Marginal Success for a Multimodal Quality Improvement Initiative for Cardiovascular Care

Ornstein S, Jenkins RG, Nietert PJ, et al. A multimethod quality improvement intervention to improve preventive cardiovascular care: a cluster randomized trial. Ann Intern Med 2004;141:523–32.

Study Overview

Objective. To determine the impact of a multimethod quality improvement intervention on process and outcome measures for preventive cardiovascular care.

Design. Randomized controlled trial.

Setting and participants. Data from 87,291 patients who received care at 20 outpatient clinics across 14 states from January 2001 to January 2003 were evaluated. All practices shared a common outpatient electronic medical record system.

Intervention. Medical directors at all clinics received copies of clinical practice guidelines as well as quarterly performance reports detailing practice level adherence to 21 quality indicators. Intervention clinics also received 6 to 7 site visits by study investigators during the study period during which quality improvement strategies such as effective use of the electronic medical record were discussed with clinicians. One clinician from each intervention clinic also attended annual meetings where "best practices" were shared among meeting participants.

Main outcome measures. The 21 quality indicators addressed management of hypertension, hyperlipidemia, coronary artery disease, heart failure, atrial fibrillation, and diabetes mellitus. The quality indicators involved both process measures (eg, measuring cholesterol) and outcome measures (eg, controlling cholesterol). The performance target for each quality indicator was defined as the 90th percentile for performance based upon baseline data collected from all clinics. The primary practice level outcome was defined as the percentage of quality indicators at or above the performance target level. The primary patient level outcome was the proportion of patients receiving the service represented by the quality indicator.

Main results. In the practice level analysis, the proportion of indicators at the performance target level increased from 11.3% to 33.7% among intervention clinics versus an increase from 6.3% to 22.7% among control clinics ($P > 0.20$ for the 6 percentage point absolute difference in improvement). A secondary analysis revealed that there were greater increases in achieved performance targets for both the intervention and control clinics among the process measures compared with the outcome measures. In the patient level analysis, only 2 of the 21 quality indicators demonstrated an improvement for patients in the intervention clinics versus those in the control clinics. Patients in intervention clinics experienced greater increases than those in control clinics in diagnoses of hypertension (15.7% absolute difference in improvement; $P < 0.001$) and control of blood pressure in presence of hypertension (8.0% absolute difference in improvement; $P = 0.05$).

Conclusion. While there were notable improvements in quality among both intervention and control clinics, the more complex quality improvement initiative resulted in limited additional improvements in care.

Commentary

Quality of care is a growing concern with the United States health care system, with a recent analysis indicating that appropriate care occurs only approximately 50% of the time [1]. Health care organizations have responded to this quality gap by instituting a variety of quality improvement initiatives. Unfortunately, prior quality improvement collaboratives have not produced measurable improvements in care [2].

The study by Ornstein et al tests the hypothesis that a more complex quality improvement initiative may result in measurable gains beyond those achieved with a simple intervention. Specifically, this study tested whether a more intensive program of fostering a quality improvement environment and encouraging dissemination of best practices could improve upon a simple intervention of providing performance reports. The majority of practices did achieve substantial gains in quality of care over the 2-year study period; however, the additional effect of the complex intervention was limited to improving the diagnosis and management of hypertension. Interestingly, the quality improvement noted among all clinics was most pronounced for process measures versus outcome measures, suggesting that increased efforts are needed to ensure more complete achievement of high quality care.

There were notable limitations to this investigation. The absence of a true control group (ie, one that receives no performance reports) limits our ability to discern whether the quality improvements noted in all clinics were due to the distribution of practice level performance reports or a result of some other phenomenon. In addition, while there were nearly 90,000 patients involved in this study, the randomization at the practice level of only 20 clinics limits the power to detect significant differences in quality improvement between the intervention and control groups.

Applications for Clinical Care

Quality improvement is an important and growing concern. This study provides important details regarding the implementation of the quality improvement intervention, including what best practices were perceived to be most effective. These details will prove essential to the medical community as we strive to provide better care for our patients.

–Review by Thomas D. Sequist, MD, MPH

References

1. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. N Engl J Med 2003;348:2635–45.
2. Landon BE, Wilson IB, McInnes K, et al. Effects of a quality improvement collaborative on the outcome of care of patients with HIV infection: the EQHIV study. Ann Intern Med 2004; 140:887–96.

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