Comparison of different methods: aggregating quality indicators issued from guidelines in acute myocardial infarction at discharge care


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The COMPAQH Project

• COMPAQH: COordination for Measuring Performance and Assuring Quality in Hospitals

• A French operational research project
  – Run by the French national institute for research in health care
  – One of its objectives is to develop quality indicators and to establish effective ways of using them (make them readable for the public)
Objectives

➢ To compare different aggregation methods on hospitals ranking in the specific case of the aggregation of 5 quality indicators (QI) measuring quality of care in acute myocardial infarction (AMI) at discharge.

➢ To assess the potential unfairness in ranking due to the use of a specific aggregation method.
Indicators and Population

- 5 process quality indicators based on clinical guidelines:
  1. Aspirin and clopidogrel prescribed at discharge
  2. Beta-blocker prescribed at discharge
  3. Left ventricular ejection fraction (LVEF) measured
  4. Statin prescribed at discharge
  5. Advice on diet

- Random sample of 60 medical records/hospital
- QI = percentage of patients who received the process of care
- 56 hospitals - 3259 patients

Aggregation methods

1. **“All-or-none”**
   - Patient score = 1 if all QIs scored 1; 0 if at least 1 QI scored 0
   - Hospital CS = average of patient scores

2. **“Indicator average”**
   - Each QI = same weight
   - Hospital CS = average of QIs

3. **“Budget allocation process”**
   - 13 cardiologists divided a “budget” of 100 points among the QIs
   - Weights = average budgets
   - Hospital CS = weighted sum of QIs

4. **“Benefit of the doubt”**
   - Each indicator is assigned a weight maximizing the CS for each hospital
   - Hospital CS = weighted sum of QIs
Composite uncertainty and hospitals ranking

- Ranking in three categories:
  - « + », « = », « - »

Potential unfairness

- 59% (33) of hospitals experienced at least 1 category change

- 41% (23) of hospitals kept the same ranking:
  - 8 « + »
  - 7 « = »
  - 8 « - »
How can a choice be made?

- A change of method led to a change of rank for most hospitals
  - potential source of unfairness

Avoiding constructing CS could be a solution, but the public is demanding for clear information on hospitals and institutions already use them

- The rationale of each method can help decision-makers make a choice
Rationale of each method (1/2)

- **All-or-none**
  - Rewards excellence
  - Gives the percentage of patients for whom all aspects of care were met

- **Indicator average**
  - Simplicity
  - Gives a measure of average quality

- Both methods give the same value to guidelines supporting QIs (even though the calculation is different)

Rationale of each method (2/2)

- **Budget allocation process**
  - Professional legitimacy
  - Graduates the value given to each guideline from experts’ opinion

- **Benefit of the doubt**
  - Favors reward over sanction
  - Promotes best results issued from the application of guidelines

Introduction Objectives Methods Results Discussion Conclusion
Conclusion

- Individual QIs help hospitals improve their action
- CS are easier to understand by the public

⚠️ Caution: unfairness. Different aggregation methods lead to different hospitals ranking

- The rationale of the method and information on uncertainty must be provided

Aggregating quality indicators

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No author conflict of interest

- All authors declare they had:
  - No financial support for the submitted work from anyone other than their employer
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  - No spouses, partners, or children with relationships with commercial entities that might have an interest in the submitted work
  - No Non-financial interests that may be relevant to the submitted work