Editor’s Perspective

Managing the Information Boundary of an Organization
Key Aspect of Translating Research Into Practice

Harlan M. Krumholz, MD, SM; Nicholas S. Downing, MD

The central feature of learning healthcare systems is the capability to rapidly become aware of new, actionable patient-centered outcomes research evidence and to appropriately adopt it into delivery practices with high reliability. To achieve this, health systems must manage the boundary between knowledge that is generated outside the organization and the practices that occur within it. New external information is generated daily; however, in most cases, this information permeates an organization in an ad hoc manner, meaning that its influence on clinical care is not always maximized. To realize the full potential of new patient-centered outcomes research evidence, we must foster the development of processes that help health systems to systematically identify actionable knowledge and ensure that it is properly incorporated into their routine operations.

The challenge to this approach is the lack of pressure on health systems to adapt to new clinical knowledge. In his seminal work, *On the Origin of Species*, Charles Darwin put forth the theory of natural selection that argues that the interaction of species with their environment drives adaptation. Species that adapt to changes in the environment are able to more effectively compete for resources and proliferate, whereas those that fail to adapt are often driven to extinction. In healthcare systems, financial forces, rather than clinical quality, have driven natural selection. However, with improvements in quality measurement, increasing transparency in clinical performance, and the growing linkage between quality and financials, the pressure to adapt better by incorporating new knowledge and improving outcomes is becoming significant.

Although a focus on translating research findings into practice is not new in medicine, an adequate appreciation of the organizational dynamics needed to foster the adoption of new information is lacking. Historically, we have depended, in most cases, on the professionalism of individual doctors to keep up with the literature to ensure contemporary care, the ad hoc approach. As expected, there was much variation in the rate at which new evidence was adopted across physicians and health systems.4

Today, physicians are part of a team that works within and across health systems.5 There should be little tolerance for the idea that physicians operating within the same health systems can adopt new information at varying speed. Moreover, the idea that new information could be effectively adopted by individual physicians in the absence of organizational support systems seems antiquated because new evidence can sometimes necessitate re-engineering of an entire process of care. Unfortunately, real-world practice often fails to adopt new evidence, and the definition of best practice is often far from clear for medical organizations grappling with an overload of external information.

The transformation of door-to-balloon time practices across the country was a notable exception in which implementation science was used to identify best practices and to disseminate them widely. Factors that enabled the successful translation of the implementation science were identified through a national campaign with the American College of Cardiology.6 Hospitals’ perceptions of the credibility and perceived simplicity of the recommendations, alignment with hospitals’ strategic goals, availability of practical implementation tools, and breadth of the network of peer hospitals in the door-to-balloon alliance emerged as the most important enablers of the remarkable improvement in this care process.7

Ask yourself how American institutions have handled specific situations as new information became available. In recent years, we have seen the arrival of the novel oral anticoagulants, substantial changes to hypertension and lipid guidelines, and the publication of several important clinical trials.8–13 How did the healthcare systems respond to support the uptake of the new information? How rapidly did they respond? Did your organization help you to understand the new information and incorporate it into routine clinical care? Or were you forced to rely on the ad hoc approach?

We need research that builds links with the social sciences and helps us to optimize the organizational response to new external knowledge. This type of inquiry is not new, but has been pursued inadequately in healthcare systems. The evaluation and adoption of new knowledge in medicine require expertise not only in clinical research but also in fields including psychology, sociology, management sciences, informatics, and economics. This research is nontraditional for medical schools and medical research organizations, but other discoveries from these institutions will lie fallow unless there is a way to facilitate the incorporation of new information into clinical practice. These organizations, and the healthcare professionals that provide care within them, need additional support if they are to fulfill the promise of our research enterprise.

© 2014 American Heart Association, Inc.

*Circ Cardiovasc Qual Outcomes* is available at http://circoutcomes.ahajournals.org

DOI: 10.1161/CIRCOUTCOMES.114.001500
and deliver exemplary outcomes by incorporating new evidence into routine clinical care.

Some hospitals have had committees that meet regularly to develop and refine clinical pathways. The groups review the guidelines and the literature, using the information to define idealized algorithms for patient care in particular areas, such as ST-segment–elevation myocardial infarction. The pathways are disseminated among the doctors and nurses to encourage changes in practice and used for education. Studies failed to find that they were associated with better outcomes, but did not consider the heterogeneity of implementation associated with the strategy.14 In the end, the success of managing the internal/external boundary is not just about having structures in place, but also being sure that they are operating effectively.

The larger point is that we are at a moment when we desperately need new research to inform our approach to the uptake of new evidence into routine clinical care. Poor implementation of new knowledge is a choke point for yielding better outcomes.15–19 Such work is likely to require mixed methods, combining insights from qualitative and quantitative methods.16–19

It is imperative that outcome researchers contribute to addressing this challenge by generating new insights that facilitate the adoption of new evidence in ways that improve health outcomes. Interdisciplinary collaborations will enable us to better manage the incorporation of new knowledge across the internal/external boundary of healthcare organizations using a systematic and comprehensive approach, rather than one that is selective and ad hoc. The best practices need to be identified and disseminated. Only then can patients, regardless of the healthcare system in which they receive care, be confident that the most recent, actionable knowledge will be available for their use.

Sources of Funding
Dr Krumholz was supported by grant U01 HL105270-05 (Center for Cardiovascular Outcomes Research at Yale University) from the National Heart, Lung, and Blood Institute.

Disclosures
Dr Krumholz works under contract with the Centers for Medicare and Medicaid Services to develop and maintain performance measures. He is the recipient of research grants from Medtronic and from Johnson & Johnson, through Yale University, to develop methods for monitoring. He is the recipient of research grants from Medtronic and from Johnson & Johnson, through Yale University, to develop methods for monitoring. He is the recipient of research grants from Medtronic and from Johnson & Johnson, through Yale University, to develop methods for monitoring. He is the recipient of research grants from Medtronic and from Johnson & Johnson, through Yale University, to develop methods for monitoring.
Managing the Information Boundary of an Organization: Key Aspect of Translating Research Into Practice
Harlan M. Krumholz and Nicholas S. Downing

_Circ Cardiovasc Qual Outcomes_. 2014;7:805-806; originally published online November 11, 2014;

doi: 10.1161/CIRCOUTCOMES.114.001500

_Circulation: Cardiovascular Quality and Outcomes_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Copyright © 2014 American Heart Association, Inc. All rights reserved.

Print ISSN: 1941-7705. Online ISSN: 1941-7713

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://circoutcomes.ahajournals.org/content/7/6/805

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in _Circulation: Cardiovascular Quality and Outcomes_ can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:

http://www.lww.com/reprints

Subscriptions: Information about subscribing to _Circulation: Cardiovascular Quality and Outcomes_ is online at:

http://circoutcomes.ahajournals.org//subscriptions/