

# When the ripple effects may jeopardize healthcare system reform: the centralisation of 20 complex cancer diseases in Catalonia (Spain)

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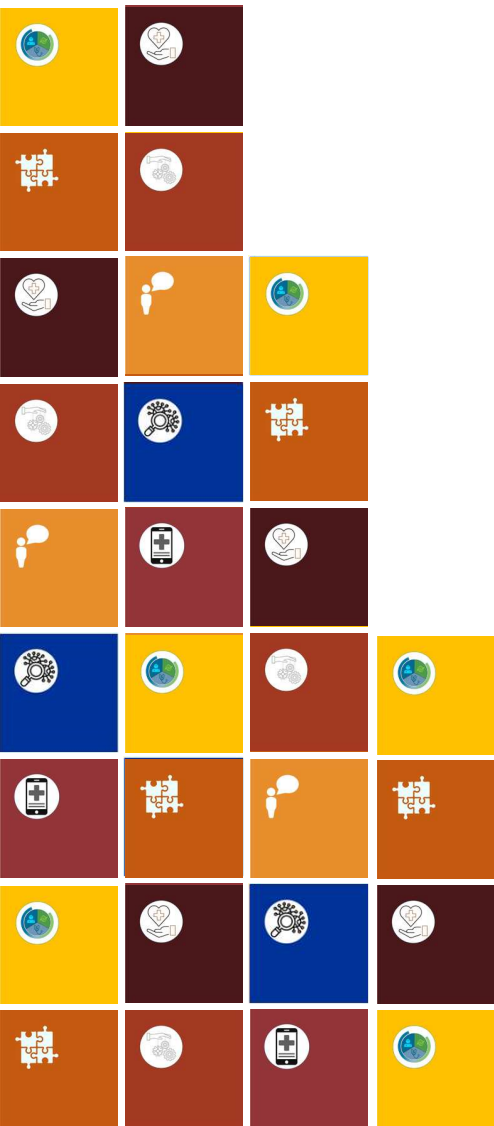
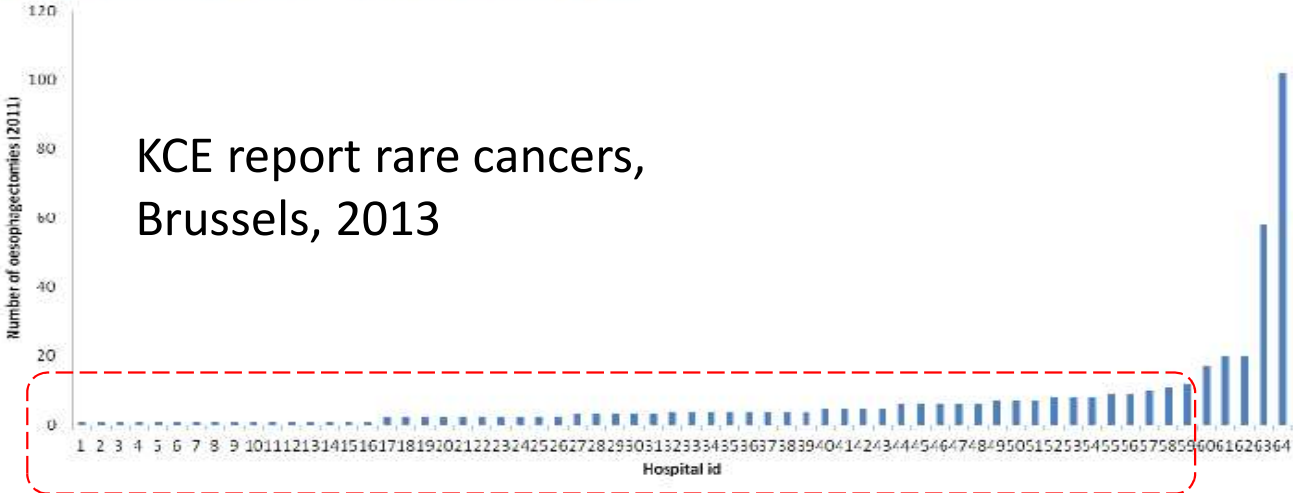
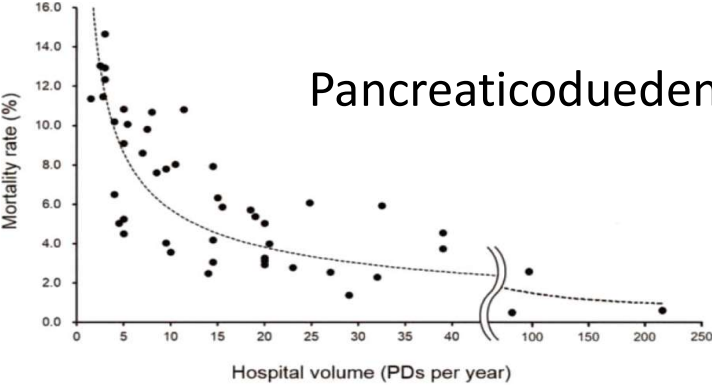




Figure 4 – Distribution of oesophagectomies by hospital, in 2011



Source: RIZIV-INAMI data



Pancreaticoduodenectomy: meta-analysis

Hata, Ann Surg, 2016

## Reduction in 30 days mortality after centralization

	Núm. de cirurgies	Núm. de cirurgies/any**	Mortalitat bruta a 30 dies	p valor	Mortalitat bruta a 90 dies
<b>Cirurgia de càncer d'esòfag</b>					
2005-2011 <sup>a</sup>	493	70 ± 4,4; 68; (64 - 77)	11,2%	0,0007*	—
2012-2013 <sup>b</sup>	180	90 ± 1,0; 90; (89 - 91)	2,8%		5,6%
<b>Cirurgia de càncer de pàncrees</b>					
2005-2011 <sup>a</sup>	1206	172 ± 26,0; 181; (135 - 209)	6,6%	0,0119*	—
2012-2013 <sup>b</sup>	406	203 ± 4,0; 203; (199 - 207)	3,2%		4,7%
<b>Cirurgia de metàstasis hepàtiques</b>					
2005-2011 <sup>a</sup>	2161	309 ± 18,9; 310; (271 - 332)	3,0%	0,0190*	—
2012-2013 <sup>b</sup>	678	339 ± 14,0; 339; (325 - 353)	1,3%		2,1%
<b>Cirurgia de càncer de recte</b>					
2005-2007 <sup>b</sup>	1.831	916 ± 7,5; 916; (908 - 923)	3,9%	0,0001*	5,8%
2011-2012 <sup>b</sup>	1.939	975 ± 16,5; 975; (958 - 991)	1,8%		2,7%

Manchon Walsh et al Catalanian Health Technology Agency 2016



# Introduction

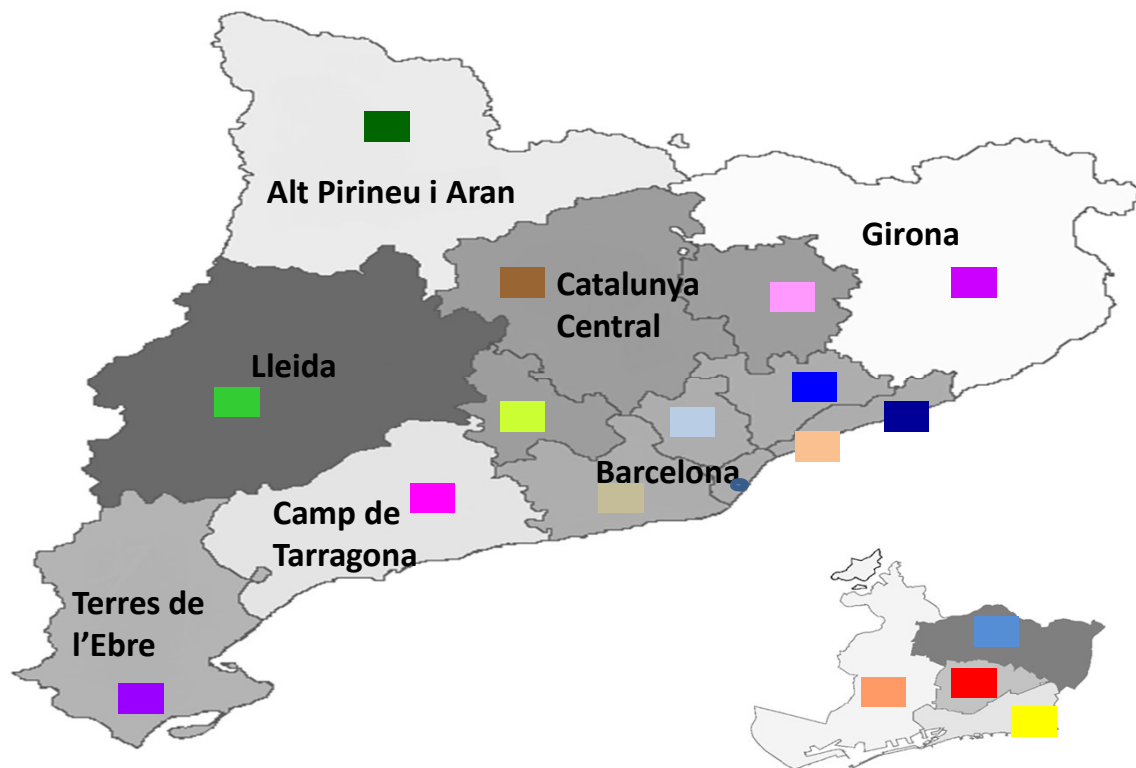


Programme components comprising the centralisation policy in Catalonia (Spain) [pop. 7.5 million, 64 publicly financed hospitals]

Measure	Desired impact
1. Population-based clinical audits and accountability for results	Generation of evidence to adjust the degree of centralisation and increase the legitimacy of the policy
2. Use of caseload thresholds as a surrogate marker of quality of care	Caseload-outcome effect, improved clinical practice
3. Conditional cash transfers and reimbursement bonuses for highly complex procedures	Disincentive for non-authorized hospitals and support for authorized hospitals in order to accelerate the adoption of the regulation
4. Map of patient flows between authorized and non-authorized hospitals	Guidance for patient referral based on geography

## CENTRE DE REFERÈNCIA PER A LA CIRURGIA ONCOLÒGICA COMPLEXA - RECTE

REGIÓ SANITÀRIA		RECTE
Barcelona	Barcelona ciutat	AIS Esquerra <span style="color: orange;">■</span> H. Clínic
		AIS Dreta <span style="color: red;">■</span> H Sant Pau
		AIS Litoral <span style="color: yellow;">■</span> P.S. Mar
		AIS Nord <span style="color: blue;">■</span> H. Vall d'Hebrón
	Barcelonès Nord <span style="color: orange;">■</span>	H. Germans Trias i Pujol H. Esperit Sant H. Municipal Badalona
	Maresme <span style="color: darkblue;">■</span>	C.S. Mataró
	Baix Llobregat – Garraf – Alt Penedès <span style="color: brown;">■</span>	H. Bellvitge H. M. Broggi H. S. J.D de Martorell
	Vallès Occidental <span style="color: lightblue;">■</span>	M. Terrassa – Parc Taulí
Vallès Oriental <span style="color: blue;">■</span>	H. Granollers	
Camp de Tarragona <span style="color: magenta;">■</span>		H. Sant Pau i Santa Tecla H. Joan XXIII H. Sant Joan de Reus
Terres de l'Ebre <span style="color: purple;">■</span>		H. Verge de la Cinta
Catalunya Central	Bages – Solsonès – Bergadà <span style="color: brown;">■</span>	Althaia
	Anoia <span style="color: yellowgreen;">■</span>	F.S. Igualada
	Osona <span style="color: pink;">■</span>	HG Vic
Girona <span style="color: magenta;">■</span>		H. Josep Trueta H. S J Calella
Lleida <span style="color: green;">■</span>		H. Arnau de Vilanova H. Santa Maria
Alt Pirineu i Aran <span style="color: darkgreen;">■</span>		H. Arnau de Vilanova

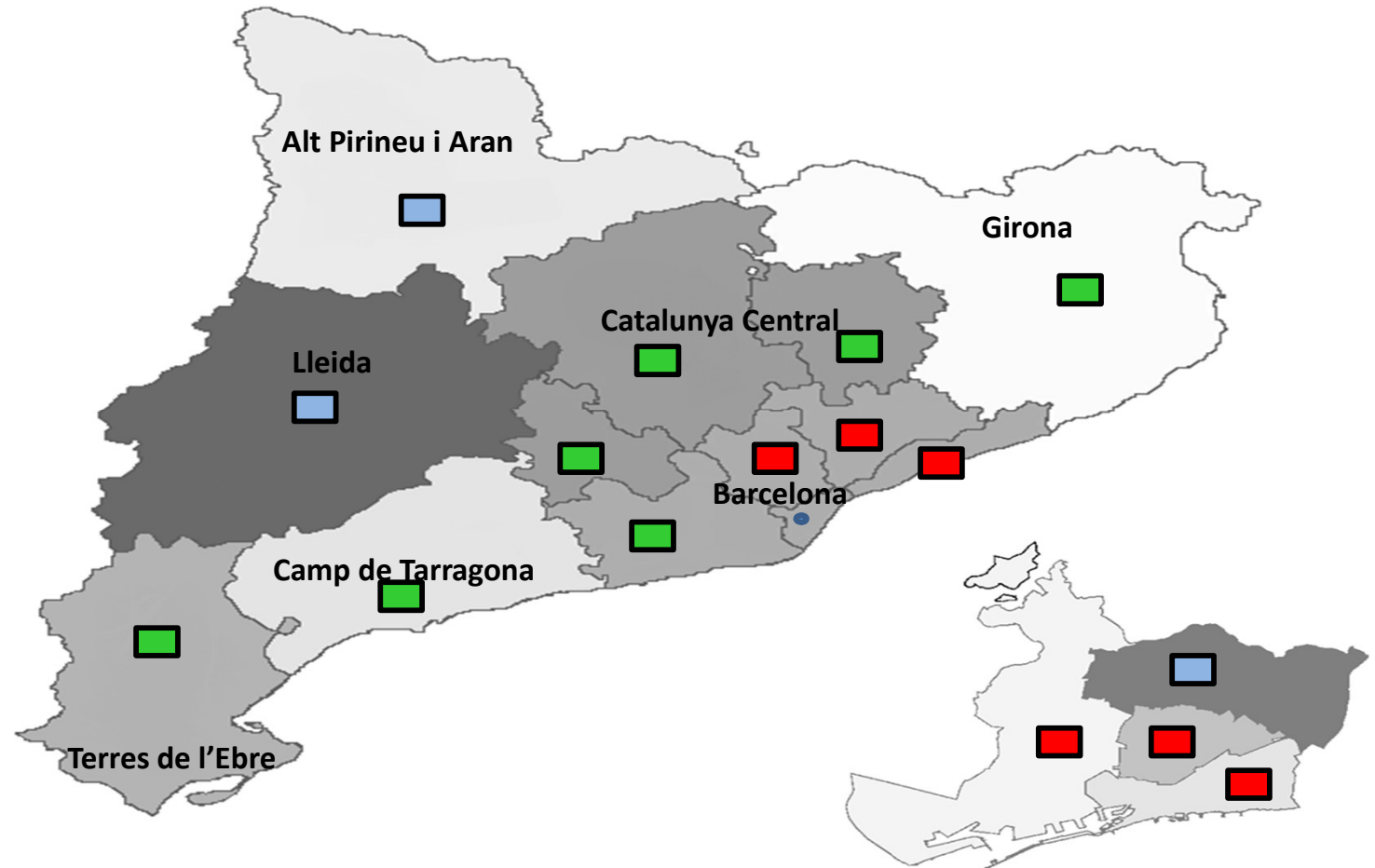


## SARCOMES I TUMORS RARS

 Hospital de Sant Pau

 ICO DiR / H. Bellvitge

 Hospital Vall Hebrón



Curative-intent surgery	Caseload threshold of annual surgeries (2012/18)	N hospitals treating patients before regulation	N authorised or designated hospitals (2012-13/2018)	N curative-intent surgical cases per year	N clinical audits per hospital
Rectum	≥ 11/ ≥ 18	52	32/27	970*	3
Pancreas	≥ 11	24	12*	232 <sup>†</sup>	2
Oesophagus	≥ 6/≥11	24	9/5	85 <sup>†</sup>	2
Liver metastasis	≥ 25	20	10/11	373 <sup>†</sup>	2
Primary liver and biliary tract cancers	≥ 25	20	10	176 <sup>†</sup>	0
Stomach	≥ 11	50	18	412 <sup>†</sup>	0
Lung	≥ 50	12	12	768 <sup>†</sup>	1
Brain	≥ 50	12	9	639 <sup>†</sup>	0
Ovarian <sup>§</sup>	> 10	27	-/12	264 <sup>¶</sup>	1
<b>Whole care pathway</b>					
Head and neck		28	-/11	-	0
Sarcoma / rare tumours		30	3	-	1
Germ-cell (advanced or poor prognosis)		15	2	-	0
Neuroendocrine		20	4	-	0
Neuro-oncology		22	9	-	0
Peritoneal carcinoma					
Paediatric patients					
Non					
Brain radiosurgery					
Total body irradiation					
Chemotherapy (3rd li					
Clinical haematology (transplantation)					

**Which were the indirect and unintended effects in the wider healthcare system?**

**Table 2.** Number of caseload thresholds of annual surgeries, hospitals treating patients before regulation, authorised hospitals, curative-intent surgical cases per year, and clinical audits performed.

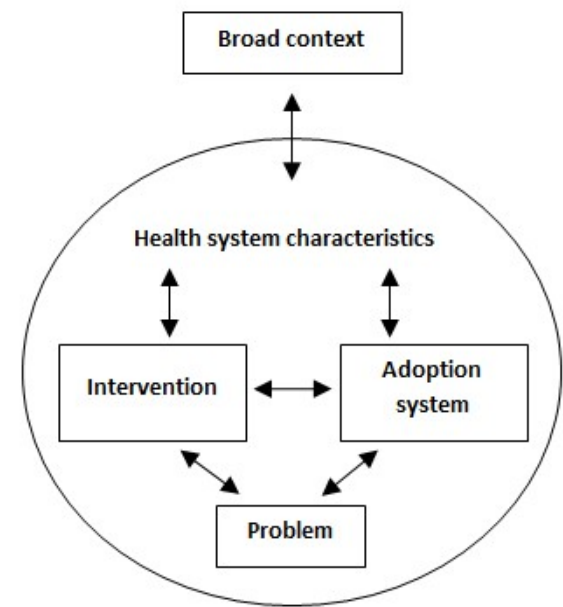
# Methods

Exploratory study based on a two-step analysis.

- 1 Document review and quantitative analysis of clinical and administrative data
- 2 Qualitative analysis, with semi-structured interviews based on key informants (n=18)

Thematic analysis.  
Coding process drawn from Atun et al.'s conceptual framework on integration of interventions

Conceptual framework for analysing integration of targeted health interventions into health systems



Atun R, Health Policy Plan., 2010

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# Results

**Which were the indirect and unintended effects in the wider healthcare system?**

## *Clinical impact*

- 1) Although the policy focused on malign tumours, patients with ‘complex’ benign disease (hydatidosis) or non-complex malignant pathologies (thyroid cancer) were referred to tertiary hospitals.
- 2) Lack of clinical dialogue and organisation of referrals between hospitals led to poor clinical coordination in planning patient follow-up, managing acute complications, and duplicating and delaying the diagnostic process.

3) Tumour invasion to other organs, where a given centre could be authorised to treat one organ disease but not another (e.g., rectal cancer and liver metastasis), which can complicate clinical management. Risk: low degree of clinical expertise among the so-called central services (anatomical pathology and imaging).

4) Blurred line between curative and non-curative patients. Some patients deserving a curative intervention could not be referred by non-authorized hospitals as being considered non-curative.

5) Procedures requiring a high level of expertise even if they are not typically considered highly complex (e.g., mesorectal excision versus transanal endoscopic microsurgery in rectal cancer).

## *Management*

- 1) Strategic behaviour and creation of a “market” related to highly complex cancer patients. To some extent, non-adherence to the patient flow map incentivised hospital administrators and clinicians to promote win-win strategies to manage inter-hospital relationships.
- 2) Geographical integration led to experiences like establishing multi-centric tumour boards or formalising alliances for comprehensively managing high-complexity cancers or optimising use of technological infrastructure.
- 3) While conditional cash transfers were effective, increased reimbursement rate did not seem to spark any internal reorganisation or investments in the relevant hospital services (i.e. ended up in the general budget of the hospital).

4) Non-differentiation of which care processes should be managed by a single multidisciplinary team and which can be decentralised entailed problems. This should keep certain subprocesses from being divided between institutions when this is not advisable (e.g. pathological anatomy and surgery). It should also permit some well-coordinated decentralisation (e.g. providing medical treatment in a centre that refers patients) and effective evaluation.

5) Degree of transparency? Non-authorized providers were blinded to authorized hospitals' results (produced by clinical audits), which was largely criticised. Are we promoting quality-based competition or not (as a driver of quality)?

## Conclusions

- The policy on centralisation in Catalonia created a framework for clinical management in high-complexity cancer diseases or procedures that put an end to the model of freestanding hospitals.
- It is advisable to create clinical pathology networks among experts in the authorised centres (horizontal integration) in order to promote the transfer of knowledge and patient access to clinical trials or innovative treatments.
- The greatest challenge of centralisation resides in the inclusion of non-authorised hospitals (vertical integration) due to their variable and non-specific role in complex oncology and the absence of common criteria for inter-hospital transitions.

## Thanks

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