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Hospital Mortality Rates: Finding the Pony

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Charge:

"Deploying and publicly reporting a risk-adjusted measure of mortality as a quality indicator of hospital system-level performance."

1. Hospital (not practitioners or diagnoses)
2. System-level (single measure for hospital, but perhaps for a service or service line)
3. Risk-adjusted (not the raw rate)

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The First National Effort

- Krakauer, Bailey, et al. produced claims-based standardized mortality estimates for all hospitals and distributed to QIOs, asking them to evaluate and use as they saw fit.
- The rates were published by CMS annually for several years and a list of 50 killer-hospitals as part of the release.
- The project was killed in 1993 by an Administrator sympathetic to public hospitals.

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Lessons

- It is very helpful to have articulated the purpose of the publication.
- It is important to have examples of using the data to make choices or improve care.
- Improved goodness of fit seems to be of little interest to the public and never enough for most physicians, and it can be very confusing.
- Selecting random discharges is confusing and hard to explain.

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The Medicare Mortality Predictor System

- In 1989 Jencks, Daley, and others developed a system based on chart abstraction that allowed hospitals to abstract data from their own records to predict their mortality rates for heart attack, heart failure, pneumonia, and stroke.
- The purpose of the system was to allow hospitals understand how much the best available risk adjustment would influence their ranking in the CMS publication.

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Lessons

- Unless the articulated purpose matches a felt need of those who must invest resources to use a system, the system will have limited voluntary adoption.
- Improved goodness of fit seems to be of little interest to the public and never enough for most physicians, but it can be confusing and expensive.

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Cardiac Surgery

- Northern New England
- Hannan et al
- Epstein & Weisman
- STS
- State adoption

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Lessons

- Balancing usefulness against burden and risk.
- Some evidence that outcomes have improved.
- Focused data seem to be more actionable and therefore more accepted.
- Good risk adjustment and professional support have promoted professional acceptance and widespread adoption.

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Krumholz-Normand Models

- Medicare, claims-based, 30-day mortality for pneumonia, heart failure, and heart attack.
- Hierarchical regression model results in very few “outliers” and is not easy for most users to understand.
- Posted to Hospital Compare identifying individual hospitals only as high, low, or as expected.

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Lessons

- Improved goodness of fit seems to be of little interest to the public and never enough for most physicians, but it can be confusing and expensive.
- No clear model for use. Even for the small number of outlier hospitals, use has so far been quite limited.

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Deeper Modeling Issues

- Chronic disease v. elective surgery
  - Sampling from the dying process v. judging the risks of an intervention
- Endogenicity
  - Frequent v. rare rehospitalizations
- Where and how families and patients want death to occur v. DNRs
- Need to model the care system, not just risk factors

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Broader lessons

- The need for an explicit purpose for the system with an appropriate implementation plan and measures of success.
- The need to see the relationship of mortality to a particular hospitalization within the context of both patient-centered care and a longer patient experience.