WORKING PAPER

How Hospitals Have Implemented the National Quality Forum Safe Practices

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RAND HEALTH

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PREFACE

In 2000, the U.S. Congress mandated the Agency for Healthcare Research and Quality (AHRQ) to take a leadership role in helping health care providers reduce medical errors and improve patient safety. AHRQ has been fulfilling that mandate through a patient safety research and development initiative which began shortly thereafter. In September 2002, AHRQ contracted with RAND to serve as the patient safety evaluation center for this initiative. The evaluation center has been responsible for performing a four-year formative evaluation of the full scope of AHRQ's patient safety activities, and providing regular feedback to support the continuing improvement of the initiative over the evaluation period. The contract also includes a two-year option for analysis of the diffusion of safe practices in the health care system, which RAND performed in October 2006 through September 2008.

This working paper presents the results for a component of the community studies that RAND performed under the two-year contract option, which examines in detail how hospitals implemented some of the specific safe practices endorsed by the National Quality Forum. The full results from the community studies, as well as from other analyses related to practice adoption and trends in patient safety outcomes are presented in a separate document, entitled *Assessing Patient Safety Practices and Outcomes in the U.S. Health Care System* (Farley et al., 2009).

The contents of this report should also be of interest to national and state policy makers, health care organizations, health researchers, and others with responsibilities for ensuring that patients are not harmed by the health care they receive.

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EXECUTIVE SUMMARY

In early 2000, the Institute of Medicine (IOM) published the report entitled *To Err Is Human: Building a Safer Health System*, calling for leadership from the U.S. Department of Health and Human Services (DHHS) in reducing medical errors and identifying AHRQ as the lead agency for patient safety research and practice improvement (IOM, 2000). Soon thereafter, the U.S. Congress funded the Agency for Healthcare Research and Quality (AHRQ), in the Department of Health and Human Services, to establish a national patient safety initiative. In its patient safety initiative, AHRQ has funded a portfolio of patient safety research and implementation projects to expand knowledge in this area, provided motivation and guidance for the activities of others, and integrated its work with that of other public and private organizations to achieve synergy through collaboration.

AHRQ contracted with RAND in September 2002 to serve as its Patient Safety Evaluation Center (evaluation center) and evaluate AHRQ's patient safety initiative. This evaluation was completed in September 2006, culminating in a final report that presents evaluation findings over the full four-year evaluation period (Farley et al., 2008). The final report was preceded by three annual reports, each of which documents the status of the patient safety initiative as of September 2003, 2004, and 2005 (Farley et al., 2005; Farley et al., 2007a; Farley et al., 2007b).

The evaluation center then undertook another two years of work in 2007 and 2008 to assess the extent to which patient safety infrastructure and practices were being put into place across the nation's health care system, and the effects they were having on involved stakeholders, the results of which were published in 2009 (Farley, et al., 2009). A major component of that work was a study of four U.S. communities in which we examined progress being made by health care providers in adopting patient safety practices.

This working paper presents additional information collected in the community study that was not included in the above-referenced report. We present here detailed descriptions of the approaches and actions undertaken by 15 hospitals as they implemented a number of the safe practices endorsed by the National Quality Forum (NQF) (NQF, 2007), which expands upon the summary information provided in the previous report.

BACKGROUND ON THE COMMUNITY STUDY

The community study used qualitative, case-study methods to gather and analyze data on the patient safety activities in four communities characteristic of mid-sized metropolitan areas in the United States. The practice adoption actions are, in themselves, a desired effect of the AHRQ national patient safety initiative, and the adoption process also has effects on the various stakeholders involved. The aims of the study were (1) to trace the evolution of patient safety efforts in four U.S. communities that are typical of local health care markets in various regions of the United States, and (2) to understand, in particular, how hospitals in those communities made decisions about adoption of safe practices and how they implemented them within their institutions.

The four communities selected for the community study were identified from a larger set of 12 communities that have been subjects of study by the Center for Studying Health System Change (HSC). Since 1996, the HCS *Community Tracking Study* (CTS) has conducted biannual

site visits to 12 metropolitan areas representative of health care markets in the United States to study how the interactions of providers, insurers, and other stakeholders help to shape the accessibility, cost, and quality of health care in local communities (HSC, 2009). In 2002–2003, they conducted a special data collection on patient safety, in which HSC investigators contrasted the patient safety experience of five CTS communities that were also Leapfrog regional rollout communities (Leapfrog Group, 2009) with the remainder of the CTS communities.

Our goal in selecting the four communities for this study was to achieve diversity in community characteristics. We collected data on the eight candidate CTS/Leapfrog rollout sites from a number of sources, including information from the Community Tracking Study Web site, the Area Resource File (maintained by the Health Resources and Services Administration), and internet searches to identify existing patient safety initiatives within the communities. Refer to the full report on the community study for additional details on our study methods (Farley, et al., 2009). Based on these data, we chose the following communities for the study, defined as the relevant Metropolitan Statistical Areas:

Indianapolis, Indiana	Cleveland, Ohio
Seattle, Washington	Greenville, South Carolina

STUDY OF HOSPITAL USE OF SAFE PRACTICES

The study results presented in this working paper address the second aim of the community study—to examine the uptake of safe practices by hospitals in the four communities. Specifically, we present results of our analysis of how the interviewed hospitals implemented each of a number of the 2006 NQF safe practices (NQF, 2007). The methods used in this component of the community study are summarized here; refer to the full report for more detailed information (Farley, et al., 2009).

The primary data-collection method was semi-structured interviews, which we performed during a single site visit to each of 15 participating hospitals, four in each of three communities and three in the fourth community (Cleveland). We wanted to understand the main sources of information and influences on patient safety for each hospital, how decision makers in the hospital prioritize their patient safety efforts and specific practices, which safe practices they have chosen to implement, and their strategies and experiences in implementing different types of practices.

Two separate processes were used to collect data regarding safe practice adoption by the 15 participating hospitals. The first process was the conduct of semi-structured interviews with individuals and groups in which we collected data on the evolution of patient safety within the hospital, the hospitals' current activities, and how other organizations—such as employers, health plans, or peers—may have affected the practice-adoption efforts. The respondents included the hospital leadership (e.g., chief executive officer, chief medical officer, chief of surgery, chief of nursing, chief of pharmacy, chief information officer, or their designees) and the Patient Safety Officer or person responsible for or most knowledgeable about the hospital's patient safety initiatives.

The second process was the conduct of two roundtable discussions, in which we examined in depth how hospitals approached adopting specific sets of NQF safe practices, and their experiences in implementing them. Each hospital was asked to discuss two sets of NQF safe practices that they already had adopted. One roundtable focused on an aspect of the

development of patient safety culture and the second focused on a grouping of other safe practices (see Appendix A for a listing of the NQF safe practices by group). The following are the practice groupings addressed in the roundtables:

	Safety Culture Practices	Other Safe Practice Groupings
	Leadership	Communication with Patients and Families
	Culture Survey	Transparency Across Continuum of Care
	Teamwork	Surgery Procedures
	Safety Risks	Medical Evaluation and Prevention
		Medication Safety Management
		Workforce

Participants in each roundtable consisted of individuals most familiar with and responsible for implementing the specific sets of safe practices being addressed. At most of the hospitals, these discussions included clinicians and other front-line staff who are involved in implementing the practices on a daily basis.

A semi-structured interview format was used to guide each roundtable discussion. First, we asked the respondents to describe all safety practices and activities by their hospital that fell into the safe-practices group being addressed. We focused the discussion on three basic themes: the goals the hospital had set for the safe practices; how the hospital had operationalized and implemented the group of NQF practices in the specific context of their hospital; and the major challenges and facilitators they had experienced in their implementation of the group of practices.

IMPLEMENTATION OF NQF SAFE PRACTICES BY HOSPITALS

The interviewed hospitals reported that they had been working to implement many of the practices for several years, from when guidelines were first being developed, even before the publication of the NQF standards. The practices most commonly undertaken in early years included most practices in the Medical Evaluation and Prevention group. The establishment of the NQF safe practices, as well as other external initiatives, refocused their attention on these areas. Although the hospitals had made progress and laid important foundations for patient safety, the hospitals also reported that they still tended to be in fairly early or nascent stages of development in many areas (e.g., safe culture, adverse event reporting).

THEMES AND SYNERGIES IN SAFE PRACTICE IMPLEMENTATION

The discussions at the hospital roundtables revealed complex interactions among the various aspects of patient safety culture (role of leadership, use of culture survey and measurement, teamwork development, and systems for identifying and mitigating risks) and actions being undertaken by the hospitals to drive their patient safety agendas and projects. The following themes were identified from their experiences in working with these practices:

- For safety culture development, actions were taken to instill a sense of ownership for safe practices among individuals throughout the organization; create a "proactive" mentality in which staff attempt to identify problems and improve processes before an incident occurs; and emphasize a culture of open communication, including a nonpunitive, nonblame climate for reporting errors.

- Patient safety culture is integrally related to a hospital's wider organizational culture.
- The four sets of practices for developing patient safety culture were observed to be integrally related to each other.
- Common elements across the implementation of the other practice groupings also were identified, such as use of multidisciplinary teams to implement practices in the areas of Transparency Across the Continuum of Care and Medication Safety Management.
- The reliance on technology was emphasized for both Medication Safety Management (e.g., computerized physician order entry [CPOE] systems) and Identification of Risks (e.g., electronic error-reporting systems).
- Strong emphasis was placed on communication practices for a number of practice groupings, including the role of leadership in establishing communication mechanisms, principles of communication embedded in models of teamwork, and internal marketing and communication to promote error reporting.
- Education and training was also strongly emphasized for many of the practices, such as training programs on teamwork, training of safety professionals and staff in risk-identification and risk-mitigation techniques, and continuing education and cross-training as part of workforce practices.

IMPLEMENTATION PRIORITIES AND APPROACHES

Patient Safety Culture Practices. The hospitals identified leadership and risk management as high priority areas for implementing patient safety culture practices, and they identified culture survey and teamwork as generally important. They also reported several techniques that were central elements of their actions to improve safety culture, including communication with the Board and staff on safety issues, a proactive approach to engage staff, training on necessary skills, use of multi-disciplinary teams, and involvement in decision making.

Other Groups of Safe Practices. Among the other groups of safe practices, the hospitals identified surgery procedures and medication safety management as the highest priority areas, transparency across the continuum of care as a high priority area, and medical evaluation and prevention and workforce as generally important. Hospitals' implementation approaches for these practices varied widely, depending on the practice being addressed. However, common themes did emerge, including the importance of supporting implementation with effective communication, teamwork development, staff training, and monitoring.

IMPLEMENTATION CHALLENGES AND FACILITATORS

Challenges identified. The hospitals reported encountering a number of key challenges as they implemented each of the practices in the practice groupings addressed in this study. A general theme across the hospitals was the difficulty inherent in changing patient-safety systems and culture. This challenge is consistent with the observations made by the hospitals that patient safety culture is embedded in deep-seated mind sets and expectations within the hospital's wider culture. As a result, changing patient safety culture is necessarily a long-term endeavor. The following additional challenges also were identified by the interviewed hospitals:

- Physician resistance to adopting new practices

- Resistance by the general staff to perceived additional workload and changes in routine, with a tendency to do pro forma performance of new practices and find work-arounds for new systems.

- Difficulty in disseminating information and practices across different groups of professionals, as a result of boundaries between organizational units within and outside of the hospital, and especially among academic and attending staff who hold multiple affiliations or who practice only intermittently in the hospital.

- Issues related to implementing and managing technology, such as system incompatibilities and interfaces among complex information systems.

Facilitators identified. Roundtable respondents also identified a number of facilitators that helped them in implementing safe practices, including the following:

- Flexibility, such that strict uniformity was not expected in implementation across units, and small changes in safety procedures were allowed that could make a large difference in reducing workload burden on care providers

- Encouraging inclusion of a wide range of stakeholders in the implementation process, and use of methods by which they can participate.

- Medical leader support for adoption of safe practices

- Leadership support, particularly in establishing coordination and networking mechanisms (e.g., patient safety governance committees) and providing tangible resources for safety efforts.

- Communication and feedback to front-line staff, with investment of time to explain patient safety issues, and to "close the loop" with care providers, which were described as highly motivating to hospital staff for committing to and implementing patient safety practices.

DISCUSSION

This sample of 15 hospitals offers encouraging news and useful information regarding the extent of progress being made by U.S. health care providers in putting safe practices to work in their care delivery processes. Although a limited number of hospitals, they are operating in four communities that were selected by HSC for its Community Tracking Study as reflecting characteristics of typical local health care markets within the country. Thus, we may anticipate that similar efforts are underway in many other hospitals across the country. The information provided by the interviewed hospitals emphasizes that, like any quality improvement activity, investment of time and effort is required to achieve sustainable practice changes by the various personnel involved in the care process.

Hospitals in the study tended to be addressing a wide range of safety practices at once, including some they had been working to implement since before the NQF safe practices were established, as well as certain areas not included in the NQF standards. The hospitals also tended to view virtually all groupings of NQF practices as having (or pushed by external sources with) at least a modicum of importance. As a consequence, the roundtable discussions on NQF safe practices pointed to a general challenge—echoed in the interviews on overall strategy and evolution of patient safety activities within the hospitals—of attempting to balance multiple patient safety initiatives and requirements in a coherent fashion, and avoiding project and information "overload" on both hospital leadership and frontline staff, as well as to the role that

external agencies can play in helping to rationalize and focus—as opposed to multiplying—patient safety priorities.

In terms of implementing specific safe practices, we observed a diversity of actions by the interviewed hospitals and also a number of common themes that were important implementation elements for many of the safe practices. Foremost among these are proactive communications with the key groups of personnel (stakeholders), training of staff in the skills required by the safe practice, engaging front-line staff in decisions on the plan and actions for implementing a safe practice, development of effective interdisciplinary teamwork, and monitoring of progress.

Chapter 1 provides an introduction and further background to the study. Chapter 2 provides a more extensive summary of findings, and Chapters 3 and 4 describe detailed results from our study regarding hospitals' approaches, actions, and experiences in implementing the specific sets of NQF safe practices, including examples and insights into facilitators, challenges, and other aspects of safe practice adoption from the various hospitals studied in the four communities. Information for the patient safety culture practices is presented in Chapter 3, and information for the other groups of safe practices is presented in Chapter 4.

ACKNOWLEDGMENTS

ABBREVIATIONS

AHRQ	Agency for Healthcare Research and Quality
CEO	chief operating officer
CIR	critical incident review
CMO	chief medical officer
CMS	Centers for Medicare and Medicaid Services
CPOE	computerized physician order entry
CQI	continuous quality improvement
CT	computed tomography
CTS	Community Tracking Study
DHHS	Department of Health and Human Services
DVT	deep vein thrombosis
EMR	electronic medical record
FMEA	failure mode and effects analysis
HSC	Center for Health Systems Change
ICU	intensive care unit
IHI	Institute for Healthcare Improvement
IOM	Institute of Medicine
ISMP	Institute for Safe Medication Practice
IT	information technology
IV	intravenous
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
M&M	morbidity and mortality
MRSA	Methicillin resistant Staphylococcus aureus
NDNQI	National Database of Nursing Quality Indicators
NPS	National Patient Safety goals
NQF	National Quality Forum
OR	operating room
PDSA	Plan-Do-Study-Act
QA	quality assurance
RCA	root cause analysis
SBAR	Situation-Background-Assessment-Recommendation

TCAB	Transforming Care at the Bedside
VHA	Voluntary Hospital Association
VP	vice president
VTE	venous thrombo-embolism

CHAPTER 1
INTRODUCTION AND BACKGROUND

In early 2000, the Institute of Medicine (IOM) published the report entitled *To Err Is Human: Building a Safer Health System*, calling for leadership from the U.S. Department of Health and Human Services (DHHS) in reducing medical errors, and identifying the Agency for Healthcare Research and Quality (AHRQ) as the lead agency for patient safety research and practice improvement (IOM, 2000). Soon thereafter, the U.S. Congress funded AHRQ, in the Department of Health and Human Services, to establish a national patient safety initiative. This initiative represents one of numerous, important patient safety efforts being undertaken by organizations across the country in which AHRQ has played a leadership role. It has done so by funding a portfolio of patient safety research and implementation projects to expand knowledge in this area, providing motivation and guidance for the activities of others, and integrating its work with that of other public and private organizations to achieve synergy through collaboration.

AHRQ contracted with RAND in September 2002 to serve as the Patient Safety Evaluation Center (evaluation center). The evaluation center was responsible for performing a longitudinal evaluation of the full scope of AHRQ's patient safety activities and for providing regular feedback to support the continuing improvement of this initiative. This evaluation was completed in September 2006, culminating in a final report that presents evaluation findings over the full four-year evaluation period (Farley et al., 2008). The final report was preceded by three annual reports, each of which documents the status of the patient safety initiative as of September 2003, 2004, and 2005 (Farley et al., 2005; Farley et al., 2007a; Farley et al., 2007b).

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This working paper presents additional information collected in the community study that was not included in the above-referenced report. We present here detailed descriptions of the approaches and actions undertaken by 15 hospitals as they implemented a number of the safe practices endorsed by the National Quality Forum (NQF) (NQF, 2007), which expands upon the summary information provided in the previous report.

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The community study used qualitative, case-study methods to gather and analyze data on the patient safety activities in four communities characteristic of mid-sized metropolitan areas in the United States. The practice adoption actions are, in themselves, a desired effect of the AHRQ national patient safety initiative, and the adoption process also has effects on the various stakeholders involved. The aims of the study were (1) to trace the evolution of patient safety efforts in four U.S. communities that are typical of local health care markets in various regions of the United States, and (2) to understand, in particular, how hospitals in those communities made decisions about adoption of safe practices and how they implemented them within their institutions.

The four communities selected for the community study were identified from a larger set of 12 communities that have been subjects of study by the Center for Studying Health System Change (HSC). Since 1996, the HCS *Community Tracking Study* (CTS) has conducted biannual site visits to 12 metropolitan areas representative of health care markets in the United States to study how the interactions of providers, insurers, and other stakeholders help to shape the accessibility, cost, and quality of health care in local communities (HSC, 2009). In 2002–2003, they conducted a special data collection on patient safety, in which HSC investigators contrasted the patient safety experience of five CTS communities that were also Leapfrog regional rollout communities (Leapfrog Group, 2009) with the remainder of the CTS communities.

The initial Leapfrog rollout communities were Boston, Massachusetts; Lansing, Michigan; Northern New Jersey, Orange County, California; and Seattle, Washington. The remaining metropolitan areas were Cleveland, Ohio: Greenville, South Caroline; Indianapolis, Indiana; Little Rock, Arkansas; Miami, Florida; Phoenix, Arizona; and Syracuse, New York. Since 2003, Cleveland, Indianapolis, and Greenville also have become Leapfrog regional rollout communities.

We chose to use the CTS sites because HSC selected them to be representative of community health care systems in the United States, and HSC already has developed a wealth of contextual information about these local health care markets. In addition, we used Leapfrog regional rollout sites within the CTS communities because they likely would be pursuing at least some patient safety activities, and we had access to Leapfrog contacts within them to assist in identifying potential interview respondents, as well as Leapfrog survey data for hospitals in those sites.

Our goal in selecting the four communities for this study was to achieve diversity in community characteristics. The key parameters we considered in the selection process were community demographics, health system characteristics, supplies of health professionals, health care utilization, existence of patient safety initiatives, and penetration of health information technology. We collected data on the eight candidate CTS/Leapfrog rollout sites from a number of sources, including information from the Community Tracking Study Web site, the Area Resource File (maintained by the Health Resources and Services Administration), and internet searches to identify existing patient safety initiatives within the communities. Refer to the full report on the community study for additional details on our study methods (Farley, et al., 2009).

Judging from the data collected on the candidate communities, we chose the following communities for the study, defined as the relevant Metropolitan Statistical Areas:

Indianapolis, Indiana   Cleveland, Ohio
Seattle, Washington   Greenville, South Carolina

All of these four sites demonstrated an adequate level of patient safety activity to provide useful information for the study, with sufficient variation in activities to allow comparisons. In addition, they exhibited a diversity reflective of typical communities in the United States on a number of factors of interest, including demographics, types of patient safety activities, and the organization of local health care services and insurance (see Table 1.1). They also represent different regions of the country.

Other candidate sites considered were Boston, Northern New Jersey, Orange County, and Lansing. Boston was not selected because its preponderance of academic medical centers and

other specialty services make it an outlier compared with other community health systems. Northern New Jersey was not a good candidate for this study because much of the patient safety activity appeared to be the result of top-down regulatory action by the state. Orange County had limited apparent patient safety activity, and Lansing had too few hospitals for our purposes.

Table 1.1
Characteristics of the Four Communities Selected for the Study [a]

	Cleveland	Greenville	Indianapolis	Seattle
Demographics				
Population 2004	2,240,000	1,005,000	1,700,000	2,501,000
Percentage African-American, 2003	18.8	17.9	14.3	4.8
Percentage Hispanic/Latino, 2003	3.0	3.1	3.0	5.4
Percentage Asian, 2003	1.6	1.3	1.5	10.5
Percentage age 65+, 2000	14.5	12.3	10.9	10.2
Per capita income, 2003	$32,775	$27,020	$33,357	$41,357
Health care supply and utilization				
Total Active MDs per 1,000 (nonfederal), 2004	3.9	2.3	3.5	3.5
Total number of hospitals, 2003	36	16	27	28
Percentage in hospital networks (total hospitals), 2003	66.7	43.8	37.0	25.0
Percentage with med. school affiliation, 2003	26.7	27.3	33.3	42.9
Short-Term community hospital beds per 1,000, 2003	3.3	2.5	3.1	1.7
Short-Term community hosp inpatient days per 1,000, 2003	820.9	671.8	715.1	421.1
Total surgical operations per 1,000, 2003	143.0	103.2	101.0	68.3
Nursing Home capacity				
SNF beds per 1,000, 2004	11.0	4.4	7.0	3.5
Nursing facility beds per 1,000, 2004	0.2	0.0	0.7	0.0
Other health care characteristics				
Federally Qualified Health Centers, 2004	11	8	13	21
HMO penetration rate 1998 (enrollees per total population)	26.3	9.4	22.0	26.8
Medicare Managed Care penetration rate, 2004 (enrollees per eligibles)	16.0	0.3	3.8	21.6
Percentage of population without health insurance, 2000	10.8	12.8	11.2	11.9

[a] Each community's geographic area was defined as its Metropolitan Statistical Area.

STUDY OF HOSPITAL USE OF SAFE PRACTICES

The study results presented in this working paper address the second aim of the community study—to examine the uptake of safe practices by hospitals in the four communities. Specifically, we present results of our analysis of how the interviewed hospitals implemented each of a number of the 2006 NQF safe practices (NQF, 2007). The methods used in this

component of the community study are summarized here; refer to the full report for more detailed information (Farley, et al., 2009).

The primary data-collection method was semi-structured interviews, which we performed during a single site visit to each of 15 participating hospitals. We wanted to understand the main sources of information and influences on patient safety for each hospital, how decision makers in the hospital prioritize their patient safety efforts and specific practices, which safe practices they have chosen to implement, and their strategies and experiences in implementing different types of practices.

Hospital Recruitment

Our goal was to engage a total of 16 hospitals of different types located within our study communities, with four hospitals identified in each community. We used the following criteria to guide our selection of hospitals for study participation:

- Identified by interviewees in the first part of the study as leaders in patient safety within the community
- Consistently high scores on the 2006 and 2007 Leapfrog surveys for the NQF safe practices of interest
- At least one academic medical center, one safety-net hospital and one community hospital in each community
- Represent a variety of other characteristics, including pediatric hospitals, hospitals that were part of a national or regional hospital system, and hospitals that were part of integrated delivery systems.

We were successful in confirming 15 hospitals, four in each of three communities and three in the fourth community (Cleveland). Competing demands and schedule conflicts for the candidate hospitals prevented us from engaging a 16th hospital. The participating hospitals are profiled by type in Table 1.2.

Table 1.2
Types of Hospitals Engaged in the Community Study

Hospital Type	Number of Hospitals
Academic medical center	3
Main hospital in local system	5
Community hospital in local system	2
Independent community hospital	3
Safety net hospital	2

Assessing the Overall Strategy and Evolution of Patient Safety Activities within Hospitals

In this component of the community study, we used semi-structured interviews to collect information on the evolution of patient safety within each of the hospitals, the hospitals' current activities, and how other organizations—such as employers, health plans, or peers—may have affected the practice-adoption efforts. This approach allowed us to explore the diversity of strategies used among hospitals and to identify factors that contribute to, or challenge, successful

adoption of safe practices. Such exploration of the dynamics of the processes being studied is one of the strengths of qualitative investigations.

During each hospital site visit, individual and group interviews were conducted with hospital leaders knowledgeable about the evolution of the hospital's history and strategy related to patient safety. The respondents included the hospital leadership (e.g., chief executive officer (CEO), chief medical officer, chief of surgery, chief of nursing, chief of pharmacy, chief information officer, or their designees) and the Patient Safety Officer or person responsible for or most knowledgeable about the hospital's patient safety initiatives. The analysis of these data on the overall strategy and evolution of patient safety activities within hospitals is included in the full report of the community study (see Farley et al., 2009).

Assessing Adoption of Specific Safe Practices by Hospitals

For the second component of the community study, which is presented here, we used two roundtable discussions also scheduled during each hospital site visit to focus on how hospitals approached adopting specific sets of NQF safe practices, and their experiences in implementing them. Each hospital was asked to discuss two sets of NQF safe practices that they already had adopted. To start the selection, we provided them with a list of the NQF safe practices, organized by groups, including four practices in the overall patient safety culture practices as well as six other practice groups. To ensure that all the practice groups were addressed by at least two hospitals, we suggested groups to each hospital, based on what we already knew about practices they had been implementing. Through discussions with the hospital representative, a final selection was made that was acceptable to the hospital and also satisfied our need for practice coverage. The practice groups addressed by each type of hospital are presented Table 1.3, which shows that a variety of hospital types addressed most of the practice groups.

In the two roundtable discussions conducted at each hospital site visit, we examined in depth how the hospital implemented each of the groups of NQF safe practices identified for it (see Appendix A for a listing of the NQF safe practices by group). One roundtable focused on an aspect of the development of patient safety culture and the second focused on a grouping of other safe practices (see Table 1.3). Participants in each roundtable consisted of individuals most familiar with and responsible for implementing the specific sets of safe practices being addressed. At most of the hospitals, these discussions included clinicians and other front-line staff who are involved in implementing the practices on a daily basis.

A semi-structured interview format was used to guide each roundtable discussion. First, we asked the respondents to describe all safety practices and activities by their hospital that fell into the safe-practices group being addressed. We focused the discussion on three basic themes: the goals the hospital had set for the safe practices; how the hospital had operationalized and implemented the group of NQF practices in the specific context of their hospital; and the major challenges and facilitators they had experienced in their implementation of the group of practices. For each safe practice implemented by that hospital, specific questions included:

1. How did the hospital *operationalize* the safe practice in its setting?
2. Does the hospital have a written *policy*?
3. Does the hospital have a standardized *procedure* to implement the policy?
4. *Who* is responsible for compliance (where does "the buck stop")?
5. Does the hospital have a method to *verify* compliance?

6. Does the hospital have a method to *measure* compliance?
7. Does the hospital collect data?
8. With whom are these data shared?

Table 1.3
National Quality Forum Safe Practices Examined at Hospitals Studied, by Hospital Type

	Large local integrated systems	Academic medical centers	Safety net hospitals	Independent community hospitals [a]	Total
Safety Culture					
Leadership	2			1	3
Culture Survey	2	1		1	4
Teamwork	1		1	2	4
Safety Risks		2	1	1	4
Total	5	3	2	5	15
Other groupings					
Communication with Patients and Families				1	1
Transparency Across Continuum of Care	2		1		3
Surgery Procedures	1	1	1		3
Medical Evaluation and Prevention	1	1			2
Medication Safety Management	1	1	1	1	4
Workforce	1			1	2
Total	6	3	3	3	15

[a] Includes one pediatrics hospital.

CHAPTER 2
SUMMARY OF FINDINGS: IMPLEMENTATION OF
NQF SAFE PRACTICES BY HOSPITALS

In this chapter, we present a summary of the results of the hospital roundtable discussions with the 15 hospitals for which we conducted the site visits. We first summarize common themes that we observed to be shared across these hospitals. Then we describe the priorities the hospitals reported they placed on implementing each of the NQF safe practices and summarized their implementation approaches. Finally, we highlight key barriers and facilitators they encountered and managed as they worked to achieve sustainability in use of the safe practices.

The interviewed hospitals reported that they have been working to implement many of the practices for several years, from when guidelines were first being developed, even before the publication of the NQF standards. The practices most commonly undertaken in early years included most practices in the Medical Evaluation and Prevention group. The establishment of the NQF safe practices (see Appendix A for a listing of the NQF safe practices by group), as well as other external initiatives, such as Leapfrog, IHI's 5 Million Lives Campaign, and CMS' never events, refocused their attention on these areas.

Moreover, although the hospitals had made progress and laid important foundations for patient safety, the hospitals reported that they still tended to be in fairly early or nascent stages of development in many areas. Results of patient safety culture surveys frequently indicated that the hospitals were not as far along in establishing a nonpunitive climate and effective hand-offs between care providers and units as the patient safety staff and administrators had believed. Many of them also reported that their event reporting systems, even well-developed and introduced electronic platforms, were not capturing the majority of events, and that communication on safety issues across levels and units of the organization remained problematic.

THEMES AND SYNERGIES IN SAFE PRACTICE IMPLEMENTATION

The discussions at the hospital roundtables revealed complex interactions among the various aspects of patient safety culture (role of leadership, use of culture survey and measurement, teamwork development, and systems for identifying and mitigating risks) and the actions being undertaken by the hospitals to drive and sustain their patient safety agendas and projects. A number of themes were shared in the roundtable discussions for the different culture practices. These themes included working to instill a sense of ownership and accountability for safe practices among individuals throughout the organization, creating a "proactive" mentality in which staff attempt to identify problems and improve processes before an incident occurs, and an emphasis on a culture of open communication, including a nonpunitive, nonblame climate for reporting errors.

Much can be done with designing safer technical systems and organizational procedures, but even these require the commitment and awareness of people within the organization to use them as intended. It was also noted that patient safety culture is integrally related to a hospital's wider organizational culture. Thus, developing a patient safety culture is not wholly separate from, and needs to take into account, the wider organizational culture and history of the institution.

Similarly, the four sets of practices for developing patient safety culture were observed to be integrally related to each other. For example, one objective of leadership systems was to encourage a sense of teamwork, and integration of different risk-identification and risk-mitigation systems was considered an exercise in teamwork across units and professionals within the organization. These interrelationships among safe practices were common among the other practices as well (e.g., the heavy use of reporting systems to identify adverse medication events).

Common elements across the implementation of the other practice groupings also emerged from the roundtable discussions. The use of multidisciplinary and cross-functional teams to lead safety-improvement efforts was particularly prominent in the areas of Transparency Across the Continuum of Care and Medication Safety Management. The reliance on technology was emphasized for both Medication Safety Management (e.g., computerized physician order entry [CPOE] systems) and Identification of Risks (e.g., electronic error-reporting systems).

There was an especially strong emphasis on communication practices across a number of groupings, including the role of leadership in establishing mechanisms both up to the Board and down to the front lines, principles of communication embedded in models of teamwork, and internal marketing and communication to promote error reporting. Education and training was also strongly emphasized across a range of groupings, such as various training programs on teamwork that hospitals had used, training of safety professionals and staff in risk-identification and risk-mitigation techniques (e.g., root cause analysis [RCA], failure mode and effects analysis [FMEA]), and continuing education and cross-training as part of workforce practices.

IMPLEMENTATION PRIORITIES AND APPROACHES

The information we obtained from the interviewed hospitals in the roundtable discussions about their experiences in implementing the NQF Safe Practices is summarized a series of tables (Tables 2.1 through 2.6) presented here. In our discussion of these results, we focus first on the implementation priorities and approaches reported by the hospitals for the patient safety culture practices (roundtable 1) and the other groups of practices (roundtable 2). Then we summarize the implementation challenges and facilitators that the hospitals reported they encountered.

Patient Safety Culture Practices

The hospitals' priorities and approaches for implementing patient safety culture practices are summarized in Table 2.1. The hospitals identified leadership and risk management as high priority areas, and they identified culture survey and teamwork as generally important. Common themes in their implementation approaches included communication with the Board and staff on safety issues, a proactive approach to engage staff, training on necessary skills, use of multi-disciplinary teams, and involvement in decision making. The hospitals identified these features as central elements of a robust quality improvement process. In this case they were being used to strengthen hospitals' patient safety cultures and related actions, including improved teamwork and effective reporting of events along with actions to address conditions that contributed to those events.

Other Groups of Safe Practices

The hospitals' priorities and approaches for implementing the other groups of safe practices are summarized in Table 2.4. The hospitals identified surgery procedures and medication safety management as the highest priority areas, transparency across the continuum

of care as a high priority area, and medical evaluation and prevention and workforce as generally important. Hospitals' implementation approaches for these practices varied widely, depending on the practice being addressed, because the practices themselves involved quite different actions. For example, transparency across the continuum involves a great deal of communication across multiple groups, whereas surgery procedures are specific to the surgery process and involve teams of clinical personnel and actions. Within this diversity of actions, common themes did emerge, including the importance of supporting implementation with effective communication, teamwork development, staff training, and monitoring.

IMPLEMENTATION CHALLENGES AND FACILITATORS

The key challenges encountered as hospitals implemented each of the four practices in the patient safety culture practice group are summarized in Table 2.2, and challenges involved in implementing practices in the other practice groups are summarized in Table 2.5. A general theme across the hospitals was the difficulty inherent in overcoming inertia and introducing change in patient-safety systems and culture. This challenge, not surprisingly, is prominent within the practices related to patient safety culture, especially in light of the observations made by the hospitals that patient safety culture is embedded in deep-seated mind sets and expectations within the hospital's wider culture. As a result, changing patient safety culture is necessarily a long-term endeavor.

Physician attitudes were both a challenge (in terms of clinician resistance) and facilitator (in the form of medical leader support). A challenge of greater prominence, however, was resistance by the general staff to perceived additional workload, changes in routine, and a tendency to do pro forma performance of new practices and find work-arounds for new systems. These challenges were particularly noted for the practices in the Safety Culture Survey, Identification of Risks, Transparency Across the Continuum of Care, and Surgery Procedures groups.

Another oft-mentioned challenge was difficulty in disseminating information and practices across different groups of professionals, as a result of boundaries between organizational units within and outside of the hospital, and especially among academic and attending staff who hold multiple affiliations or who practice only intermittently in the hospital. As one might expect, these issues were emphasized for practices that involve actions that cut across those boundaries, such as Transparency Across the Continuum of Care, and Medication Safety and Management. Issues related to implementing and managing technology, such as system incompatibilities and interfaces among complex information systems—a commonly cited challenge to quality and service improvement—were primarily emphasized in discussions of practices in the Safety Culture Survey, Transparency Across the Continuum of Care, and Medication Safety Management groups.

Other notable challenges mentioned for at least one set of safe practices included prioritizing limited resources, lack of responsibility and/or initiative among staff to act, "overload" on staff from increasing safety-related demands and requirements, designing systems to accommodate a range of staff and turnover, and balancing incentive schemes, particularly among positive and negative incentives.

Roundtable respondents also discussed a number of facilitators to implementing safe practices. The key facilitators identified are summarized in Table 2.3 (for the patient safety culture group) and Table 2.6 (for the other practice groups). The most noted facilitating theme

across all the safe practice groupings was flexibility: not expecting strict uniformity in implementation across units, allowing small changes in safety procedures that can make a large difference in reducing workload burden on care providers, encouraging inclusion of a wide range of stakeholders in the implementation process, and methods by which stakeholders can participate. Another facilitator noted frequently was the role of leadership support, particularly in establishing coordination and networking mechanisms (e.g., patient safety governance committees, multidisciplinary programs to share experiences) and providing tangible resources for safety efforts (e.g., investment in new hospital beds and mattresses to reduce the incidence of pressure ulcers). An equally prominent facilitator across the groupings was communication and feedback to front-line staff. Investing time to explain patient safety issues, and to "close the loop" with care providers on safety priorities, incidents, and results of error reporting and corrective actions taken, were described as highly motivating to hospital staff for committing to and implementing patient safety practices.

Other notable facilitators mentioned for at least one set of safe practices included taking a systems-oriented, non-personal approach to problem-solving safety issues, the existence and use of empirical evidence for safe practices, clear lines of responsibility for monitoring and enforcement of safe practices, the credibility of systems and leadership in the eyes of staff, and impetus for adopting safe practices provided by external requirements and publicly reported data.

DISCUSSION

This sample of 15 hospitals offers encouraging news and useful information regarding the extent of progress being made by U.S. health care providers in putting safe practices to work in their daily care delivery processes. Although these are a limited number of hospitals, they are operating in four communities that were selected by HSC for its Community Tracking Study as being representative of different types of metropolitan areas in the country. Thus, we may anticipate that similar efforts are underway in other hospitals across the country, with varying levels of success and progress. It is clear from the information provided by the interviewed hospitals that implementation of safe practices is difficult. Like any other quality improvement activity, investment of time and effort is required to achieve sustainable changes in practices by the various personnel involved in the care process—including physicians, nurses, pharmacists, technicians, clerical staff, and others.

Hospitals in the study tended to be addressing a wide range of safety practices at once, including some they had been working to implement since before the NQF safe practices were established, as well as certain areas not included in the NQF standards. The hospitals also tended to view virtually all groupings of NQF practices as having (or pushed by external sources with) at least a modicum of importance. As a consequence, the roundtable discussions on NQF safe practices pointed to a general challenge—echoed in the interviews on overall strategy and evolution of patient safety activities within the hospitals—of attempting to balance multiple patient safety initiatives and requirements in a coherent fashion, and avoiding project and information "overload" on both hospital leadership and frontline staff, as well as to the role that external agencies can play in helping to rationalize and focus—as opposed to multiplying—patient safety priorities.

Not surprisingly, we observed a diversity of approaches and actions to implementing practices, which varied across the safe practices and across hospitals. We also found some common themes that the hospitals identified as important implementation elements for most safe

practices. Foremost among these are proactive communications with the key groups of personnel (stakeholders), training of staff in the skills required by the safe practice, engaging front-line staff in decisions on the plan and actions for implementing a safe practice, development of effective interdisciplinary teamwork, and monitoring of progress.

In the next two chapters, we present in-depth results from our study regarding hospitals' approaches, actions, and experiences in implementing the specific sets of NQF safe practices. These results include detailed examples, illustrations, and insights into facilitators, challenges, and other aspects of safe practice adoption from the various hospitals visited in the four communities. Information for implementation of the patient safety culture practices is presented in Chapter 3, and information for implementation of the other groups of safe practices is presented in Chapter 4.

Table 2.1 Hospital Actions for NQF Patient Safety Culture Practices

	Patient Safety Culture Practices			
	Leadership	Survey	Teamwork	Risks
NQF Practices Addressed	#1A	#1B	#1C	#1D
Number of Roundtables	3	4	4	4
Main Priorities	**High priority area**, including engaging Board and medical staff, clarifying accountability, and creating shared sense of responsibility for safety throughout the organization.	**Generally important**. Main goals focused on identifying particular cultural dimensions or units within the hospital to target for improvement.	**Generally important.** Two aspects were prioritized: committee teamwork, and clinical teamwork (NQF focuses only on the latter).	**High priority area**. Goals included creating a non-punitive reporting climate, ownership and "proactive" mentality for addressing errors, and transparency of information related to risks, events, and corrective actions.
Extent and Type of Implementation	Greater communication to both Board and staff on safety issues, Board and executive walk-arounds, taking proactive approach (e.g., sentinel events, investing resources for safety to prevent events rather than in reaction), engaging medical and other staff in safety through multi-disciplinary teams, training and involvement in decision-making.	Common use of the AHRQ Hospital Culture Survey, some use of other unit specific surveys (e.g., surgery); trending over time and benchmarking to develop organizational goals; analysis and comparison of units to develop department-specific action plans.	Strengthening committee teamwork (communication principles, charter for managing safety initiatives) and clinical teamwork (SBAR, TeamSTEPPS, and TCAB training; measuring team performance; use of care plans; and inclusion of patients/families in care team).	Improving reporting systems and participation (online systems; internal marketing campaigns); Education and training on safety awareness, and risk identification & improvement techniques; Integration of reporting and data systems for identifying and monitoring risks across the organization.

Table 2.2 Main Challenges Encountered by Hospitals in Implementing Patient Safety Culture Practices

	Patient Safety Culture			
	Leadership	Survey	Teamwork	Risks
Inertia of systems and culture, tendency to "backslide"	X		X	X
Prioritizing limited resources	X			X
Implementing and managing complex technical systems		X		
Managing info/work across disciplines, organizational boundaries, and multiply affiliated staff	X			X
Lack of responsibility/ initiative to act	X	X		
Physician resistance, especially among older clinicians				
General staff resistance and inertia, tendency for workarounds		X		X
"Overload" on staff from increasing safety-related demands, requirements				X
Designing systems to accommodate range of staff, staff turnover				X
Balancing incentive schemes, positive and negative incentives				X

Table 2.3 Main Facilitators Experienced by Hospitals in Implementing Patient Safety Culture Practices

Facilitators Identified	Patient Safety Culture			
	Leadership	Survey	Teamwork	Risks
Leadership providing necessary coordination and resources	X			
Communication and feedback to frontline staff			X	X
Systems-oriented, non-personal problem solving approach to safety issues	X			
Flexibility in procedures and inclusion of relevant stakeholders			X	X
Support and involvement of clinical leaders			X	
Empirical evidence for safe practices	X			
Clear responsibility for monitoring and enforcement of practices				
Credibility of systems and leadership			X	
Impetus/motivation of external requirements and publicly reported data	X			

Table 2.4 Hospital Actions for Other NQF Patient Safety Practices

	Other Patient Safety Practices				
	Transparency Across the Continuum	Surgery Procedures	Medical Evaluation and Prevention	Medication Safety Management	Workforce
NQF Practices Addressed	#10, 11, 13, 14	#25, 26	#23, 27, 28, 29, 30	#12, 15, 16, 17, 18	#5, 6, 7
Number of Roundtables	2	3	3	4	2
Main Priorities	**High priority** area, in particular proper labeling and patient identification (NQF safe practice #10).	**One of the highest priority** areas. Hospitals also focused on issues outside the NQF practices considered equally important, including settings beyond the OR.	**Generally important,** except for NQF practice #30 related to contrast media-induced renal failure (severity potentially high, but incidence low).	**One of the highest priority** areas ("huge concern").	**Generally important**. Specific priorities included ensuring adequate staff recruitment and retention (especially in face of labor shortages), and staff training on core competencies and evidence-based care.
Extent and Type of Implementation	Establishment of multidisciplinary groups responsible for range of initiatives, including effective wristband systems, requiring matches on multiple identifiers, specifying when units "own" a patient, labeling items in real-time, and standardizing labeling processes across the hospital.	Developing tools and auditing for time-outs to ensure conducted properly (not just pro forma); use of pre-op/pre-anesthesia clinics to identify when to administer beta-blockers prophylactically. Attending to other surgery safety issues such as use of blood products, proper positioning, room temperature, and hand-offs	Many of these practices have been worked on since before they were published as NQF standards. Annual flu vaccination programs have expanded from patients to employees, DVT/VTE and pressure ulcer assessments occur at admission and regular intervals, while procedures for anti-coagulant	Establishment of multidisciplinary groups responsible for a range of initiatives, including heavy use of reporting systems to identify adverse medication events, working to implement CPOE, standardizing labeling/packaging (incl. bar codes), identifying "high alert" medications, and integrating pharmacists closer	Varied initiatives to address staffing issues, including annual competency and periodic on-floor skill assessments, support for continuing and peer education, shared governance councils, hiring additional staff (incl. hospitalists), cross-training and certification, succession planning, and retention strategies, such as staff surveys and informing leadership of staffing needs.

between surgical and ICU staff.	management are the most incomplete and in flux.	to the point of care.	

Note: The safe practice grouping on Communication with Patients or Families is not included in these summaries, since we were not able to hold a full roundtable discussion on this topic at the assigned hospital.

Table 2.5 Main Challenges Encountered by Hospitals in Implementing Other Patient Safety Practices

	Patient Safety Practices				
	Transparency Across the Continuum	Surgery Procedures	Medical Evaluation and Prevention	Medication Safety Management	Workforce
Inertia of systems and culture, tendency to "backslide"	X				
Prioritizing limited resources			X		X
Implementing and managing complex technical systems	X			X	
Managing info/work across disciplines, organizational boundaries, and multiply affiliated staff	X		X	X	X
Lack of responsibility/ initiative to act		X			
Physician resistance, especially among older clinicians		X		X	
General staff resistance and inertia, tendency for workarounds	X	X			
"Overload" on staff from increasing safety-related demands, requirements				X	X
Designing systems to accommodate range of staff, staff turnover					X
Balancing incentive schemes, positive and negative incentives			X		

Note: The safe practice grouping on Communication with Patients or Families is not included in these summaries, since we were not able to hold a full roundtable discussion on this topic at the assigned hospital.

Table 2.6 Main Facilitators Experienced by Hospitals in Implementing Other Patient Safety Practices

Facilitators Identified	Patient Safety Practices				
	Transparency Across the Continuum	Surgery Procedures	Medical Evaluation and Prevention	Medication Safety Management	Workforce
Leadership providing necessary coordination and resources			X	X	
Communication and feedback to frontline staff	X				
Systems-oriented, non-personal problem solving approach to safety issues	X				
Flexibility in procedures and inclusion of relevant stakeholders	X		X		
Support and involvement of clinical leaders		X			
Empirical evidence for safe practices				X	
Clear responsibility for monitoring and enforcement of practices	X				
Credibility of systems and leadership					
Impetus/motivation of external requirements and publicly reported data		X			

Note: The safe practice grouping on Communication with Patients or Families is not included in these summaries, since we were not able to hold a full roundtable discussion on this topic at the assigned hospital.

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CHAPTER 3
PATIENT SAFETY CULTURE PRACTICES

Our Safe Practices Grouping 1, Patient Safety Culture, corresponds to NQF Safe Practice #1. For the hospital roundtable discussions, we divided this topic into four sets of the sub-practices included under this safe practice: 1A—Leadership, 1B—Culture Survey and Measurement, 1C—Teamwork, and 1D—Safety risks.

In this chapter, we present the findings from our roundtable discussions for these four patient safety culture practices. The findings for each practice are organized according to the following four questions:

1. What have been the goals of the hospitals related to this set of safe practices?

2. What have the hospitals done in terms of implementing these safe practices in general?

3. How specifically have the practices been operationalized over time within the context of these hospitals?

4. What have been the major challenges and facilitators to implementing these safe practices?

LEADERSHIP STRUCTURES AND SYSTEMS (PRACTICE 1A)

1. What have been the goals of the hospitals related to *safety leadership* practices?

The three hospitals interviewed about this safe practice indicated that communicating, educating, and creating ownership of patient safety and quality by their leadership (i.e., Board of Directors, Medical Staff Chairs, nurse managers, infection control officers, quality officers) has been a high priority. Other key goals included increasing integration and shared accountabilities for safety and quality by more fully engaging the medical staff in understanding patient safety issues and having them help develop and implement programs to address patient safety problems. There was also an emphasis on creating leadership structures that would work to clarify with front-line staff everyone's piece of accountability in the delivery of safe, high quality care and to develop a sense of "aggregate behavior and attitudes" and the "big picture focus" among the people who work in the hospital organization. There was consensus across the hospitals that the goal is to have a team environment where everyone is working together on safety versus addressing safety individually. Hospitals indicated that "everyone has an impact here" and that creating teamwork across the various care delivery elements (environmental, dietary, clinical) was the goal of improved leadership structures and systems.

2. What have the hospitals done in terms of implementing *safety leadership* practices in general?

Among the three hospitals we interviewed, there were specific activities to keep the hospital Board of Directors aware of what was occurring in the areas of patient safety and quality which hospital staff noted were intertwined. The hospital staff indicated they routinely provided their Boards with reports that identified organizational goals related to safety and quality, showed performance results against the array of metrics that the hospital was being held accountable for (e.g., CMS measures, Leapfrog, the Joint Commission, etc.) and progress being made towards achieving performance goals, and flagged issues that required additional resources. One hospital noted that they had shared the results of culture surveys they had

conducted with their Board. The leadership briefings varied in the frequency with which they occurred, with one institution providing annual reports to their Board and quarterly briefings to their internal quality committee, while the other hospitals provided quarterly or monthly updates to their Board.

In addition to a high level safety and quality performance dashboard used by all the hospitals with which we spoke, one hospital indicated that it provided an annual report of FMEAs that had been done, actions taken as a result of RCAs, any safety issues and trends identified through other tracking systems (i.e., incident reports, infection control data) and compliance with national patient safety goals. This same hospital also provided Board briefings on various safety initiatives the hospital had implemented or were in the process of implementing, such as CPOE and medication management. The hospital noted that a great deal of information has been shared with the Board, that more could be shared, and that the Board has expressed interest in seeing more data. This hospital observed that the Board's understanding of safety and quality issues has grown as a function of seeing data, which has led the Board to ask more questions and make changes based on what they've observed in the data.

There was emphasis among the hospitals on having the leadership engage in staff rounds—so that they could gain first hand knowledge of what the safety challenges and problems are—although it varied institution to institution on the extent of leadership involvement in rounding. In one institution, only the leaders of quality and infection control engaged in rounding with their immediate staff; they had not yet rounded with physicians and risk managers and the staff noted that they needed to close this gap. For another hospital there was high level leadership engagement, with Board members participating in patient safety walk-arounds at all hours of the day.

Integration across and among staff and departments is an area that hospitals heretofore had not focused on and were now working to correct. To drive greater integration, one hospital noted that they had included accountability for patient safety goals (e.g., hospital acquired infections, medication reconciliation) and improvements in the management staff performance appraisals and compensation. This was newly implemented in the past year and staff commented that they are learning how to do this and struggled with how to write goals and make them effective.

3. How specifically have *safety leadership* practices been operationalized over time within the context of these hospitals?

At the highest levels, this practice has been operationalized through regularly scheduled hospital Board briefings specific to safety issues, Board member and hospital leadership patient safety walk-arounds, and creating leadership structures that work to clarify with front-line staff that they are accountable for making changes that will improve safety, engaging all players in the organization in the discussion and the solutions, and focusing on proactive prevention rather than reactive responses.

It was noted in our discussions that you don't change the culture by writing a new policy. According to one hospital "*Being safe takes time and accidents occur when you're cutting corners due to time or resources. To operationalize this, the culture of safety puts what you need up front and not at the other end in a reactive response to a bad event.*" This hospital expressed that it was struggling with how to actually do this. Another hospital expressed similar concerns, reporting they historically had been more reactive with respect to operationalizing patient safety

(e.g., performing RCAs). More recently this hospital has taken a more proactive approach by looking at sentinel event alerts and using the alerts with staff to discuss what they are doing to prevent events.

Additionally, there were efforts underway in each of the hospitals to develop a sense of "aggregate behavior and attitudes" among the people who work in the hospital organization. One example of this was the efforts by one hospital to develop an integrated patient safety program. This hospital developed a multi-disciplinary Patient Safety Committee that includes clinical and support function leaders (e.g., materials management, engineering, etc.), and collectively they receive reports on various patient safety initiatives and they track reports on infection control, medication safety events, and falls. This committee has joint responsibility for reporting information up higher in the organization to the Quality Management Committee. However, the hospital acknowledged that their level of integration and joint accountabilities is still in a formative stage, noting that they have "*a lot of knowledge at the top and some information at the bottom, but it isn't filtering to the different levels and isn't connected.*" Moving forward they are formalizing the process of integration through requirements that the medical staff and each specialty area have meetings that specifically focus on quality and safety, with the goal of getting physicians more involved and accountable for changes that need to be made to improve safety and quality.

Despite a focus on a goal of greater integration and teamwork expressed by the hospitals, little activity was occurring on this front in a cross functional way within the organizations and, where it was occurring, it tended to focus on teamwork among the nursing staff. Hospitals recognized that they need to do more with getting physicians engaged in team building and training.

One hospital defined a patient safety culture as the philosophical position of the organization in terms of how it approaches patient safety, what kind of training it does, and what expectations are set for employees, including terms of accountability and responsibility to be an advocate for the patient. Behaviors must support the work and the focus must be on identifying the problem and then holding people accountable for making the change. "You can't change culture and you can't make change by writing a policy or procedure." Rather it requires the presence of leaders in the departments to find out what is happening at the bedside, what the challenges are, and to work towards solutions.

4. **What have been the major challenges and facilitators to implementing *safety leadership* practices?**

Creating shared accountabilities and knowledge and functioning as a team created challenges and required significant changes in organizational structures and relationships. One hospital said it was difficult to bring together a unit support technician, a surgeon and clerical staff and get them to work together toward a goal vs. individually. Another hospital identified that their previous organization of the medical staff, with separate academic chairs and medical staff chairs, created accountability problems in knowing who did what and who was responsible for patient safety and quality. In response, the hospital recently has restructured the medical staff with the goal of improving accountability and integration of quality and safety between the medical and service/operations staff. While there was a focus on strengthening accountabilities for safety among all members of the care team within the organization, this presented a challenge for one hospital in how to balance individual accountability with a no-blame environment.

Challenges in the information and knowledge flow were also identified. For example, there was consensus among the hospitals regarding the difficulty in having the knowledge that exists at the top filter down to the various levels of the organization and to have the information connected across all staff in the hospital. Having safety addressed in diverse ways and spread throughout the organization creates communication and coordination challenges, and it requires central leadership to address it (e.g., a patient safety officer). Having a centralized resource can create cross pollination across departments and avoid creating siloed approaches. For one hospital, getting physicians to report events and then, once the report has been made, ensuring the person who submitted the report knows what happened as a result (i.e., was the problem addressed and how?) presented challenges.

Across all three hospitals, there was a sense that this process of culture change is evolutionary and cannot happen overnight. One aspect of culture that appears to present a particular challenge is the attempt to shift from working in a reactive mode to a proactive mode that prevents mistakes.

One hospital expressed that they faced the challenge of having a lack of focus, working in a reactive mode, and being able to follow through to completion as "*you're always moving on to the next thing*." The hospitals concurred that there is so much to do on the safety front and limited financial and human resources, although most noted that their hospital boards were supportive in making resources available. Rather, the challenge was framed as figuring out how to choose where to invest given resource constraints and obtaining those resources in a proactive fashion as opposed to in reaction to an error. One hospital observed that staff have to do a better job of explaining to decision makers who do not have a clinical background why they need what they need.

Moving away from an orientation of "shoot the messenger" to one of "let's come to the table" collectively to start a discussion about the problems and potential solutions is another major change that enhances the building of a culture of safety. One hospital noted that this type of collaboration was facilitated by seeing the CMS quality and safety data, Leapfrog, and registry data. The advantage of such publicly reported performance data has been to encourage the hospital and physicians to come together and work as a collaborative team in contrast to the "solo strategy" that typically existed previously (i.e., the physician just practicing on his own and the hospital as a separate entity focused on its own financials). This hospital was shifting away from that type of individual focus to an approach that tracks and trends the big picture to then drill down to identify problems areas.

Among the facilitators of creating a hospital culture that supports safety cited by one hospital are "accountability, respect, and teamwork." Another factor supporting the culture shift is embracing continuous quality improvement (CQI) as that method for improvement and a systems approach to problem solving versus reacting to singular incidents with a band-aid. Hospitals also indicated that it was easier to engage their physician leadership, as well as the rest of the care delivery team, by having solid empirical evidence upon which to make decisions. One hospital noted that "unless the evidence-base exists, the medical leadership won't go there." It was noted that if there is epidemiologic data or an evidence base, the physicians will often move on the issue themselves (e.g., sepsis, MRSA) even in the absence of public reporting of performance results.

CULTURE SURVEY AND MEASUREMENT (PRACTICE 1B)

1. **What have been the goals of the hospitals related to *safety culture measurement* practices?**

  The goal was to measure patient safety culture in the hospitals. Hospitals recognized that while they all had some thought leaders in patient safety – not all staff necessarily shared the same values (e.g., transparency, a blame-free environment). Most of the hospital leaders with whom we spoke wanted to "take the temperature of" the hospital environment and to identify areas for specific improvement.

2. **What have the hospitals done in terms of implementing *safety culture measurement* practices in general?**

  All of the hospitals implemented patient safety surveys – and at the present time three of the four are using the AHRQ survey. Some hospitals administer the survey annually and others less frequently. Some hospitals include all staff and others focus only on clinical staff. Hospitals also vary in how they use the survey findings.

3. **How specifically have *safety culture measurement* practices been operationalized over time within the context of *these hospitals?***

  One of the hospitals started measuring patient safety culture in 2002. At that time there were only 2 survey tools to choose from and they chose one developed by an insurance company which they used until they discovered that AHRQ was developing a tool. They participated in a test of the AHRQ tool in 2005 and have used the AHRQ tool in 2006 and 2007/8. They do not use the entire AHRQ tool because of complaints that it was too long and overlapped with questions in their staff satisfaction survey (e.g., teamwork within units). They use it in the clinical areas of the hospital and 80 percent of staff respondents take the survey on-line (although they also offer a paper version). The survey includes "demographic" information in so that the hospital can stratify findings by unit, job classification and length of employment. They also stress the open-ended "comment" section – although they do not receive a lot of comments. They compare their findings to regional benchmarks and use the survey to "drill down" to identify specific safety problems.

  Another hospital started their efforts to measure culture in 2006 with a single unit (the OR). The surgery committee identified the survey to be used (Sexton) because it was unit-specific to the OR. They were pleased with the information they gained from the survey and only switched to the AHRQ survey when the state hospital association offered to manage the data for the AHRQ survey for its member hospitals. The hospital and department leaders prefer the unit-specific survey, since the questions on the AHRQ survey are more general and less useful in planning unit-specific patient safety efforts within the OR. In order to enhance response rates they offered a training/teleconference about the survey and staff were able to take the survey on the hospital intranet. They also promoted it through e-mail, flyers and patient safety directors at the unit level. The results were made available to the staff via PowerPoint presentations on the intranet. The findings were also presented to the Quality Forum and the surgery committee. The hospital will repeat the OR survey this summer and hope to repeat the AHRQ survey again at some point. The results are presented to the quality oversight committee of the Board as well as the hospital leadership and unit leadership. The Board uses the results to identify organizational goals for the next year. For organizational goals, an administrative director is assigned for each

initiative and then the compensation of the managers is partly based on achieving their work plan. At the unit level, there are targets that align with the organizational goals.

A third hospital reported that their first culture survey was recently in March 2008 and that they used the AHRQ survey with both clinical and non-clinical staff (although 75 percent of respondents were clinical staff). They also conduct employee satisfaction surveys every year in October. They provide feedback to managers and developed an action plan – but noted that there has been little action as a result of the action plan thus far. They also plan to provide feedback to senior management at some point in the future.

Most of the hospitals would like to trend their survey results over years to see whether they are making progress on patient safety culture and sustaining that progress.

4. What have been the major challenges and facilitators to implementing *safety culture measurement* practices?

Respondents from one hospitals reported that the major problem with the AHRQ survey is a technical barrier. AHRQ only offers a paper version. Each hospital has to create their own on-line version – which appeared to them as a waste of resources. The hospital had to convert recently from one web site host to another – and had to rebuild the survey from scratch. They did note, however, that AHRQ recently had provided a results kit and PowerPoint tools that were very helpful.

Generally response rates reported by the hospitals are fairly low – especially among physicians. Those hospitals that were able to tell us their response rates reported response rates in the 15-30 percent range (low when compared to typical response rates required for research findings to be considered valid). One hospital tried a variety of means of driving up response rates, including creating competition among hospital VPs. VPs used motivators like pizza parties, Hershey's kisses and gift cards. Still response rates did not rise substantially.

TEAMWORK AND TEAM-BASED CARE (PRACTICE 1C)

1. What have been the goals of the hospitals related to *teamwork* safe practices?

In discussions with the hospitals that have worked on teamwork, two aspects of teamwork were identified:

- cross-disciplinary work to manage care quality and safety in which the teams are committees
- day-to-day teamwork among clinical and other staff involved in the delivery of care to patients.

The NQF practice tends to focus on the clinical care aspect of teamwork, but staff at two of the three hospitals with whom we addressed teamwork have pursued both aspects. In particular, they have found that cross-disciplinary teamwork is central to being successful in initiatives to improve performance in patient safety. To build buy-in as well as viable practices, all the key stakeholders need to be engaged in activities to detect, report, and act to reduce the frequency of negative occurrences.

All of the hospitals stated that building effective teamwork (of both types) is essential for success in making patient safety improvements. With such a large number of individuals in the health care system, opportunities for error abound, so ability to work as a team overrides other considerations.

2. What have the hospitals done in terms of implementing *teamwork* safe practices in general?

One of the obvious characteristics of hospitals' efforts to establish strong teamwork is the diversity of approaches they are using. All the hospital teams with whom we met viewed patient safety culture, teamwork, and occurrence reporting processes as being closely interwoven. To be effective, both teamwork and occurrence reporting need to happen in the culture of a safe environment in which staff can work together across disciplines and communicate openly without fear of retribution or punitive responses.

Teamwork in committee operations. The formation of a hospital-wide patient safety committee was one of the hospitals' basic steps toward teamwork. For example, one hospital said that this committee coordinated the safety work, making sure that the hospital was operationalizing change effectively and not duplicating or conflicting across hospital units or departments. In addition, while the patient safety committee works on hospital-wide issues, they also have multiple other teams working at different levels on specific patient safety and quality issues.

One hospital reported that it was developing a charter for management of safety initiatives, which guides decisions and approaches related to implementing a new process, such as the need for administration sponsorship or a facilitator, and determination of who the stakeholders are and how to work with them. They often use classic quality improvement methods to implement improvements, which typically include testing new methods on a small scale before rolling them out across the organization.

One hospital set a priority on establishing the best processes possible for effective communication, including both one-on-one communication and global communication. The first step they took was to ask employees how they wanted communication to come to them. Staff told them that they wanted to hear things from their direct supervisors, the person with whom they work most immediately, and that they did not want to be blindsided. Using this feedback, they developed a formalized approach to communication. They are using data from their culture survey to monitor performance in this area.

Teamwork in clinical practices. Again, the diversity of hospitals' activities in this area challenges attempts to characterize or summarize them. A few examples of creative approaches being undertaken are summarized here.

One hospital acted to enhance teamwork by establishing a plan of care that addressed and documented all aspects of a patient's care in one place. Their goal in establishing this tool was to make sure the physician, nurse, and family all know each day what the patient's status is and what is being done for the patient. The care plan contains a daily assessment; a list of problems for the patient for that day; medications, tests, procedures to be done that day, and information on when the patient is expected to leave. It also includes a box for patient or family concerns to be recorded, which engages the patient and family in the planning process.

Another hospital adopted specific tools to strengthen communication as a core feature of teamwork. With a goal of establishing a consistent method of communicating about cases, they adopted the handoff procedure, SBAR (Situation-Background-Assessment-Recommendation), as their method of communicating among caregivers. They use SBAR to communicate patient information during handoffs, shift changes, or calling the physician about a patient's problems.

They also are implementing the national nursing improvement initiative, Transforming Care at the Bedside (TCAB), in the medical/surgical areas.

This same hospital incorporated TeamSTEPPS as part of the teamwork-based training. Some of their staff were trained in TeamSTEPPS by AHRQ, and they incorporated part of this tool into TCAB. They have found TeamSTEPPS to be helpful. Although competing priorities have prevented them from expanding TeamSTEPPS use thus far, they expect to do so in the future. The other hospitals we interviewed were aware of TeamSTEPPS, and had incorporated some of its principles and tools into their teamwork activities, but they had not implemented the entire TeamSTEPPS package.

Measuring Team Performance. All the hospitals we interviewed about teamwork were measuring team performance on an ongoing basis, using a variety of approaches. As stated by one hospital team member, "a high functioning team is an accountable team." One of the performance assessment tools being used by several hospitals is regular drills on simulated patient events. Participating staff are given feedback on how well teamwork went during the drill and their role in it. Other assessment tools being used include debriefings conducted after codes and root cause analysis performed on teams that are carrying out care processes. For committees, performance is assessed by examining whether the team is meeting its timelines and goals. If a department is considered a team, staff satisfaction sometimes is used as an indicator of performance, although the hospital staff cautioned that happy teams are not necessarily also productive teams.

3. **How specifically have *teamwork* safe practices been operationalized over time within the context of these hospitals?**

Not surprisingly, the specific activities undertaken by the hospitals reflect the nature of each hospital and the patient population it serves. For example, one large hospital starts almost all of its QI teams on new processes by using pilots first, to try out the new practice, collect data, and obtain feedback on where to make revisions. Then they scale up to broader implementation. In their pilots, they test both the process being introduced and tools being used with it.

Clinical care teamwork. One hospital implemented family-centered rounds in a process that started several years ago, when they sent a multidisciplinary team to another children's hospital to learn how that hospital used this method. They brought the methods they learned back home and adopted them at their children's hospital. By using family-centered rounds, the hospital has moved away from separate rounds by nurses, physicians, and residents with no family involvement, to joint rounds at the patient's bedside with the parents' participation. The clinical team points out physical exams during the rounds, using lay terms so parents can understand, and they address concerns with the parents right at the bedside. The plan for the child for the day is written down and posted in the room so parents can see the plan.

In implementing this new approach, the leadership team worked to engage and build buy in from all stakeholders – nurses, residents, and physicians – and they started small with one pilot to test the process and address staff concerns. The teams' performance is measured by having observers shadow them and provide feedback. They reported that the parents have been amazed that their child is being treated by a multidisciplinary team and also by the amount of teaching going on during each session. The hospital now is working to adapt family-centered rounds to adult patients, in particular geriatric care in which family members also are closely involved.

Another hospital initiated a major program on communication, as a core component of teamwork. They focused in particular on training medical students and residents in communication across disciplinary lines. In one program, they pair medical students with nurses. The paired medical student and nurse talk over lunch, and then the student follows the nurse during an afternoon of work. Both medical students and nurses had positive feedback on this program. The students felt they gained insight into what the nurses do, and the nurses had an opportunity to discuss their side of care processes and open a channel of communication with the students. They felt this approach is helping to break down the separation (silos) between the medical and nursing patient care processes.

This hospital also has started a program in which medical students keep an anonymous journal about their thoughts and experience, and they have gained valuable insights from reading their perspectives. In addition, the hospital CEO has breakfast regularly with the chief residents, so they can talk directly to the leadership about any problems. They have observed that there is as much utility in the chiefs speaking to each other during those breakfasts as there is in residents speaking with the CEO.

Committee teamwork. One hospital shared two examples of how it has used cross-disciplinary teams to improve safety. One project was a pilot to improve management of equipment and fire safety items throughout the hospital and keep all exits clear. This multidisciplinary effort involved staff from all the functions involved in equipment and space management. Since starting this work, the team has maintained performance above the 85th percentile for a year. Another project performed observational audits for hand hygiene, piloting the work on one nursing unit and a number of units with which it interacted (radiology, dietary, etc.). They held daily meetings to identify and implement actions to increase hand hygiene, and within five weeks period, their audited rates increased to 85 percent. They routinely do monthly audits of a week in length, and if the rate drops below 85 percent, they perform daily audits for a month at a time until rates improve again.

Teamwork training. Although the hospitals reported that they provided education or training in teamwork as part of their process improvement work, they varied in the extent of these efforts. All have added some training to the new employee orientation, at least on communication and respect, if not on the full scope of teamwork principles and practices. At one hospital, new employees have a minimum of three days of education on patient safety, the quality improvement process the hospital uses, and teamwork. In this training, they highlight teamwork as one of the hospital's values.

Some hospitals also have provided training on teamwork in the committee setting, including facilitator training and procedures for organizing and running committee work effectively. Efforts are made in committee meetings to engage participants in brainstorming and decision making. They stated that they believe good committee work builds teamwork, confidence in each other and respect, even if the work is not directly addressing teamwork or the care team.

Another hospital took a somewhat different approach, focusing first on establishing working relationships in implementing new processes, and incorporating the training in "real time" as the implementation work proceeds. As stated by one of its staff, "You can approach training in different ways. You can try to 'train the world' or you can 'train and do.' If you train the world, you cannot train and do because you can't manage all that activity."

Transparency and Disclosure as Part of Teamwork. Another aspect of teamwork highlighted by some of the hospitals was transparency and disclosure to patients. This principle is reflected in several of the family-centered rounds and the care plan discussed above. Disclosure also is addressed directly through policies on how to handle specific incidents.

One hospital described how they work closely with the patient, asking them for detailed information about an incident from the patient's perspective, and talking to patients and families as soon as possible after an incident. They engage the patients and families in the improvement process when they felt it would be helpful for the patients and families to be involved and see the actions that were taken and that the situation was taken seriously. They have found that much of this work has to be done on a case-by-case basis. They discussed how patients sometimes find that suing the hospital is the only way they can get information about their error and the only way they can make a difference in ensuring change is made; the hospital is striving to eliminate that perception.

4. What have been the major challenges and facilitators to implementing *teamwork* safe practices?

All of the hospitals emphasized both the importance of establishing a safe environment in which members of care teams can call out errors without retribution, and the difficulty and challenges involved in establishing such an environment. In particular, it was noted that the people and teams who deliver care at the bedside need to buy-in to the culture of safety, or nothing done by managers, directors, and patient safety teams will make a difference.

Operating a credible occurrence reporting system is key to a patient safety culture because effective reporting depends on having an environment in which staff feel safe reporting incidents to the system. Maintaining the integrity and credibility of the process is an ongoing and evolving process that requires continuing management.

The hospitals emphasized that people in leadership need to keep working to build the safety culture so that the staff delivering care know that patient safety is of utmost importance, and that effective teamwork is a part of that goal. For example, hospitals have tended to err on the side of inviting more stakeholders into the improvement process than might otherwise be needed, to ensure that they feel a part of the process and are able to influence it.

When implementing a new process across the entire hospital, the leadership team at one hospital concluded that, for most practice changes of such a magnitude, it is necessary to separate the policy from the procedures. A consistent policy is needed (e.g., requirement to use the plan of care) but procedures can be flexible to accommodate differences in units' situations and needs. They found that it was not realistic to expect complete uniformity across units and departments.

A facilitator of safety improvement identified by one hospital was the feedback the hospital provided to frontline staff from the patient safety culture survey. When staff saw a significant improvement in results for their areas as a result of individual and team effort they had put forth, they began to understand their exceptionally important role in patient safety.

The hospitals highlighted that success depends on the unit and the local physician leadership where the new process is being implemented, with strong leadership and physician support leading to greater chances for success. They also stated, however, that the process is an

evolutionary one, and that over time, the physicians are working better with the nurses, both are working better as a team, and that success breeds more success.

IDENTIFY AND MITIGATE PATIENT SAFETY RISKS & HAZARDS (PRACTICE 1D)

1. **What have been the goals of the hospitals related to *risk and hazard mitigation* safe practices?**

The four hospitals that participated in round tables on this topic first discussed several general objectives with respect to patient safety culture that undergird their efforts to develop systems for identifying and mitigating safety risks and hazards. The highest objective discussed by all hospitals was an emphasis on establishing a non-punitive, non-blame culture that allows staff and the organization itself to differentiate individual versus systemic causes of errors.

A second strongly emphasized objective with respect to patient safety culture was to instill a sense of ownership and accountability for prevention of errors among staff at all levels throughout the organization, in which each individual feels buy-in and responsibility for ensuring safety. A third commonly mentioned objective was to create a "proactive" mentality with respect to safety and improvement, in which people within the organization do not wait for errors to happen before taking action and have a "spirit" of wanting to continually decrease unnecessary variation and improve processes of care.

A fourth oft-mentioned, and for some more recent, objective was an emphasis on transparency and communication related to safety and improvement within the organization. This objective included a variety of related dimensions, such as improving the flow of information around events, risks, and corrective actions with staff at all levels throughout the organization (from the frontlines to the Board), letting staff know what they can do in their areas to address safety priorities and make practices safer, pushing information down to levels in the organization where people can act on it, and generally ensuring that communication is a two-way process in which staff at any level of the organization feel they have been heard and receive feedback on the status, actions, and improvements resulting from information and concerns they have reported.

Three of the four hospitals discussed the concept of "Just Culture", which typically was used as a broad reference for a non-punitive, non-blame culture, but also served as a catch-all to refer to a number of the other elements described above, with slightly differing meaning and definition in practice depending on the hospital. In addition, round table participants at the hospitals pointed to the importance of patient safety culture as a foundation for sustaining a patient safety agenda and improvement efforts, while at the same time discussing the long-term and often elusive nature of making progress on cultural objectives. As a consequence, most of the hospitals explicitly noted being in relatively early phases of defining the "model" and goals for patient safety culture for their respective organizations, and of developing the initiatives and mechanisms to enhance their safety culture, including systems to identify and mitigate risks and hazards.

Goals specifically related to identification and mitigation of risks and hazards grouped into three areas: 1) Better staff reporting of errors and risks, including systems to improve reporting, as well as raising awareness of "near misses" as errors that need to be fixed before they affect patients; 2) education on and dissemination of practices related to identifying risks and hazards (e.g., staff training and involvement in Root Cause Analysis (RCA), Critical

Incident Review (CIR), and Failure Mode Effects Analysis (FMEA), etc) and to mitigating risks and hazards (e.g., training and experience in organizational change methodologies, leading of improvement projects, etc); and 3) integration of organizational processes, reporting mechanisms, and data systems for identifying and monitoring safety risks and hazards across the organization.

2. **What have the hospitals done in terms of implementing *risk and hazard mitigation* safe practices in general?**

The four hospitals described an extensive set of activities to develop systems for better monitoring and acting on safety risks and adverse events within their respective organizations. These activities included a range of retrospective reporting of adverse and near-miss events, proactive "real time" alerts on high-risk processes for closer examination (e.g., automatic reports on patients who die from infections, instances of when patient diagnosis changes during course of hospitalization, etc), and limited use of prospective analyses to determine high-risk areas (FMEA was fairly common, but probabilistic risk assessments relatively rare). Data from these activities and other sources are tracked over time, often by dedicated staff, including risk management specialists, quality professionals, and statisticians, to analyze trends and identify risks (e.g., control charts, Pareto diagrams, etc.).

The hospitals use the trend data, as well as single adverse events with high severity, to pinpoint areas on which to focus process improvement and risk mitigation efforts, after which they develop improvement plans typically in conjunction with department managers and frontline care providers. Techniques for analyzing and improving high-risk processes include forming a quality improvement team or task force on an issue, conducting observational audits, rounding with staff and administrators highlighting a specific issue, and focus groups with clinicians and other staff. Solutions often rely on instituting "force functions" within medical protocols and IT systems, education of staff on new procedures, and a sensitivity to human factor aspects of work routines (e.g., the tendency for familiarity with a patient or situation to breed lax attention to protocols, and general information overload regarding the range of patient safety issues staff must simultaneously try to attend to—a difficult to assess, but perceived to be high-risk, issue).

Hospitals also actively sought out best practices through community coalitions, national associations, and informal networks. However, a few respondents emphasized that these sources are not a substitute for listening to frontline staff within their own institutions, who frequently provide better ideas than the literature or best practices from other institutions. In addition, one hospital reported regularly reviewing implementation plans after a year to check if workarounds to the intended solutions have developed. All hospitals described mechanisms for reporting the status of safety and improvement efforts to frontline staff, their board of directors, or both.

As mentioned previously, one of the main goals in developing these systems was to improve staff reporting of errors and sentinel events. All sites instituted online electronic systems for reporting events during the past few years to make the process easier, more accessible, and anonymous. These systems also allow for more thorough and efficient data collection, analysis of risks, and benchmarking with other institutions. The introduction of these electronic systems was frequently accompanied by staff educational campaigns on use of the tools, the value and importance of reporting, and attempts to change fundamental perceptions and mindsets around reporting, such as reframing it from a punitive activity ("writing someone up") to a more constructive, positive contribution ("sharing patient care stories", or incident

reporting as an "honorable" activity). The effects of these campaigns generally have proved to be short-lived, requiring periodic repetition, communication, and creative internal marketing.

Despite all their efforts, most of the hospitals believed that a substantial proportion of incidents are still not being captured through their current reporting systems and procedures, particularly "near misses". As a result, a variety of other initiatives have been employed to improve staff reporting, including individual recognition for near miss reports (e.g., awarding of "good catch" pins to employees), group-level incentives (e.g., pizza parties for high levels of reporting incidents), regular patient safety rounding and environmental tours which promote interdisciplinary discussion and awareness of safety risks, expanding electronic methods of reporting (such as through the EMR system, or additional computer terminals within departments), and providing alternative methods of reporting incidents (e.g., direct call-in to safety department—especially popular among physicians who appear to like immediate feedback, and "hot lines" staffed by a safety nurse who then enters the reports into the electronic system).

One of the most motivating factors to sustain reporting efforts appeared to be providing feedback to frontline staff on incident data and the corrective actions taken as a result to demonstrate that reported incidents can produce tangible improvements. There is often demand from department-level staff for such feedback, but the hospitals are still struggling with the best approach to "closing the loop" of information with those at the frontlines of service who are so crucial to successful reporting of incidents and improvement in care.

The second main set of implementation activities concerned education and dissemination initiatives within the hospitals to improve awareness of patient safety issues, as well as to train staff at various levels in specific methods for both identifying risks (e.g., RCA, CIR, FMEA, etc) and mitigating risks (e.g., improvement methodologies, organizational change techniques, etc). Many of the hospitals described general educational efforts to raise awareness and the priority of patient safety and to change the culture and mindsets around these issues within their respective organizations. These efforts ranged from inviting high-profile individuals, such as Don Berwick and Richard Cook, for talks broadly related to safety culture, to presentations by hospital patient safety and risk management staff on "Just Culture" principles and adverse events. One hospital reported initiating such an educational effort with the involvement of its liability insurer, emphasizing the relationship between patient safety and risk management.

Education related to identification of risks and hazards included formal training as well as encouragement of clinical staff to participate in Root Cause Analysis (RCA), Critical Incident Review (CIR), and even Failure Mode Effects Analysis (FMEA). For instance, one hospital reported that they have conducted both general training on CIRs for all of their nursing staff (required for their Magnet Nursing status) as well as more specialized training for persons serving as CIR resources within departments, resulting in most nurses having participated in a CIR. Skills in this area had progressed so far that, on occasion, departments had already conducted a full CIR and executed most of the corrective actions before even meeting with risk management staff. The CIR process in this hospital had also evolved from a highly formalized and somewhat cumbersome procedure to a more streamlined process focused on the risk analysis and action plan, including frequent "low level" reviews by risk management staff on low severity errors in order to re-educate staff and fix specific problems. Another hospital reported that whenever an adverse event occurs that was not reported, the risk management staff sends a

member to the unit to conduct a process improvement activity on error reporting and education on non-punitive safety culture.

Education on the mitigation of risks and hazards included formal training and hands-on learning of a range of improvement and change methods, such as Plan-Do-Study-Act (PDSA) rapid cycle improvement and Lean manufacturing process, with the goal of reducing particular errors and risks. These efforts frequently led to other types of training to reduce specific errors and risks that are identified, such as SBAR methodology to reduce communication break-downs during handoffs.

The third main thrust in implementing systems to identify and mitigate risks has been to attempt to integrate various organizational processes, reporting mechanisms, and data systems for these purposes that typically co-exist within these institutions. These types of integration efforts include linking a range of staff and activities from various parts and levels of the organization, some of which may not typically be conceived as related to patient safety. Examples include adding new positions within central safety and risk management staffs who are expressly tasked to coordinate efforts across the organization in certain areas (such as medication safety, or falls); having risk management staff work closely with the claims department to ensure safety issues involved in past claims have been addressed; and integrating morbidity and mortality (M&M) rounds already occurring at the department level into risk management by providing tools for the rounds to focus on system processes and reviewing M&M reports to identify safety issues.

Other integration efforts center on better linking of information systems and technology to identify safety issues and mitigate risks. Examples here include incorporating other databases into the risk management information system (e.g., legal claims data to track if a patient associated with an incident has been involved with prior claims, as well as state public health reports and FDA device reports of problems that might indicate potential risks or hazards), and alternatively "pushing" information from the risk management system to other departments to proactively mitigate risks (e.g., automatically referring physician errors to the quality department so that the case goes into peer review, automatically alerting clinical managers if a patient admitted to their department has had a fall at any of the health system's facilities, and monthly reporting to managers or improvement team leaders of incidents in their areas).

3. **How specifically have *risk and hazard mitigation* practices been operationalized over time within the context of these hospitals?**

The identification of risks and hazards (e.g., developing and managing reporting systems, analyzing claims and other databases, etc) were typically the province of a dedicated risk management staff within each hospital. Depending on the structure of the quality and safety functions within the organization, the mitigation of the identified risks may be the responsibility of risk management personnel, separate quality improvement staff, or both. One hospital reported that its Environmental Safety department also formally coordinates with the risk management function to both identify and mitigate hazards.

All hospitals reported attempting to increase communication to and involvement of their Boards of Directors in how the hospital identifies and mitigates risks, although some organizations appeared to be at more advanced stages in doing this than others. One hospital noted that while ultimately accountability for safety and risk management rests with top executives and the Board, "good hospitals" are those where everyone throughout the

organization feels accountable for safety and quality. While this hospital eschewed incentivizing staff for safety ("why pay someone for what should be their job?"), other hospitals had experimented with different incentive systems for error reporting both for individuals (such as gift certificate drawings) and groups (such as pizza parties for units with most reported errors).

As the risk management function in the hospitals has been expanding its reporting, analysis, and improvement roles, as well as its integration with other safety and quality functions, it has required substantial additional resources and staff dedicated to these activities. The hospitals also found it necessary to use "dashboards" and other higher-level planning tools; else it is easy to get lost in the increasing number of projects, corrective actions, and policy changes, and easy for individual projects to "stray". One hospital noted that amidst all the expansion in activity, it is important to keep consistency and continuity; they believed they were doing reasonably better at reporting than some other institutions because they have had the same risk management team for 10 years. Yet even this hospital did not feel they were capturing the majority of safety-related incidents that occur within the organization. Echoing this point, another hospital judged that they had developed the basic infrastructure for identification and mitigation of risks, but that now the objective was to reach out and mobilize the "masses".

4. **What have been the major challenges and facilitators to implementing *risk and hazard mitigation* safe practices?**

A general theme across the hospitals was the difficulty inherent in changing organizational culture related to safety and risks, such as deep-seated fear of retribution for reported errors. In addition, it was noted that in many ways these aspects of what is termed "patient safety culture" are part and parcel and integrally related to a hospital's wider organizational culture (e.g., decades-old patterns of top-down hierarchical approaches to management, relations between nursing, physician and administrative staff, etc). Thus, the task of changing cultural assumptions is a necessarily long-term, and often seemingly elusive, endeavor.

As described above, one of the main cultural barriers facing systems for identifying risks and hazards is the expectation of retribution or blame for errors, which inhibits reporting of incidents and "near misses". Changing these mindsets requires repeated rounds and various modes of communication and demonstrating that a hospital's reporting system is in practice not punitive. Even so, beliefs and attitudes are slow to change, and room for confusion persists. For example, one hospital observed that a number of staff were initially under the impression that because there was no punitive action for reporting errors that they were absolved of accountability for mistakes. Educating and navigating what can seem like rather fine lines of policy and expectations like this can be difficult for both safety professionals and line staff.

Other attempts to educate staff and influence such perceptions included initiatives to positively recognize ("pat on the back") and to incentivize the reporting of errors. Incentives, however, have met with problems of credibility in the underlying data used and ensuring that the same groups do not always receive the awards, leading to schemes having to be modified or terminated. As discussed above, feeding back information ("closing the loop") to the frontline staff on outcomes resulting from error reporting was considered a major motivation for their support of systems for identifying risks; yet the hospitals still struggled with the best means for doing so. To some roundtable participants, the extent to which there was bottom-up "demand" for this type of information from clinical departments was an indication of the positive progress in the organization's culture related to reporting.

Hospitals also noted a number of efforts to make error reporting easier and more convenient in general, which had additional benefits in altering perceptions around the activity. For example, moving from paper to electronic systems made the process in one hospital seem less like "writing someone up" for an error. Similarly, increasing the number of opportunities for reporting (e.g., making it available on all computer terminals, providing other options such as call-in lines, etc) helped promote a climate oriented to more open communication.

Even after instituting such changes, however, maintaining participation in reporting systems was a constant challenge in the face of regular staff turnover and rotation of medical and nursing students that most hospitals experience. The constant expansion of systems to identify risks, as mentioned above, also presents challenges in managing the breadth of efforts and allocating scarce resources. Auditing, a major risk identification activity, can be overused (resulting in "audit fatigue"), often requires personnel with particular skills that are in short supply, and is very resource intensive, even for larger healthcare systems. Consequently, the hospitals reported constantly laboring to prioritize the multitude and expanding set of risk management and safety efforts (even with the use of "dashboards" and other project management tools).

In addition, the hospitals described a number of challenges related to the mitigation of risks. One hospital pointed out a "philosophical" struggle within their quality and safety community between how much emphasis to place on "forcing functions" built into systems and procedures to guide behavior versus staff education and training on proper practices. Education is resource intensive, so when a new safe practice or measure is introduced, forcing functions that do not require a great deal of human intervention appear relatively attractive. Yet even with forcing functions, care providers often find a workaround. Safety and quality staff then have to attend to the difficult "cultural issue" of engaging frontline staff to understand whether they do not see the importance of the practice, or have weighed the risks and found their workaround to be a better solution.

Related "human factors" challenges in designing new work processes to mitigate risks include having to design systems for a range of staff experience (e.g., from new nursing and medical students to 30-40 year practitioners), and "overload" on direct care providers who can be easily overwhelmed by the "5-10 quality and safety issues on their plate, let alone the 500 others they've heard leadership talk about in the last year"—an issue whose extent is difficult to assess. Likewise, although the hospitals believe they are addressing most all the safety and risk issues that come their way in one form or another, one of the hardest challenges has been disseminating practices to all relevant staff. This problem is especially salient for facilities that have many academic staff or community attending staff who do not practice full-time within the hospital. This issue is also difficult to assess and raises the tradeoff between breadth and depth of patient safety efforts given constrained resources.

CHAPTER 4
OTHER GROUPS OF SAFE PRACTICES

The second roundtable discussion at each hospital focused on one of the six other Safe Practice Groupings: Information Transparency across the Continuum of Care, Surgery Procedures, Medical Evaluation and Prevention, Medication Safety Management, or Workforce. Note: we do not include a summary here for the Safe Practices Grouping on Communication with Patients or Families, since we were not able to hold a full roundtable discussion on this topic at the assigned hospital.

In this chapter, we present the findings from our roundtable discussions for these patient safety culture practices. Again, the findings for each practice are organized according to the same four questions used for the safety culture practices, as follows:

1. What have been the goals of the hospitals related to this set of safe practices?

2. What have the hospitals done in terms of implementing these safe practices in general?

3. How specifically have the practices been operationalized over time within the context of these hospitals?

4. What have been the major challenges and facilitators to implementing these safe practices?

INFORMATION TRANSPARENCY ACROSS THE CONTINUUM OF CARE (GROUP 3)

1. What have been the goals of the hospitals related to *cross-care information* safe practices?

Hospitals we interviewed said that they found one of their biggest safety issues to be patient identification, labeling and information accuracy through the continuum of care. They established a goal to improve their performance in this area, as measured in their routine monitoring and reporting systems. Therefore, NQF practice #10 on proper labeling was an important priority for them.

2. What have the hospitals done in terms of implementing *cross-care information* safe practices in general?

The hospitals tended to focus first on establishing an effective wristband system that identifies the patient and links the wristband information electronically with labels used to verify patient identity at each step of the care process. Hospitals are using multiple data elements to verify identity and are requiring matches for at least two of them – e.g., name, date of birth, physician name, social security number. To address identification accuracy throughout the care process, they tended to focus on several functions of particular concern: emergency department, laboratory, radiology, pharmacy, nursing units (blood draws at bedside).

Several hospitals reported that they do root cause analyses for identification or labeling occurrences in the hospital. These analyses yielded decisions to make patient identification a priority patient safety issue. They also continued performing RCAs as they moved forward with improvements in this area, as new issues arose. Physicians and staff are involved in these analyses, emphasizing that this is a team process and encouraging candid participation. It was

important to engage physicians in the process because analyses showed that physicians were implicated in many of the problems, which required adoption of new processes to address them.

Using the RCA information, the hospitals established and revised protocols and processes to address the issues revealed. A typical approach was to establish a multidisciplinary group that developed protocols for all the departments. For example, one hospital reported that its laboratory protocol had provisions for "how to label, when to label and what to label." This approach recognizes the inherent nature of identification, labeling, and information accuracy as an issue of care coordination across the organization. Another mechanism used by a hospital to reinforce protocols was to set performance goals for proper labeling for the chiefs of the relevant functions (e.g., laboratory, radiology).

To identify which actions would be most useful to improve patient information accuracy and proper labeling, several hospitals undertook extensive mapping and analyses of the steps in their work processes. They pulled together a team of the people involved in the work to review these data and develop ideas to fix the process problems identified. One hospital specifically sought to specify when each hospital function "owns" a patient and related information at each of the steps in the care continuum. A key change made by one hospital was to have staff label items in real time "as the care went", case by case. This hospital had been printing all the labels at once at the start of the day, which led to labeling errors.

The hospitals strove to implement labeling improvements across the entire hospital, often using a phased approach by department or unit. One hospital had goals to locate accurate labels close to the nurses interacting with the patients, and to engage the patient actively in the label verification process.

3. **How specifically have *cross-care information* safe practices been operationalized over time within the context of these hospitals?**

The hospitals did intense staff education on proper procedures for labeling and communication of information across functions. They often saw positive responses to the training by staff, who felt more confident in taking proper actions as a result of the training. One hospital started at the very basics of the topics and worked up from there. This hospital found it was necessary to conduct many repeated sessions to train staff to the point where they were performing procedures correctly. They also found there tended to be a group of "repeat offenders" who required additional attention and training.

All the hospitals reported that they routinely monitor performance on safe labeling and other patient information, using established metrics that they track over time. One hospital has a quality manager in the laboratory who performs 100-percent audits, tracking specimens to the provider level.

For infection rates, the infection control nurse in one hospital communicates rates directly to the floor nurses. They found it was important to institute the same communication policy in the lab as on the floors to ensure consistent communication.

Hospital departments with electronic data systems generally reported that these systems were key supports for accurate labeling and identification because of the centralized nature of the data and the availability of functions that automatically generate labels. A good example is the pharmacy in one hospital that uses its electronic data systems to build a patient profile that feeds medication information to nursing on the floors. The labeling of drugs is done electronically by

computerized systems that are able to communicate with each other, and electronic medical records with barcode capability is about to be added.

One of the most dangerous areas is chemotherapy compounds, for which labeling or dosage errors have life-threatening impacts. One hospital developed a system of multiple manual checks by four pharmacists and, finally, by a nurse who signs off on the compound before it is used on a patient.

4. What have been the major challenges and facilitators to implementing *cross-care information* safe practices?

The hospitals found that a key to success in moving accurate information across care was to involve people from every relevant function, because engagement by all of them is needed to achieve improvements. Hospitals have striven to create a learning environment that encourages positive participation by staff. Communications and teamwork are central to achieving accuracy in labeling and patient information throughout a hospital stay. Building a sense of teamwork encourages people to work across units to ensure accurate information and to facilitate troubleshooting when problems arise.

As identification or information problems arise, one hospital reported that it was important to communicate issues to relevant functions constructively, rather than complaining. According to their experience, when staff see a problem clearly, and are not put on the defensive, they tend to respond positively with a desire to correct the problem.

When practice changes were made, initial reactions from front-line staff was predictable – some pushback at the thought of additional paperwork. However, as they explained the issues and the importance of improving information accuracy, both physicians and other clinical staff generally responded positively and participated in improvements.

One hospital reported experiencing some technical challenges relating to the technology they adopted for patient identification and labeling across the hospital functions. Each component of the system had its own equipment and software, some of which could not communicate with other components. Unexpected logistical issues also surfaced as they expanded use of the new system to additional departments.

An ongoing challenge identified by the hospitals is the difficulty of maintaining vigilance to support continuing accuracy in labeling and information control, after completing the initial implementation of new processes. In this context, one hospital reported that it is important to have a clear locus of control for enforcing effective reporting and response to problems on a regular basis.

SURGERY PROCEDURES (GROUP 4)

1. What have been the goals of the hospitals related to this *surgical* safe practices?

Noting that the volume of surgery has greatly increased over time, and that with more volume there are more errors and "close calls" that have made the surgical staff sensitive to safety problems, the hospitals view safe practices related to surgery to be either their "number 1 priority" (one hospital), among their highest priorities (one hospital) or a "work in progress" (one hospital). One of the hospitals reported that they had had two wrong site surgeries 3-4 years ago (around the time that the Joint Commission mandated surgical time-outs) and since that time they have monitored 100 percent of procedures in the operating room (OR).

Surgical staff from one hospital emphasized that once the person is under anesthesia there are four key mistakes that can be made in the OR: not recognizing the right person, the right site, the right procedure, and/or not knowing individual characteristics about the patient that might put them at risk (such as need for prophylactic antibiotic or beta blocker administration).

However, in addition to the two NQF safe practices, surgical staff at the safety net hospital also pointed to a number of other safety risks in the OR that they believe to be at least as critical as those addressed by the two NQF practices, including issues related to:

- Blood products (not only matching blood products to patient but also warming blood products, pumping them correctly, and accurately assessing hemoglobin levels while in the OR – which is currently unsatisfactory at this hospital and leads to over-transfusion)
- Anesthesia (because patients coming into surgery are sicker and their blood sugar and blood pressure may be out of control)
- Proper positioning for surgery (to reduce the risk of nerve damage – especially among the increasing number of obese and morbidly obese surgery patients)
- Room temperature (to reduce the risk of hypothermia among older, frail patients who have been prepped with alcohol)
- Retained sponges and instruments (e.g., policies to x-ray immediately if the nurse gets a wrong count rather than waiting for a recount – or use of technology – such as a "wand" and sponges with RFID tags)
- Risk of burns (improper use of high frequency electric current devices for cutting or destroying tissue presents risks of patient burns)
- Risk of fire (use of oxygen around prep solutions on patients and surgeons, which are highly flammable if not dry)
- Communication among the surgical team (especially with fellows and residents changing about every six weeks)
- Hand-offs between surgical and ICU staff.

Respondents at the hospitals also emphasized the critical need to extend the NQF surgery safe practices outside of the OR – to other settings where procedures also are being performed under anesthesia (e.g., acute pain blocks and minor surgery) and where protocols are "not as black and white as they are in the OR." In some cases anesthesiologist are performing their own procedures and fulfilling multiple roles – which creates additional risk for the patient because, for example, other clinical staff are often not present to conduct time-outs or watch vital signs. Even in institutions with time-out requirements for all outpatient clinics, it is not clear what an effective time-out would consist of in cases where there is only one surgical staff person performing a surgery by him or herself (especially if the patient isn't awake or alert enough to participate).

Practices related to surgery are covered in medical education, protocols and training. However, surgical time-out procedures still tend to be performed in a variety of ways by different physicians, and the degree to which the time-out was formalized varied widely.

2. **What have the hospitals done in terms of implementing *surgical* safe practices in general?**

Critical to implementation of safe practices in the OR has been strong leadership by the CEO, the hospital leadership, the Board, and, especially, the hospitals' chief of surgery. Without the leadership in particular of chiefs of surgery, respondents noted that change would not have been possible.

The hospital in the site with an active community-wide patient safety coalition also noted that because of their affiliation with the coalition, the hospitals in their community had conferred as a group and agreed to all require surgical time-outs using consistent standards across hospitals, in order to lower the risk of errors and delay stemming from surgeons operating across facilities being unfamiliar with the time-out policies and practices at any given hospital.

At the academic medical center, communication went out to nurses and there was a big push to inform surgeons and other staff of changes in policy and practice through a newsletter, e-mail and snail mail. Signs were posted around the OR. The chief of surgery also called specific surgeons and talked to chairs of the various departments that would be affected. Other hospitals also reported similar efforts to engage staff, educate them about policies and their rationale, and develop measures of compliance – as well as methods for intervention if compliance was not 100 percent.

3. **How specifically have *surgical* safe practices been operationalized over time within the context of these hospitals?**

NQF Safe Practice #25 (Universal Protocol for wrong site/person/procedure surgery):

In the safety net hospital, it is the nurses' responsibility to initiate the time-out. Surgical nurses have been given a "card" that identifies the steps of the time-out and they use those cards in order to make sure that they cover each of the steps (i.e., say the patient's name, what they are there for, what the patient consented to, what antibiotics were given, what position the patient is supposed to be in for that length of surgery). The nurse is supposed to make eye contact and get a response from each person in the room (although they acknowledge that sometimes this is a nod and not a verbal response). After that, they proceed with the procedure. (They noted, however, that in the case of a traumatic injury the trauma surgeon takes the lead – and the time-out is more like "barked out orders" so that everyone knows that the most important issues will be dealt with first).

The academic medical center instituted an "audit sheet" that the circulation nurse was responsible for filling out. The audit sheet documents who participated in the time-out and who did not. The staff noted, however, that there are so many "audits" that are required and the staffing is insufficient so at times the audit begins but is never concluded. They also noted that only the surgeon can actually get people to stop for a time-out. Specific nurse managers examine about 5 percent of procedures and for the other 95 percent information is extracted from charts.

The other hospital also conducts observational audits to make sure that patient verification, site marking and time-out procedures are followed. They discovered from these audits that they were not meeting the intent of the NQF standard and instituted a hospital educational "blitz" to address this and other patient safety issues.

The safety net hospital also does a "mini-timeout procedure" that is handled in the pre-op clinic. The original purpose of the pre-op clinic was to speed the process along the morning of

the surgery, but it has evolved into a more elaborate assessment process. There is an assessment form that is used – with check boxes to verify various issues about the patient. When using the electronic system, there is a forcing function (i.e., one cannot proceed if a question is skipped or the information is not filled in). The OR time-out is considered the last step of this procedure. If staff go through these verification checks and find inconsistencies they are supposed to submit an incident report for the hospital to track – and, if necessary, either change the assessment form or the training on how to use it. The pre-op clinic has become busier as a greater proportion of surgical patients are in poorer health. They may be obese, have ischemic heart disease, or have sleep apnea, which all pose risks for patients in surgery. The Medicine Department in this hospital has begun to take a larger role in pre-op; the hospital has attempted to draw both internal medicine physicians and cardiologists into the pre-op clinic because internists do not always understand the specific needs of these patients, and surgeons do not necessarily consider the range of other medical issues presented by the patient that might affect the surgery. The hospital has also had to buy larger beds and longer surgical instruments (or extensions) as well as bigger carts for transporting heavier patients.

According to staff at one hospital, orthopedists use indelible ink for site marking and checking for the site marking is now "hard wired" into OR staff. Respondents at the other two hospitals did not reflect this same level of certainty.

NQF Safe Practice #26 (Evaluate elective surgery patients for acute cardiac event risk):

The safety net hospital noted that the pre-op clinic (described above) was a "baby step" toward getting to Practice #26, but that they had identified it as one of their 5 Million Lives Campaign priorities. They felt there were still many unanswered questions (e.g., when do you start the evaluation, if you start it when do you end it, who should be in charge of the decision to initiate it, who should monitor it – especially after the patient leaves the hospital). The chief of surgery expressed concern that a year ago it was "mandatory" that everyone be given a beta blocker but with the 5 Million Lives Campaign roll-out that guidance was changed. He thought that groups such as IHI were perhaps interfering too much in the practice of individualized medicine. He noted that some of the AHRQ core measures suffer from the same problem (i.e., a lack of consensus even among medical specialty societies).

At another hospital, respondents told us that evaluation of patients for prophylactic treatment was done by the "pre-anesthesia clinic." First, a history and physical are taken and the nurse fills out a "health assessment sheet" that is faxed to the pre-anesthesia clinic. If the patient is at high risk, they will be sent to the pre-anesthesia clinic for a pre-operative medical consultation. The medical consultations are primarily related to pre-operative cardiac care and the decision about whether to give beta blockers. According to respondents, "the buck stops at pre-anesthesia." They also noted, however, that there is some conflict among anesthesiologists at their hospital. Non-cardiac anesthesiologists do not want to work on high risk patients and prefer that they be scheduled with cardiac anesthesiologists. One respondent noted that while they do perform an evaluation, there is not unanimity among their physicians about who is a high risk patient.

The third hospital has a specific system that they have been using for a decade to triage surgical patients and channel "complicated" patients (those who are at higher risk of peri-operative complications) to one of two pre-operative centers. The system is on-line so that surgeons' offices can access the system and enter patient data remotely. The two centers are co-

located -- one is focused specifically on anesthesia and the other on medical triage. These clinics have been useful in identifying potential problems prior to surgery resulting in a decline in the number of cancelled surgeries and data that shows improved care and reduced morbidity. The system is being studied by other hospitals, but respondents note that they have the advantage of being a large group practice/closed model – which means that everyone within their system must agree to the algorithms, the software, and the system they have established. They predict the model would be difficult to implement in hospitals without such a structure.

4. What have been the major challenges and facilitators to implementing *surgical* safe practices?

While technically patient safety should be everyone's responsibility, our hospital respondents expressed the opinion that OR nurses have traditionally taken a passive role in relation to surgeons. Even where concerns about hierarchy have not been a problem, one surgical nurse noted that, "everyone in the room is focused on their individual roles and gets distracted by different things, but that leaves open opportunities for errors."

Respondents also mentioned that there was a lot of initial resistance among physicians – especially those who have been practicing a long time. Surgeons were used to being able to demand that the OR be set up they way they wanted (i.e., north-oriented or south-oriented), staffed with particular nurses, and set up according to their personal preferences (including background music). These constituted a lot of demands that nurses and assistants had to take care of that were considered by nursing staff as not essential and potentially causing delays. Physicians also resisted change as "cookbook medicine" whereas nurses often saw it as "evidence-based medicine." Respondents in all of the hospitals agreed that physicians have been the slowest to understand the need for standardization. Said one, "we are asking them to change something that they don't think is broken." There was also disagreement in one of the hospitals as to when the time-out should occur (as soon as the patient enters the OR, versus right before the first incision). They reported that it required a "culture change" to convince staff that a time-out was a final verification and not a substitute for what they would ordinarily do.

Leadership by the Chief of Surgery was deemed essential to implementation. They tried to give the surgeons as much lead time as possible to process what the changes would mean and what they would involve. The Chief also worked closely with "hold outs" to get their "buy-in." If that didn't work, the Chief of Surgery would come in to "watch them start their case." Surgeons did not like being observed, and it was an effective means of changing their behavior. In some cases, nurses would refuse to "pass the knives" if the physician did not follow protocol. However, there was also concern that this might generate a "physician versus nurse" dynamic that was unhealthy for the OR – and ultimately the patients. One hospital noted that anything requiring physician involvement is "three times harder." As stated by one respondent, "the only people with power over the physicians are the directors and chiefs because they can rescind privileges." A respondent in another hospital noted that there needs to be consequences for failing to follow protocol, which is perhaps one reason why the overall level of accountability is not very high. Another said, "surgical champions need to say, 'do it or you are in trouble' in order to give people sufficient motivation." But one roundtable participant noted with some level of frustration that long-time staff often have the expectation to "just wait things out."

The requirements of the Joint Commission were also noted as helping to overcome resistance – especially when the facility experiences an error (e.g., one hospital was able to obtain leadership support for appropriate gowning among all necessary staff only after an

infection incident had occurred in the ICU). Regulatory requirements and "the things you can get in trouble for" have been instrumental in pushing change along. Still, as another hospital experienced, some surgeons continue to take time-outs and other safe practices lightly – even in presence of Joint Commission surveyors.

Respondents in the academic medical center suggested that the greater the a variety of units and professionals involved in a process, the harder the implementation gets (e.g., keeping patients warm only involves the nursing team and having more supplies on hand – which does not require coordinating across units such as surgery, anesthesiology and nursing). They also remarked that knowing what to do is insufficient to creating change, and that the difficult part is to operationalize and create a structure to support genuine and consistent implementation of the safe practice. "We have created a policy and we do it every time, but the quality of the performance varies and the level of engagement of the participants varies."

Participants also suggested that the universal time-out protocol should be integrated into the medical and nursing school curriculum so that it would be "hard wired" into all health care providers.

MEDICAL EVALUATION AND PREVENTION (GROUP 5)

1. **What have been the goals of the hospitals related to this *medical evaluation and prevention* safe practices?**

Medical Evaluation and Prevention, a somewhat eclectic grouping, encompasses five different safe practices involving disparate goals and types of stakeholders. Four of the five practices were generally considered important and had been the subject of various hospital policies and efforts in response to earlier guidelines and literature on these practices even before the publication of the NQF standards. These practices included immunization of healthcare workers and patients, evaluation for VTE/DVT risk, evaluation for pressure ulcers, and monitoring of anti-coagulant use (NQF safe practices #23, 28, 27, and 29, respectively) Evaluation of risk for contrast media-induced renal failure (NQF practice #30), however, was considered a lower priority. Despite the potential severity of these cases if they do occur, the frequency was low or non-existent in the two hospitals that discussed this practice, the evidence on certain elements of the safe practice were considered weak, and existing safeguards were thought to be effective.

Even so, the hospitals reported that all five practices have received renewed attention and greater documentation and standardization as a result of recent national initiatives and requirements, including the Joint Commission Core Measures, IHI's 100,000 and 5 Million Lives Campaigns, Leapfrog, CMS' "never events", and (in the case of VTE/DVT and pressure ulcer evaluation) the National Database of Nursing Quality Indicators (NDNQI, related to Magnet Nursing certification).

2. **What have the hospitals done in terms of implementing *medical evaluation and prevention* safe practices in general?**

Since the five safe practices in this grouping were so diverse, the implementation of each practice is described separately below.

In terms of immunizations, programs for annual flu vaccination have expanded over time from order sets for patient immunization implemented over a decade ago to more formalized procedures and a recent focus on employees. Both hospitals screen all patients for eligibility and

report fairly high rates of immunization; one hospital through automatic vaccine orders through their CPOE system (with physician opt-out), and the other using a screening tool and offering vaccines and information packets to patients. Procedures for employee immunization are well underway, but less established. Neither hospital currently mandates vaccination for employees, although one is considering it and the other requires staff to formally accept or reject immunization (and give a reason if they decline). Both encourage immunization through coordinated staff education efforts (health fairs, staff newsletters, posters, etc). One hospital also reported specifically targeting high-risk employees and requiring department heads to set immunization goals for their staff, while the other has attempted to improve access by allowing nursing staff to provide vaccination to employees in patient care areas in addition to relying on central flu clinics.

Both hospitals assess for DVT/VTE risk upon patient admission. One hospital reassesses patients every 72 hours, documenting results in their computerized nursing care plans. The other hospital has an electronic tool which forces physicians to enter data for several functional screenings, including DVT/VTE risk, upon admission. They do not currently have a formal process for reassessment; however they plan for their new EMR system to require reassessment, and explanation if thrombo-prophylaxis is not ordered, upon transfer of patients to another level of care (although still not at regular intervals). The first hospital provides physicians a two-part form for treatment planning and documentation, which includes check-offs for various components of typical care plans. The other hospital offers common recommended orders on its electronic tool, but has no formal treatment protocol, given the perceived lack of consensus in the literature. It also provides extensive information through the department of medicine and residential training programs, as well as educational materials and statement of importance on the issue from the CMO on their physician web portal (although it was unclear how much the information on the web portal is being accessed by the medical staff).

Both hospitals additionally conduct pressure ulcer assessments for all patients upon admission and regularly thereafter—one hospital at least daily at shift changes; the other every 48-72 hours depending on individual risk (although expect to soon implement daily assessments and weekly rounds for high-risk patients). Assessments are conducted by nursing staff using the Braden Scale and documented in patients' electronic health records. Each hospital has emphasized continual training and education for nursing staff on pressure ulcer assessment and treatment, including new personnel and yearly competencies, "skin fair" workshops, and monthly nursing meetings on skin care, with a current focus on improving the accuracy of assessments. One hospital has also placed emphasis on improved equipment, including new inpatient beds, moisture-wicking sheets, and "negative pressure" mats for particularly at-risk patients.

Although each hospital has had various protocols and clinics dedicated to managing anti-coagulant medication for a number of years, their efforts related to safe practices in this area have been currently undergoing review and revision. The anti-coagulant clinics have focused on specific high-risk drugs (heparin and warfarin in particular), but have expanded to include other anti-coagulants. In one hospital, protocols are more established in their dedicated outpatient anti-coagulant clinics, while lacking for the inpatient setting. The other hospital is standardizing its protocols for both settings, but expects to have their process in place for the inpatient setting first in 2008, then for the outpatient setting in early 2009. Initial assessments and orders (including frequency of monitoring) are the responsibility of referring physicians, while ongoing

testing and monitoring is conducted by the clinics, typically by nursing staff. Both hospitals are addressing ways to better integrate inpatient and outpatient anti-coagulant treatment, including standardizing protocols and improving handoffs between the two settings. One hospital is specifically considering revamping outpatient protocols to give greater control to specialists in the anti-coagulant clinics. The hospital has experienced significant growth in clinic enrollment of over 30 percent this year, mainly from internal medicine, which appears to realize its shortcomings in monitoring people on long-term anti-coagulants. The literature and their own data are also pointing in this direction. In addition, the hospital has implemented education to standardize the education process for staff (particularly around handoffs) and to raise awareness on the part of patients of the importance of follow-up and monitoring of their anti-coagulant use. Their electronic record for anti-coagulant patients has education and dosing components built into it.

Practices to prevent contrast-media induced renal failure have been on the "radar screen" of each of the hospitals for several years, and are now integrated into standard protocols and order sets. Both hospitals assess patients for this risk prior to each exam that involves contrast media. The technologist or other staff person who injects the contrast media is responsible for conducting the assessment. One hospital also reported screening CT contrast for risk of glucophage product, and in positive cases, contacting the referring physician so they know to manage the patient post-procedure or cancel the order for the contrast media. The other hospital ensures they have a current creatinine level on all patients in their Cath lab, conducts creatinine checks for patients at high-risk of renal failure, and tests creatinine levels 7 days after an exam involving contrast media; they similarly notify the patient's referring physician if the level is high. Both hospitals reported relatively recently instituting IV hydration following contrast administration (even though clinicians at one hospital considered the evidence in current guidelines for this practice to be weak).

3. **How specifically have *medical evaluation and prevention* safe practices been operationalized over time within the context of these hospitals?**

Although the immunization programs, particularly for employees, are considered a "team effort", responsibility for immunization goals and coordinating efforts are assigned to the employee health office (which in one case includes the infectious disease chairman). Patient immunizations are routinely documented through charting in health records, and employee vaccinations are documented by the employee health office, which reports both sets of immunization data to an institution-wide quality oversight body.

Both hospitals track compliance to their DVT/VTE assessment procedures through their electronic systems. One performs a quarterly review of all DVT treated cases as well as reviews of closed charts, which identified problems with some devices and, they believe, helped to prevent 12-14 DVT cases. In the other hospital, the central quality and safety staff monitor indicators for incidence of DVT and work with the appropriate departmental level QA groups first, then with their quality and safety oversight committee. They also have a specific program to track DVT for surgical patients (through the national Surgical Care Improvement Project, or SCIP), and will start publicly reporting the data this year.

In terms of safe practices regarding pressure ulcers, both hospitals pointed to external initiatives as important sources of guidance and impetus, including the National Nursing Indicators for Nursing Quality and related NDNQI database, and the 5 Million Lives Campaign (which motivated one hospital towards daily assessments and prevention strategies targeted at

minimizing pressure and managing moisture). Both hospitals have also recently focused on tracking hospital-acquired versus non-nosocomial ulcers, particularly at point of entry into the hospital (such as the ER), and collaborating with nursing homes and other sources that present repeated numbers of "present on arrival" pressure ulcer cases. The hospitals tabulate and monitor indicators on pressure ulcers as part of regular reporting to their quality and safety oversight committees. In one hospital, this is coordinated by an ongoing task force and dedicated skin nurse who conducts monthly audits of assessments and ulcer cases, produces quarterly prevalence and incidence reports, and submits information to the NDNQI for benchmarking purposes. These analyses identified a pressure ulcer problem caused by ventilator headgear that the hospital was able to address.

The renewed and expanded efforts around management of anti-coagulant treatment were attributed to the influence of accrediting bodies (most notably the Joint Commission's National Patient Safety Goals) and, in the case of one hospital, work with the VHA (Voluntary Hospital Association). Both hospitals had multi-disciplinary task forces dedicated to these issues, with strong involvement of pharmacy and central quality professionals, as well as nursing, nutrition, and laboratory. In one hospital, anti-coagulant represents one component of their National Patient Safety (NPS) goals planning, with an extensive effort to standardize inpatient and outpatient processes, match requirements with best practice, and complete compliance by the end of the year.

With respect to risks for contrast media-induced renal failure, staff interviewed at both hospitals discussed the severity of possible cases, but considered the frequency to be very low or non-existent (one did a review of records to determine how many patients might be impacted, and the other reported that they have not ever had such a case). Thus, although personnel responsible for administering contrast media are trained on current guidelines and protocols, the hospitals reported not placing much attention on this practice or systematically tracking these issues.

4. **What have been the major challenges and facilitators to implementing *medical evaluation and prevention* safe practices?**

The hospitals reported that full immunization of the patient population was difficult during prior vaccine shortages, although this does not currently look problematic. Finding the right balance between mandating and encouraging staff immunizations has been a more recent challenge. The hospital that allows employees to receive vaccinations in patient care areas also reported that this policy created some unexpected difficulties in the ability to track who were vaccinated.

With respect to screening for DVT/VTE risk, one hospital initially had nurses conducting assessments with results forward to the physician, but realized it was easier to have physicians do the assessment themselves upon patient admission.

Small changes in implementation of pressure ulcer assessments were viewed as having significant impact in maintaining procedures. For example, one hospital reported it easier for nurses to continually evaluate for pressure sores once they moved to conducting them daily and at the end of every shift on a regular schedule. Having to manually total Braden scores or assemble monthly reports from different sources were also considered barriers that appear minor, but can impede sustained effectiveness in practice. A major facilitator for improvement of pressure ulcer practices was senior leader support, such as agreeing to allocate expenditures for

new beds and other preventative equipment. However this same medical center recognized that the smaller community hospitals affiliated with their system do not possess the same resources.

A major challenge for monitoring long-term anti-coagulant use is the difficulty posed to hospitals in coordinating and managing treatment in outpatient settings with community physicians over which they do not have full control. The handoffs between inpatient and outpatient settings is particularly difficult if, as often occurs, there is not a reliable outpatient physician who follows up with the patient, begins monitoring anti-coagulant use, and who will refer the patient and work with the hospital's anti-coagulant clinic (patients cannot even access these clinics without a referral). Patients also frequently do not understand the importance of regular monitoring of anti-coagulant medication and making sure their treating physician refers them to the clinics as needed.

No significant implementation issues were reported with regard to evaluation of risk for contrast media-induced renal failure.

MEDICATION SAFETY MANAGEMENT (GROUP 6)

1. **What have been the goals of the hospitals related to *medication management* safe practices?**

Medication safety was described as a "huge concern" by representatives of the hospitals we interviewed. The hospitals considered medication safety issues to be among the core patient safety issues they were facing, and were pursuing multiple improvement strategies.

All of the hospitals use medication safety committees to identify and address medication-related patient safety issues proactively and as they arise. The committees meet regularly and are staffed by physicians, nurses, and pharmacists.

The medication safety programs review event reports and also use information and guidelines from national organizations in setting their goals in this area. For example, they review Joint Commission recommendations, ISMP newsletters, and aim for compliance with NQF safe practices.

2. **What have the hospitals done in terms of implementing *medication management* safe practices in general?**

The hospitals use reporting systems as the basis for their medication safety management activities. The reporting systems collect data on adverse drug events and in some cases near misses. The reports are reviewed monthly in committee meetings, but are often also used in daily reviews to provide near-real-time monitoring of safety issues. This enables active mitigation of some types of errors. The hospitals generally review the reported issues to determine if they are "person" or "system" problems. If the problem is system-based, they reengineer the system to mitigate that risk exposure.

A main focus of hospital activities has been on order placement. The hospitals we visited were in various stages of implementing CPOE. As a precursor steps, hospitals have worked with nursing and medical staff to develop order sets and forms, which can eventually be incorporated into CPOE systems. The hospitals described preparation for and implementation of CPOE as a "huge undertaking" that took an "incredible amount of time" in order to have it work smoothly. Many of the details of the design of the software and integration into current workflow were very difficult to implement smoothly.

Labeling and packaging of drugs was another main area of focus for the hospitals. Some hospitals have invested heavily in technology to automate packaging into unit-dose or unit-of-use form. The hospitals have implemented bar coding systems for labeling, but have experienced difficulty in making the bar coding systems simple to use, particularly in combination with other bar-codes for patient identification or other purposes.

Pharmacists in the hospitals we visited are integrated to various degrees in clinical care. Pharmacists round with physicians and are available for consultation. One hospital uses a decentralized model for their pharmacy staff so they have many pharmacists working in satellite locations throughout the system. In this model, they are closer to the point of care than if they had a centralized pharmacy system.

3. **How specifically have *medication management* safe practices been operationalized over time within the context of these hospitals?**

One implementation strategy used in multi-hospital systems for complex medication safety management practices such as CPOE and bar coding was to introduce the practices first in their smaller affiliated hospitals. Smaller hospitals with fewer staff were considered "more manageable."

Another method that hospitals have used was to focus training on staff who were strongly affiliated with the hospital, not the physicians who less frequently practice in the hospital or come in only for consultations. One hospital focused training on hospitalists.

In the implementation of CPOE systems, great effort has been expended in making the systems user-friendly so that clinicians use it in the intended way. In particular, hospitals are sensitive to "alert fatigue" from overly common, easily triggered alerts that can cause clinicians to override all alerts automatically. In particular, the hospitals have:

- Added alerts to the system gradually, starting with a single alert type and ironing out bugs before adding the next alert type.
- Developed methods to let nurses know that a physician has submitted orders for services outside the CPOE system – e.g., labs, imaging, etc.
- Developed good evidence-based order sets
- Examined the ergonomics of order entry - determining what type of device is used for order entry, where it is placed, how it is physically used, etc.

The hospitals we visited all maintain lists of high-alert medications, but use various approaches to determining which medications are on the list. Sources include Joint Commission recommendations, a list maintained by ISMP, literature, and determinations coming from reviews at each individual facility. Based on experience from reporting systems, hospitals identify new high-alert medications and then evaluate the entire medication management process - ordering, storing, physician prescribing, pharmacy dispensing, nurse administering, and patient monitoring.

4. **What have been the major challenges and facilitators to implementing *medication management* safe practices?**

Some physicians question the evidence base behind order sets and alerts. The hospital representatives generally viewed these disagreements as "education opportunities" that bring a

debate into the open. They believe that the physicians "want to do the right thing but have trouble admitting when they don't know what that is."

The availability of pharmacists on the hospital floors for involvement in clinical decision-making was viewed as "invaluable and a must" and was described as highly valued by medical staff.

The logistics of bar coding labeling systems was described as a major challenge. The number of interfaces that must be designed to interface with the bar code was described as "amazing." Bar code libraries must be combined across the multiple interfaces. If bar coding systems are not easy to use, nurses may choose to override the system. Standardization of the various bar coding systems that exist in the pharmaceutical industry was identified as a major need.

Determining the appropriate alerts to use in CPOE systems was described as a major challenge. Hospitals have had difficulty in configuring software to provide useful alerts that are viewed as an aid, not an impediment, by clinicians.

Finally, standardization of medication safety management practices across staff, in some cases in multiple hospitals, was described as a major barrier. In particular, training physicians who do not practice full-time in the hospital was described as a challenge.

WORKFORCE (GROUP 7)

1. What have been the goals of the hospitals related to *workforce* safe practices?

The primary goals articulated by the two hospitals we interviewed were to ensure adequate staffing (particularly nursing and critical care areas), to ensure appropriate training of staff and adherence of staff to evidence-based care protocols, and to plan for retention and succession of staff.

2. What have the hospitals done in terms of implementing *workforce* safe practices in general?

One hospital indicated that they do annual competency assessments in key areas (e.g., oncology), support continuing education (e.g., helping nurses secure Masters degrees in nursing) and the development of nurses for certification, have a residency program in the ICU to develop staff and ensure that they have the right skills, and have modified their nursing orientation toward a more clinical focus. The hospital was also taking advantage of using existing nursing staff to teach others. In addition to developing and supporting their nurse workforce, this hospital also runs education programs for staff working in the laboratory and radiology departments. The process of workforce education was viewed as an ongoing process, and not a one time event.

Staff competency was also a key issue for the other hospital we visited. This hospital has unit specific skills tied to policies, and they measure these competencies by observing the nurse perform the skill at the bedside. Additionally, patient safety is discussed with all employees during orientation, and is embedded in the education related to a particular person's job needs. This hospital has created shared governance councils on each unit which are responsible for developing tools to promote patient safety (e.g., one unit developed signs that identify the patient's risk of falling, and anyone caring for that patient is then alerted to be vigilant to the increased risk). In another example, the hospital had integrated the environmental services staff

into the unit teams, so that they develop familiarity with the nursing care staff and patient population—which creates better communication and greater continuity of care.

Hiring additional staff to support specific functions was also an important workforce strategy to ensure proper implementation and training related to various safety issues. For example, after providing training to nursing staff on the prevention of ulcers, one hospital hired an employee whose sole responsibility was to prevent ulcers. The hospital also established a fixed, uniform policy regarding the prevention of ulcers, for which the employees are trained and monitored.

In addition, retention of staff was viewed as critical to patient safety by both hospitals, and they track data on recruitment and retention which are presented periodically to leadership. One hospital focused on better education, communication, and upgrading of staff skills as means to retain staff. Communication about workforce resource needs plays a central role in safety at one of the hospitals that we interviewed; they indicated that their charge nurses work closely with the Director of Nursing to identify where resources are needed and how to resolve deficiencies. This hospital also reported conducting staff satisfaction surveys as a means for gauging how well the institution is performing with regards to communicating with staff; the hospital believes that communication is a major issue in patient safety, which requires measurement of whether they are succeeding in providing staff essential information. Another method this hospital uses to implement this practice is to conduct daily "huddles" to disseminate information across all care team members.

Succession planning was a key activity, given the shortage of skilled med-surgical nurses and other specialty nurses; thus, planning for staff turnover and growth were priority activities. To facilitate recruiting skilled staff, one hospital had partnered with a number of nursing schools and was a clinical site for three nursing programs. Training students was similarly part of this hospital's lab, therapy, and pharmacy programs, in an effort to provide local community capacity to ensure adequate staffing.

In terms of ICU workforce practices, one hospital stated their physicians are trained in caring for critical care unit patients and board certified, and the nursing director was also trained in critical care, neuro and cardio ICU care. A critical care professional is available 24/7. The hospital also holds multidisciplinary rounds for all staff that touch patients within the ICU (i.e., dietician, nurses, physicians, chaplain) to discuss events of the past 24 hours and to plan the coordination of care for the next 24 hours. The goal is to foster a team-based approach to caring for ICU patients. Additionally, the hospital emphasizes the use of care protocols which are evidence-based in all its procedures.

The workforce has expanded in these hospitals to include the use of hospitalists. Hospitalist staff were seen as contributing to a hospital's ability to improve safety because "communication is easier when you have a consistent person (i.e., the hospitalist) who is known and that this resource is available at all hours of the day to address problems." This hospital had also created rapid response teams to minimize codes on the floor; the interaction and teaching on the floor to develop the capacity for rapid response had the net effect of helping build teams to work on safety.

Due to variability in nursing associated with night time nurses and traveling nurses, one hospital had implemented Situation Background Assessment and Recommendation (SBAR) to

deal with hand offs. Their nursing workforce has been trained in standardized communication to reduce the risk of safety events related to handoffs.

3. **How specifically have** *workforce* **safe practices been operationalized over time within the context of these hospitals?**

One hospital said that workforce and patient safety means having the right resource at the right time. The other hospital operationalized this practice by attempting to ensure the right staffing mix and the ability to staff appropriately, as well as by focusing on staff orientation, staff competencies and staff development, as well as training internships for critical care.

Both hospitals emphasized the need to have sufficient levels of staff for various jobs in order to be able to pay attention to details and capture issues that might cause medical errors or adverse events. Many roundtable participants across the hospitals believed that inadequate staffing was a serious issue related to safety. However, it was noted that even with adequate staffing 100 percent of the time, not all safety related procedures will be handled appropriately as staff still require requisite skills and training and must be managed so that increased workload does not pull them in too many directions. One hospital staff member observed that the focus on documentation of work has increased to the point where if often feels like they are "nursing a system rather than a patient."

4. **What have been the major challenges and facilitators to implementing** *workforce* **safe practices?**

There are several workforce issues that create problems for hospitals working to ensure patient safety. A shortage of trained individuals, particularly nurses, respiratory therapists, and those involved in critical care was identified as a key problem. It was noted that there are so many other fields nurses can go into besides bedside care where the pay and hours are better, so the challenge for hospitals is to figure out how to recruit these individuals. Turnover among intensivists was also flagged as an issue, due to their workload (seeing 30+ patients in critical care on a busy day). A shortage of board certified critical care internal medicine physicians does not allow every hospital in the U.S. to have such a professional on staff as required by the NQF standard.

One hospital noted that there is inconsistency across providers (e.g., pulmonologists, intensivists, and hospitalists) in how they manage patients, and this has the potential to create safety issues when providers change shifts and change patient treatment protocols; nurses are looking for consistent care and this constant shifting poses safety concerns. The issue of consistency also arose for the hospital that had multiple campuses across which their physicians practice; this hospital struggled with ensuring consistent policies across their campus locations, in addition to the variations in practice among the medical staff who float between the campuses.

Hospitals cited the reality that they rely on traveling (floating) nurses to cover staff shortages, which creates safety challenges because these nurses are often not familiar with the systems, procedures and communication norms within the institutions. One hospital stated that for these reasons, they tried very hard not to use outside nursing staff.

Another issue identified was the bi-modal workforce distribution. On one end of the spectrum is an aging nursing workforce. The average age in one hospital was 47 years, and the senior nurse manager noted that older nurses tend to face more difficulties in adapting to all the new technologies meant to increase patient safety, but which can create safety problems if staff

do not properly handle the technology. Thus, she stressed the importance of addressing ergonomic issues for their aging workforce as part of the larger safety equation. Also, it is frequently harder for older nurses to work the 12 hour shifts that most hospitals now have instituted to attract younger nurses with families, or to perform these long shifts two days in a row. While the longer shifts potentially mean fewer hand-offs, they can take their toll on an aging workforce. Such situations demonstrate a potential tradeoff or "conflict between providing continuity and safe care."

At the other end of the spectrum are young nurses with limited experience who are working off-shifts and have few resources and little support as they make decisions that affect patient safety. The hospital that noted this as an issue observed that molding newly minted nurses into consistently safe and effective practitioners takes time, effort, mentoring and dollars (for training and supervision). The mentoring piece requires engaging older nurses, which has been challenging as often they "want to come in, do their job, and go home." Another challenge is that in order to recruit and retain younger nursing staff, they must be offered flexibility with scheduling, which from a safety perspective may create problems with continuity of care.

Due to nursing shortages, some states have set generous limits on the maximum number of hours a nurse can work. Thus, particularly newer nurses with less training and experience may end up working 60 hours a week or more. Even if state limits exist, a nurse can work beyond the limit by floating between hospitals.

Lastly, it was observed that all the efforts and initiatives taken by hospitals to make patients safe has created its own workforce issues by placing increased demands on nurses and other care team members (e.g., additional steps in such procedures as the admission process or administering medications, as well as serving on quality and safety teams and committees). One hospital expressed frustration that staff were being asked to do more things which take more time, but that the hospital has not been able to add enough staff to help ease the situation. As a result, they recognize that nurses and other staff must prioritize their activities, inevitably resulting in certain safety priorities and practices being neglected or explicitly ignored given too much to do with too little time or staff for them all.

APPENDIX A
NATIONAL QUALITY FORUM SAFE PRACTICES, BY GROUP

Safe Practices by Group	Hospital Jurisdiction

Patient Safety Culture
1. Create, sustain a health care culture of safety
    Leadership
    Patient safety culture survey
    Teamwork
    Safety risk
	Executive management,
	  Patient Safety Office

Communication With Patients or Families 3. Ensure written documentation of patient's preferences for life-sustaining treatments 4. Provide timely and clear communication to families about serious unanticipated events	Quality Management, Patient Safety Office
Transparency Across Continuum of Care 10. Implement policies, processes, systems for accurate labeling of diagnostic studies 11. Prepare discharge plan for each patient at time of discharge, with summary given to receiving caregiver and confirmation by him/her 13. Standardize list of abbreviations "not to be used" 14. Develop and communicate accurate medication list throughout continuum of care	Patient Safety Office
Surgery Procedures 25. Implement universal protocol for wrong site, procedure, person surgery for all procedures 26. Evaluate patients with elective surgery for risk of acute cardiac events; consider prophylactic treatment	Chief of Surgery
Medical Evaluation and Prevention 23. Immunize health care workers and patients who should be immunized against influenza annually 27. Evaluate patient for pressure ulcers upon admission and regularly thereafter; implement preventive methods 28. Evaluate patient for risk of VTE/DVT upon admission and regularly thereafter; use appropriate thromboprophylaxis methods 29. Monitor patients on long-term oral anticoagulants by qualified health professional using a careful strategy 30. Use validated protocols to evaluate patients at risk for contrast media-induced renal failure; use appropriate method to reduce risk based on kidney-function evaluation	Chief of Medicine, Medical Administration

Safe Practices by Group	Hospital Jurisdiction
Medication Safety Management 12. Implement CPOE on foundation of re-engineered, evidence-based care, staff readiness, and integrated IT infrastructure 15. Have pharmacists participate in medication management systems with other health professionals 16. Standardize methods for labeling and packaging of medications 17. Identify "high alert" drugs and have policies and procedures to minimize risks associated with them 18. Dispense medications in unit-dose or unit-of-use form whenever possible	Pharmacy, Patient Safety Office
Workforce 5. Implement critical components of nursing workforce that reinforce patient safeguards 6. Ensure that non-nursing direct care staffing levels are adequate, competent, trained 7. Manage ICU patients by physicians with training in critical care medicine	Nursing Administration, Medical Administration, Human Resources

NOTES: VTE=venous thromboembolism; DVT=deep vein thrombosis

REFERENCES

Farley D. O., S. C. Morton, C. Damberg, A. Fremont, S. Berry, M. Greenberg, et al., *Assessment of the National Patient Safety Initiative: Context and Baseline, Evaluation Report I*, Santa Monica, Calif.: RAND Corporation, TR-203-AHRQ, 2005.
As of September 22, 2009: http://www.rand.org/pubs/technical_reports/TR203/

Farley D. O., S. C. Morton, C. Damberg, S. Ridgely, A. Fremont, M. Greenberg, et al., *Assessment of the National Patient Safety Initiative: Moving from Research to Practice, Evaluation Report II (2003–2004)*, Santa Monica, Calif.: RAND Corporation, TR-463-AHRQ, 2007a.
As of September 22, 2009: http://www.rand.org/pubs/technical_reports/TR463/

Farley D. O., C. Damberg, S. Ridgely, M. E. Sorbero, Greenberg, et al., *Assessment of the AHRQ Patient Safety Initiative: Focus on Implementation and Dissemination, Evaluation Report III (2004-2005)*, Santa Monica, Calif.: RAND Corporation, TR-508-AHRQ, 2007b.
As of September 22, 2009: http://www.rand.org/pubs/technical_reports/TR508/

Farley D. O., C. Damberg, S. Ridgely, M. E. Sorbero, M. Greenberg, et al., *Assessment of the National Patient Safety Initiative: Final Report, Evaluation Report IV*, Santa Monica, Calif.: RAND Corporation, TR-563-AHRQ, 2008.
As of September 22, 2009: http://www.rand.org/pubs/technical_reports/TR563/

Farley, D.O., M.S. Ridgely, P. Mendel, S.S. Teleki, C.L. Damberg, et al., *Assessing Patient Safety Practices and Outcomes in the U.S. Health Care System*, Santa Monica, Calif.: RAND Corporation, TR-725-AHRQ. 2009. As of September 22, 2009: http://www.rand.org/pubs/technical_reports/TR725/

HSC (Center for Studying Health System Change), Community Tracking Study (CTS), CTS Site Visits. As of July 27, 2009: http://www.hschange.org/index.cgi?data=06

IOM (Institute of Medicine), *To Err Is Human: Building a Safer Health System,* L. T. Kohn, J. M. Corrigan, and M. S. Donaldson, eds., Washington, D.C.: National Academy Press, 2000.

Leapfrog Group. As of July 19, 2009, www.leapfroggroup.org/media/file/leapfrogreportfinal.pdf

NQF (National Quality Forum), *Safe Practices for Better Healthcare–2006 Update: A Consensus Report*, Washington, D.C., No. NQFCR-17-07, 2007.