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

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Agenda

1  A Common Challenge (Context)
2  Key Measurements and Results (Results)
3  How: Overview of Key Principles (Methods)

Appendix: References
Lancashire Teaching Hospitals (NHS), UK

Context and challenge

• The Trust operates two hospitals: Royal Preston Hospital and Chorley and South Ribble Hospital (~900 beds), serving an area of 350,000 people

• Facing significant pressure to improve both access and affordability.

• Many approaches/methodologies and technologies to improving flow, to reduce length of stay and free up capacity, had been tried but only provided limited results

Identifying what to improve for the greatest overall benefit..

• ..by combining a **patient-centred** and **clinically led** approach with **system’s thinking**

• A methodology enabled by patient flow software

• Pilot: 10 wards / ~300 beds, involving many different clinical specialties

• Staggered implementation carried out in Aug-Oct. 2023

• The results presented here cover a ~10 week period (Sept.-Nov.)
The four core measurements of patient flow
Results from Lancashire Teaching Hospitals Trust (LTHTR), 10 weeks after the start of the implementation

1. **Patient throughput** (the rate of admissions and discharges)

2. **Finished length of stay (FLOS):** average LOS of patients who were discharged

3. **Active length of stay (ALOS):** average LOS of patients still in the system

4. **Delay:** By how many days are individual patients delayed beyond what is needed for their clinical recovery, and why?
   - **Improvement potential:** e.g. bed days lost to delay / lost patient throughput due to delay
   - **Focus:** identifying and resolving which task by which resources that most often causes the most disruption an delay to the most patients?

Results: End of September through end of November
Measurements 1-3 are 30-day rolling averages
In red: the monthly number of bed days lost to delay and how many patients weren’t treated as a consequence (patient throughput lost to delay)

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Applying the Theory of Constraints (TOC) to a healthcare environment

The core of TOC

“In goal-oriented systems of dependent activities, each experiencing variation (such as health and social care),..

.. there will be, in fact, only a few places limiting the performance of the entire system:

the system ‘constraints’.”

-Dr. Eliyahu M. Goldratt
Two critical patient flow questions
Applying the Theory of Constraints to a healthcare environment

1. Of all the things we could improve, which one should we improve first? *Focus*

2. Of all the patients I could work on next, which one should I work on next (when acuity isn’t the determining factor)? *Synchronize*
We start by being patient-centred: accepting that every patient is different and their clinical recovery time will vary.

Length of stay = individual patients' recovery time + delay caused by the way the system operates.

How do we identify and eliminate the unnecessary disruption and delay?

- Natural variation in patient recovery
- Patients with exceptionally long rates of recovery
- Additional disruption and delay
A time-based patient plan

Clinically led planned discharge date (PDD) = a patient-centred, clinically based discharge date, assuming no disruptions or delay.

In setting the PDD, NO disruptions or delay, such as a patient having to wait for a task to start due to availability issues, are included. The PPD is set individually for each patient and updated if it changes for clinical reasons.

Opportunity identified through a currency of delay measured in time.

Identifying which task by which resource that most often is the source of most delay across the most patients.
Applying the approach to many patients
Applying the approach to many patients

Resources will be synchronized as they work on patients in PDD order.
Applying the approach to many patients

The evidence shows that the blue resource is causing most risk of delay to most patients most of the time.
The main objective is to improve flow across all patient pathways simultaneously.

1. A patient-centered clinically led approach

Of all the patients I could work on next, which one should I work on next?

- Patient A
- Patient B
- Patient C
- Patient D

2. A focused process of ongoing improvement

Of all the things I could improve, which one should I improve first?

- Daily priorities meeting
  - Multidisciplinary team meeting (MDT) to set and review PDDs and tasks
- Top delays meeting
  - Identifying and resolving the causes of the most delayed patients or those most at risk of being delayed (early identification)
- Leaders’ meeting (focus)
  - Deciding on where and how to focus improvement efforts next
- Dashboard and deep-dive analysis tool (evidence)
  - Monitoring progress and identifying where to focus next for the greatest impact

3. Removing local measures of optimisation

Without removing these measures, local optimisation will continue to disrupt patient flow and stagnate the process of ongoing improvement.

- Patient priority list
- Task priority list
- Time-based patient plans
  - Mis-synchronisation
  - Bad multitasking
  - Parkinson’s law
  - Student syndrome
  - Local efficiency
  - Batching
  - Cherry-picking

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References

• Knight, Alex (2014): *Pride and Joy (1st ed.)*. Linney Group Ltd.
  - This book describes the Flowful approach, formerly known as ‘Pride and Joy’.
  - [https://youtu.be/3mkSflbYHeo](https://youtu.be/3mkSflbYHeo): A video of Alex Knight (ret.), the inventor, describing the approach at a hospital in Finland.

  - An overview of the literature on applying the Theory of Constraints to healthcare.

  - The inventor of the Theory of Constraints explains the development of various management focusing on flow, and how TOC builds on and differs from these, using examples from industry.
Thank you

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