent years in Italy, we have assisted a marked acceleration of energy policies in the public sector, including healthcare. The debate surrounding energy efficiency policies in healthcare companies has been extensive, primarily due to the challenges in curbing energy consumption (Coccagna et al., 2017; Dion & Evans, 2023; McGain & Naylor, 2014). The need to move towards an environmentally and economically sustainable system has led to the implementation of new policies to reduce excessive consumption, self-produce energy, and use alternative sources to fossil fuels (García-Sanz-Calcedo et al., 2018; Hussain Khahro et al., 2021). To measure and evaluate the efficiency and savings derived from these actions through the years, it is necessary to create new energy performance measurement indicators.

The Region of Tuscany has developed an indicator for measuring energy costs in local health authorities. This indicator at the numerator considers the summer and winter temperature and the expenditure for the supply of electric and thermal energy, adjusted for the coefficients of the electric and thermal energy consumed and the price revision coefficients of power and fuels, and provides for the volume of the heated gross in the denominator.

The indicator was used experimentally as a case study in the hospitals of the South East local health authority in the years 2021 and 2022 and showed a reduction in the index in all facilities involved. Semi-structured interviews were also administered to top management and energy managers to verify which strategies have been adopted to reduce consumption and the role of the indicator in measuring and implementing these strategies.

These actions also involve changing staff behaviour through awareness-raising with specific campaigns, such as 'Mi illumino di meno' (I light up less)and the inclusion of energy efficiency actions in the company's code of conduct. The implemented actions also include producing energy from renewable sources, such as photovoltaic and cogeneration systems, and replacing traditional lighting fixtures. These good practices, combined with the infrastructural changes, have reduced electricity consumption in 2022 by 19 percent compared to 2021, with a quantifiable cost saving of approximately EUR 4 million, bringing self-production of the same to 25 percent of the total. These values, for the public sector, are undoubted of particular relevance, especially intending to reduce operating costs. In conclusion, this study shows that the implementation of energy-efficient practices in healthcare can lead to several benefits, including cost savings and a reduced carbon footprint.

Digital transformation of the managerial processes in healthcare organisations

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The COVID-19 pandemic, combined with the mounting pressure to improve patient outcomes, reduce costs, and enhance overall efficiency has represented a relevant push towards the digital transformation of healthcare organisations (Raimo et al., 2023). This last can be defined as the innovative use of emerging information and communication technologies that causes an organisational change aiming at improving existing processes or initiating new ones in modern organisations (Pihir et al., 2019).

Despite the fact that the topic has also assumed an increased relevance in the academic debate over the last two decades (Dal Mas et al., 2023; Sony et al., 2023; Kraus et al., 2021), literature is still lacking in terms of: i) studies aiming to map the general level of digital transformation within healthcare (Raimo et al., 2023); ii) research investigating the use of digital technologies within 'hospital supporting processes' (Tortorella et al., 2020); iii) empirical research that does not merely provide conceptual analysis and literature reviews (Aceto et al., 2018).

Starting from this, our paper aims to answer the following research question: what is the degree of adoption of digital technologies within managerial and administrative supporting processes within healthcare organisations?

To this aim, the research will employ a quantitative methodology and will focus on the Italian National Health Service (INHS) as documented as one of the best performers in terms of spending and outcomes (OECD, 2021). Specifically, the research collects data through a survey administered to the entire population of Chief Information Officers (CIO) of the Italian public health organisations. Questionnaires focus on the most used technologies in the healthcare setting (Tortorella et al., 2020) and explore their usefulness with regard to primary support processes and secondary processes of Porter's Value chain (Tortorella et al., 2020; Porter and Teisberg, 2006).

As such, the results provide a comprehensive framework that may guide research and practitioners on the adoption and utilisation of new digital technologies in healthcare organisations.

Dealing with performance management in health prevention services: a simulation-based approach

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Performance management (PM) in the healthcare sector has been widely adopted and studied since New Public Management reforms implementation (Nuti et al., 2018; Vainieri et al., 2020). According to an instrumental view, performance has been framed and measured in terms in resources, output and outcome (Lega, 2020; Noto et al., 2021).

Although some care setting, such as the hospital one, successfully managed to implement PM practices and have largely benefited from their adoption (Aidemark, 2001; Lega & Vendramini, 2008; Elg et al., 2013), the prevention setting has struggled in doing so. The reasons are multiple and related to the intrinsic complexity of prevention activities (Noto et al., 2023).

One of the key obstacle in managing performance of prevention activities and responsible bodies is related to measurement issues (Hunter, 1990; Ingram et al., 2012; Noto et al., 2023). First, differently form other healthcare services whose outcomes refers to individuals' health, prevention activities contribute to community-outcomes – i.e. we do not know who will benefit directly from the services. Second, the outcomes of health prevention may refer to the non-happening of an undesirable event (e.g. an epidemic, pandemic, etc.). Third, the long latency of some diseases and the long period that may exist between prevention interventions and impacts determine significant delays in the achievement and measurement of outcomes. Fourth, multiple factors outside the direct control of the healthcare system (e.g. epidemiological characteristics, lifestyles, etc.) make challenging to determine and isolate the contribution of the activity performed by the involved organisations. Fourth, prevention results depends on the activity of multiple stakeholders, both public and private ones. Due to these factors, current PM framework for prevention activities are mainly focused on the outputs (e.g. number of inspections, number of vaccines delivered, etc.) accountable to every actors involved.

To include community-based outcomes in PM system for prevention activities, this research proposes the adoption of simulation techniques. Simulation may support decision-makers in understanding how addressing intermediate results (i.e. output), may contribute to the long-term end-results (outcome) achievement. As such, simulation allows to test alternative policy options and scenarios when real experimentation would be impossible due to the characteristics of the analysed system (Sterman, 2014) – long latency of diseases, delay between actions and impacts, institutional fragmentation, etc.

To address the research objective, this study combines the instrumental view of performance with System Dynamics (SD) – a simulation technique developed by J.W. Forrester (1958) to cope with industrial and social complex systems. This approach is adopted to explore the case of chronic disease management in an Italian regional health system.

As a result the research shows that combining PM with simulation techniques may empower decision-makers when dealing with uncertainty related to measurement issues. In particular, by understanding the long-term impacts of prevention initiatives, decision-makers at various levels may redefine PM output-targets to guide organisations toward the achievement of desired and sustainable community-outcomes. Moreover, simulation results may represent an useful benchmark to monitor performance overtime.

Different kinds of unwanted variability and measures in the handover process between hospital and temporary recovery care

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Context: What makes that patients that are medically ready for discharge are waiting in the hospital even if there are empty places in the temporary recovery care (TRC) for these patients? While it is acknowledged that variability is a major cause of underperformance, there are hardly any studies that give deeper meaning to the different kinds of unwanted (non-natural, artificial) variability and suggest solution directions to eliminate this variability in order to improve the patient flow between hospital and TRC. This study aims to contribute to literature by identifying practices to eliminate different kinds of unwanted variability in the handover process.

Methods: We have conducted a single case study in the setting of Treant hospital and TRC locations using qualitative methods with different sources of data collection. We analysed documents (e.g., project documents, minutes of steering group and working group meetings, meetings with the project manager and project chair, presentation slides and conversation reports) and observational field notes of steering group and working group meetings. Analysis has been conducted thematically, looking for patterns in different kinds of unwanted variability and measures to improve the performance of the handover process. In February and March 2024 we will supplement this data with data from semi-structured interviews with about 25 healthcare professionals (transfer nurses, coordinating TRC nurses, nursing home physicians, care intermediaries, coordinating hospital nurses, hospital physicians and managers) that are closely involved in the handover process from the hospital to the TRC. The findings will be validated in a focus group with participants of the steering group.

Results: The handover process from hospital to TRC proved much more complex than expected. We identified from the documents and field notes 29 sources of unwanted variability and categorised these in five different types of practices to eliminate variability: (1) define and raise awareness, (2) standardise procedures, (3) integrate by sharing information and team up, (4) centralise and redesign involved functions, (5) make policy choices that may limit autonomy of healthcare professionals.

Discussion: In operations management literature, Litvak and Long (2000) distinguish natural and artificial variability. They point out three kinds of natural variability: clinical variability, flow variability and professional variability. Artificial variability they describe as self-imposed measures that cause inefficiency unnecessarily. McManus et al. (2003) indicate that artificial variability must be eliminated while natural variability must be managed. Drupsteen et al. (2013) point out that four practices can improve patient flow in hospitals: sharing waiting list information, sharing planning information, cross-departmental planning and combining appointments. We make an academic contribution to a greater understanding of artificial variability in the handover process between the hospital and TRC and provide rich descriptions of five types of practices that go beyond Drupsteen's information sharing and joint planning. Centralising tasks, redesigning functions and making smart policy choices can reduce sources of unwanted variability and improve the flow in the handover process from hospital to TRC.

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The added value of telemonitoring for the integrated management of chronic obstructive pulmonary disease (COPD): a systematic literature review

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Background: Chronic diseases are defined as conditions characterised by a progressive and irreversible decline in normal physiological functions over time. Worldwide one of the currently most prevalent chronic disease in the adult population is the chronic obstructive pulmonary disease (COPD), representing the third leading cause of death. The COPD is a respiratory disease characterised by irreversible airway obstruction, varying in severity. It is characterised not only by a negative impact in terms of patients' quality of life but also by a social and economic burden on healthcare systems. Currently there is no effective cure, but several treatments are available to control symptoms and avoid dangerous complications. The Covid-19 pandemic has highlighted a need to revamp health care systems for an ever-increasing introduction of Digital Health as it enables to better manage chronic conditions.

Aim: This project aims, identifying and analysing the current available scientific evidence in the literature, to define the added value of implementing Digital Health instrument, and in particular the telemonitoring, in the current clinical pathway of patients with chronic obstructive pulmonary disease (COPD).

Methods: The systematic literature review will be conducted in the following databases: Web of Science, Scopus, Embase, PubMed/MedLine, Cochrane Library, and International HTA Database (INHTA). The literature search will aim to identify and analyse all studies published between 2012 and 2023. The identified studies will undergo two stages of screening. The first screening will be through the evaluation of the title and abstract. The second screening will be based on full-text evaluation. Both screening phases will see the exclusion of studies consistent with the following exclusion criteria: not in English or Italian; no relevance to the technology under study; no relevance to the condition under study; full-text not available. Once the most relevant studies to the project have been identified, the following information will be extracted and reported in an Excel spreadsheet: first author, title, year of publication, type of study, study result, and limitations.

Preliminary results: The search identified a total of 1957 articles, which were then subjected to the first phase of screening. This phase involved an initial elimination of 584 duplicates, and a subsequent title and abstract analysis for a total of 1373 articles. At present, the two screening phases are being carried out by two double-blind reviewers.

Conclusion: The gradual aging of the world's population in developed countries poses significant challenges for healthcare systems, primarily the fight against chronic diseases. For this reason, there is an increasing need to research and define the added value of digital transformation, such as telemonitoring, in the integrated management of patients with chronic diseases.

Enhancing healthcare continuity: design principles for addressing patient journey disruptions

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Healthcare systems globally face the challenge of rising costs and an increase of chronic patients. Disruptions in patient journeys, particularly in long-term care, significantly impact care outcomes and costs. These disruptions can lead to care discontinuity, where the patient's care ends prematurely and, thus, the delivered care deviates from intended care. Previously, causes behind the discontinuity of chronic care have been identified, and a framework to classify these reasons has been proposed in our previous study. By grouping these disruptions with our framework, tailored interventions can be developed to address specific challenges in communication errors, technological glitches, and other operational aspects. Now, we apply our framework to identify possible solutions to mitigate care discontinuity.

Employing a mixed methods approach, we analysed two qualitative datasets from distinct healthcare contexts in Finland. Dataset 1 involved a focus group and interviews with healthcare professionals, and a survey with chronic gastrointestinal patients in private healthcare. Dataset 2 comprised semi-structured interviews with home care clients and professionals, along with a workshop involving healthcare professionals. First, the datasets were coded and thematically analysed using ATLAS.ti independently. The insights from the analysis were compared and contrasted with each other using an online collaboration software Miro. The findings were grouped relating to their underlying constructs. These constructs were taken from our existing framework "Reasons Behind Discontinuity of Chronic Care".

The applied framework "Addressing Discontinuity of Chronic Care" divides our findings into two main categories based on the actor; (1) healthcare system related solutions, and (2) patient related solutions. Healthcare system related solutions can be divided into three sub-categories; (1) process solutions, (2) caregiver solutions, and (3) technological solutions. Patient related solutions can be divided into two categories; (1) situational solutions, which care organisations have limited control over, and (2) internal psychological solutions.

Our analysis identified key design principles for healthcare service development aimed at mitigating chronic care discontinuity, grouping them into a novel framework integrating insights from diverse healthcare contexts. Our study contributes to the understanding of healthcare systems and offers design suggestions for targeted interventions for healthcare managers, filling a gap in current healthcare process management literature. Our findings include focusing on having a standardised accessible care and service plan, defining main objectives of care together with the patient, and clarifying roles improving guidance for each actor. This study also opens avenues for future research in refining these interventions and exploring their applicability in broader healthcare contexts with different chronic diseases and also non-chronic diseases. Many of the found solutions have a common underlying theme of improving communication and knowledge exchange between the different actors in a care process. We suggest knowledge exchange barriers to be studied in future research.

The impact of socioeconomic factors on long-term sickness absence among benefit claimants in Romania

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Context: The first stage of this national analysis of the factors influencing the length of sickness benefits showed direct evidence in favour of the importance of the pathology and of the influence of the socio-economic status. The aim of this 2nd stage is to analyse in detail these risk factors and discuss possible benefits of the findings.

Methods: This cross-sectional study assessed 4239 demands for long-term sickness absence benefits (over 6 months) between January 1st – December 31st 2021. "Severity rate", representing the mean number of sick-leave days/person was used as one of the most common ways of measures of the condition severity. The information was collected from the National Institute for Medical Assessment and Work Capacity Rehabilitation Bucharest (INEMRCM the Romanian abbreviation) registers and the EXPMED application. Age, sex, residence, level of education, type of work and the number of sick days requested and granted in each case were assessed. Medical cause for sickness absence was coded according to ICD-10. Four categories characterised client's condition at the end of the sickness absence period: fully or partially return to work (part-time job), completely work disabled or old age pensioners. Multiple linear regression was used to assess the estimated effect (regression coefficient) using PSPP software.

Results: Men had longer period of sick leave compared to women ($p < 0.001$). People predisposed to using a longer period of sick leave had higher functional impairment ($p = 0.002$), and mainly traumatic or musculoskeletal diseases, representing 3180 (75.14%) from the total number of benefit requests. They had a lower level of education ($p = 0.019$), mostly manual work ($p = 0.005$) and were from less developed regions ($p < 0.001$). Occupation (B coefficient=1.42; 95%CI for B=0.18–2.66; $p = 0.025$) and regional development (B coefficient=5.47; 95%CI for B=4.45–6.49; $p < 0.001$) were most strongly associated with long-term sickness absence. Level of socio-economic development was statistically significant also when adjusted for sex. Age had no influence on sick leave duration.

Discussion: People having less qualified jobs and living in disadvantaged regions are prone to long-term sickness absence. They might benefit from social services adapted to their needs to improve health and life in their communities. This information may be useful both to the social insurance physicians and occupational medicine physicians as well as managers and local authorities, who probably should take concerted action to avoid prolonged work incapacity.

Challenges and demographics of a ToT (Training of Trainers) program in health care management in Romania

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The WHO EURO and Romania's Ministry of Health collaboratively implement the Recovery and Resilience Plan, focusing on health services and human resources management capacity building. Central to this initiative is the transformation of the National School of Public Health and Health Management into the National Institute of Health Services Management. This reformation aims to enhance health reforms and provide comprehensive management training. After an initial assessment of the programs offered by the institution and a review of the most performing professional development programs for health care managers in the EU, a four-year plan was implemented (2022-2025).

In a major stride, 1000 Romanian health care managers, encompassing hospital and local health authorities' leaders, are undergoing a newly developed Health Care Management curriculum. This curriculum, crafted by a consortium of prestigious universities (IESE Business School Barcelona, Nova University of Public Health, UNIMI Milan University), entails a thorough assessment of existing NIHSM curricula and the specific knowledge and skills required by healthcare managers. A pivotal element is the ToT program, training 120 Romanian experts across key management domains between September and December 2023, encompassing public health, ethics, leadership, and digital transformation. In the next phase, between 2024 and 2025, these trainers will deliver regional-level courses using the newly developed curricula consisting of 60 modules on different areas of health care management. Additionally, 3000 health care workers will be trained in ethics and integrity, focusing on procurement, prevention of corruption and addressing conflict of interest in the health care system.

This poster presents the ToT program's organisational framework, demographics, and trainer feedback, setting the stage for a detailed future paper. Conducted in Bucharest at NIHSM, the program involved 16 international professors and catered to 35-40 participants per module. Some of the participants attended multiple modules, having around 200 final participants, from which 120 unique. Notably, 66% of participants were Bucharest-based, with significant representation from Romania's major medical universities. Gender demographics showed a predominant female participation (70%), with 92% having a medical background. The gender split is consistent with other projects looking on health care management in Europe- for example 73% female (Ivankovic et al., 2020). The program's success is reflected in high feedback scores for course quality (4.7/5) and administrative organisation (4.8/5).

Feedback highlighted the program's excellence and identified areas for enhancement. Participants noted the intensity of consecutive weekly modules during the academic year as challenging. The selection process for certain modules revealed gaps in aligning participants' expertise with project stages. Future iterations would benefit from a more geographically diverse participant pool, crucial for the widespread dissemination of training across Romania. As a future step, before the roll-out of the 4000 trainings, a selection of the participants (30 – 25%) will attend a second part of the program – a two weeks long visiting scholar program within the three universities involved in the ToTs.

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Mapping the patient journey in reproductive medicine: improving patients experience and care efficiency

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Context: More than 10% of couples suffer from infertility, a disease that is often neglected by health practitioners, resulting in delay to refer these patients to specialised healthcare. In addition, fertility literacy is poor among the general population, in part explaining the difficulties encountered by patients during their journey through reproductive medicine units, from investigation to treatments. Both patients and health practitioners demotivate with the bureaucracy associated with appointments and exams schedule, which repeatedly defer treatments and augment patients' anxiety. Therefore, we aimed to characterise the patient journey and to identify opportunities for improvement.

Methods: This study was conducted in the Reproductive Medicine Unit, at Centro Hospitalar e Universitário de Coimbra (CHUC). We conducted a deep analysis of the whole journey, interviewing patients and healthcare professionals, to identify the main current challenges. Our key stages included referral, initial assessment, assisted reproduction treatment, follow-up, and outcomes. Health indicators and determinants were collected and analysed, including access and time to first appointment, duration of initial assessment, and time from initial assessment to treatment. Also, patient's perspectives and testimony were considered, along with recorded medication errors (e.g., dosage, schedule) that may comprise all treatment.

Results: Currently, patients await around 10 months for the first appointment, which involves gathering medical history and lifestyle information. Investigation of female factors include blood test analysis and ultrasound examination that must be performed in specific days of the menstrual cycle. Therefore, scheduling is challenging because it must reconcile patients' information about menstrual cycle and healthcare staff availability. In fact, both ultrasound and treatment scheduling are responsible for multiple contacts (telephone/email) between patients and our unit, being time-consuming and having a low efficiency. Consequently, there is an unnecessary delay of around 4-5 months until treatment, which contributes to patients' anxiety and difficulties in fully understanding their journey of care. Solutions may involve the implementation of a patient-centric approach, leveraging information technology for appointment scheduling and educational resources. Particularly, we will seek to implement the 'one-step clinic', where patients would have their first appointment and perform diagnostic test at the same day.

Discussion: Our project emphasises the importance of involving a multidisciplinary team and collaboration with healthcare professionals and patients in problem-solving. It also provides insights into specific challenges, such as delays in diagnostic test scheduling and difficulties in medication adherence, proposing solutions like an online scheduling system and improved information and emotional support. In conclusion, this research aims to transform the patient journey in reproductive medicine through digital technologies and patient-centric innovation to overcome current pain points. The proposed changes aspire to create a more efficient and patient-focused experience, ultimately enhancing the quality of reproductive healthcare.

Listening to the voice of patients and significant others on cancer services in Malta: a longitudinal qualitative study

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Context: Cancer is an international health priority and a major cause of morbidity and mortality. A growing and ageing population is contributing to a steady rise in the incidence of cancer. A quarter of global cancer cases is estimated to be in Europe (2.7million cases in 2020), with an expected increase by 24% till 2035. Improvements in healthcare systems such as the provision of screening tests led to better survival rates, with cancer being considered as a chronic disease. This will therefore place greater pressure on existing healthcare service providers. At least one-fifth of total healthcare expenditure is wasted on inefficient care that adds no value to those receiving it, resulting in potentially wasted resources. To inform delivery of care, this research aimed to explore the patient's experience of the healthcare system whilst undergoing antineoplastic treatment for colorectal cancer. The perspectives of both patients and significant others over a period of time were considered.

Method: Two parallel longitudinal qualitative studies were performed with patients and their significant others over a six month time-period. Individuals initiating treatment for colorectal cancer with either FOLFOX (12 cycles) or XELOX (8 cycles) at the National Oncology Centre in Malta were asked to participate and each nominate at least one significant other. The latter was in the patient's opinion be highly involved in their care. In-depth interviews were conducted with patients (every 12 weeks) and their significant others (every 24 weeks) starting at the patient's initiation of treatment. Interviews were transcribed verbatim and thematically analysed.

Results: A total of 32 participants [patients (n=16) and their significant others (n=16)] were interviewed. Most participants were females receiving FOLFOX (n=10). Six significant others were spouses. Three themes were identified: "patients' experiences of cancer services", "healthcare professionals' communication with patients and others" and "recommendations for services". Both patients and significant others were overall satisfied with the cancer services throughout the treatment journey, particularly praising the personalised approach of the nurse navigator. Negative experiences by patients were mainly related to misdiagnosis or delay in diagnosis due to long waiting lists or loss to follow-up. Along the treatment journey, patients were noted to be highly sensitive to the words spoken by healthcare professionals. Despite being supported by a nurse-led information session, patients and their significant others felt overwhelmed by the amount of generalised information given, which was not tailored to their specific needs. Participants suggested cancer care services are provided in the community setting, such ambulatory care services.

Discussion: Timeliness of diagnosis and prompt accessibility to healthcare services were identified as crucial in cancer care. Patients' needs extended beyond the availability of cancer treatment and a "one size fits all" approach was considered unsuitable. Soliciting both patients' and significant others' perspectives broadened understanding of the patient's experience with cancer services. This informs healthcare professionals and policymakers to focus resources on what matters to patients.

The potential of Virtual Reality: enhancing dental pain management

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Context: Dental procedures often invoke fear and discomfort, especially among children, adults, and the elderly. Traditional pain management techniques, such as anaesthesia, may not always be suitable due to various factors. This study explores the potential of Virtual Reality (VR) in alleviating pain and anxiety associated with dental visits across different age groups. By reviewing existing literature and conducting experiments, we aim to determine if VR can emerge as an effective alternative, or complement, to conventional pain management techniques.

Methods: A comprehensive literature review was conducted, including studies focusing on VR interventions during dental procedures and some controlled experiments involving participants from different age groups (children, adults, and the elderly) to evaluate the effectiveness of VR in reducing pain and anxiety during simulated dental procedures.

Results: The analysis revealed very promising outcomes: interventions done with the help of VR, significantly reduced anxiety levels in patients, across all age groups, before and during dental procedures. Moreover, Virtual Reality helped in managing their pain threshold. Notably, children and the elderly, exhibited remarkable improvements in pain management. Some studies even go as far as suggesting that VR has the potential to replace anaesthesia in the future.

Discussion: As such, Virtual Reality emerges as a promising tool by reducing anxiety levels and helping to manage pain perception. VR can transform the dental experience, offering a more comfortable and less invasive alternative that can be used simultaneously with traditional pain management techniques. Excitingly, further progress in this field is on the horizon, with the prospect of an upcoming experimental study we have planned. This study is expected to provide additional insights and expand our understanding of how VR can be effectively integrated into dental care, ultimately improving the well-being of patients across generations and hopefully to replace the small pain management techniques that are used for children.

AI-Based diabetic retinopathy screening platform: the evolution of the implementation model from B2C to B2B2C and B2G (Public Healthcare Management Observation Report)

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The Ukrainian MedTech startup "CheckEye" launched an AI-based diabetic retinopathy screening platform in December 2022. Over the following year, the company gained unprecedented experience in pilot implementations, ongoing integrations, and negotiations with a diverse range of counterparts in Ukraine and abroad. During this period, the developers completely rethought the priority implementation model, monetisation logic, interaction with different healthcare systems, and changed priority partners.

Considering the current situation both in Ukraine and in the EU countries, the previously preferred B2C model seems less realistic due to the most insurmountable barriers. Meanwhile, the specifics of implementing the screening product in B2B2C and B2G formats have fundamental differences in Ukraine, experiencing full-scaled war, and in European countries.

Different types of barriers to implementing disruptive AI-based medical technologies have been thoroughly studied. These obstacles are described and systematised by us according to types and levels of stakeholders and include wide range of perceptual, organisational, institutional and other. The information we have gathered will enable other developers, medical institutions, decision- and police-makers in healthcare to more effectively manage ongoing global transformation processes. Our observations and conclusions can be of great value in advising health-tech startups that are just looking for ways to enter markets to solve pressing healthcare problems.

The legislative evolution related to Romania's out-of-hours medical centres: lessons learnt and recommendations for the future

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Context: Romania's introduction of Out-of-Hours centres (OOH-Cs) marked a significant innovation from the perspective of continuity in primary healthcare delivery. This study analysed the evolution and changes in relevant legislation from 2004 to 2023 concerning OOH-Cs, focusing on legislation impact on healthcare accessibility and continuity of primary care. Key legal provisions from LAW no. 263/2004 to the latest ORDER no. 774/2023 form the basis of this analysis. Understanding the legislative trajectory provides insights into how policy changes have shaped the operational effectiveness of OOH-Cs and their role in ensuring continuous healthcare, particularly during non-business hours.

Methods: This legislative document analysis consisted of a review of key legal documents from 2004 to 2023. Each document was examined to extract relevant information and changes in policy and guidelines governing OOH-Cs. The study also included in-depth interviews with a purposive sample of 16 primary care providers. Thematic analysis was conducted to gain insights into the practical implications of these legislative acts on healthcare delivery and access.

Results: The analysis suggests a progressive refinement in the legislative framework guiding OOH-Cs, with each legal provision addressing specific challenges in primary care continuity. Notably, the METHODOLOGICAL NORMS of 2011 and subsequent amendments through ORDER no. 1.484/7.310/2017 and EMERGENCY ORDINANCE no. 61/2018 brought clarity and structure to OOH-C operations. However, disparities in implementation effectiveness between urban and rural areas were evident. Interviews highlighted operational challenges despite good legislative intentions, particularly in centre setup, resource allocation and staff recruitment. Data also indicates strengths of the legislation which has resulted in improved out-of-hours primary health care services accessibility over the years.

Discussion: The legislative changes from 2004 to 2023 demonstrate a committed effort to enhance Romania's primary healthcare system through OOH-Cs. Each legal provision reflects an evolving understanding of primary care needs and challenges. While the legislation has progressively aligned OOH-Cs with broader health system goals, gaps in effective implementation, particularly in rural areas, remain a concern. The study highlights the need for ongoing legislative refinement and more targeted policies to bridge urban-rural disparities in healthcare access and to enhance the integration of OOH-PC services into the health system. It also highlights the importance of regular policy evaluations to ensure legislative intentions translate into practical, on-ground benefits across the country. This analysis contributes to a better understanding of how policy can shape health ecosystems and offers valuable lessons for other countries that try to create sustainable and resilient health systems.

Digital humanism fosters a human-tech healthcare perspective - An integrated and synergic model

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With the AI (Artificial Intelligence) integration In medicine, the new Clinical Methodology has more to do with *"Knowing How to Be"* than *"Knowing How to Do"*. The new cybernetic hypothesis of the doctor's profile places emphasis on the human essence in all its potential, in expanding its capabilities and integrating AI. The way digital transformation was presented, everything seemed to be reduced to the computer or an electro-medical instrument. Yet AI is increasingly pressing, which seems to extend its influence far beyond what we can only remotely imagine today.

Based on a recent systematic review on the diagnostic accuracy of a "deep learning" algorithm, it seems that, doctors, basing their professionalism and identity only on the aspect of scientific knowledge, are entering into competition in their role with the emerging one of AI. From this point of view, the risk of an escalation in the direct comparison of skills and capabilities between man and machine seems inevitable. Yet neither technocratic exasperation nor the rejection of digital innovation can be the answer. What can be a productive cooperation between the Doctor and Cybernetics?

The solution to this dilemma seems to be suggested by the Digital Humanism Manifesto: the respective different ability to penetrate clinical reality, through the concept of *beneficium competentae* of Roman law. To each their own, based on their abilities and skills. Medicine is made of relationships and individual variability due to the different physical and emotional mental attitude of the patient, which often has little to do with the dystopian vision.

The doctor will be increasingly required to have a systemic vision that harks back to the great internal medicine tradition, and he will also be able to grasp the imperfection and uniqueness of the individual patient, interpreting the specific case in its diversity.

AI can easily process data and knowledge to be able to offer an evaluation of the available options, based on large numbers laws. Data will be increasingly available to the doctor from now on.

It is the prerogative of two different thought forms, which can create collaborative intelligence together, mutually basing themselves on their respective uniqueness. As Italian Health Coaching Association (AIHC) we created an integration model, validated by the Mc Luhan Tetrads.

Man, through his physical experience, interacts in a heuristic way with the environment that surrounds him, while in the meantime AI captures the data in all its complexity.

Therefore both types of intelligence are useful and must be integrated and correctly balanced, maintaining their essence and independence.

This concept is also valid for medical teams: integrated creativity in a circuit between the team and the AI. It is the best way to face the two challenges before us: Futurisation and Humanisation.

Dynamics of excess mortality in Lithuania during the COVID-19 pandemic: demand for strengthening resilience of the health care system

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Context: The COVID-19 pandemic has placed unprecedented challenges on healthcare systems worldwide, testing its resilience in the face of a global health crisis to avoid excess mortality. At the beginning of the COVID-19 pandemic, there were no clear operational models or well-established good practices that could help properly respond to the crisis and to ensure the effective organisation of healthcare services. As COVID-19 has overwhelmed health systems worldwide, debates around resilience have become more urgent, and there is a need to better understand the elements of national responses through a resilience lens.

Methods: The aim of the study - to evaluate excess mortality, as well as changes in personal health care services during the COVID-19 pandemic in Lithuania and compare it to the European averages. A review of scientific and professional literature was conducted. Literature was searched in the Internet Archive Scholar, Web of Science, Scopus databases. Excess mortality data were collected from the databases of Eurostat, the European Institute of Health and Sustainable Development, the World Health Organisation, and the State Data Agency of Lithuania.

Results: According to the State Data Agency of Lithuania, the COVID-19 pandemic had a negative impact on the mortality statistics in the country, as a significant excess mortality was observed throughout the pandemic period. In 2020, Lithuanian state institutions evaluated the change in deaths by comparing the monthly and weekly death rates of 2020 with the averages of the rates of the corresponding periods of 2015-2019. The number of excess mortalities in January 2020 was negative (-12.4 percent), however, the number of excess deaths in Lithuania began to increase and in April 2020 the Lithuanian average was 2.4 percent. Due to the rapid increase in the number of deaths, in autumn of 2020, the number of deaths in Lithuania was the highest since 2009. After one year, in the 10-12 months of 2021, the cumulative number of excess deaths grew faster compared to first quarters of that year, which means that the crisis was deepened at the end of 2021. Lithuania was among the countries where the excess number of deaths in most months was higher than the European average. The highest peak in the number of excess deaths in Lithuania was noted in December 2021 (70.3 percent).

Discussion: Lithuania is one of the most affected countries in Europe considering the loss of population both from the COVID-19 and from other diseases such as circulatory system diseases and cancer. One possible reason for such a result is that a significant portion of the excess mortality was caused by patients refusing to seek for health care services due to the fear of contracting the COVID-19 virus. Additionally, it is likely that the population was engaged in self-treatment more than usual. Another factor that cannot be ignored is the lifestyle changes adopted by patients during the quarantine, accompanied by reduced physical activity, dietary changes, psychoemotional and social habits changes. These contributed to the worsening of chronic diseases and the occurrence of negative health outcomes. The complex reasons may have influenced the increase in other than COVID-19 deaths of patients with chronic diseases. Lessons learned from the COVID-19 pandemic emphasise that a resilient health care system must include the ability to both maintain the provision of basic health care and respond to immediate or future health system shocks.

UAS boost training programme: boosting professional competence in digital health incubation

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Context: European healthcare systems are under growing strain due to aging populations and the increase in chronic illnesses. Digital technologies offer a way to address current and future challenges and as a catalyst for change in the health sector. However, this requires collaborative efforts from digital health Universities as key players in the European innovation ecosystem. The UASHome Erasmus+ project (DIGIHealth UASHome Incubators Boost Programme, 2022-2024) promotes Universities of Applied Sciences (UAS) as innovation and entrepreneurship centres for digital health. It explores UAS incubation processes, gathers best practices from UAS incubators at regional and European levels, and develops a program for all UAS incubators to enhance their incubation processes. This paper presents a co-creative Boost Training Programme (BTP) which is lead by JAMK UAS and focuses on improving the capacity and competences of professionals in incubation processes in digital health.

Methods: BTP develops high innovative plug & play modules addressing knowledge and competency gaps in digital health following the co-creation method of design thinking: empathise, define, ideate, prototype, and test - followed by reflection. Each project partner carries out five BTP workshops to their regional digital health and field professionals including academics between September 2023 – March 2024 via face-to-face, hybrid and on-line facilitation. In the BTP, first, digital health challenges are identified by the regional community participants who then continue to ideate and prototype solutions to the spotted challenges. BTP also includes two international on-line workshops to share best practices for a long-term community impact and continuation.

Results: Each BTP workshop consisted of 10-15 participants, working with various tools, such as the Lotus Blossom and the Business Model Canvas, to boost their competence in the process. For testing the prototypes, a gamified facilitation platform (Topaasia Card Deck) was created to develop topics for final plug & play modules. Through BTP, the community participants enrich their social, cultural, and entrepreneurial capital to address the international and regional challenges in the field of digital health.

Conclusion: BTP raises the capacity of professionals to boost the regional start-up ecosystems across the participant countries, and beyond. BTP also addresses knowledge and competency gaps for the incubator staffs, academic and advisory staffs needed to exercise the roles of universities of applied sciences (UAS) in regional digital health ecosystem development. A practical part of the BTP is implemented as a hackathon which includes problem-based learning methods and tools to tackle real-life challenges with the support of facilitators.

Nurse managers' role and associated challenges: a descriptive correlational study

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Introduction: The role of nurse managers (NMs) is pivotal in healthcare organisations, as they exert a direct influence on staff nurses and, consequently, on patient safety outcomes. Therefore, NMs bear significant responsibilities and face high expectations from patients, staff nurses, leaders, and organisations. However, these responsibilities remain unclear in the Saudi context. Therefore, it is crucial to identify the current NMs' role and activities in Saudi Arabia. Furthermore, it is important to gain an understanding of the challenges faced in this role and the factors contributing to those challenges.

Methods: An online survey was disseminated via email and WhatsApp to 320 nurses across four Saudi Arabian hospitals. To analyse the data, descriptive and inferential statistics (non-parametric tests) were employed using SPSS.

Results: The most frequently performed task by NMs was the development of their unit, while recruitment was the least undertaken activity in the Saudi Arabian context. As for the challenges of the role, the most significant pertained to workplace dynamics, whereas role suitability emerged as the least significant challenge for NMs.

Conclusions: To enhance the experience and performance of NMs, senior managers should foster a supportive working environment. Clearly defined job descriptions and appropriate training should be provided prior to transitions. Additionally, experience and competence ought to be pivotal considerations in the selection of NMs.

Trend in human resources for health in post- versus pre-pandemic period

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Context: Human resources represents one of the most critical components for the health policies and, in this regard, to approach its management is extremely important. Primary care - in family doctor's office, in dental office or in pharmacy, represent patient's first contact with the health system. In order to plan/organise the human resources within the health system, it is necessary to know the number/distribution in the territory by categories - doctors, dentists, pharmacists, nurses. Data in Romania about these categories are limited, disparate and come from few sources which often do not agree. Our analysis proposed a series of measures regarding human resources planning derived from punctual analysis.

Methods: This study is a retrospective one including the 2019 pre-pandemic period and the 2022 post-pandemic period making a comparison between the two periods in terms of number and distribution of different categories of personnel. Data used in the project came from several centralised sources (Ministry of Health, National Institute of Statistics, National House of Health). A formula was used to establish the personnel requirement, and then, the personnel deficit/surplus for the 8 development regions of Romania were calculated.

Another stage of the project included consultations of the project team members in the territory with the representatives of medical staff and local authorities in each region. The point of view was communicated at the local level and conclusions were established and included in the conclusions of the study.

Results: The analysis carried out on the available data indicates an unequal distribution of human resources in the 8 regions, with marked deficits especially in the category of family doctors and dentists, deficits that are increased in 2022 compared to the pre-pandemic period; although the absolute number has increased compared to from the year 2019. Following the analysis of the data and the calculation of the number that would be necessary for family doctors, dentists and pharmacists, we can say that the most disadvantaged regions are primarily those in the South, South East and North East Regions, these representing and economically disadvantaged areas too. Disparities also exist within each individual region, the results of the study highlighting the areas/localities where there is no family doctor, dentist or pharmacist or their number is completely insufficient according to the calculated requirements.

Discussion: The main problem identified was the lack of personnel requesting the addition of the medical contingent; the establishment of regional centres for the management of human resources is an effective solution together with training of regional centres staff on management aspects. The study lays the foundations for new planning structures/methods, non-existent at the moment, to make the human resources management process more efficient. These regional structure-centres, having in their structure medical and local authorities, have the obligation to periodically monitor and report deficits in certain areas to ensure medical continuity. Also, the rapid response to various threats for health requires the development of flexible health structures that can be operational according to the specific needs, and that are covered by a critical number of specialists who can quickly acquire specific skills (even if at a basic level) necessary for the integrated response to that threat.

The impact of quality management training programs on process optimisation in current hospital practice – the European experience

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Context: The provision of health services which meet the needs and expectations of patients and their families is essential to achieve best health care outcomes (as improving the health status of patients) and improve perceptions of the quality of care (highlighted by the level of patients' satisfaction), thus fulfilling a significant aspect of patient-centred healthcare, one of the three basic principles of the total quality concept (TQ). Moreover, an efficient communication between patients and health services providers is crucial for patient recovery.

Numerous scientific studies have highlighted a direct correlation between training programs provided in the field of health services quality and increase of purchasers' satisfaction, patients, as well as the health services efficiency provided after the implementation of a quality management system. Appling total quality management principles also contributes to higher health services efficiency, higher patients' satisfaction and higher patients' safety. In addition, training programs that enhance health personnel communication skills exert direct effects on the doctor-patient relationship, which is essential for the effectiveness and efficiency of health services.

Methods: The research aimed to evaluate the impact of quality management training programs on process optimisation in current hospital practice through the awareness of the importance of total quality (TQ) principles among the training programs participants.

We evaluated all participants in the quality management training programs carried out by NIHSM between 2022 and 2023. A questionnaire was applied to assess the participants' perception regarding the training programs and the results were processed statistically.

Results: The research showed that 75% of participants appreciate that the topics included in the training program reflect their needs for training from the daily activities perspective of the specialist working in the quality management structure of health services. Respondents also indicated that the training modules are well correlated with the activities generated by current hospital practice, and that the practical applications of the training program are useful in everyday work.

94% of the participants consider the information they gained can contribute to improve patient safety and satisfaction, including through reducing the number of adverse events associated with medical care.

Discussion: Starting from the international scientific literature data regarding the beneficial effects of the quality management system implementation in providing hospital health services and relying on the experience of the NIHSM team, we can conclude that the training programs addressed to health professionals lead to the improvement of health service quality and patients' safety through awareness of the importance and through application of total quality principles in current hospital practice.

The continuous professional development in Moinesti Municipal Emergency Hospital

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Context: The current medical context determines us to accord greater importance to the continuous medical professional training of the staff. Patients' needs can only be met by approaching a patient-centred care model, by applying up-to-date, evidence-based medical practices. In this regard, at the Moinesti Municipal Emergency Hospital, a Research Department was established in 2008, accredited by the Romanian Academy of Medical Sciences, showing our interest in medical education and research ever since. In order to support the professionals working in our hospital, every year we ensured participation in congresses, conferences, workshops and practical and theoretical courses, from our own funds.

Methods: The analysis included staff participation in congresses, conferences, workshops and professional training courses in the medical field, in the period of 2018-2023. The analysis included both attendances at events as speakers or exhibitors, as well as those as participants, whether we are thinking of doctors or medical assistants. The aim of the analysis was to identify the degree of improvement in addressability, by increasing the quality of the medical services provided.

Results: In the selected period of 2018-2023, 19 scientific events (conferences and workshops) were organised at the Moinesti Municipal Emergency Hospital, addressed to specialist doctors, medical assistants and physiotherapists. There were also over 500 active participations of the doctors in national and international Congresses and Conferences, among which we mention the American Congress of Surgery, the Congress of the French Academy of Surgery, the European Congress of Laparoscopic Surgery, the Congress of the European Cataract Society and Refractive Surgery, European Congresses of Endocrinology, Neurology, Anesthesia and Intensive Care. As for the medical assistants, they participated in conferences, courses and workshops, totalising over 750 participations in 115 national events and 4 international events (in Ireland, USA, Belgium and Egypt).

Discussion: As it emerged from the analysis, the increased interest in improving the medical and care act, manifested by the encouragement of continuous professional training, was transposed in the introduction of new medical techniques in the Moinesti Municipal Emergency Hospital, such as the insertion of portacaths, but also in the increasing addressability for procedures already implemented in the hospital, such as laparoscopic surgeries.

Empowering healthcare innovation: assessing the impact of Can Ruti Innova, a competition and training program for healthcare professionals with ideas of innovative solutions addressing unmet clinical needs at Germans Trias i Pujol University Hospital

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Context: Innovation is paramount to increase care provision, quality and cost-effectiveness of health systems. Healthcare professionals are uniquely positioned to identify inefficiencies and unmet needs. Their potential as entrepreneurs is significant, yet hindered by a lack of support structures and training. This study assesses the impact of Can Ruti Innova (CRI), an annual competition and training program for healthcare professionals at Germans Trias i Pujol Hospital with ideas of innovative solutions addressing unmet clinical needs. CRI offers a 12-month platform for professionals to learn new skills, validate clinical needs, define valorisation plans and win up to €15,000 to kick-off their projects.

Methods: This research was performed integrating the outcomes of qualitative interviews with CRI participants and quantitative data analysis of programme implementation outputs from CRI editions in 2020, 2021 and 2022. Qualitative interviews included questions about quality of the programme and general feedback, perceived progress of the project thanks to the programme, acquired individual skills, as well as impact of the programme in the culture of the organisation. Quantitative data considered for this study included: number of innovative ideas identified, number of projects accelerated, money granted to innovative projects, number of prototypes designed, number of patents submitted and money raised in competitive calls.

Results: Three years after the implementation of CRI, 18 projects led by healthcare professionals, including clinicians, primary care physicians, nurses and pharmacists, have been accelerated through a structured training and support programme. These projects are coming from 11 different hospital departments. Pneumology and General and digestive surgery are the services with most projects led, with 3 projects each. 10 projects are in the field of MedTech, 7 projects are in the field of Digital Health and 1 project combines the development of a therapeutic molecule and a medical device. Additionally, a total of 54 ideas that could potentially be transferred to the market have been identified. 18 new innovation leaders have been trained and over €160k have been awarded in prizes. CRI participants claim they have acquired new knowledge and skills in the field of innovation and entrepreneurships, specially related to business and communication, thanks to the programme.

Discussion: The findings of this study highlight the positive impact of Can Ruti Innova (CRI) in fostering innovation among healthcare professionals at Germans Trias i Pujol Hospital. Over three years, 18 projects led by professionals from various backgrounds and departments have thrived within the structured training and support provided by CRI, pushing innovation projects forward while upskilling healthcare professionals in innovation and entrepreneurship. Some of these projects have successfully achieved clinical need validation, prototyping, intellectual property filing and fundraising in competitive calls. Most notably, CRI has served as a catalyser supporting the culture transformation of the institution towards innovation. CRI participants have become innovation leaders with potential to inspire others. This study underlines CRI's pivotal role in unleashing the potential of healthcare professionals in innovation, as well as the value of a structured programme to foster innovation culture transformation within healthcare providers.

Violence against healthcare professionals working in public hospitals from Cluj-Napoca, Romania. Exploring the public health magnitude

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In public and occupational health, workplace violence is an imperative issue, posing a threat to healthcare professionals' safety, welfare, and overall health. Due to their work nature and the served populations, the risk of workplace violence is tremendous among healthcare workers. Healthcare professionals are exposed to violent acts from patients or outside individuals, as well as from their colleagues. This matter is of considerable interest, as it is a worldwide phenomenon impacting the victims' physical, psychological, emotional, and work functioning. If not properly managed, it may increase absenteeism rates or negatively influence healthcare professionals' work performance. As such, assessing the extent of workplace violence against healthcare workers is crucial.

In Romania, data from a 2015 study shows that 85% of the participants experienced verbal assaults at the workplace and 10.2% were physically assaulted. However, to the researchers' best knowledge, up-to-date scientific literature on this matter is scarce. Our research paper aims to explore the issue of violence against healthcare professionals working in public hospitals from Cluj-Napoca, Romania, by focusing on its determinants, risk factors, and frequency. The study was guided by the research question "What is the prevalence and impact of violence against healthcare professionals in public hospitals in Cluj-Napoca, Romania, and how does this issue contribute to the broader public health challenges in the region?". It followed a mixed-methods approach involving healthcare professionals working in public hospitals from Cluj-Napoca, Romania. Using the convenience and snowballing sampling methods, we employed a questionnaire tailored to the "Questionnaire for Workplace Violence in Healthcare Settings" tool. Additionally, we aimed for a more in-depth understanding of the subject through semi-structured mobile phone interviews.

For the preliminary anecdotal results, a high incidence of verbal and physical violence, with considerable effects on the work experience exist. Among the most important prevention strategies, we anticipate the importance of prioritising the training of healthcare professionals, raising awareness, and enhancing the legislation.

The anecdotal qualitative results shed light on the firsthand experiences of medical professionals facing violence within the healthcare system, and the perceived mental and psychological impact of violent episodes. Moreover, we anticipate a thorough understanding of the current reporting system and identify possible deficiencies, as well as future recommendations for improving the status quo.

The employed mixed approach of quantitative and qualitative data provided pivotal insights into the professional experience of victims of violence, underscoring the multi-level impact on the medical personnel and the healthcare system. As such, the evidence gained through this study contributes to the already available knowledge on this issue, highlighting the importance of urgently addressing this phenomenon and mitigating its detrimental effects. Likewise, it emphasises the importance of setting action plans and actively involving public health authorities in addressing this issue.

Health workers' job satisfaction in out-of-hours primary care in Romania. Considerations for the future

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Context: Out-of-hours centres (OOH-Cs) in Romania were established as distinct entities in the mid-2000s. General physicians and family doctors can provide night care on-call if they meet several criteria related to mandatory infrastructure, medical staff, medical equipment and devices. Importantly, OOH-Cs are not legal entities in the health system and physicians have no formal constraint to provide these services, leading to uneven access across the country. Operating within a rather under-developed organisational model, it was deemed important to research the health workers' job satisfaction in out of hours primary care centres.

Methods: The database of OOH-Cs in Romania was used as a sampling frame. Respondents were recruited by sending an invitation to participate in an online survey. Professional status (physician or nurse), and currently working in an OOH-C in Romania were the key inclusion criteria. The study sample consists of 77 respondents, of which 59 (76.6%) were physicians and 24 (23.4%) were nurses. Over two thirds (n=53, 68.8%) worked in rural areas, whilst the other 24 (31.2%) worked on-call in an OOH-C located in urban areas. There was a significant age difference in the sample, physicians being on average 9 years older than nurses. Health workers significantly differ in terms of work experience (average +7.7 years for physicians as compared to nurses), but on average they had similar work experience in OOH-Cs. To determine what influences job satisfaction, a linear regression was conducted.

Results: On average, health workers had 5.74 (SD=2.32) on-call shifts in an OOH-C per month, with no significant differences between physicians and nurses. However, physicians report an average of 109 hours on-call per month (SD=39.94), which is significantly higher compared to the average of 88 hours (SD=29.18) reported by nurses. Health workers in the sample work an average of 62 hours per week, including their regular schedule, with no significant differences between nurses and physicians. Health workers were satisfied with OOH work (3.83/5, SD=909), with means ranging from 4.25/5 (SD=.861) for satisfaction with colleagues in the medical team to lowest satisfaction with income (3.21/5; SD=1.017). Physical working conditions, income, job security, job diversity, and colleagues were the main drivers of satisfaction, explaining more than 80% (R2=0.804) of variance in 'overall job satisfaction'.

Discussion: Compared to colleagues working in other health systems, health workers in Romania have higher OOH workload. Importantly, a significantly higher workload was registered for workers in counties with a higher density, suggesting efforts to maintain the continuity of care. Future research and system changes should focus on OOH work-life balance and preventing burnout. For future skill development, the data suggests that certainty over continuation of service delivery is closely related to the managerial skills of physicians owning practices, or, in the case of rural OOH-Cs, it depends on cultivating mutually beneficial relationships with local governments, since the latter have only political accountability for the lack of support for OOH-C. Physical working conditions, income, job security, job diversity, and colleagues are important managerial considerations in the future. Importantly for the physicians respondents, job security and task diversity had a more substantive effect on overall satisfaction.

From coding to clinical nurse specialist: how a review of coding practice enabled hysteroscopy nurse development

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Context: Clinical coding, the method by which departments are reimbursed for providing services to patients, is widely mis-practised within the NHS. Therefore, improving clinical coding accuracy offers an opportunity to increase departmental income, guide efficient recourse allocation and enable staff development. Hysteroscopy is a procedure that has traditionally been performed by specialised doctors in theatres. Due to technological advancements, hysteroscopy cases have undergone 'task shifting,' where more of these procedures can now be completed by advanced nurse practitioners in the clinic setting.

Methods: The authors audited the accuracy of clinical coding in their institution's outpatient hysteroscopy clinics before and after implementing an updated pathway for clinical coding. The action plan involved updating 'outcome forms' (a paper form clinicians must complete to record the services provided during each appointment) to directly correlate to the Healthcare Resource Group (HRG) codes used by the trust for reimbursement. The authors also changed the pathway in which unsuccessful hysteroscopies and interventional procedures were coded so that they attracted an appropriate tariff relative to the healthcare resources required in these appointments.

Results: In the control period, the authors found that 59% of hysteroscopy procedures were incorrectly coded. 69% of these errors were caused by information transfer issues between the outcome form filled in by the clinician and the HRG code sent for reimbursement. By updating the clinical coding procedure, the authors reduced the incidence of incorrectly coded hysteroscopies to 15% without additional administrative costs. In the intervention period, only one-third of miscoded appointments were due to information transfer errors. However, errors caused by clinicians filling in the outcome form incorrectly persisted. The financial significance of improved coding accuracy was a 23% (£28,816) increase in total annual tariffs. Although not applicable in a block contract, this will become highly relevant in a restoration of the Payment by Results tariff system.

Discussion: In the authors' institution, improved clinical coding accuracy and the subsequent influx in departmental revenue directly funded the training and ongoing cost for a new nurse hysteroscopist. Therefore, the department was able to increase its output, fund staff development and shorten waiting lists. Coding errors are not unique to the authors' trust but may be particularly prevalent for procedures undergoing 'task shifting'. Simple amendments made in clinical coding systems, without increased costs, can lead to meaningful improvements in coding accuracy and departmental output. Therefore, careful auditing and implemented change are needed to raise international clinical coding standards, enable clinical restructuring, staff development, and provide more efficient, patient-centred care.

Harnessing green finance for sustainable healthcare transition in Europe

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Green finance, as conceptualised by the European Commission, plays a pivotal role in channelling funds towards environmental projects and managing the financial risks associated with climate change and environmental issues. It forms a crucial segment of the broader sustainable finance framework, which is dedicated to supporting long-term investments that are environmentally sound and socially responsible, guided by Environmental, Social, and Governance (ESG) principles. This paper delves into the transformative potential of green finance in reshaping Europe's healthcare system, which is currently navigating a complex array of challenges. These include environmental pressures, financial constraints, pandemic preparation, and evolving workforce demands. By directing financial resources to environmentally friendly and sustainable healthcare initiatives, green finance can significantly reduce the healthcare sector's ecological footprint, enhance health outcomes, and bolster social equity.

The exploration in this paper centres on the application of green finance in four key domains within Europe's healthcare system: the adoption of green technologies, the development of energy-efficient hospital infrastructures, the implementation of sustainable medical waste management practices, and the advancement of research dedicated to sustainable healthcare solutions. It examines the impediments and prospects for integrating green finance in healthcare systems, offering policy recommendations to boost its adoption and maximise the impacts of green financing on reducing carbon emissions in healthcare systems and improving healthcare outcomes.

A major challenge is the integration of ESG criteria into the financial decision-making process within the healthcare sector in Europe. This requires a nuanced understanding of the long-term environmental and social costs and incorporating these into the financial risk assessments of healthcare systems. The paper underscores the necessity for hospitals and healthcare systems to be both environmentally sustainable and financially sustainable to ensure long-term success in the green transition of the healthcare system in Europe. It accentuates the importance of comprehending the direct and indirect ESG costs associated with healthcare operations and aligning these with the overarching sustainable development strategies of the European Union. Additionally, the paper will contribute to the discussions on the evolution of sustainable finance in the healthcare sector in Europe.

Green finance emerges as a formidable instrument in driving the sustainable transition of Europe's healthcare system, offering substantial benefits to both environmental and human health. By allocating funds towards green and sustainable healthcare initiatives, green finance facilitates the creation of innovative solutions to address the multifaceted challenges in the healthcare system of Europe. Furthermore, green finance may augment the efficiency and resilience of healthcare systems, diminishing their environmental impact and enhancing their societal contribution. However, unlocking the full potential of green finance in healthcare necessitates overcoming existing barriers and fostering a policy environment conducive to green investments and innovations. Emphasis on the impacts of green financing on the transition of primary care, prevention, and patient empowerment is necessary. Additionally, knowledge exchange with cross-country experiences is vital for building resilient, efficient, and sustainable healthcare systems in Europe.

How to use costs in value-based health care: learning from real-life examples

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Context: Value-based health care (VBHC) strives to advance care delivery to the patient by understanding how costs are related to outcomes. In practice, healthcare organisations measure costs for business operations but do not routinely incorporate costs in decision-making on the value of care. There is opportunity to learn from real-life examples in the Netherlands of how costs can be considered in VBHC. This paper provides guidance on how to incorporate costs in VBHC delivery on different levels of the health care system: in shared decision-making (SDM) between patient and clinician, in benchmarking among providers, and in continuous learning and evaluation within an organisation.

Methods: Integrated practice units (IPUs) for diabetes mellitus (DM) and for acute myocardial infarction (AMI) at the Leiden University Medical Center and a collaboration of seven breast cancer IPUs of the Santeon group, all in the Netherlands, were included. At the level of SDM between patient and clinician, yearly check-up consultations for DM type I were analysed for patient-relevant costs. In benchmarking among providers, quantities of cost drivers for breast cancer care were assessed in scorecards. In continuous learning, cost-effectiveness analysis was compared with radar chart analysis to assess the value of telemonitoring in outpatient follow-up. The standardised components for CEA were used to guide the joint analysis of outcomes and costs in VBHC delivery and provide a framework for analysis at these different levels.

Results: To incorporate costs from the patient perspective, all costs that matter to the patient — not just the costs of care delivery — should be considered. Consultations between DM patients and their clinicians showed that cost-related issues, such as coverage by health insurance and productivity costs, were regularly discussed in SDM. At the level of providers, the need for uniform costing among hospitals in benchmarking can be overcome by using cost drivers — quantities of care activities that strongly impact the total costs of care. In continuous learning, the radar chart analysis shows there is no uniform criterion for the trade-off in outcomes and costs in VBHC, as exists in CEA. The presentation of separate outcome and cost domains allows viewers to form their own conclusions. The examples presented in this paper can be fitted to a standardised framework for the analysis of outcomes and costs in VBHC.

Discussion: Costs vary among providers in healthcare, but also between provider and patient. The examples in this study show that considering outcomes and costs jointly in VBHC in a meaningful and standardised way is already possible. In the patient-clinician interaction, discussion of both outcomes that matter to the patient and patient-relevant costs will help improve the value of care tailored to the individual. Among providers, best practices can be shared and adopted through benchmarking on outcomes and cost drivers. Within healthcare organisations, providers can incrementally improve care delivery by assessing both outcomes and costs in continuous learning and evaluation. Moving forward, costs should be appreciated as a necessary and useful component of VBHC on all levels of the healthcare system. The joint analysis of outcomes and costs using appropriate methods helps identify and optimise the aspects of care that drive desired outcomes and value.

Analysis of the reimbursement system in France – what solutions can be implemented in Poland?

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Context: Reimbursement systems vary between European countries. Due to numerous local conditions, they cannot be fully transferred to other countries. However, all systems are evolving: the number of available health technologies is growing rapidly, while drug budgets remain more stable. When planning systemic reforms, it is worth using international experience and constantly searching for proven solutions that would allow for better allocation of available resources. This work attempts to analyse the reimbursement system in France in terms of interesting solutions that could be introduced in Poland.

Methods: A non-systematic review of the websites of key institutions responsible for drug policy in France (Ministry of Health, HTA agency, etc.) and relevant literature was conducted between November and December 2023. Keywords used during the search were: „reimbursement", „pricing", „"price setting", „health care system", HTA assessment" and „France". When needed, deeper search focused on specific issues was conducted.

Results: French solutions worth considering due to their potentially positive impact on Polish reimbursement system:
- creation of legal provisions dedicated to reimbursement and pricing of hybrid medicines,
- introduction of reimbursement categories in the HTA assessment depending on the clinical value of the drug and its additional benefits in relation to alternative therapies, and translating the obtained reimbursement categories into the reimbursement level and the price setting process,
- implementation of complementary health insurance, which would reduce patients' co-payments for reimbursed medicines without burdening the public budget.

Discussion: The transfer of systemic solutions should always be treated with caution, due to the fact that the reimbursement system in a given country functions as a whole. However, continuous analysis and consideration of options is necessary to maintain system performance. Drawing on foreign solutions allows you to see the existing solutions in a long-term perspective, recognising the advantages and disadvantages of these solutions. It's a long way from idea to implementation, but it's worth the effort.

Comparative aspects of potential years of life lost (PYLL) in confirmed cases of COVID-19 in the years 2020 and 2021 in the counties and the capital of Romania

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Context: Studies on the mortality resulting from SARS-CoV-2 infection have shown that older age groups account for the majority of infection-related deaths. There are also studies presenting variations in premature mortality (before the age of 65, 70, 75, or 80 years) due to COVID-19, either directly or indirectly. This article focuses on the Years of Potential Life Lost (PYLL or YLL) because of deaths in confirmed COVID-19 cases in the years 2020 and 2021 in Romania, based on data recorded and reported in the national case management platform to identify variations in the impact of deaths during the first two years of the pandemic across counties/Bucharest.

Methods: We utilised anonymised data on deaths in confirmed COVID-19 cases in the years 2020 and 2021, from which Years of Potential Life Lost were calculated: by death, by county/Bucharest, for the total population, and by gender. We used 75 years as the age limit until which a death is considered premature. Based on the analysed data, the following were determined: the evolution of the number of deaths by age group, the proportion of premature deaths to total deaths, PYLL by counties (total and by gender), the crude PYLL rate per 100,000 inhabitants (total and by gender), and PYLL/death. Finally, the percentage variation (total and by gender) in 2021 compared to 2020 was calculated for PYLL/death and the crude PYLL rate per 100,000 inhabitants.

Results: According to statistically analysed data, there were 59,421 deaths in confirmed COVID-19 cases in Romania in the years 2020 and 2021. Among these, premature deaths—33,617 cases—resulted in the loss of 383,325 years of potential life, with an average of 11.4 PYLL per death. Against the backdrop of a 104% increase in premature deaths in 2021 compared to 2020, PYLL increased by 97% in 2021 compared to 2020. The age group with the highest number of deaths is 70–79 years, and premature deaths are more common in males. The crude PYLL rate per 100,000 inhabitants for both genders over the two years analysed shows variability between counties/Bucharest ranging from 1500 PYLL/100,000 inhabitants to 3500 PYLL/100,000 inhabitants. The national crude PYLL rate increased for the population of both genders by 99% (145% in females and 74% in males), with variability between counties even though all recorded increases in the indicator. PYLL/death at the national level varied for the population of both genders by -3% (-4% in females and -2% in males), with variability between counties; some counties recorded increases, while others recorded decreases in the indicator.

Discussion: The comparison between 2021 and 2020 reveals an increase in the proportion of deaths occurring close to the premature death threshold (75 years) among confirmed COVID-19 cases. This is evident in the variations observed in the number of deaths, the PYLL rate per 100,000 population, and the PYLL/death ratio. The analysis demonstrates notable disparities in premature mortality and PYLL indicators within counties and Bucharest in confirmed COVID-19 cases, despite consistent implementation of nationwide interventions during the pandemic.

How does government policy influence the employment and training of nurse practitioner and physician assistants? A realist analysis using qualitative interviews

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Context: Governments face rising healthcare needs, costs and increasing labour market shortages. Nurse practitioners (NPs) and physician assistants/associates (PAs) are perceived as those who could help alleviate these challenges. NPs and PAs can take over tasks from physicians at equal or lower costs and provide care of comparable or better quality and patient satisfaction. Governments facilitate the deployment of NPs and PAs through policy measures such as extending the scope of practice and creating reimbursement opportunities. Research on the effects of government policies on the capacity of NPs and PAs and their intake in training programs is scarce.

Methods: Using a realist approach we analysed data of 50 semi-structured interviews conducted in 2019 with Dutch healthcare providers, sectoral and professional associations, and coordinators of NP and PA training. Interviews regarded the decision-making process within healthcare providers about the employment and training of NPs and PAs and the influence of government policies and organisational and sectoral circumstances on this process. Stratified purposive and snowball sampling were used to recruit the interviewees. The scope of the analysis was defined by an initial theory and Intervention-Context-Actor-Mechanism-Outcome configurations on the Dutch policy program to facilitate the employment and training of NPs and PAs. The theory and configurations described how policy interventions for NP and PA training and employment are assumed to work, for whom, in what circumstances and in what respects.

Results: Governmental policies stimulated NP and PA employment and training in healthcare providers by three mechanisms: (1) contributing to the familiarity of participants in the decision-making process with, and medical doctors' trust in, NPs and PAs; (2) contributing to participants' motivation to NP/PA employment and training; and (3) eliminating barriers perceived by medical doctors, managers and directors. Effectuating familiarity and trust among participants in the decision-making process is a crucial first step for a positive decision to employ or train an NP or PA. Next, policymakers can motivate decision-makers and lower their perceived barriers by extending the scope of practice, creating reimbursement opportunities, and contributing to training costs. The extent to which policies affected employment and training was largely determined by sectoral and organisational circumstances, and by the type of decision-makers in healthcare providers (medical doctors or managers/ directors). Theoretical insights into NP and PA employment and training have been refined.

Discussion: We introduced refined theoretical insights on the impact of government policies on NP and PA employment and training within healthcare providers. These insights are applicable to multiple countries, healthcare sectors and levels (national, sectoral and organisational). Although the context and participants may vary, we expect the underlying causal mechanisms to be similar. This provides an opportunity to further test the refined theory in other countries and among a broader group of participants involved in the decision-making process about NP and PA employment and training. Based on our research results, we recommend stakeholders to: (1) focus policies on the three mechanisms and their sequence (familiarity/trust, motivation and perceived barriers); (2) tailor policies at the sectoral level; (3) involve medical doctor associations to extend the scope of practice and reimbursement policies; and (4) urge NPs and PAs to raise organisational and sectoral visibility.

The distribution of smartwatches with health monitoring capabilities to elderly individuals

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Abstract: This comprehensive report presents a thorough exploration of the implementation of smartwatch health monitoring policies, with a specific focus on the distribution of smartwatches with this capabilities to elderly individuals in Romania. The report outlines a systematic method for evaluating and improving the ongoing implementation of health policies, emphasising the importance of key performance indicators (KPIs) to assess the effectiveness of remote cardiac monitoring policies using smart devices.

Methods: The report details a systematic approach for evaluating the ongoing implementation of health policies, particularly focusing on remote cardiac monitoring using smart devices. Key performance indicators (KPIs) such as the Device Utilisation Rate, alert response time, sudden hospital admissions for cardiac problems, user satisfaction scores, training effectiveness, data security compliance, and the Policy Adaptability Index are identified and utilised to assess the effectiveness of the smartwatch health monitoring policy. The involvement of various entities in the formulation, implementation, and monitoring of the policy is also highlighted, emphasising the collaborative efforts of national public health institutes, independent auditing bodies, interest groups, and lobbying entities.

Results: The report presents findings related to the involvement of various entities in the formulation, implementation, and monitoring of the smartwatch health monitoring policy. It outlines the systematic method for evaluating and improving the ongoing implementation of health policies, emphasising the importance of key performance indicators (KPIs) to assess the effectiveness of remote cardiac monitoring policies using smart devices. The report also highlights the implications of telemedicine implementation in Romanian outpatient clinics, emphasising the potential benefits and considerations of this policy, particularly in enhancing accessibility to healthcare services and promoting patient-centred care.

Discussion: The report's discussion emphasises the multifaceted aspects of implementing smartwatch health monitoring policies, offering insights into the implications of telemedicine implementation in Romanian outpatient clinics. It underscores the policy's role in enhancing accessibility to healthcare services, optimising resource allocation, and promoting patient-centred care, particularly for individuals residing in geographically remote or underserved areas. Additionally, the report addresses the uneven distribution of medical specialists and resources in the Romanian healthcare system, highlighting the efficient utilisation of specialist consultations and the redirection of resources to regions with limited access. The findings and recommendations presented in the report serve as a valuable resource for policymakers, healthcare professionals, and stakeholders involved in the advancement of healthcare policies and technologies.

Emergency services during the COVID-19 pandemic and its impact on disease burden: a case study in Portugal

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Context: The recent COVID-19 pandemic has led to changes in the pattern of health care use around the world. As emergency services are a central element in immediate health care, they are sensitive to external changes caused by epidemiological events, such as the (extreme) case of a pandemic.

Methods: An observational, analytical and cross-sectional study was carried out. All records of emergency episodes of patients aged 18 years or older admitted to the emergency services of the University of Porto Hospital Centre (2018-2022) were analysed. The database of the current study includes administrative information related to emergency episodes. Comparison of means was performed through a one-way ANOVA with Tukey's post hoc multiple comparison tests. When the homogeneity of variances assumption did not hold, the Welch test was applied. Chi-square tests were applied to compare the percentages observed in each period. Statistical tests were performed at a significance level of 5%.

Results: During the pandemic, a significant reduction in emergency episode admissions (up to 40% during lockdowns), an increase in pre-emergency services, and discharges from Infectious Diseases and Internal Medicine was observed. The discharges from General Practice and General Practice and Family Medicine were residual.

Discussion: The lower access to the emergency services during the pandemic increased the disease burden. Therefore, it is important, in future pandemics, to promote confidence in the use of health resources, even during periods of confinement.

Determinants of health technology assessment implementation in Republic of Moldova

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Context: The study explores the challenges and opportunities in implementing the health technology assessment (HTA) mechanism within Moldova's healthcare system. The primary objective is to streamline the institutionalisation process of HTA by pinpointing and understanding the factors that either hinder or facilitate this process. It involves an extensive analysis of international studies and practices in the field of HTA, combined with a detailed examination of determinants in its implementation. Additionally, the perspectives of stakeholders and decision-makers on current challenges are considered, ultimately leading to strategic recommendations for enhancing HTA institutionalisation.

Methods: A cross-sectional, observational, and descriptive study was conducted. The qualitative component was carried out through 16 in-depth interviews with decision-makers involved in the HTA process (Directors/Vice-Directors of Agency of Medicines and Medical Device; National Health Insurance Company; Centre for Centralised Public Procurement in Health; Transplant Agency; representatives of stakeholders: World Health Organization, The World Bank, Parliamentary Commission, Center for Health Policies and Analysis, AmCham members). Interviewees were asked to answer a series of questions about the theme of the research. The interviews, which lasted from 1 to 1.5 hours, took place between March and May 2023. An in-depth interview guide, tailored for the study and offering a comprehensive overview of the research concept, was applied. The outcomes were recorded, subsequently organised, and coded. Each response was assigned with specific code, linking it to the corresponding question and the context of the participant's answer.

Results: The HTA is identified as a complex process influencing policy and decision-making in healthcare. While various elements of HTA are present in the healthcare system, their effective implementation is constrained due to inadequate financial incentives for healthcare staff and existing personnel shortages. HTA is applied in a fragmented manner and at a relatively low level within the national healthcare system, particularly in processes like medicines and medical devices reimbursement for the outpatient sector, development of Clinical Protocols, and healthcare planning and budgeting. Major challenges in implementing HTA include a lack of awareness among authorities and decision-makers about the necessity of HTA, absence of political support for institutionalising HTA, and lack of clear visions from authorities regarding the domains where HTA can and should be implemented. Decision-makers favour establishing an HTA entity within an existing institutional framework, while decision-implementers prefer an independent, apolitical structure with robust expertise. The successful institutionalisation of HTA is driven by factors such as political support, comprehensive training with the formation of expert trainers, practical adherence to HTA regulations rather than political decisions, and the depoliticisation of decision-making processes in the field.

Discussion: The results demonstrate the value and potential of HTA as a tool for informed and evidence-based decisions. By using HTA, state institutions can strategically procure new technologies, medications, devices, and medical services that are safe, efficient, cost-effective, and aligned with the health needs and preferences of the population. The study identifies the key challenges and barriers that need to be addressed to facilitate the implementation of HTA in Moldova. These include raising the awareness and understanding of HTA among authorities and decision-makers, securing the political support and commitment for institutionalising HTA, and providing adequate financial and human resources for conducting and using HTA. The research findings suggest the most suitable institutional arrangement for HTA in Moldova, which is an independent, apolitical, and expert-based entity.

Integration of public health and well-being with urban planning through the Health Centred Planning Matrix

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Context: The exposure of citizens to the natural environment is very limited in urban areas. Additionally, there are increasing non-communicable diseases worldwide. Public health and well-being (PH&WB) are not standard urban planning criteria and are rarely integrated into that process. To address these shortcomings and modify the prevailing state of practice, the H2020 project: HEALthier Cities through Blue-Green Regenerative Technologies addresses these issues through the introduction of a health-centred planning strategy. The main objective of this paper is to present the development of the Health Centred Planning Matrix (HCPM) and its implementation in Belgrade, Serbia, natural blue-green solution (NBS) "Ada Cigalnija".

Methods: The development of HCPM model encompassed the following steps: defining the road to identifying interactions between PH&WB disorders and NBSs; basic PH&WB disorders entering data; definition of primary mitigation objectives with a positive impact on PH&WB disorders; definition of NBS clusters to meet Primary Objectives; It additionally used the know-how of the urban master planning methodology developed in the Horizon 2020 EuPOLIS project (Innovation action, NUMBER: 969448), described as Goal Driven Planning Matrix. The HEART project selected the following PH&WB disorders that were targeted in HCPM: cardio-vascular (hypertension, coronary ischemia, non-disabling cerebral ischemia or PAD), respiratory (asthma, CODP), metabolic (obesity, hyperlipidemia, and diabetes), and mental (stress, anxiety, depression). The developed HCPM was further customised into a visually user-friendly format extracting only basic information sufficient to assist the identification of clusters defined by the HCPM at the NBS "Ada Cigalnija". Customisation of NBS was performed by field visits and direct observation.

Results: The proposed HCPM model is based on the following three goals converted from the project objectives: 1. Utilise HEART results to enhance the urban planning approach; 2. Specific PH&WB disorders – Mitigation by urban planning; 3. Recommendations for planning criteria for new sites and/or refurbishment of NBS at existing sites. Each goal was further broken down into targets explicitly designed to create the conditions conducive to enhancing the PH&WB of the citizens. In meeting these targets, the system defines the required functions, concepts, and potential solutions, that are applicable for an urban environment, e.g. cross-cutting to all aspects of PH&WB under the second goal: expose visitors to the beauty, useful functions, comfort, and positive surprise. Customisation of NBS "Ada Cigalnija", using this tool identified and observed eight different cluster typologies (visual access to water, greenery, long walking paths, deep park areas, etc).

Discussion: The HCPM system is built upon a structure that has proven to be practical, effective, easy to follow, and, most importantly, easy to customise to any local conditions. It could serve as a practical guide that assists cities and developers in the setting up of more intensive interaction between NBSs and people, either through regenerative actions or by introducing innovative urban planning criteria. We expect that the recommendations from the HEART version of HCPM would also initiate the revising of already developed urban planning strategies to bring them more in line with the necessity of today's urban living: PH&WB improvement. This process will involve multiple stakeholders and achieve effective solutions for them. The advantage of this approach is that the simple HCPM tool leads professionals through the process of systematically connecting final concepts and solutions to the original project goals.

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