Health quality data: Are flawed data better than none?

ACCESS TO GOOD data on the quality of medical care must be a key component of any health care system that seeks to control costs. Such data can increase the accountability of providers and support consumer choice among competing providers.

But what constitutes good quality data?

See Vogel and Topol, page 124

In this issue of the *Cleveland Clinic Journal of Medicine*, two leading cardiologists, Vogel and Topol,[1] discuss some of the pros and cons of scorecards that evaluate quality of care for cardiac disease. Although both of the discussants like the idea of assessing quality, both are appropriately concerned about the limitations of the available risk- or severity-adjustment methods. The questions they pose extend far beyond cardiology.

Even the most ardent supporters of public disclosure acknowledge that the current systems claiming to compare outcomes are flawed.

How valuable are flawed data? It depends. It depends on how flawed the data are, how sophisticated the users are, how the data are manipulated or "risk-adjusted" (and how much information the users can get about this), how susceptible the system is to "gaming" by the providers, how relevant the outcomes are to quality of care, and on other factors specific to the outcomes under scrutiny.

PROBLEMS WITH RISK ADJUSTMENT

At the heart of the challenge is risk adjustment, a controversial topic ever since the Health Care Financing Administration began publishing hospital mortality data. Risk adjustment is a statistical procedure that attempts to identify and weigh risk factors for the outcome under consideration. For example, patients in shock (a risk factor) after myocardial infarction have a higher chance of dying (an outcome) than patients not in shock. Other risk factors for the same outcome are similarly identified, then all are analyzed together to see which are independent of each other. Each independent risk factor receives a weight (coefficient), which indicates the degree to which it influences the outcome. The overall probability of the outcome in a given patient is calculated by combining these weights together mathematically and applying the result to the overall probability of the outcome in the whole population.

It sounds great but does not work very well at the extremes—the risk tends to be overestimated at the low-risk end of the spectrum and underestimated at the high-risk end. The problem may reside in risk factors that cannot be identified or even measured.

Cleveland project flawed but better than most

In the Cleveland Health Quality Choice project, mentioned by Topol, the indicators used can predict less than 35% of the observed outcome (ie, $R^2 < 0.35$); at least 65% is due to other, unidentified factors (M. Kutner, personal communication). That is a sizable flaw, but this project's risk-adjustment method is better than most. The Health Quality Choice people have gone to considerable lengths to educate the businesses that use the data in shaping their health plans, requiring that "qualified" users attend a half-day workshop to gain some familiarity with the statistics involved. Everyone else (ie, the general public) gets a summarized ver-

sion of the data, with arrows pointing up (good), down (bad), or horizontally (as expected).

Capacity for corporate guile

As report cards and quality reports become integrated into the managed health care system, the stakes will grow, and so will the potential for "gaming" the system. In the Cleveland Health Quality Project, opportunities for gaming are many, and not all are readily detectable by spot auditing. Topol mentions the transfer issue—Hospital A transfers a high-risk patient to Hospital B, the former getting a living discharge and the latter assuming the risk of mortality for a patient.[2] Cleveland Health Quality Choice has corrected for this potential bias by eliminating hospital transfers from the study.

Another way to game the system is to make sure that patients who die do not qualify for inclusion in the reported series of patients, ie, they do not have one of the diagnoses under consideration in the medical mortality component of the program. This trick is almost impossible to detect in a limited audit, since the patient's chart would simply never come up for review. And these problems surely will not be limited to the Cleveland project. The capacity for corporate guile when business is at stake should not be underestimated.

Manipulated numbers from a secret black box

All these problems are compounded by the tendency of people who develop risk-adjustment systems to keep their risk-factor coefficients "proprietary"—ie, secret. Thus, the adjusted probability of a given outcome cannot even really be considered "data." It is a manipulated number that emerges from a proprietary black box that uses criteria we do not know to modify raw data we never see. Then, we providers are supposed to unquestioningly accept the conclusions. Come on.

Costs passed on to the public

Vogel and Topol both discuss the high cost of extracting quality data, not a trivial issue as data collection becomes more comprehensive. The cost of data extraction to feed the Health Quality Choice program is high, largely invisible, and ultimately borne by the public in increased medical costs. Such costs may eventually decrease as electronic medical records come into widespread use, but that day is not imminent. If the project is broadened to look at individual physicians, the cost of data extraction will escalate even further and will be an additional factor forcing physicians into groups and out of private practice.

MOVING AHEAD...WITH CAUTION

Over the last 3 years, the Ohio General Assembly passed two bills mandating that the state health department institute quality assurance programs. Those measures will likely be subject to the same problems as those that plague the Health Quality Choice project. As the state and federal governments move inexorably along this course, they need to look critically at the problems with the Health Quality Choice project and proceed with caution. No one is served by misleading the public on an issue as vital as health care quality, however good one's intentions may be.

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REFERENCES

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2. **Clough JD, Kay R, Gombeski WR, Nickelson DE, Loop FD.** Mortality of patients transferred to a tertiary care hospital. Cleve Clin J Med 1993; **60**:449–454.