

Value Based Healthcare estimation value for benchmarking among Spanish Hospitals post knee prostheses

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Aim

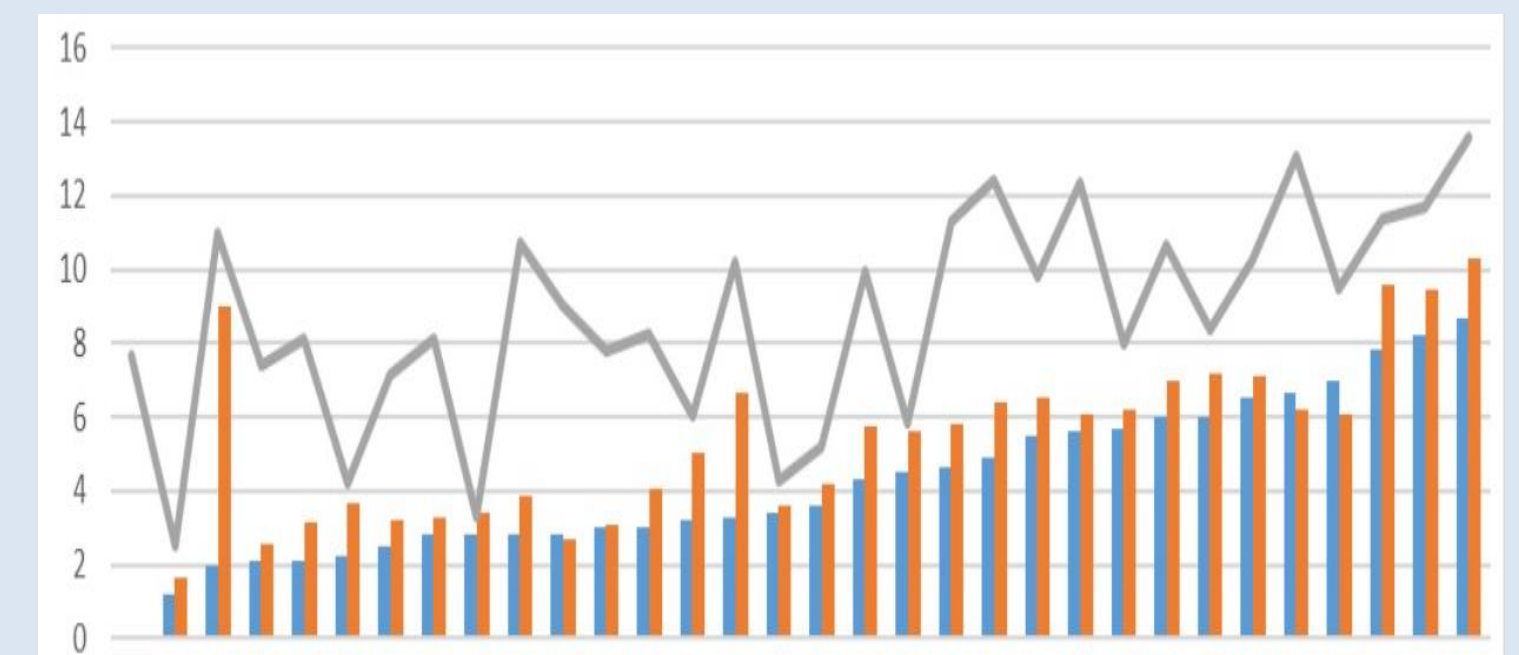
- Knee prosthesis surgery is one of the most common types of trauma surgery in Spain.
- The increasing interest in finding comparable cost per patient reported outcomes has not been accompanied with published estimations.
- The purpose of this work is to explore a patient-centered view of care through describing a real value-based estimation benchmark.

Methodology

- Patient Reported Experience and Outcome (PRE+PRO) data was collected on **knee prosthesis surgery patients under the age of 70 operated from January to June 2022 in 31 Spanish hospitals**. Data was collected between February and April 2023.
- **PRE** were collected with the **CAHPS** (19 items) **questionnaire and PROs following ICHOM recommendations** (3 general Questions (work status, results with prostheses, joints with problems); generic questionnaire VR12; specific pain and functionality ICOAP and KOOS-Short Form).
- Questionnaires punctuations were scaled into 0-to-100 value-based-units ranges. Each questionnaire counted equal.
- **Costs data** was estimated through machine learning techniques based on the RECH (Spanish Net of Hospital Costs) per episode database which contains 5 millions of episodes with 10 partial cost vectors.
- **Costs were divided by the scaled punctuations** to find a proposal of average comparative Porterian estimations among centers.

Results

- 804 patients responded to questionnaires (293 corresponded to big hospitals, 352 to medium hospitals and 159 to private hospitals). This means an average of 25.9 answers per hospital.
- The average age was 64 years and the average in-stay was 5 days per episode (*encuestas a profesionales?*)
- The crude average results per hospital of the specific knee PROM questionnaires are shown in the Figure. The variability is very high.

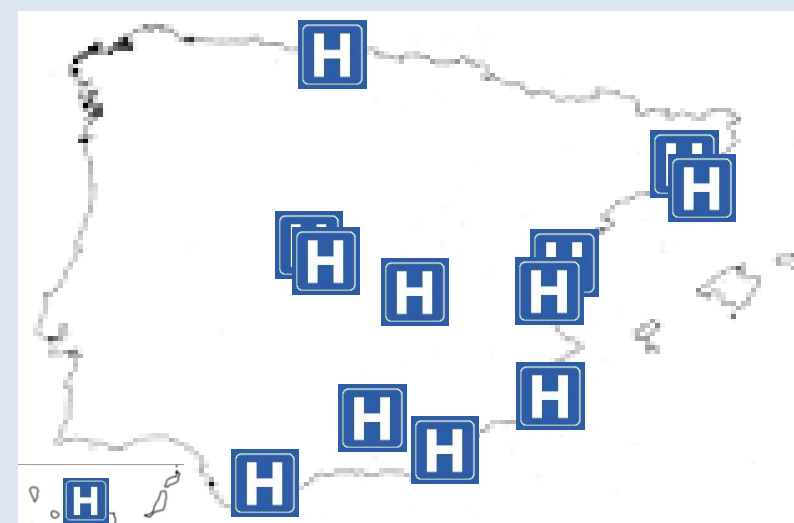


but also the average of knee or hip joints affected per patient variability is very high. 81% of centers had participant averages of 2 or less joints, whereas 19% of the hospitals had participant averages of more than 2 joints.

- The following table shows the PREMs and PROMs weighted into 0 to 100 values per type of hospital, the average unit cost for patient reported measures, the estimated average cost given the patients characteristics, and the final value coefficients.

HOSPITAL TYPE	PREM (out of 100)	PROM					PRM Unit Numerator	COST Denominator	VALUE Coefficient
		Total	(3Q	VR12	ICOAP	KOOS-PS)			
• PUBLIC BIG	83.5	64.0	38-72-60	57-71*	70-75	49-72	→ 68.2	6,892€	101€/PRMU
• PUBLIC MEDIUM	88.5	69.2	31-73-65	65-77*	77-84	53-83	→ 72.0	6,079€	84€/PRMU
• PRIVATE	90.2	66.5	40-72-68	59-72*	73-78	59-78	→ 73.6	6,562€	89€/PRMU

PRM: Patient Reported Measure *the questions 1 and 11 are exceptions in this range



Conclusions

- Value-based medicine invites to work for excellence care through combining costs and self-reported outcomes.
- With limitations (low number of participants in some hospitals, only patients with less than 70 years), this study proves the feasibility to find practical ratios that enable centers to compare among each other.

