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Cost of quality

L’impact de qualité sur les finances de l’hôpital

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Quality as cost for the hospital

- Which costs?
- Cost of accreditation programs
- Cost of complications ?
- What can hospitals do ?
  - At hospital level
  - At network level

Do we know the cost of quality?

- Various types of cost
  - Prevention
  - Appraisal
  - Internal failure
  - External failure
- No accounting for quality costs

Uyar, A., & Neyis, A. (2015). Does the healthcare industry report quality costs? *Total Quality Management & Business Excellence*, *26*(7- 8), 733-745.

A Systematic Review of the Association Between Hospital Cost/price and the Quality of Care

Sara Jamalabadi[1] · Vera Winter[1,2] · Jonas Schreyögg[1]

Table 2 Overview on study findings on the cost/price-quality relationship in total and for different subcategories

	Sign linear/non-linear positive	Sign linear negative	Sign non-linear U-shaped/ inverted U-shaped	Not sign
	(*n*) (% of ni)	(*n*) (% of ni)	(*n*) (% of ni)	(*n*) (% of ni)
Total	**76 (33%)**	**33 (15%)**	**11 (5%)**	**105 (47%)**
Cost/price measure				
Price/reimbursement	22 (37%)	7 (11%)	0 (0%)	31 (52%)
Cost (aggregate)	54 (33%)	26 (16%)	11 (6%)	74 (45%)
Quality of care measure				
Outcome	**62 (32%)**	**26 (14%)**	**11 (6%)**	**93 (48%)**
Mortality	56 (40%)	12 (9%)	4 (3%)	68 (49%)
Readmission	3 (25%)	1 (8%)	3 (25%)	5 (42%)
Complication/morbidity	0 (0%)	12 (46%)	1 (4%)	13 (50%)
Quality of Life Index (QoL)	3 (23%)	1 (8%)	3 (23%)	6 (46%)
Composite measure	0 (0%)	0 (0%)	0 (0%)	1 (100%)
Process measures	**14 (43%)**	**7 (21%)**	**0 (0%)**	**12 (36%)**
Process (unspecified)	1 (100%)	0 (0%)	0 (0%)	0 (0%)
CABG process measure	2 (29%)	3 (43%)	0 (0%)	2 (29%)
Pneumonia process measure	0 (0%)	4 (33%)	0 (0%)	8 (67%)
CHF process measure	4 (80%)	0 (0%)	0 (0%)	1 (20%)
AMI process measure	1 (100%)	0 (0%)	0 (0%)	0 (0%)
Stroke process measure	6 (86%)	0 (0%)	0 (0%)	1 (14%)

- NO general relationship between cost/prize and Quality of care
- BUT
  - Correcting for endogeneity shows positive relationship
  - Potential for improving quality while maintaining or reducing price/cost is low
  - Local regulations for quality assurance have an impact on quality and cost

Applied Health Economics and Health Policy (2020) 18:625–639

The cost of a first and second hospital-wide accreditation in Flanders, Belgium

JONAS BROUWERS[1,2], DEBORAH SEYS[1], FIEN CLAESSENS[1], ASTRID VAN WILDER[1], LUK BRUYNEEL[1], DIRK DE RIDDER[1,3], KRISTOF EECKLOO[4], KRIS VANHAECHT[1,3], and KATRIEN KESTELOOT[1,5]

- Direct operational cost **€ 609 /bed**
  - Translation JCI € 66,3 /bed
  - External consulting € 88,45 /bed
  - Staff training € 51,4 / bed
  - Surveyor visit € 209 / bed
- Additional investments **€ 427,35** (infrastructure, maintenance…)
- Training hours **5124h**
- Staff FTE increase 0,8FTE before the survey year, 1,71FTE in the accredition year

International Journal for Quality in Health Care, 2022, **34(3)**, 1–7

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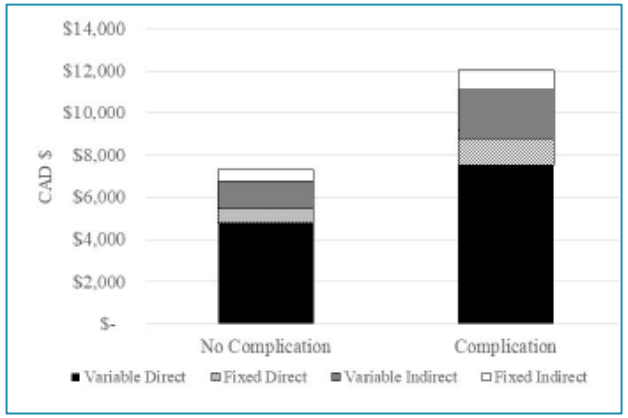
Cost of postoperative complications after general surgery at a Major Canadian Academic Center

E. Roach et al.

- 2713 patients undergoing surgery (bariatric, appendectomy, cholecystectomy, hemicolectomy, thyroidectomy, incisional hernia repair)
- 6% at least 1 complication (1% after bariatric and 24% after colectomy surgery)

- Cost of complications led to significant increase of total median costs
  - +35% in bariatric surgery
  - +161% in incisional hernia repair



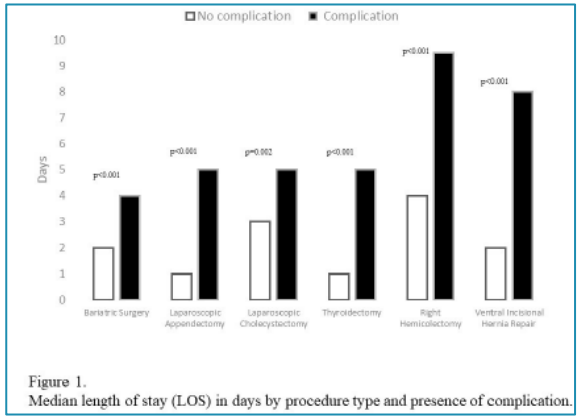
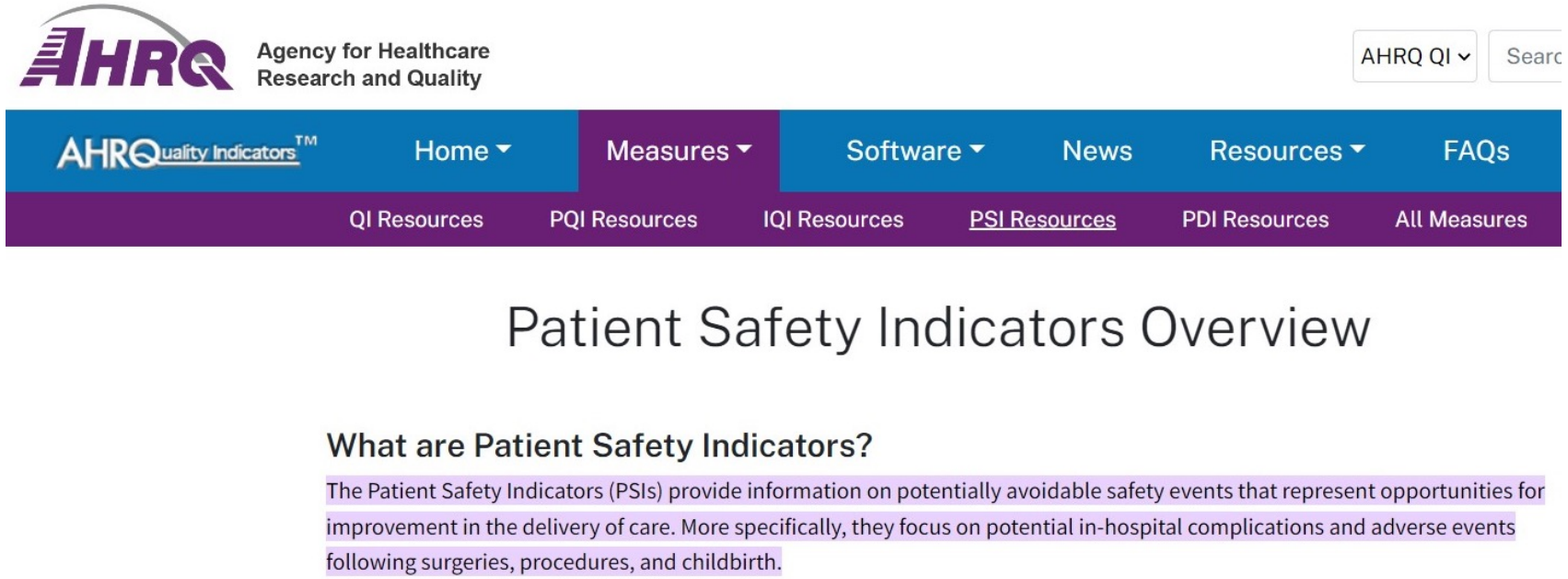


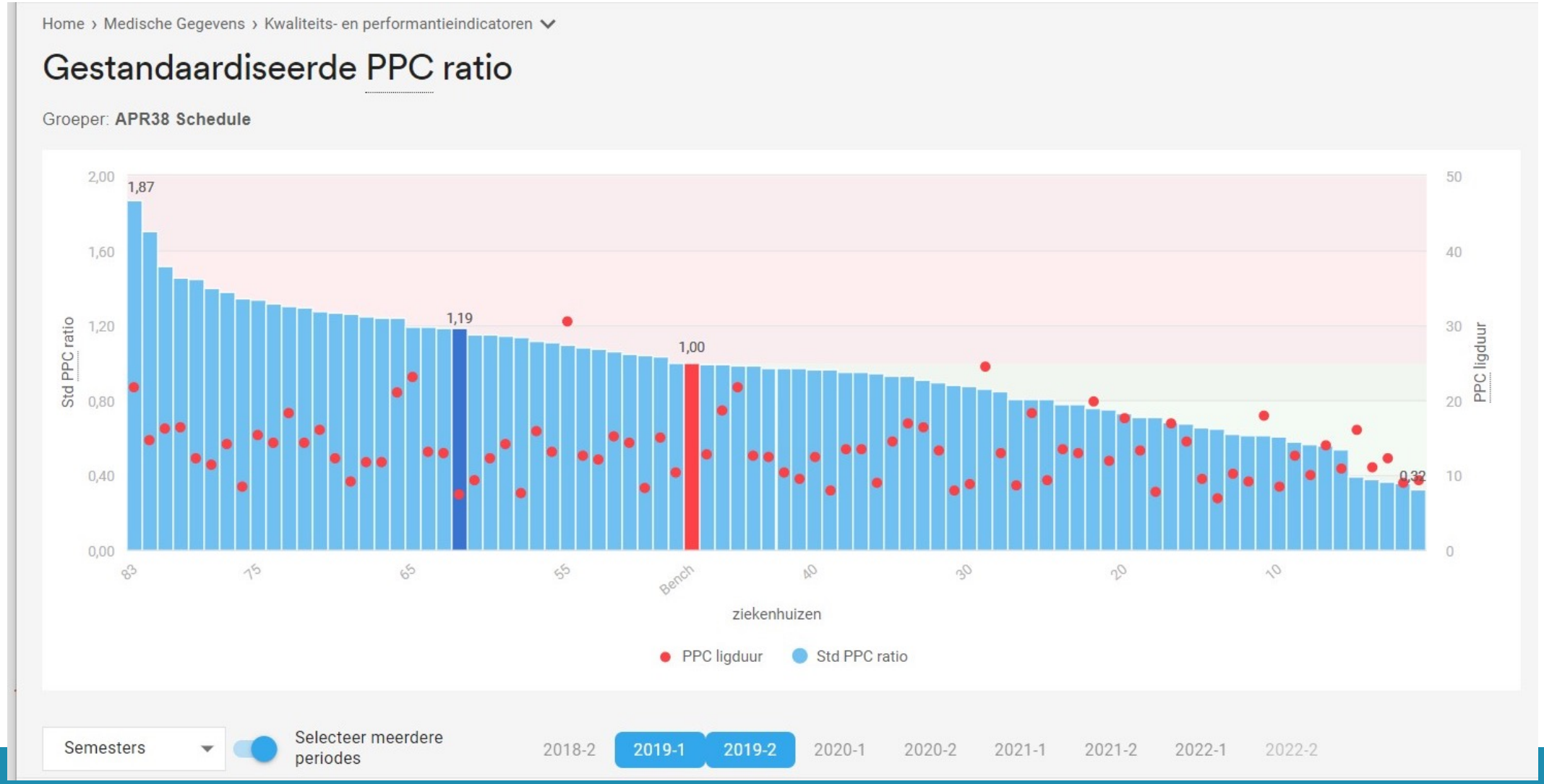
Figure 1.
Median length of stay (LOS) in days by procedure type and presence of complication.

Preventable complications?

- AHRQ indicators
  - Internationally validated algorithms for adminstrative date
  - Patient safety indicators



3M

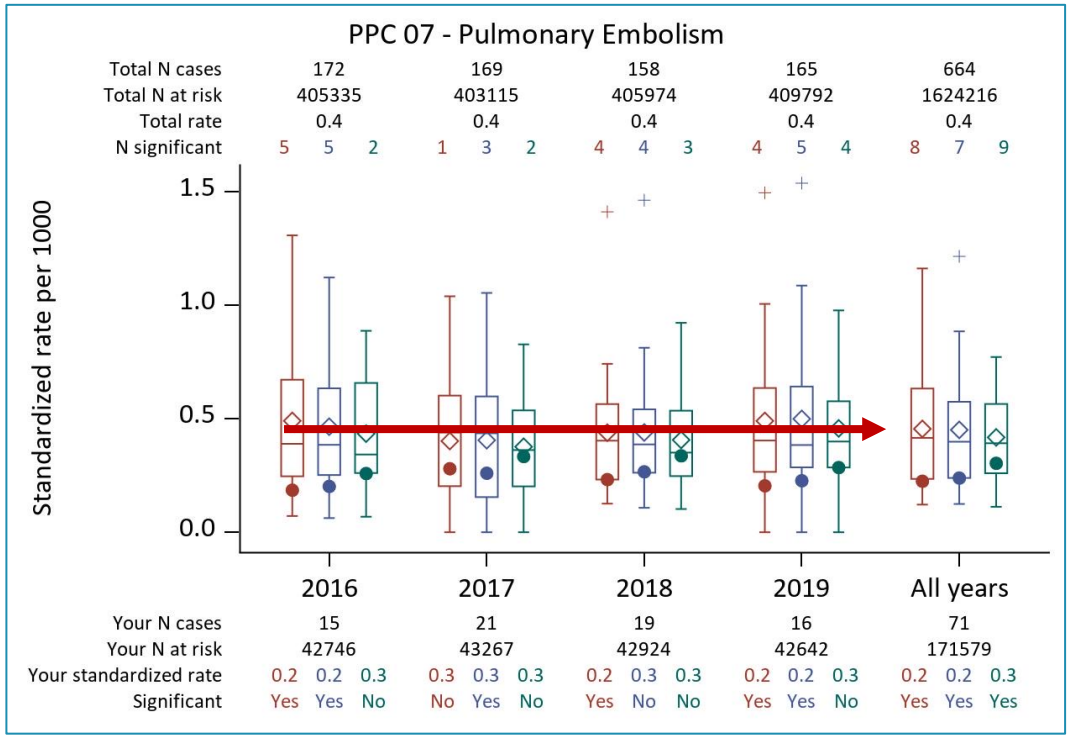

Home › Medische Gegevens › Kwaliteits- en performantieindicatoren
Gestandaardiseerde PPC ratio
Groeper: APR38 Schedule
Std PPC ratio
PPC ligduur
2,00
1,60
1,20
0,80
0,40
0,00
50
40
30
20
10
0
1,87
1,19
1,00
0,32
83
75
65
55
Bench
40
30
20
10
ziekenhuizen
PPC ligduur
Std PPC ratio
Semesters
Selecteer meerdere periodes
2018-2
2019-1
2019-2
2020-1
2020-2
2021-1
2021-2
2022-1
2022-2

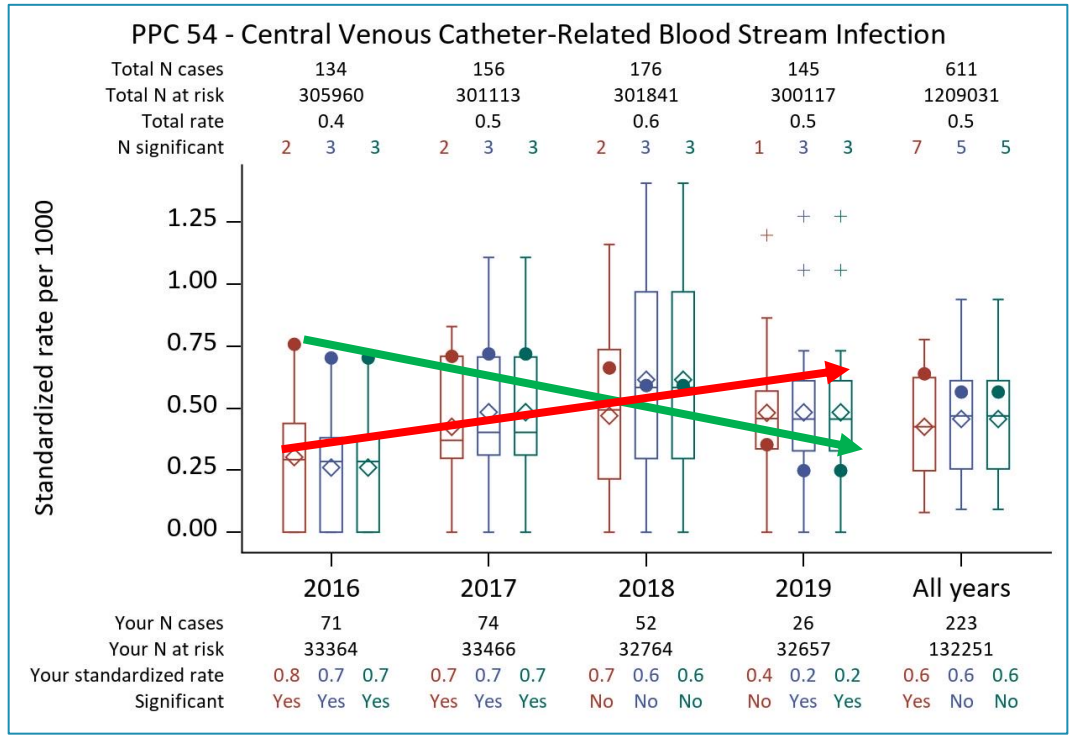
How trustworthy are these administrative complication data?

- 3M Scientific Chair at the LIHP- KU Leuven

- 3 models
  - **3M methode**
  - **Logistic regression model 2 (Severity Of Illness and other patient characteristics)**
  - **Logistic regression model 3 (Severity Of Illness and other patient characteristics and proxy variables for coding practices)**

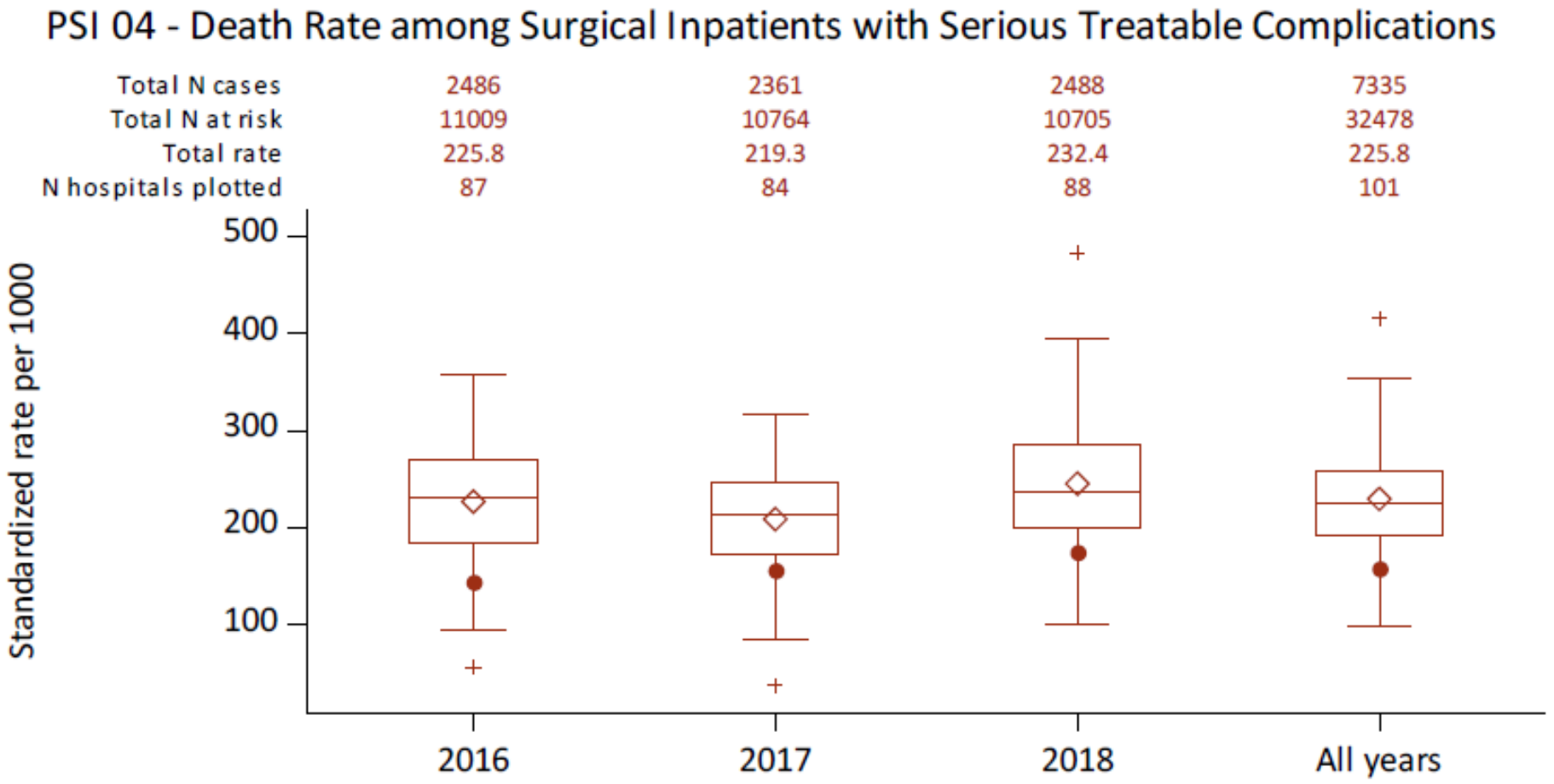
LIHP modeling





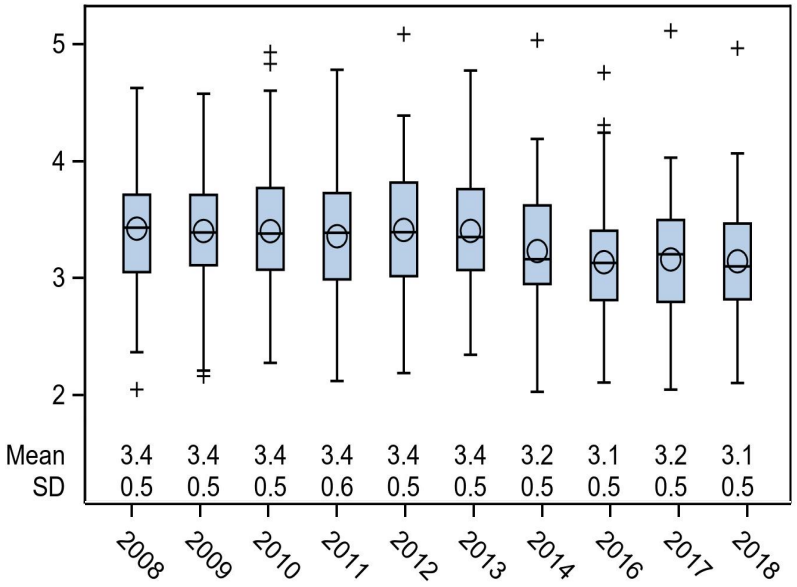
PPC can remain stable, evolve positively and evolve negatively: implications of government healthcare goals?

Failure to rescue

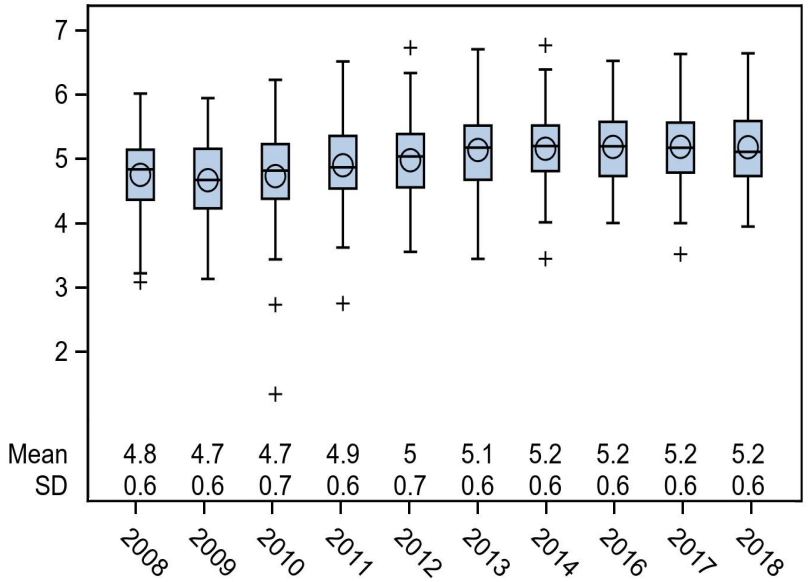


Mortality, readmission and length of stay in Belgium based on ‘MZG’ (minimal hospital data)

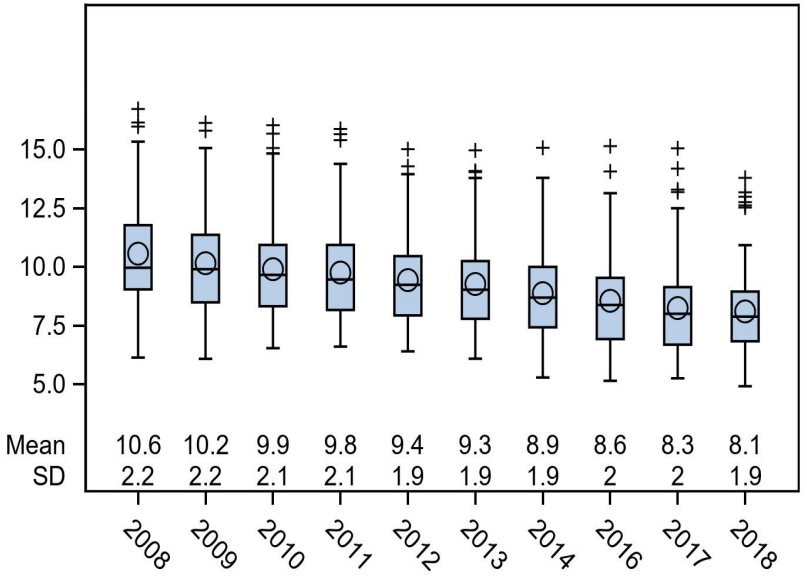
Standardized mortality (%)



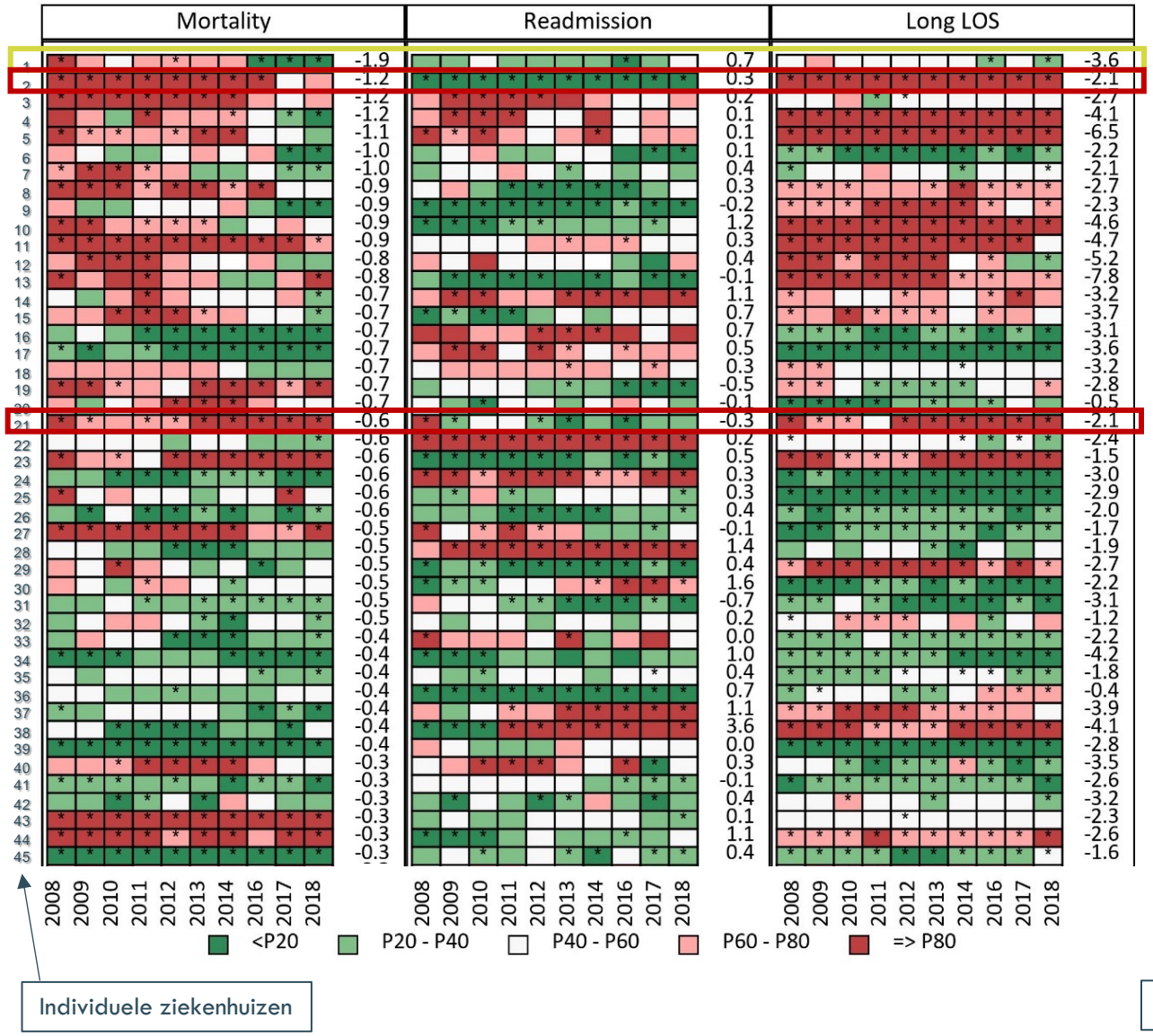
Standardized readmission (%)



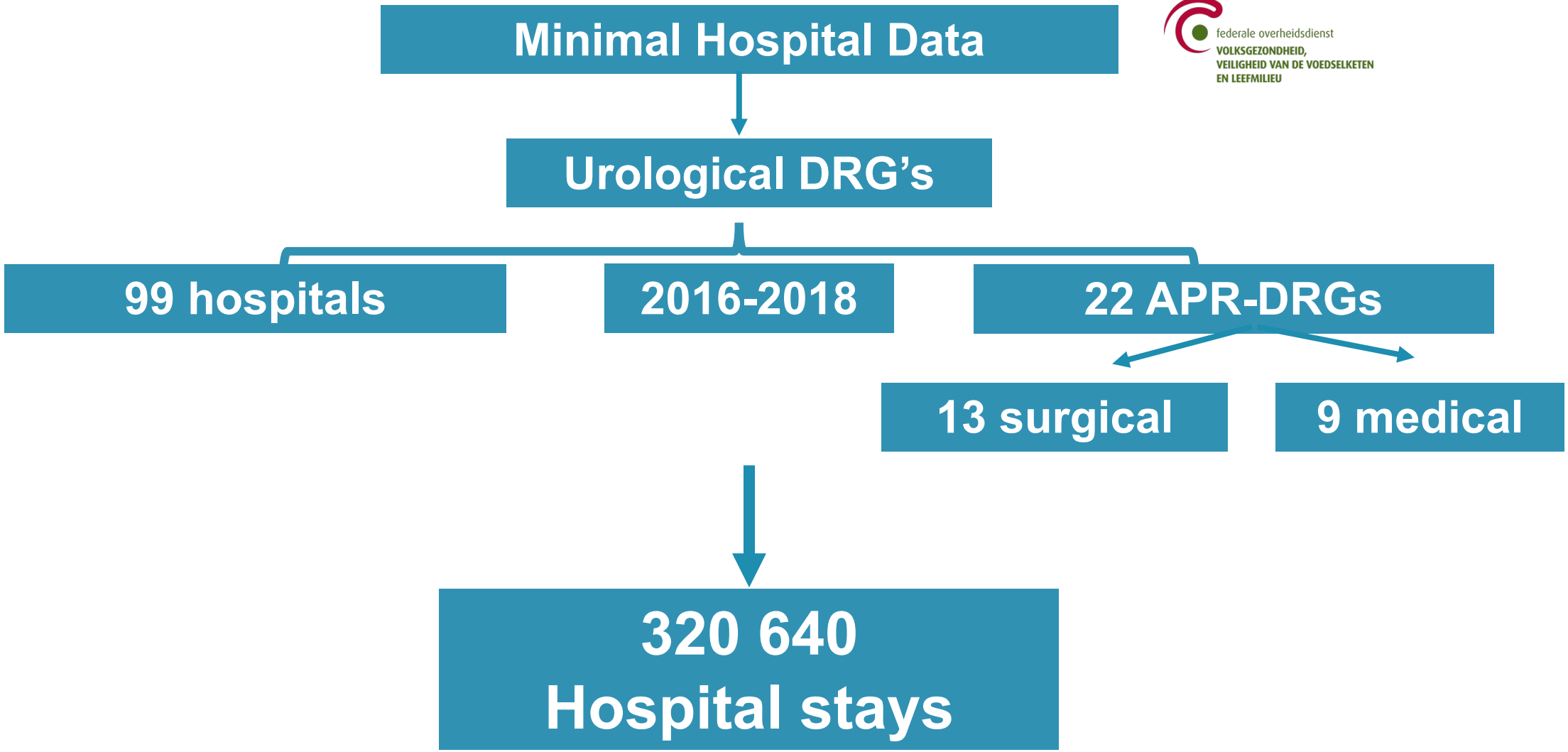
Standardized long LOS (%)



Achievement en Improvement in ‘Vital Few’



Urology case: variation between hospital



federale overheidsdienst
VOLKSGEZONDHEID,
VEILIGHEID VAN DE VOEDSELKETEN
EN LEEFMILIEU

Van Wilder A et al. Eur Urol Focus. 2021 Nov 26:S2405-4569(21)

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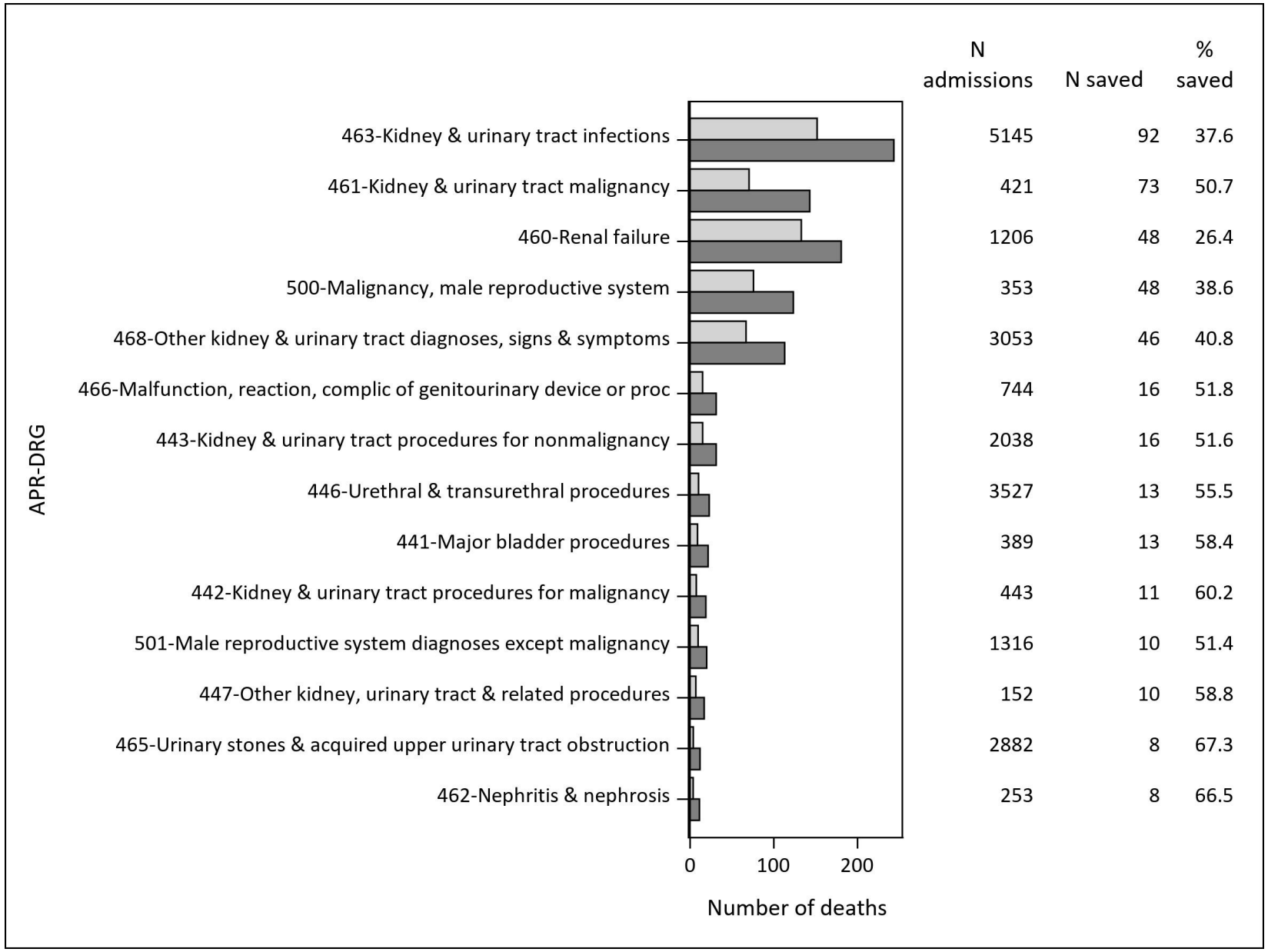


If the low performance hospitals would improve to the median level, we would save 412 lives per year in Belgium

Conclusions on urology

- Significant variation in vital few between hospital
- If the low performance hospitals would improve to the median level, we would save 412 lives per year in Belgium
- Oncological/surgical DRG's outperform the medical DRG's
  - Guidelines? Cancer plan? Eras? Multidisciplin. Oncology Meetings?
  - Lack of standardisation in the management of infections, lithiasis etc…

Hospitals Bending the Cost Curve With Increased Quality: A Scoping Review Into Integrated Hospital Strategies

Erik Wackers[1*], Niek Stadhouders[1], Anthony Heil[1], Gert Westert[1], Simone van Dulmen[1], Patrick Jeurissen[1,2]

Strategy	Facilitators	Barriers
Clear strategy	Bottom up, clear	Focus only on cost reduction
Leadership	Appointment of champions	Power consolidation for doctors and managers
Engagement	Aligning goals	Lack of staff involvement
Organisation	Redefining roles	Uncoordinated implementation
Finance	Incentives and shared savings	Complex financial structures
Data/IT	Data driven	Data paralysis
Projects	Rapid cycle, shared responsability	Projects beyond scope
Support	Support dept.	Too dependent on external support
Skills	Education of physician leaders	Lack of qualified staff
Culture	Celebrate success, humour	Resistance to change
Communication	Evaluation and feedback	Too focused on details

Int J Health Policy Manag 2021, x(x), 1–11

Enacting quality improvement in ten European hospitals: a dualities approach

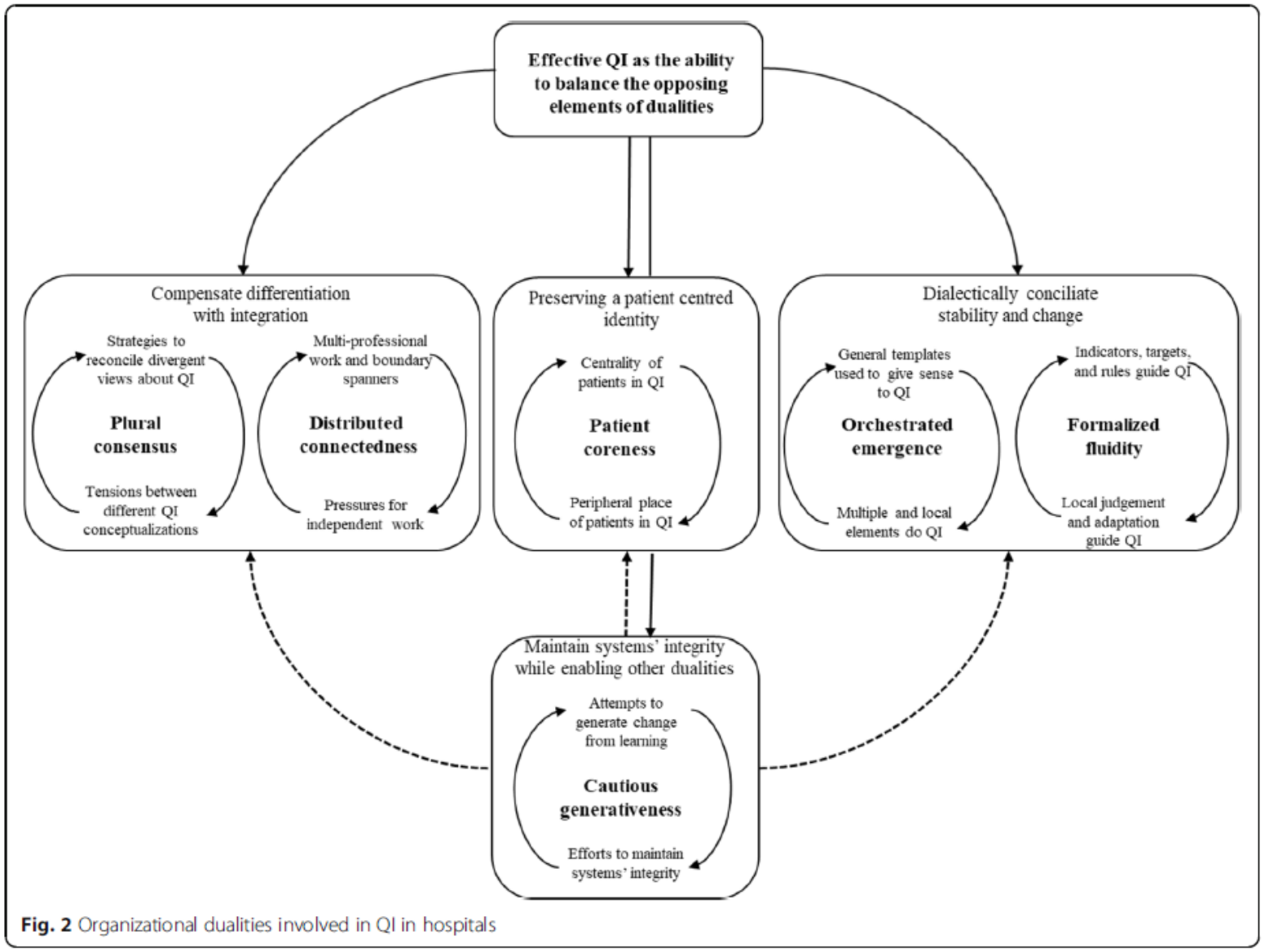


Fig. 2 Organizational dualities involved in QI in hospitals

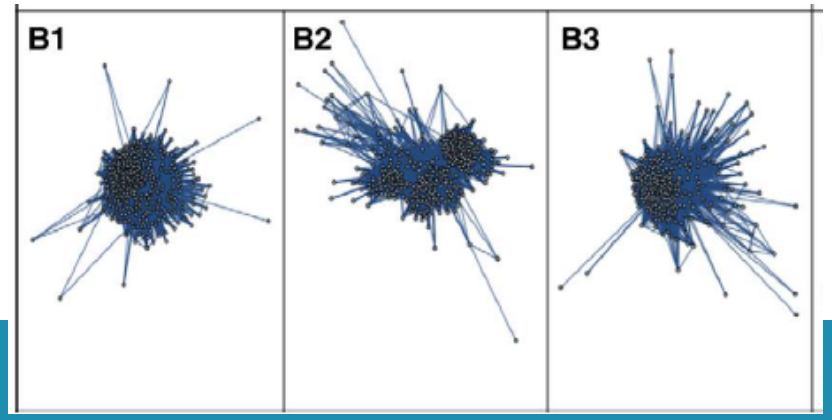
Sequential & Project-based Systemic Thinking about QI

Balancing simultaneous operation of opposing concepts

An observational study of health care provider collaboration networks and heterogenous hospital cost efficiency and quality outcomes

Sebastian Linde, PhD[a,b], Hajime Shimao, PhD[c]

- 3061 acute care hospitals in 2016
- **8 network characteristics**
  - Centralization, betweennes, eigenvector centrality, global efficiency, transitivity, node connectivity and average clustering
- **4 outcome measures**
  - Total hospital expenditures
  - Percentage of patients rating the hospital woth a 4-5 on a 5 point Likert scale
  - Heart failure readmission rate
  - Heart failure mortality rate



An observational study of health care provider collaboration networks and heterogenous hospital cost efficiency and quality outcomes

Sebastian Linde, PhD[a,b], Hajime Shimao, PhD[c]

- **Provider networks are significantly associated with**
  - Costs efficiency (p<0,001 for 7/8 network measures)
  - Patient ratings (p<0,1 in 5/8 network measures)
  - Heart failure readmissions (p<0,1 in 3/8 network measures)
  - Mortality rates (p<0,02 in 5/8 network measures)
- **Further variation with**
  - Hospital capacity
  - Case mix
  - Ownership
  - Teaching status

Conclusions

- The relationship between quality and cost is complex
- Point of view will differ between
  - Government
    - Closed budget effect!
  - Hospital
    - Complications generate costs, but also income
  - Insurance
  - Patient
  - Society
- Smart investments in quality may lead to a more sustainable cost model for hospitals