

Providing Individualized Feedback to Physicians to Improve Clinical Efficiency

Engler J, Davis KM, Koch KE. Using clinical practice analysis to improve care. *Jt Comm J Qual Improv* 2001;27:291-301.

Study Overview

Objective. To determine whether the feedback of personalized data to individual physicians improves clinical and financial outcomes.

Design. Prospective observational study.

Setting and participants. The study took place at the North Mississippi Medical Center, a 647-bed tertiary care referral center in Tupelo, Mississippi. Study participants were patients at the North Mississippi Medical Center.

Intervention. The medical center developed a comprehensive clinical benchmarking and improvement process known as clinical practice analysis (CPA). The CPA process engages physicians in examining, evaluating, and modifying their clinical practices. Components of the CPA process are project selection; identification of criteria and benchmarks; performance of and presentation of individual physician practices; development of structured care methodologies; identification of a physician champion; and performance of a follow-up analysis.

Main outcome measures. 3 outcome improvement projects were discussed: transurethral resection of the prostate (TURP), ischemic stroke management (stroke), and care of patients with community-acquired pneumonia (CAP). The TURP project measured duration of Foley catheter, length of stay (LOS), and patient costs. The stroke project examined number of aspiration pneumonias, use of sublingual nifedipine, mortality, LOS, and cost of care. The CAP project measured LOS, death rate, use of chest radiograph, cost of care, and use of antibiotics within the first few hours of admission. For the period after 1997, an additional outcome was receiving antibiotics within 4 hours of arrival in the emergency room.

Main results. In the TURP project, nurses were empowered to remove Foley catheters prior to the physician's rounds instead of physicians removing them during rounds. As a result, they were able to discharge the patients on average 1 day earlier. This result produced a reduction in LOS by

33 days (the exact number of patients involved was not provided). It also reduced the patient charges by \$10,000 in the first 6 months.

In the stroke project, the number of aspiration pneumonias was reduced by 6.4% and was eliminated by the end of the study. Average LOS decreased from 10.7 to 6.5 days, and the average cost of care decreased by \$1100. There was a significant decrease in the mortality rate, from 11.0% to 4.6%. There was a relative risk (RR) reduction of 58% and an absolute risk reduction of 5.4%, which would correspond to a number needed to treat of 18. However, this number should be considered with caution since confidence intervals were not given. The use of sublingual nitroglycerin, which is no longer recommended for treating hypertension, also dropped, from 17% to less than 0.5% in 4 years.

In the CAP project, Engler and colleagues examined outcomes between 1995 and 1997 and found that clinical guidelines implemented in 1995 were not being followed closely. The mean LOS was nearly the same in 1997 (8.0 days) as it was in 1996 (8.2 days), although the median cost of care decreased slightly (\$4874 versus \$4523). Use of chest radiograph improved, decreasing from an average of 2.5 films in 1996 to 1.7 films in 1997. Additionally, they incidentally found that the patients who received their first dose of antibiotics in the emergency room had a shorter LOS (7.1 days versus 8.6 days) in 1997.

They then examined outcomes between 1998 and 2000, after they readjusted the intervention. 48.8% of patients in 1998 received antibiotics during the first 4 hours of care compared with 89.2% of patients in 2000. The cost of care declined from \$4269 to \$3824 (adjusted from \$4074 to reflect 5% inflation). The mortality declined from 8.9% to 5.0%. The LOS improved from 7.7 days to 5.1 days.

Conclusion. Providing personalized data to physicians does improve financial and clinical outcomes.

Commentary

This study by Engler et al looks at changing provider's behaviors using their own data. The merits of the analysis are that they spent the time and effort in collecting the data

accurately in a difficult study area. The follow-ups were long enough, and it seems that the number of patients enrolled was sufficient. However, there are several problems. The authors mentioned that they had 55 projects, but only 3 were reported. It would have been useful to give a summary of the results of the other projects, even if they were negative or not significant. Another potential bias that could explain some of the changes in behavior is that external influences may have affected clinical decisions by the individual physicians. For example, the potential problems associated with the use of sublingual nifedipine to treat hypertension were well publicized. The physicians may have decided to change their practices based on that external pressure rather than the recommendations from their local expert. Also, the lack of randomization increases the potential for bias. Finally, the study was conducted primarily in a tertiary center of an integrated rural health system network. As there is a lot of variation in practice settings, reimbursements, local policies, and

geographic locations, it is difficult to say that the results could be generalized even if they are considered accurate. The positive results in the care of patients who are undergoing TURP surgery, suffering from acute stroke, or being treated for pneumonia if confirmed are significant but modest.

Applications for Clinical Practice

This study should be considered hypothesis-generating. What can be said is that the implementation of a clinical efficiency program may have modest effects. Each institution should look at this very critically before using it. There is a need to perform randomized controlled trials before accepting the results. It would make sense that providing individual data would carry more weight than generic recommendations, but, again, further studies should be done.

– Review by Benoit Tonneau, MD

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