2009

Regenstrief Center for Healthcare Engineering
Spring 2009 Conference Report

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Research Solutions in Healthcare: National Priorities & Goals

Regenstrief Center for Healthcare Engineering
Spring 2009 Conference Report

Submitted June 2009
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Healthcare’s Déjà Vu

In 1945, President Harry Truman delivered the following message to a joint session of Congress:

“Millions of our citizens do not now have a full measure of opportunity to achieve and enjoy good health. Millions do not have protection or security against the economic effects of sickness. The time has arrived for action to help them attain that opportunity and protection.”

Fifty-four years later, President Barack Obama delivered this message to a joint session of Congress:

“So let there be no doubt: Health care reform cannot wait, it must not wait, and it will not wait another year.”

The irony of the similarity of the two messages and yet the 54-year time difference in their delivery indicates how challenging healthcare reform is to achieve. Major strides have been made in those years, but the fundamental challenge of balancing quality, access, and value remains.

The Regenstrief Center for Healthcare Engineering (RCHE) at Purdue University applies principles and concepts from academic research to the healthcare system with the ultimate goal of improving healthcare delivery. In pursuit of this goal, RCHE monitors the national healthcare landscape to determine the best ways to contribute to advancing healthcare delivery. The spring 2009 conference focused on the National Priorities Partnership report, issued in November 2008, and how research could contribute to the six goals outlined in the report.

The National Priorities Partnership (NPP) is coordinated by the National Quality Forum (NQF). The report brought together representatives from 28 leading healthcare organizations to agree upon a handful of national healthcare priorities. These priorities would help guide reform by focusing resources and attention in areas where they could do the most good.

RCHE’s spring 2009 conference brought together seven speakers from regional and national health organizations:

- Karen Adams, vice president; National Quality Forum;
- Michael Barr, vice president Practice Advocacy and Improvement; American College of Physicians;
- Virginia Caine, director, Marion County Health Department;
- Harvey Fineberg, president, Institute of Medicine;
Cerry Klein, program director, Service Enterprise Engineering, Manufacturing Enterprise Systems; Division of Civil, Mechanical & Manufacturing Innovation; National Science Foundation;

Stephen Mayfield, senior vice president, Quality and Performance Improvement; director, AHA Quality Center; American Hospital Association;

David Meyers, director, Center for Primary Care, Prevention, and Clinical Partnerships AHRQ.

The speakers were all asked to review the report and to comment on the priorities and goal, as well as the challenges that will be encountered as we strive to achieve them. At the end of the day, an audience feedback session provided an opportunity for the participants to weigh in on the priorities based on what they’d heard during the day.

Things are changing in Washington faster than anyone can remember, said David Meyers. As a result, he said, this is the right time to have a meeting to discuss these issues.
The Priorities Report

The National Priorities Partnership (NPP), authors of the report, were convened by the National Quality Forum, a not-for-profit, non-government group with a mission to improve American healthcare. Karen Adams was charged with the task of assembling the group. Twenty-eight multi-stakeholder organizations representing consumers, purchasers, quality alliances, health professionals/providers, public sector, accreditation/certification groups, and health plans were asked to participate.

The goal was to establish a handful of priorities or areas toward which research could be focused. The NPP looked at the intersection of four criteria, said Adams — reduce disease burden, remove waste, eliminate harm, and eradicate disparities. The area where all four overlapped was designated an area of high impact. Changes in this area had the greatest potential to improve the system. Ultimately, six priorities emerged:

- Patient and family engagement;
- Population health;
- Safety;
- Care coordination;
- Palliative and end-of-life care; and
- Overuse.

The section that follows describes each of the priorities, and the speaker comments about the priority, research opportunities, and challenges.

One: Patient and Family Engagement

The Partners envision healthcare that honors each individual patient and family, offering voice, control, choice, skills in self-care, and total transparency, and that can and does adapt readily to individual and family circumstances, and to differing cultures, languages, and social backgrounds.

Many studies show that family engagement in the health process can improve outcomes. However, to engage patients and their families, the healthcare community must make a greater effort to understand where they come from, said Virginia Caine. A major factor in understanding health is health literacy, which is often directly related to the quality of the educational system in the area. Not understanding or acknowledging the socioeconomic implications on health literacy leads providers to ask the wrong questions of patients, she said. Additionally, research shows that ethnic minority patients do not feel as involved in their health decisions and do not feel as respected as Caucasian patients. If not addressed, this challenge will get worse, she said, as census figures
project that the percent of ethnic minorities may reach 48 percent of the U.S. population by 2040 or sooner.

Nationally, many experts from a variety of fields cite access to care as a primary issue today; Michael Barr worries that it could get worse in the not-too-distant future. Only about two percent of medical students are selecting primary care as a focus, he said. Further compounding the problem, about 20 percent of those will leave their practice within 10 years. This will leave a tremendous void in a critical area of care, and one that the system should prepare to deal with. Currently, the family physician is the cornerstone of care. What happens when there are not enough physicians for this to be the case?

Caine asked the Regenstrief Center for Healthcare Engineering to participate in more community-based projects in Indiana so that systems can be developed that better reflect the comfort of the community. By designing systems that a given community feels comfortable in, we can encourage better participation, compliance with treatment regimens, and health.

Two: Population Health

The Partners envision communities that foster health and wellness as well as national, state, and local systems of care fully invested in the prevention of disease, injury, and disability – reliable, effective, and proactive in helping all people reduce the risk and burden of disease.

Caine recommended using the “Healthy People 2010” model for population health. Rather than a disease-oriented approach, the risk-oriented approach addresses many of the underlying factors that ultimately lead to poor health outcomes, including environmental and behavioral changes. Additionally, she pointed out that only three cents of each U.S. health dollar are being spent on prevention; the rest is being spent on treatment. This, she says, is neither the most cost-effective way of approaching health nor is it one that leads to the best health outcomes.

Three: Safety

The Partners envision a healthcare system that is relentless in continually reducing the risks of injury from care, aiming for “zero” harm wherever and whenever possible – a system that can promise absolutely reliable care, guaranteeing that every patient, every time, receives the benefits of care based solidly in science. We envision healthcare leaders and healthcare professionals intolerant of defects or errors in care, and who constantly seek to improve, regardless of their current levels of safety and reliability.
Caine pointed out that much of the existing medical research is on white men; however, the population is more diverse than the research. To address safety issues for the entire population, we must increase the amount of research being done on other populations.

Four: Care Coordination

_The Partners envision a healthcare system that guides patients and families through their healthcare experience, while respecting patient choice, offering physical and psychological supports, and encouraging strong relationships between patients and the healthcare professionals accountable for their care._

Care coordination ties in directly to priority one, patient and family engagement. One of the required ingredients for care coordination, said Barr, is that patients are able to share in their medical decisions. Healthcare should be a team effort, he said. Instead, it’s more like a bunch of seven-year-olds playing baseball. Some people are in left field kicking up dust; others aren’t sure where the ball is.

There is an idea that the best way to deliver quality, coordinated care is through large networks, said Meyers. He questioned whether there is evidence that only large networks can do this. Certainly individual practices cannot compete in the traditional sense; but what if small practices could be linked or could collaborate? Could that allow them to deliver quality care and still be financially viable and competitive?

During the audience feedback session at the end of the conference, participants consistently voted that this priority, care coordination, was the most needed, most challenging, and in need of the greatest amount of research. One participant said that this priority is the most challenging to achieve because of the number of factors that need to align to achieve it. From people to technology to supplies, there are many areas that must align for proper care coordination.

Five: Palliative and end-of-life care

_The Partners envision healthcare capable of promising dignity, comfort, companionship, and spiritual support to patients and families facing advanced illness or dying, fully in synchrony with all of the resources that community, friends, and family can bring to bear at the end of life._

With new technologies and treatments, people are living longer. Today, nearly 25 percent of Medicare costs are paid during a person’s last year of life. Treatment costs for palliative and end-of-life care are large and projected to become bigger with the growth of the older demographic.
There is evidence that hospice and palliative care is less expensive than institutional care; however, patients are more regularly kept in hospitals rather than being given the other options.

Six: Overuse

*The Partners envision healthcare that promotes better health and more affordable care by continually and safely reducing the burden of unscientific, inappropriate, and excessive care, including tests, drugs, procedures, visits, and hospital stays.*

Many speakers discussed the need to reduce and/or eliminate waste in healthcare. Overuse is one key area where waste is most apparent. Including it in the list of priorities helps draw attention to this issue, said Meyers.

A challenge with overuse is balancing it with underuse. Caine said that patients without insurance may come to see her often because she can write off the loss; however, if she prescribes medicine as part of the treatment and they cannot afford it, they will go without the medication. In this case, which is more common than we realize, she said, we have an overuse of office visits because we have an underuse of another area of the system due to its cost.

Additional Priorities and Considerations

Many of the six Institute of Medicine priorities map very well to the six National Priorities Partnership list; however, access does not, said Meyers.

Health information technology has become an increasingly hot topic but one that should be approached carefully, said several speakers. “If all health IT becomes in this country is taking what we do and doing it electronically, we’ll make mistakes faster,” said Meyers. Instead, research into health IT must take into account both the patient and the workflow. With the government prepared to make a substantial investment in a national health IT system, we have the chance to create a system that truly drives quality, he said.
Efficiency and the Iron Triad

A significant factor driving healthcare reform is the current cost of healthcare. The current system is unsustainable, said the speakers. However, although cost is an important factor, it is one that is not discussed enough or in the right ways, said Harvey Fineberg. Looking at the iron triad of access, quality, and cost, he said that we’re often too timid to talk about the cost side of the equation. Instead, we should be looking at and equation with efficiency and value, but where efficiency is not merely cost-cutting but becomes compatible and even reinforcing of the best quality of care.

Fineberg stressed the importance of considering and defining health efficiency — how much do we put into cancer care versus end-of-life care? Treatment versus prevention? However, efficiency is not necessarily about cutting costs or about making one party’s life easier. Instead, said Fineberg, we must focus on system efficiency rather than personal efficiency. For example, he said, it may be more personally efficient for an orthopedic surgeon if the patient has had all x-rays taken before being seen; however, that may not be most efficient for the system if it results in longer wait times and fewer patients that can be seen.

Healthcare has many opportunities to reduce waste, improve quality, and save resources; however, because of how balance sheets are written, these opportunities are not always obvious. There is no line item for “hospital-acquired infection,” which Fineberg compared paying for to paying for rust on your car when it comes back from the mechanic. He cited a study on hypertension medications, outcomes, and cost. As might be expected, those with lower treatment costs were using cheaper medications; however, the cheaper medications were not less effective.

A significant factor underlying this, he says, is that we’re paying for the wrong things — units of service rather than outcomes — which creates a system that competes for patient admissions instead of competing for management of patient health. “When you pay for units of service, what you get is more units of service,” he said. It is critical that we find ways to tie quality, or good health outcomes, to cost. Unlike with many tangible consumer products where quality and cost are often directly proportional, this is not the case in healthcare.

Caine observed that the reimbursement system is set up so that a patient must be very ill for the provider to be reimbursed if the patient does not have coverage. This, she said, is one of the most expensive ways to care for someone.

Barr added a category to the triad — satisfaction. We cannot assume that if we build it, they will come, he said. Similarly, Steve Mayfield said that the system should begin by finding out what patients want and need, and then finding out how those can be met. The system, he said, should be built on the core principle of a good patient experience.
Medicine and Engineering: Spock and McCoy

Meyers compared the clinical and engineering relationship to Star Trek's Spock and McCoy. “This really is a bi-cultural divide we need to cross,” he said. One bridge can be built by understanding the role of healthcare engineering. “Engineers are not here to tell you how to run your hospital,” said Mayfield. They, can, however, bring a necessary systems approach and training in tools and methods of quality science or change management that most healthcare professionals and administrators are not trained in.

Healthcare needs quality science and engineering methods now more than ever, said Steve Mayfield, because we need to:

- Create awareness for transformative change that focuses on the patient’s experience
- Optimize the value stream of care providers, supplies, and equipment to the patient’s needs

This is important because separating the patient care system into its pieces, optimizing each one, and then putting it back together does not optimize system performance, he said. As such, it’s essential that healthcare get the perspectives of those who can look at the whole system. “Engineers aren’t coming in to tell you how to run your hospital,” he said. “But they can see obstacles.”

A second point that often goes unmentioned but is essential to pursuing healthcare reform is understanding the need for reforming or retrofitting rather than simply rebuilding. “No one is going to blow up the American healthcare system and start over,” said Meyers. Americans cannot stop needing healthcare while a new model is implemented. As such, change must be able to integrate at some level with the current system.
Re-Engineering: Research Opportunities

Patient-Centered Medical Home Model

The Patient-Centered Medical Home (PCMH) provides an excellent example of the type of care we can and should be offering, said Barr. PCMH is an existing model and the subject of substantial research at the Regenstrief Center for Healthcare Engineering. The alignment between the NPP and the PCMH provides even clearer research opportunities that leverage an existing model and research to further newly defined priorities.

<table>
<thead>
<tr>
<th>National Priorities Partnership</th>
<th>Patient-Centered Medical Home</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage patients and families</td>
<td>Shared/informed decision-making; self-management; health literacy; cultural competency</td>
<td>Explore innovation in practice workflow; self-directed education; family-centered education; community linkages</td>
</tr>
<tr>
<td>Improve population health</td>
<td>Enhanced access; evidence-based guidelines; registries; automated reminders</td>
<td>Health information exchange; community health initiatives; connect to public health</td>
</tr>
<tr>
<td>Improve safety/reliability</td>
<td>Medication reconciliation; e-prescribing; health alerts</td>
<td>Education; health IT and information exchange; culture, interoperability; legal issues</td>
</tr>
<tr>
<td>Coordination of care</td>
<td>Transitions in care; primary care/subspecialist collaboration</td>
<td>Information system to support linkages to healthcare and community resources</td>
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<tr>
<td>End-of-life care</td>
<td>Patient-involvement in decision-making; informed decision making</td>
<td>Education; resources; connections to the community; co-management</td>
</tr>
<tr>
<td>Eliminate overuse</td>
<td>Evidence-based guidelines; clinical decision support</td>
<td>Reform payment systems; information-sharing; comparative effectiveness research</td>
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Funding Opportunities

Speakers highlighted a handful of funding opportunities for researchers looking to fund Priorities- and healthcare-related projects. AHRQ is particularly interested in research that aims to improve the quality of healthcare, said Meyers. The organization funds both faculty and graduate research, he said.

Klein discussed paths to funding with the National Science Foundation. His division, Service Enterprise Systems, is able to fund about ten percent of the proposals it receives each year. For the best chance at funding, Klein recommended research projects include the following:

- Impact across different environments;
- Systems wide integration and application;
- Projects that integrate and/or consider equity, quality, cost-effectiveness, and service sustainability;
- Interdisciplinary projects that include healthcare providers as researchers and not just consultants;
- Considerations of the human factor in modeling and analysis;
- Public policy implications
- Implementable with broad impact and not just local applications.

Future Partnerships and Projects

In addition to its current strategic partners, Caine suggested that RCHE pursue the population health priority through community participatory research and developing mechanisms for minority population input into both research and practice.

Meyers highlighted a metrics barrier. Particularly in areas with a significant human factor, there are few, if any, agreed upon metrics with which to measure success. Developing these would assist research into the rest of the priorities.
Contact RCHE

For information about projects, research opportunities, partnerships, and future conferences, please contact the Regenstrief Center for Healthcare Engineering or visit the website.

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