



MICHIGAN HEALTH & HOSPITAL ASSOCIATION



MHA Keystone Center
for Patient Safety
& Quality

Subcommittee on Oversight and Investigations
House Committee on Energy and Commerce
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Mr. Chairman, members of the Committee and staff – good afternoon. My name is Christine Goeschel and I am the Executive Director of the Keystone Center for Patient Safety and Quality; a 501(c) (3) division of the Michigan Health and Hospital Association (MHA). The MHA is an association of 149 not-for-profit acute care hospitals in Michigan. The MHA works to promote better health within our communities; improve the quality of patient care; and improve coverage for high-quality, affordable health care services for all Michigan residents. The MHA Keystone Center is an essential vehicle for achieving the MHA mission, which is to advocate for hospitals and the patients they serve.

In 1999, the landmark Institute of Medicine report *To Err is Human* suggested that at least 44,000 people die annually in hospitals throughout the United States as a result of preventable medical errors. The report challenged health care providers to design safer delivery systems and suggested that most errors do not result from individual recklessness, but instead are caused by faulty systems, processes and mistakes. The MHA concluded that if the Institute of Medicine was correct, surely healthcare providers have the capacity to fix system problems and eliminate preventable errors.

Michigan hospitals have a long and distinguished record of voluntarily working with the MHA and each other to address health care issues. This concern for quality and patient safety was no different. In early 2003 the association established the MHA Keystone Center for Patient Safety and Quality, to help all Michigan hospitals “translate evidence into practice.” Standard strategies for project development include creating will, building relationships, partnering with experts, using our collective voice, and being courageous.

In my comments today I will describe a large and very successful voluntary effort that resulted in an unprecedented reduction in IV catheter related blood stream infections and ventilator associated pneumonias in intensive care units throughout Michigan. Then I will discuss the downstream impact of that project and the implications of the effort for health policy in Michigan. Finally, I will summarize the key lessons from our experience that we believe have broad utility.

The Michigan Keystone ICU Project

The Keystone ICU Project is a collaborative effort between the Michigan Health & Hospital Association (MHA)-Keystone Center for Patient Safety & Quality, 77 hospitals, and 127 individual intensive care units and the Johns Hopkins Quality and Safety Research Group (QSRG). In October 2003 we received critical initial funding from the U.S. Agency for Healthcare Research and Quality (AHRQ) as one of 13 projects awarded a patient safety matching grant. The one million dollars of funding we received over two years was matched by over 14 million dollars in cash and in-kind contributions from the MHA and the hospital participants. Dr. Peter Pronovost from The Johns Hopkins University is the principle investigator for the project and I am the MHA project director. The ICU improvement project received Institutional Review Board approval by the Johns Hopkins University School of Medicine.

Project Goals

The overall objective of the project is to improve ICU care in Michigan. The specific goals are to have 80% of staff in each ICU report a positive safety culture; to eliminate catheter-related blood stream infections (CRBSIs) and pneumonia associated with being on a breathing machine (ventilator) (VAP); and to ensure that evidence-based

therapies for patients on ventilators are being used consistently and appropriately in each ICU.

Enlisting Hospital Participation

All Michigan hospitals with ICUs were invited to participate during the grant application process in June, 2003. Each hospital was required to assemble an ICU improvement team, and provide the MHA Keystone Center with a list of team members and a written commitment to the project signed by a hospital senior executive. At a minimum, the ICU improvement team included a senior executive, the ICU director and nurse manager, an ICU physician and nurse, and often a department administrator. Hospital senior executives were asked to ensure that the ICU physician and nurse would commit 20% of their time to the project. In addition, each team committed to implementing the specific patient safety interventions, collecting and submitting the required data in a timely manner, attending the biannual 1.5 day conferences and participating in monthly conference calls.

Importance of Experts

The Johns Hopkins Quality and Safety Research Group, as the expert partner, developed the interventions used in the ICU project, supplied supporting empiric evidence, participated in the development and evolution of electronic data collection tools and worked with MHA Keystone Center staff to analyze the ICU data. Dr. Peter Pronovost and his research team served as faculty at the biannual workshops and led the monthly conference calls. As a means to reinforce senior executive involvement, the principal investigator and I periodically sent letters to the CEOs of participating hospitals outlining the project's progress and challenging them with tasks to demonstrate continued

support for their ICU improvement team. We created a manual of operations which included explicit definitions for each process and outcome measure. Standardized data collection forms were developed, pilot tested, revised and distributed to ICU teams and then converted into an electronic format. We provided ICUs with monthly and quarterly reports of performance within their ICU and compared their performance to aggregate results from the other participating ICUs.

Resources to achieve the goals

MHA Keystone staff and I interacted with participating hospitals via e-mail, phone calls and face to face visits. In the early months of the project it was not unusual to receive over 1500 emails a week. We committed to answering e-mails within a business day to keep the hospitals engaged in the work of change. I also met regularly with the Johns Hopkins University research group. A website (www.mhakeystonecenter.org) was created to provide participants access to educational materials, implementation tools, reference documents, project data (with encrypted ICU identifiers) and project updates. I provided updates to the MHA Board on a regular basis, and ICU teams were asked to provide project reports to their local management teams and senior leadership groups.

Mid-Project Results

Using a predictive model based on empiric evidence and actual data collected from project participants, the first 15 months of **the project resulted in savings of 1558 lives, over 80,000 ICU patient days, and in excess of \$165 million dollars.** By the end of the 18 months of data collection that were part of the AHRQ funded project, the predictive model suggests that teams saved 1,574 lives, over 84,000 ICU days and over

\$175 million dollars. Infections from central IV catheters plummeted. **The median CR-BSI rate in participating ICU's has now been at zero for almost a year.** Ventilator associated pneumonia rates in the ICU's have been cut by 40%. **Forty six ICU's have gone for over six months with no ventilator associated pneumonias. Fifty seven ICU's have gone for over six months with no blood stream infections from IV catheters.** The culture of safety and teamwork as measured by the most psychometrically sound instrument in the field (and reflecting the perceptions of nearly 7,000 ICU doctors and nurses) has improved by a statistically significant margin, but still has a ways to go.

Facilitating Culture Change

Culture, simply defined is “the way we do things around here.” Hospitals are complex networks of information, interests and competing priorities and changing culture is incredibly challenging work.. Since our explicit goal was to improve ICU care for the patients in every participating hospital, teams were encouraged to share their experiences and provide social support to each other. They were amazingly candid in doing so. We discovered early in our MHA Keystone ICU project that the brightest and most motivated clinicians, even when presented with evidence for changing practice, encountered obstacles that required new understanding and new skills.

We developed a change model designed to help teams navigate the system obstacles they encountered. Our model involves *engagement* (creating the imperative for change), *education* (providing the evidence supporting the system redesign being asked for), *execution* (providing the materials and resources required to redesign work and ensure patients receive evidence-based interventions), and *evaluation* (perform

rigorous data collection and analysis to determine if patient safety and clinical outcomes are improved).

What We Learned

There are several important lessons from this study that we believe are important for our interest today in understanding ways to eliminate health care associated infections and maximize the usefulness of reporting mechanisms.

1. Operational areas for improvement must be clearly defined and manageable. ICU was a target for us because it represents one of the most expensive and complex settings in health care, yet typically involves a limited set of clinicians with whom to facilitate the work of change. The science of safety is new; our interest in making measurable improvements demands reasonable steps.

2. Clinical targets must be equally well defined, significant in terms of the opportunity to improve, and supported by clear evidence on how to improve. CDC definitions for catheter related blood stream infection are clear and widely accepted. Definitions for ventilator associated pneumonia are less clear, but the range is well defined and again, well accepted by industry infection control experts. In our case, Dr. Pronovost and his research team at Johns Hopkins experts had developed tools to facilitate broad and rapid improvement.

3. Voluntary partnering, with an emphasis on achieving improvement in all organizations, facilitated development of a virtual learning community. The experts brought rigorous data collection methods and measurement, tools to improve care based on the measurement, and empiric evidence supporting the changes which would have been inefficient, perhaps even impossible to pursue one organization at a time. The

MHA Keystone Center was a trusted, local, neutral convener. This link efficiently and effectively allowed unprecedented improvement in record breaking time, across a diverse group of ICU's.

4. Freedom from concern about imminent public reporting creates an environment where clinicians can share openly, learn rapidly and quickly improve care. Because the focus of the project was and is to improve care for patients, everything else became a secondary issue. Teams did not waste time explaining away less than stellar performance; rather, time was spent determining how to improve care by tapping the learning community: that is, the 126 other ICU's working on the same initiatives, using the same standardized definitions, same data collection methodologies and same tools for improvement. Michigan has a long history of voluntary public reporting of hospital specific parameters of care, always structured in a way to support consumer use. Yet, the Keystone ICU project leaders agreed that public reporting could have changed the focus from "doing good" to "looking good". Measuring and improving infection rates is clinically complicated. It would be difficult to present infection information to consumers in a way that reflects appropriate consideration in individual decision making. Instead, the focus continues to be to make the best evidence based care possible for every individual receiving ICU services in a participating hospital.

5. Increased investment in health services research is a critical component of improving healthcare delivery. Suggesting that providers can design a safer healthcare system that is evidence-based assumes there is plentiful evidence on "what works" in health care delivery. Unfortunately, facts don't support that assumption. As a country we invest very little in health services research. The National Institutes of

Health (NIH) budget last year (primarily dedicated to development of better treatments for illness) was some \$29 billion dollars. The AHRQ budget (dedicated to solving delivery problems) was only \$320 million dollars. As Dr. Steven H. Woolf from the Virginia Commonwealth University stated so poignantly in his January 8, 2006 editorial in the Washington Post: *“for every dollar congress allocates to develop breakthrough treatments, it allocates one penny to ensure that Americans actually receive those treatments”*. We believe MHA Keystone ICU is a powerful example of what federal pennies can do. National estimates are that there are nearly 75,000 central line infections in ICU’s each year, and some 14,000-28,000 deaths. If additional investments were made to take what we have learned and support similar expert led, evidence-based projects throughout the country, the impact could be profound. If similar pennies were invested in funding health services research to improve delivery of surgery care or emergency department care or obstetrics care, we would likely expedite the pace of measurably improved patient outcomes and save money. Yet the funding stream to AHRQ remains paltry, and current AHRQ research priorities are focused primarily on technology: a crucial tool for healthcare improvement, but clearly not the only area where more research is needed.

6. Payers may support quality and safety improvement efforts that are evidence based, involve large cohorts of hospitals and are data driven using rigorous methods for data definition and collection. Blue Cross Blue Shield of Michigan (BCBSM), the largest insurer in the state, recognized early the importance of the MHA Keystone ICU project. They had a pre-existing quality program in which hospitals could

earn an incentive payment for achievement of specific quality improvement goals. MHA Keystone ICU was incorporated into this plan for 2004 and 2005.

Finally, we learned that **these breathtaking results can serve as the leverage for additional quality and safety initiatives.** State-wide initiatives are underway to improve stroke care and organ donation rates and a Keystone project aimed at eliminating healthcare associated infections is in the planning stages. Health policy committees of the Michigan legislature have heard presentations on our work and are enthusiastic about the efficiency and effectiveness of our voluntary effort. Hospital demand is high for Keystone projects to address surgical infection prevention, emergency department care and high-risk obstetric care. While there are national data collection efforts in many of these areas, there are few resources to help hospitals efficiently improve. Evidence is scarce regarding how to proceed.

In conclusion, as the committee continues its work, we would encourage consideration of addressing healthcare associated infections focusing initially on areas where evidence is clear and research is available on how to implement needed changes. We favor voluntary initiatives premised on inclusiveness. We encourage additional funding for AHRQ, so that research related to designing safer healthcare can be expanded. We encourage development of funding mechanisms so that when initiatives are successful, they can be disseminated throughout the industry. We hope there will be additional research dollars allocated to support development of needed evidence on how to improve care in high-risk, high volume clinical settings. Finally we hope that any decisions regarding public reporting of infection data will reflect the complexity of identifying and attributing infections, and the limited evidence on how to prevent them.

Changing the impetus from doing good to looking good will not serve patients or the industry. The return on investment for the \$1 million of AHRQ funding is clear. The Keystone ICU project is an example of the genuine improvement that can occur when hospitals are supported, given expert guidance, firm targets for improvement and an opportunity to learn together. We encourage further investments of this type, where the focus can be learning how to improve delivery of care and patient outcomes.