Diabetes Quality Improvement: Rigor and Ridicule

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At least three distinct components are necessary to improve the quality of care. First, improving care requires adequate resources and infrastructure. Second, those in positions of authority must have the will to improve care. Finally (and perhaps most importantly), there must be a compelling rationale for improvement, a gap between where we are and where we should be.

Most of the literature on quality improvement in both the lay and professional press has focused on the first two issues. For example, to improve care, one must first have the ability to measure and track variables that are deemed important. In diabetes, for example, it may be desirable to track such variables as glycemic control, blood pressure control, lipid control, smoking, microalbuminuria, eye and foot exams, and use of angiotensin-converting enzyme inhibitors.

This kind of information (often presented via "dashboards" in electronic health records) allows physicians the ability to know both individual and population-level data on the patients they for whom they care. A vast, diverse, and largely intuitive literature exists on how this

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information can be used to influence behavior for the purpose of improvement. The challenge, of course, is getting access to electronic health records for the vast majority of practitioners, for whom the upfront costs of setting up such an infrastructure is often prohibitive.

Both the Bush and Obama Administrations have recognized this difficulty and proposed various initiatives to address this structural obstacle. Indeed, the conversation has already progressed to how we would link health records (given the example of the Veterans Administration) even as we wait for a majority of practitioners to acquire electronic health records.

The second component, the will to improve, is in part linked to the first component of infrastructure but goes well beyond upfront costs. By will, I largely mean incentives. Nearly all diabetes quality improvement initiatives involve "more." More screening. More counseling. More medication. More time. More staffing to support more care. Most of the "more" involves more expense for practitioners for little increased revenue (notwithstanding the fledgling pay-for-performance projects). Even the advances in technology during the past several decades that have the potential to improve glycemic control (e.g., home blood glucose meters, insulin pumps, and continuous glucose sensors) are wonderful from a patient perspective, providing ease of monitoring, better delivery of insulin, and the ability to detect short-term trends in glucose control. But they are difficult from a practice perspective, in that few practices are willing to use limited staff time and resources to download and interpret the data from these devices.

Unless market share were at risk, few businesses would undertake initiatives in which improvement is not linked to enhanced revenue. Undoubtedly, any enterprise that represents 15% of our gross domestic product (as health care is currently estimated to comprise) will have complex and occasionally conflicting incentives. Yet not all incentives are financial. Many, if not most, physicians genuinely want to do what is best for those who come to us for care. I find that I can convince most physicians to engage in improvement initiatives simply because it's what we should do.

Although these first two components, perhaps rightly, garner interest and attention, the last component, involving getting to where we should be, seems sufficiently mundane that most would be expected simply to say, "Well, of course."

Well, maybe not. In this issue of *Clinical Diabetes*, we see the peril of assuming that we know where we should be.

In our Landmark Studies department (p. 70), Associate Editor Michael Pignone, MD, MPH, reviews two large clinical trials from Japan[1] and Scotland[2] that do not support the use of low-dose aspirin as a primary cardiovascular preventive modality for individuals with diabetes. Although the Japanese study suggested an effect, the effect was not statistically significant. This calls into question the routine call for aspirin therapy as a primary preventive strategy for individuals with diabetes.

In our Bridges to Excellence department (p. 78), Richard J. Comi, MD, et al. look at the effect of a dedicated inpatient glucose management service in improving inpatient glycemic control. This seemed like a perfectly reasonable quality improvement initiative addressing most of the components discussed above. However, the reporting of this effort is unfortunately juxtaposed with a recent inpatient initiative to improve glycemic control in critically ill hospitalized patients.[3] The results of the NICE-SUGAR study showed an increase in mortality among Intensive Care Unit patients who achieved very tight control (average blood glucose of 115 mg/dl) compared to those with good control (average blood glucose of 144 mg/dl).

Although the subjects in the NICE-SUGAR trial were different from those included in the study by Comi et al., it still raises concern about the third component of quality improvement. Do we know where we should be? How and why did we (most august groups advocate better inpatient glycemic control) decide to invest resources into improvement initiatives when they may have been unnecessary? I should note that the NICE-SUGAR study results did less to discredit efforts to ameliorate inpatient hyperglycemia than they did to raise caution about attempts to achieve very tight glycemic control.

Still, many quality improvement initiatives, rigorously implemented, are subsequently ridiculed when new data emerge showing that previous standards of care were wrong. That is unfortunate. It is true that experiences such as this should cause us to exercise caution before issuing recommendations; there are too many recommendations to do more! But they should not deter initiatives to improve, which must be nimble to the reality of our ever-changing knowledge base. We should not abandon improvement initiatives because we occasionally get the where-should-we-be component wrong. Instead, we should strive to be less likely to go off on the wrong path by, in part, ensuring greater involvement from those who do not stand to gain or lose by the decision, and we must be prepared

to recognize when, despite our best intentions, we get lost anyway.

REFERENCES

[1]Ogawa H, Nakayama M, Morimoto T, Uemura S, Kanauchi M, Doi N, Jinnouchi H, Sugiyama S, Saito Y; Japanese Primary Prevention of Atherosclerosis With Aspirin for Diabetes (JPAD) Trial Investigators: Low-dose aspirin for primary prevention of atherosclerotic events in patients with type 2 diabetes: a randomized controlled trial. *JAMA* 300:2134–2141, 2008

[2]Belch J, MacCuish A, Campbell I, Cobbe S, Taylor R, Prescott R, Lee R, Bancroft J, MacEwan S, Shepherd J, Macfarlane P, Morris A, Jung R, Kelly C, Connacher A, Peden N, Jamieson A, Matthews D, Leese G, McKnight J, O'Brien I, Semple C, Petrie J, Gordon D, Pringle S, MacWalter R; Prevention of Progression of Arterial Disease and Diabetes Study Group; Diabetes Registry Group; Royal College of Physicians Edinburgh: The prevention of progression of arterial disease and diabetes (POPADAD) trial: factorial randomised placebo controlled trial of aspirin and antioxidants in patients with diabetes and asymptomatic peripheral arterial disease. *BMJ* 337:a1840, 2008

[3]NICE-SUGAR Study Investigators, Finfer S, Chittock DR, Su SY, Blair D, Foster D, Dhingra V, Bellomo R, Cook D, Dodek P, Henderson WR, Hébert PC, Heritier S, Heyland DK, McArthur C, McDonald E, Mitchell I, Myburgh JA, Norton R, Potter J, Robinson BG, Ronco JJ: Intensive versus conventional glucose control in critically ill patients. *N Engl J Med* 360:1283–1297, 2009