

P E R S P E C T I V E

Closing The Gap Between Science And Practice: The Need For Professional Leadership

Professional societies have been heavily involved in the development of practice guidelines—but not their application in practice.

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ABSTRACT Major opportunity exists to better align clinical science and clinical practice. To do so will require efforts not only to develop clinical practice guidelines, but to facilitate their application in practice. The American College of Cardiology operates a program to develop and assess the effectiveness of tools that facilitate the application of guidelines in practice. Here we review what we have learned about the process of guideline implementation, lay out the major research questions that need to be addressed, and argue that professional societies play a critical role in moving from guideline development to application.

THE INSTITUTE OF MEDICINE (IOM) defines *quality* as those “health services for individuals and populations [that] increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”¹ The operational challenge we face as we consider strategies to bridge the quality chasm is to anchor care in “current professional knowledge.” Efforts to bring this knowledge into practice offer the best hope for real and sustained improvement.

Many organizations are working to make science more available to practitioners. Typically, this proceeds through the development of clinical practice guidelines.² One might suppose that dissemination of such guidelines would naturally lead to the grounding of clinical practice in clinical science. Unfortunately, there is good evidence that this is not the case.³

A few organizations have undertaken to ad-

dress this—that is, have moved from producing guidelines to studying their application. There are isolated publications from the experience of academic medical centers.⁴ The Institute for Healthcare Improvement (IHI) has, through its Breakthrough Series, organized efforts to improve quality.⁵ Many of its projects have implicitly or explicitly focused on increasing rates of guideline use. The Agency for Healthcare Research and Quality (AHRQ), through its Translating Research Into Practice (TRIP) projects, has stimulated innovation in this field, although little has yet been published.⁶ The Centers for Medicare and Medicaid Services (CMS) has documented improved indicators of guideline compliance for cardiovascular care in its Cooperative Cardiovascular Project (CCP).⁷ Almost certainly, managed care organizations have led efforts that explain improvements in rates of Health Plan Employer Data and Information Set

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(HEDIS) measures (many of which correspond to medical society guidelines).⁸ There is also reason to believe that payment and public reporting initiatives may help to stimulate the use of guidelines.⁹

Despite these efforts, this field is still in its early phase. The American College of Cardiology (ACC) has noted that the professional societies—the organizations so heavily invested in the development of practice guidelines—have not been more involved in understanding what is required to apply them in practice. In an informal review of specialty society initiatives in this area, one of us (Garson) found no examples of research to address the fundamental dynamics of guideline application. To some extent, this may be addressed through the efforts of the Physician Consortium for Performance Improvement, a collaboration among experts in performance measurement and improvement that includes the American Medical Association (AMA) and many medical specialty societies.¹⁰ To date, although the consortium has developed performance measurement sets and documents to guide their implementation, it has not yet established itself as a vehicle for professional activity in guideline implementation.¹¹

Because our experience suggests that medical specialty societies can play an important role here, we share the experience of the ACC, summarize what we have learned, and convey why specialty societies must become more actively involved in this work. We also describe what specialty societies must do to better apply guidelines in practice.

Applying Guidelines To Practice: The Role Of The ACC

The ACC, a professional association with more than 27,000 members, strives “to foster optimal cardiovascular care and disease prevention.”¹² The ACC has a broad-based set of educational and quality initiatives directed toward accomplishing its mission, including efforts to bring clinical science into clinical practice.

Historically, the ACC (in collaboration with the American Heart Association) invested heavily in efforts to make the large,

complex, and rapidly changing literature on cardiovascular medicine accessible and comprehensible to practicing physicians by producing clinical practice guidelines.¹³ As evidence accumulated that these guidelines were not having the hoped-for impact on care, the ACC undertook a project to facilitate implementation of one guideline and, in so doing, to better understand what factors led to more rapid and complete alignment of practice with the recommendations in the guideline.

The first Guidelines Applied in Practice (GAP) project focused on care for patients with acute myocardial infarction (AMI). AMI was selected because it is prevalent, the outcomes of care (including mortality) vary greatly with rates of appropriate treatment, and there was much evidence of a gap between clinical science and clinical practice.¹⁴ The project focused on inpatient care, because it is a critical determinant of patient outcomes and because the care plan that defines the long-term approach to outpatient management is developed as part of the inpatient discharge planning process.

The first GAP-AMI project, launched in ten hospitals in southeast Michigan, involved a broad collaboration among leaders of the ACC, participating hospitals, physicians, purchasers (the Greater Detroit Area Health Council), and the Michigan Peer Review Organization.¹⁵ The collaboration focused on the development and deployment of interventions directed at physicians, nurses, and patients. Baseline (pre-intervention) data were collected on eleven key indicators (Exhibit 1), and a multifaceted intervention toolkit was developed.¹⁶ That toolkit was deployed in participating hospitals through a strategy that involved both physicians and nurses. All hospitals launched the project through “grand rounds,” but detailed implementation strategies varied among hospitals to permit the implementation process to be optimized to each hospital’s culture and operating environment. Remeasurement occurred three to six months after intervention. Longer-term remeasurement is under way.

The results of the GAP-AMI project were striking, particularly given the short cycle

EXHIBIT 1
Quality Indicators Tracked In Michigan GAP-AMI Project

Quality indicator	Baseline rate	Rate in subset of patients where GAP tools were used
Early indicators		
Aspirin within 24 hours	81%	93%
Beta-blocker within 24 hours	65	77 ^a
LDL cholesterol measured within 24 hours	64	82
Reperfusion indicators		
Time to PTCA (minutes)	130	— ^b
Time to thrombolysis, median (minutes)	38	— ^b
Late indicators		
Aspirin at discharge	84%	98%
Beta-blocker at discharge	89	100
ACE inhibitor at discharge	80	90 ^a
Smoking-cessation counseling	53	86
Cholesterol-lowering therapy at discharge	68	92
Dietary counseling	67	90

SOURCE: R.H. Mehta et al., “Improving Quality of Care for Acute Myocardial Infarction: The Guidelines Applied in Practice (GAP) Initiative,” *Journal of the American Medical Association* 287, no. 10 (2002): 1269–1276.

NOTES: All changes are statistically significant ($p < .05$), except where noted. GAP-AMI is Guidelines Applied in Practice for acute myocardial infarction. PTCA is percutaneous transluminal coronary angioplasty. ACE inhibitor is angiotensin-converting enzyme inhibitor.

^aNot significant.

^bSample is too small for comparison.

time. Ten of eleven indicators showed improvement; four were statistically significant.¹⁷ In addition, among Medicare patients (for whom data on six indicators were available for nonparticipating hospitals—a “control group” of sorts), increases in indicator rates were greater in GAP participating hospitals than in nonparticipating hospitals for four of the six indicators. Perhaps because of the relatively small number of Medicare patients, differences were statistically significant for only one of these four.

Data that related improvements in care to the use of tools were compelling. Rates of adherence to guidelines were higher in every case among patients for whom chart review documented the use of relevant tools, compared with those for whom there was no such evidence; for seven of the nine indicators examined, these differences were highly significant (Exhibit 1). Use of a standardized set of admitting orders correlated with striking improvement in early use of aspirin and cholesterol measurement in appropriate patients. Use of a standardized discharge tool (which promoted

discussion of discharge plans between patients and providers) correlated with similarly striking improvement in rates of discharge aspirin and beta-blocker use, cholesterol treatment, and smoking-cessation and dietary counseling.

Lessons Learned

Data from the Michigan GAP-AMI project continue to be collected from the original ten hospitals, as well as from hospitals elsewhere in Michigan participating in “expansion projects.” Based upon our early experience, certain themes have emerged.

(1) Rates of adherence to guidelines can be raised, using relatively simple and low-cost tools and techniques and over aggressive timelines. Focusing on a small number of the most important clinical goals, embedding them in tools (such as standard order sets, chart-based reminders, and forms that patients are required to complete) that are part of the care process, and creating the expectation that patient, physician, and nurse all understand, accept, and will work toward achieving

these goals lead to improved adherence.

(2) Improvements in rates of adherence to guidelines require the availability of tools through which critical recommendations are embedded in the practice environment. Caregivers' memory is unreliable. Engineering the system to remind caregivers about key performance goals during the process of care creates an environment that makes care more reliable.

(3) Improvements in rates of adherence to guidelines require the acceptance and use of those tools by all who are involved in patient care. Implementing evidence-based tools successfully is not straightforward. The engagement of all who are involved in the care of a particular clinical problem is especially important. In the AMI-GAP initiative, this engagement was achieved through the communication of three simple but powerfully motivational messages, from a source of unquestionable credibility: Guideline-based quality improvement is both necessary and achievable; creating evidence-based guidelines is not a sufficient response; and cardiologists not only must be actively involved in quality improvement, they must lead it.

Role Of Clinical Leadership

Despite national health care spending approaching 14 percent of gross domestic product (GDP), Americans do not always receive the care that scientific evidence suggests they should. Efforts to make evidence-based recommendations available to practitioners, through the development and promulgation of clinical practice guidelines, are a necessary step toward solving that problem. However, applying those guidelines in practice requires systems to structure the environment in which care is delivered so that "doing the right thing" becomes automatic. This requires tools that simplify and provide focus by embedding the recommendations for evidence-based care into the care itself.

The availability of tools is not enough, though; these tools must be used by physi-

cians, nurses, and patients, and that use must be supported by institutional management. Achieving this—that is, changing and aligning the behavior of clinicians and managers—is no small accomplishment. In our GAP project, effective clinical leadership was the key to achieving this behavioral change. The engagement of credible physician and nurse leaders—and their ability to motivate their peers and influence their administration—was instrumental to that change.

“Incentives, without knowledge and systems, are likely to produce friction and frustration rather than change.”

The ACC's involvement was critical to this success. As the source for guidelines and guideline-derived tools, the ACC assured participants about the scientific integrity of the recommendations for care. These roles—credible source and professional motivator—are natural (and long-standing) roles for specialty societies.

However, we have identified an important new role. We believe that clinical leadership was critical to the success of our GAP project and that professional associations such as the ACC are uniquely positioned to identify, develop, and enable professionals to play leadership roles. Members have always turned first to their professional associations to help them serve as leaders in their profession. As pressure for quality improvement intensifies, professionals will understand the need to manage change. They will turn to the societies that have always been their primary resource for new knowledge and new skills as they seek to become skillful leaders of change in their practices, hospitals, and communities.

This is, of course, not to suggest that there are no roles for others. Clearly, appropriate financial incentives and regulatory stimuli can play a role. Doing what is "right" is more likely to occur when knowledge, systems, and incentives are aligned. But incentives, without knowledge and systems, are likely to produce friction and frustration rather than change.

Issues For Further Investigation

Our experience with inpatient care in Michigan provides important insights about the mechanisms that underlie improvements in institutional performance. However, we need to point out the limitations of our first project and the questions that remain.

First, despite significant improvements in many indicators of guideline use, improvements were not universal (or at least not universally significant). This could mean that some tools were less effective than others were—we cannot estimate the impact of the tools individually. We think it more likely that the issue of statistical significance is a matter of small numbers; there were only ten hospitals in our project, and data were collected for less than twelve months. We anticipate that we will be able to evaluate this issue further as our experience with GAP tools increases.

Second, we have not demonstrated that these changes can be sustained. We are collecting data that will permit us to evaluate their sustainability and will publish the results. Third, we cannot establish that the tools and implementation strategies that were successful in ten hospitals are generalizable. We have launched two additional projects in Michigan to address that issue empirically. However, we have not yet considered whether the GAP process needs modification in hospitals in different environments. How, for example, will this kind of collaborative work in rural areas, in which hospitals are widely dispersed? How effective will tools that derive from ACC/AHA guidelines be when a much larger proportion of cardiovascular care is provided by internists or family physicians than by cardiologists?

Fourth, we cannot speak to the generalizability to other care settings. How can we improve the application of guidelines in ambulatory practice, where so much cardiovascular care is provided. We have launched projects to address the application of ACC/AHA guidelines for the outpatient management of heart failure and chronic stable angina to answer that question. These projects can identify what kinds of tools and implementa-

tion processes can help to improve outpatient care for patients with heart disease.

Fifth, given the importance of clinical leadership to the success of GAP, many questions need to be addressed that relate to the development of clinicians who can lead quality improvement efforts. What skills are required to inspire others to adapt clinical and administrative processes? How can those skills be developed in clinicians, particularly given the time constraints of today's practice environment? If clinical leaders are essential to the process, how do we build leadership capacity?

Finally, what are the policy implications of our findings? We believe that there is much to be learned about the process of guideline implementation. In an environment in which the cost of health care is in excess of \$1 trillion annually, we believe that it is appropriate to consider allocating much more (than, for example, the \$7 million AHRQ intends to disburse through its TRIP program) to efforts to understand how to bring clinical science to health care delivery.¹⁸ In addition, as we begin to understand the cost-effectiveness of various aspects of guideline implementation, providers will be in a better position to invest resources whose benefit will be maximized.

CLEARLY, WE BELIEVE that specialty societies should identify and embrace a new role—both as sponsors to this type of work and as organizations committed to building the clinical leadership capacity necessary to make it successful. We believe that others (for example, software firms) may have important roles embedding specialty society guidelines into tools that support clinical practice, while payers and regulators should look for opportunities to encourage, support, and enable the use of these tools.

NOTES

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