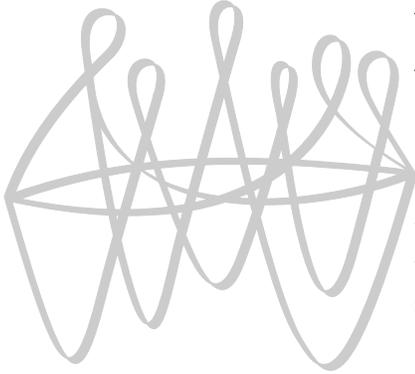National Patient Safety Foundation®

An Educational Needs Assessment for Improving Patient Safety

Results of a National Study of Physicians and Nurses

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Executive Summary

In 2002, the National Patient Safety Foundation® conducted a needs assessment as part of its "Improving patient safety through web-based education" project. A major objective of this project is to develop patient safety educational curriculum for physicians and nurses. The two-phased needs assessment sought to explore each group's experiences with error in medicine, to understand their attitudes and knowledge with regards to patient safety, and to identify key informational needs. In the first phase, NPSF convened focus groups to discuss and determine the origins of, and ways to reduce, healthcare error. NPSF conducted a self-administered mail survey to identify patient safety educational and training needs. This report summarizes the key findings.

Survey respondents and focus group participants identified the culture of medicine as the primary impediment to improving patient safety, clearly locating the issue as a systems issue. To provide leadership, healthcare professionals must be equipped to deal with the cultural barriers in improving patient safety in health care. Physicians and nurses also reported that error identification and subsequent disclosure were inhibited by several system factors, including the rapid advancement of medical technology, the culture of tolerance toward medical errors in health care, and a punitive rather than proactive historical reaction to error.

Physicians and nurses suggested specific patient safety curriculum topics, which can be found in the results sections of this report. These professionals recognize that the relationships between physicians, nurses, healthcare systems, and patients lie at the crux of efforts to improve patient safety. Patient fear of error is a barrier not only to safe care, but to any care; because it breaks down the trust necessary for an effective relationship

between patient and provider. Efforts are needed to empower healthcare professionals as agents of system change, and there was agreement that an effective curriculum must articulate the role of physicians and nurses in efforts to change the culture.

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Introduction

Medical error has emerged as one of the Nation's most pressing healthcare challenges and a major social policy problem. In its seminal report entitled, *To Err is Human: Building a Safer Health System*, the Institute of Medicine (IOM) estimated that as many as 44,000 to 98,000 Americans die each year as a result of preventable medical error.[1] Even using the lower estimate, medical error is the ninth leading cause of death in the United States — surpassing deaths due to motor vehicle accidents, chronic liver disease, alcohol- and drug-induced causes (combined), and a variety of cancers, including breast, stomach, and prostate.[2] While staggering, mortality estimates only begin to scratch the surface of the problem as they fail to measure the full range of adverse events resulting in injury but not death.[1, 3-4] However it is measured, error is an important benchmark for quality in health care, reflecting the overuse, under-use and misuse of health services.[1, 5-7] Particularly in the case of misuse, preventable harm from medical treatment compromises patient safety and may result in injury or death. Variations in services also undermine patient trust in the healthcare system; an essential component of patient-provider communication and delivery of care.[1, 8] In the end, error prevents health care from delivering its potential benefits. The social cost of this failure is enormous, estimated to be between $29 and $38 billion per year, with about $17 billion of those costs associated with preventable errors.[9-10]

The IOM emphasized that most of the medical errors committed are systems errors, not attributable to individual misconduct or negligence.[1] Influential work by Lucian Leape and others[11-13] on the systems-related causes of medical error attributed error to the unintended consequences of: interactions with technology, large numbers of staff providing care, poor communication between patients and staff and amongst the staff, stress and fatigue, human factors, design flaws, lack of appropriate education or training, higher acuity of illness, need for rapid decision making, reductions in staffing, and lack of redundancies to prevent error. Continued scientific advancement may further complicate the issue, impacting both patient care and system capacity decisions.[14-15] The culture of medicine also perpetuates opportunity for error by discouraging both open discussion of error and the practice of learning from mistakes.[1,11,16-17] While the original IOM estimates sparked considerable debate in medical and scientific communities about the size of the problem,[18-20] there is an agreement that the healthcare industry should work to reduce the frequency of adverse events and medical errors.

A major challenge in improving patient safety is teaching healthcare professionals new skills and ways of relating to patients and to each other.[5,11] Reducing the risk of error in health care requires research in

safety, dissemination of the findings, and implementation of the best practices and evidence-based guidelines for care. Efforts to reduce error, however, are complicated by the fact that even the term "patient safety" itself, while becoming widely used, means different things to different people.[21-23] Even when agreement is reached on terminology, knowledge about patient safety concepts, research, and the best practices are scattered and not easily accessible. Healthcare professionals typically rely on information gleaned from a variety of journals and publications often devoted to interests other than safety, and even the most critical patient safety information is poorly disseminated.

The National Patient Safety Foundation® (NPSF) is dedicated to improving the safety of patients. In 2000, NPSF's National Agenda for Research[3] outlined three defining characteristics of patient safety:

• Patient safety has to do primarily with the avoidance, prevention, and amelioration of adverse outcomes or injuries stemming from the process of health care itself. It should address events that span the continuum from what may be called "errors" and "deviations" to "accidents."

• Safety emerges from the interaction of the components of the healthcare system. It is more than the absence of adverse outcomes, and more than the avoidance of identifiable "preventable" errors or occurrences. Safety does not reside solely in a person, device, or department. Improving safety depends on learning how safety emerges from the interactions of the components.

• Patient safety is related to "quality of care," but the two concepts are not synonymous. Safety is an important subset of quality. To date, activities to manage quality, such as quality assurance, continuous quality improvement, total quality improvement, etc have not focused sufficiently on patient safety issues.

Efforts to improve safety in health care need to span a continuum, from understanding the roots of system and individual failure, to developing and evaluating interventions to mitigate those failures. Provider and patient education are important components to NPSF's strategy. But questions remain. What information and/or training do healthcare professionals need? What are the most effective and efficient ways of disseminating critical safety-related information? In this paper, we explore the needs of physicians and nurses for patient safety education and training.

Description of Methods

In 2002, the National Patient Safety Foundation (NPSF) conducted a needs assessment as part of its "Improved patient safety through web-based education" project. This needs assessment informed the development of population and specialty-specific web-based patient safety educational curriculum for physicians, nurses, and patients. The specific objectives of the study were to explore different groups' experiences with error in medicine, to understand their attitudes toward and knowledge of patient safety, and to identify key informational needs for each group. In this report, we focus on the results from physicians and nurses.

Objectives of the Study

- Explore group experiences with error in medicine
- Understand group attitudes toward and knowledge of patient safety
- Identify informational and training needs

The needs assessment was conducted in two phases. In the first phase NPSF convened independent **focus groups** of physicians and nurses to discuss and determine the origins of, and ways to reduce, healthcare error. The focus groups specifically sought to isolate the important issues and areas of patient safety that would aid in their respective professional development, empowering them to act as a catalyst to change the system and culture of health care. The groups considered the cultural and systemic barriers to identifying, reporting, and analyzing errors in health care, the appropriate roles of physicians and nurses in promoting patient safety within the care system, and the specific educational needs of physicians and nurses with regard to patient safety.

In the second phase, NPSF conducted separate **self-administered mail surveys** of physicians and nurses. The physician survey utilized a random sample of 1,200 physicians from the American Medical Association's (AMA) Masterfile of all physicians practicing in the United States. Physicians who were deceased, retired, or no longer seeing patients, who had moved with no forwarding address, or who were in training were excluded, bringing the final sample to 1,084 eligible physicians. The nurse survey utilized a national random sample of 1,200 nurses from the American Nursing Association (ANA). Nurses, who were deceased, had retired, or who had moved with no forwarding address were excluded, bringing the final sample to 1,148 eligible nurses.

While individual questionnaire items differed slightly between physicians and nurses, all survey respondents were asked to rate the importance of patient safety in health care today. The surveys also sought to measure respondents' attitudes toward patient safety. For example, respondents were asked if it is better to address patient safety at the system level, if safer environments for patients were also safer environments for workers, and if error represents a significant ethical challenge in medicine today. In addition to attitudes, the surveys explored respondents' past involvement in patient safety such as experiences identifying errors in patient care, attending programs or conferences on patient safety, or implementing or working with non-punitive systems for reporting/analyzing healthcare error. Finally, respondents were asked to identify and indicate their level of interest, ("very interested" to "not at all interested"), in specific topics related to patient safety education and training.
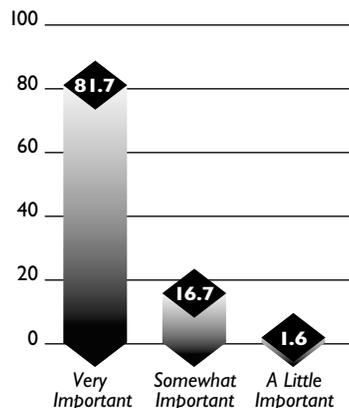
Results from the Physicians

Respondents

The physician focus group was comprised of a diverse group that included residents, deans of medical schools, physician educators, physician entrepreneurs, ethicists, risk managers, administrators, and researchers. In addition to the focus group participants, a total of 131 physicians responded to the mailed survey (response rate, 12 percent). Most of the survey respondents were men (66.2 percent) and had been in practice more than 10 years (mean 15 years). Survey respondents also represented a range of practice types and specialties, with over 40 percent in private practice and a majority from either the primary care or surgical specialties.

Patient Safety as an issue in health care

Over 80 percent (81.7 percent) of physicians responding to the survey identified patient safety as an important issue in health care today (see Figure 1.1). Two factors figured prominently in this assessment: quality of care and workplace safety. An overwhelming majority of physician respondents articulated a clear relationship between patient safety and quality of care (93.8 percent). This was reinforced in focus group discussions where safety was defined as a primary responsibility of all physicians. When asked what came to mind when they thought of safety in health care, focus group participants initially focused on more negative images such as medication error, wrong site surgery, or the failure to diagnose. Ultimately, however, there was agreement among discussants that the most important measure of safety in health care was the patient outcome, with surgery used in the conversation to illustrate how improvements in safety (eg, infection control, use of checklists, etc) can lead to better care outcomes.

Physician respondents to the survey also thought that safer environments for patients produced safer environments for healthcare workers (87.0 percent). While not explicitly discussed during the focus groups, physicians did equate safety in health care with a better practice environment. This connection applied largely to work within hospitals. It was clear, however, that this assessment also extended to a variety of inpatient and outpatient settings, including office-based practice, long-term care, and home care.

Figure 1.1: Importance of Patient Safety in Health Care Today (N=126)

"My primary responsibility is

to protect the patient from

mistakes that I might make."

• Physician Focus Group Participant

Respondents to the survey generally described safety in health care as a shared issue, with 78.5 percent of physicians agreeing with the statement that **"everyone in health care shares a collective responsibility for error."** Over 90 percent of survey respondents also agreed that "multidisciplinary partnerships are essential to addressing error in health care." However, in what seems to be a contradiction, only 49 percent of physicians thought that patient safety was better addressed at the system level. The focus group discussion provided further insight into this inconsistency. In the group, physicians were more likely to identify or refer to error and safety as individual issues but also emphasized that the entire healthcare system bears a collective responsibility for patient safety. Error in health care was discussed largely in terms of mistakes made by individual physicians. Consequently, safety in health care involved efforts by individuals to eliminate these mistakes. The traditional authoritative role physicians play in healthcare teams and/or systems may account for this perspective. It may also be due to the perception of discussants that the healthcare system itself presented a significant barrier to improving patient safety, making it unlikely (at least in the short run) that safety issues could be effectively addressed by anyone other than individuals.

Barriers to improving safety in health care: a culture of tolerance

In the focus group discussion, physicians identified a number of issues they thought of as barriers to achieving desired safety outcomes. The growing complexity of the healthcare environment places extraordinary demands on identifying errors and subsequently producing verifiable solutions to error reduction or prevention. Increasing complexity also demands extraordinary communication and cooperation among healthcare professionals, transparent error policy, individual truthfulness, and on-going professional development. Many physicians in the focus group felt unable to keep up with these increasing demands. Major issues involved the failure to properly manage the evolving communication and collaborative strategies necessitated by ever-increasing technical complexity. This failure resulted in a number of consequences such as the use of inefficient therapeutic approaches, lack of follow-up on ordered tests, and failure to monitor medications, all of which can result in negative outcomes for patients.

"The complexity of health care

has escalated, and while this

may be occurring at an

exponential growth rate, my

own ability to cope with all of

this is probably progressing at

a relatively slow linear rate."

• Physician Focus Group Participant

While complexity plays a role, the most important barrier to improving safety was the culture of health care itself. **The current culture of health care was described as one of tolerance**, in which it is permissible to commit error. A number of factors contributed to the prevailing culture. **Denial** was identified as a major factor, both at the institutional and provider levels. While institutions and providers may do their best for patients, individual egos and marketplace pressures make it unlikely that error will be recognized, let alone addressed. **Complacency** was acknowledged as another – related – problem, with the individuals and systems only reporting error that is recognized. What some consider error, others simply consider business as usual. There is also the perception that reporting error does not necessarily generate change, and with few consequences for error it is unlikely that anyone would stick their neck out

"There are so many different potential errors or near misses that occur during the day that our culture is not designed to recognize."
  • Physician Focus Group Participant

"Everything we do leads us to deny that an error was created."
  • Physician Focus Group Participant

"The real question is how to create a culture in which errors are our friends, in that they give us the opportunity to study error prevention."
  • Physician Focus Group Participant

simply to maintain the status quo. Complacency was also linked to the under-use of appropriate medical technology (eg, diagnostic and therapeutic clinical decision support tools) by physicians. Because these technologies reduce reliance on memory and written and oral communication and save time, they could reduce provider error. **Professional authority** also contributed to the problem, making it unlikely that patients or other healthcare professionals will speak up when they think something is wrong. Even when patients or other healthcare professionals do speak up, it is equally doubtful that physicians will always listen to them. This problem was identified as having its roots in residency training where intimidation prevents subordinates from questioning procedures or identifying error. In addition, with regard to patient communication, time pressures also come into play as disclosure or discussion of error takes time that is not accounted for in current reimbursement guidelines.

Another important factor contributing to medicine's culture of tolerance toward mistakes was the **historical reaction to error** within health care. Focus group participants agreed that physicians have always committed errors and that the risk and nature of error in health care has remained unchanged. Historically, however, these errors and near misses have never been viewed as educational tools to prevent future events. Instead, health care's reaction to error has largely been reactive and punitive rather than a proactive educational response. The culture of tolerance has also perpetuated inconsistent standards for those who commit errors; sometimes the punitive response even carries over to those who simply report errors committed by others. As a result, a code of silence has permeated the healthcare system, discouraging professionals from speaking up in situations where error occurs.

Finally, while not mentioned explicitly, it was clear from the focus group discussions that there were relatively **limited training opportunities** to inform and empower physicians as agents of a system to change and improve patient safety. Physicians simply did not feel well-equipped to deal with the issue, whether in their own practices or within the larger healthcare system. They were quick to articulate a need for both information and training on patient safety, as evident by the overwhelming majority of survey respondents (83.7 percent) who expressed an interest in education or training in patient safety.

Barriers to Improving Safety in Health Care

1. Increasing complexity of health care
2. A "culture of tolerance"
    ● Denial
    ● Complacency
    ● Professional authority
    ● Historical reaction to error in health care
3. Limited educational/training opportunities to empower physicians

"Until we address giving

ourselves permission to

talk in our own profession,

I'm not sure how receptive

we will be to talking with

outsiders [patients and other

healthcare professionals]."

  • Physician Focus Group Participant

When asked what physicians needed with regard to education and training, focus group participants identified a wide array of needs and options, ranging from education on the more elementary aspects of safety in health care (eg, theories of error, learning theory) to interventions to equip physicians as agents of change. Education and training needs are discussed in more detail later.

By identifying the culture of medicine as the primary impediment to improving patient safety, survey respondents and focus group discussants clearly locate the issue as a systems issue. The culture of tolerance that is so pervasive in medicine makes it more likely that error will occur, and when error does occur, less likely that it will be reported or analyzed. If safety in health care is to be improved, the culture will have to change. Everyone in health care shares a collective responsibility for this system, but for physicians the roots of tolerance lie in how they are trained, in the structure of relationships that exist within the practice of medicine, and in the historical treatment of error by the profession.

Professional Experiences

As would be expected, the culture of health care dictated professional experience with patient safety. While a majority (68.8 percent) of respondents to the survey reported having identified errors in patient care, and despite the near consensus on the importance of the issue, only 47.7 percent of physicians agreed with the statement: "patient safety was a major area for improvement at my institution" (Figure 1.2). Similarly, only 50 percent reported actually working with non-punitive systems for error reporting and examination. Partly as a result, physicians were not overly active agents for improving safety in health care. Only 36 percent of survey respondents reported having read the Institute of Medicine reports on patient safety; only 15 percent reported having conducted patient safety training programs; and less than 50 percent reported having advocated for standardized processes at their institution. On the positive side, physicians did report knowing the proper channels to report safety concerns (60.6 percent), did discuss patient safety related concerns with their colleagues and/or supervisors (71.8 percent), and are actively involved with practices to identify and reduce medication error (61.4 percent).

Figure 1.2: Patient Safety is a Major Area of Improvement at My Institution (N=128)
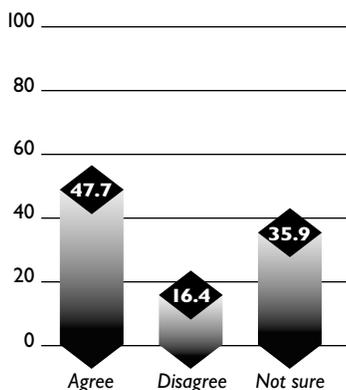
The failure to make error identification and reporting a priority has very real consequences for individuals as well as for the systems in which they work. Unreported errors can never be used as educational opportunities to improve patient safety. Consequently, the prospects for lasting change are limited because there is no understanding of what works to resolve error incidents. This leads to a second, and related, consequence which involves the provider's failure to report, perpetuating those factors (eg, denial, complacency) which contribute to the existing culture of tolerance. These factors, as well as the culture of tolerance itself, are the antitheses of physicians' obligations to provide quality patient care. Finally, when policies on safety are not

consistent or apparent patients become fearful. Patient fear of error is a barrier not only to safe care, but to any care; breaking down the trust necessary for an effective relationship between patient and provider. Given these consequences, it is not surprising that almost three quarters (73.6 percent) of physicians surveyed agreed with the statement that **"error represents a significant ethical challenge to health care."**

Education and Training Needs

Focus group discussants identified a number of thematic training issues (below), which could be organized into a comprehensive patient safety curriculum for physicians. Discussants were quick to stress the difference between learning and application, indicating that an effective curriculum should concentrate on information commonly needed within systems of care. This curriculum would need to address some of the more fundamental issues within the epidemiology of error and safety in health care, giving physicians the information they need to address error, when they need it — as close to real time as possible. With this information, physicians could begin to "engineer out" error, examining human and other practice- and system-related factors contributing to error in health care and make adjustments accordingly to improve patient safety.

Curriculum Topics Identified by Physician Focus Group Participants

- Defining healthcare error and patient safety.
- Technology and patient safety.
- Human factors: dealing with complexity, product design and complexity, and fatigue.
- Physician-patient communication.
- Communicating within the healthcare team.
- Learning from mistakes: error reporting and analysis at the system level.
- Disclosure of errors and injuries to patients and families.
- Financial and legal implications of healthcare error.
- Error as an issue in medical education.
- The need for systems thinking and cultural change.

"We need to make sure it [information] is something that the practitioner has to encounter on a regular basis when he or she undertakes a diagnosis or therapeutic intervention. That's where the real safety may lie."

• Physician Focus Group Participant

Survey respondents were also asked about their interest in a variety of educational/training topics (next page). There is considerable overlap in the issues identified by the focus group discussants and the survey respondents. Focus group discussants spent more time articulating the need to improve communication within the healthcare team and with patients. Survey respondents, however, were asked to respond to a wider array of initiatives, including medication safety practices, ethics, and patient safety in out-of-hospital settings. Respondents were asked to rank their interest in each topic using a three-point scale from "very interested" to "not at all interested." Topical areas in which they were already active (eg, medication safety) or where they had previously acknowledged need (eg, non-punitive environments, legal issues, and models for error reduction) fared well in this assessment.

Topics Ranked by Physician Survey Respondents	% Very Interested
Proven medication safety practices	67.2
Legal, tort, and malpractice issues	57.0
Non-punitive environments and systems for reporting error	55.9
Safety practices (eg, standardization and simplification of key processes)	55.1
Ethical issues	53.9
Patient safety in hospital-based settings	53.5
Models for error reduction	52.8
Patient safety in out-of-hospital settings	51.9
Models for constructively dealing with unsafe practices	51.6
Information-based strategies to improve patient safety (eg, practice guidelines and standards)	51.6
Methods of disclosure to patients/family and/or media	51.2
The patient's perspective on error in medicine	51.2
Interpersonal communication strategies	46.9
Designing jobs for safety (eg, work hours, work loads, staffing ratios, etc)	45.7
Methods for making safety a systems-wide objective (eg, a "culture of safety")	43.0
Establishing and promoting interdisciplinary teams to address patient safety	38.1
Models for error identification	37.5
Theories of human error	29.1

"We need to get back to the culture issue...[and] convince physicians that it is to their advantage to be willing to change how they practice medicine and recognize that it is not just about me."

• Physician Focus Group Participant

Finally, there was agreement that an effective curriculum must articulate the role of the physician in efforts to change systems. The relationships between physicians, healthcare systems, and patients lie at the crux of efforts to improve patient safety. To provide leadership, physicians must be equipped to deal with the cultural barriers in improving patient safety in health care. This could be done using practical applications for identifying error and case-based scenarios for addressing system issues. In their discussion of educational/training requirements, focus group discussants stressed the need to address system issues, and, as in the previous discussion of the role of systems in medical error, the issue of culture dominated. Ultimately, health care needs to progress to a point where errors and near misses provide opportunities for both professional development and system-based efforts to improve care. For this to happen, a comprehensive physician education program will need to focus on promoting the acceptance (both individually and professionally) of error in health care and the reporting and analysis of error to prevent future events. Physicians can work as catalysts for this change by providing valuable leadership in promoting a culture of patient safety in hospitals and in health care.
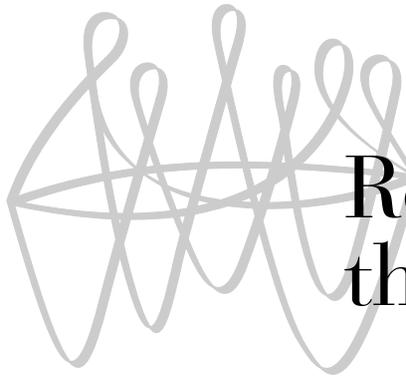
Results from
the Nurses

Respondents

The composition of the focus group of professional nurses was diverse and included a student nurse, deans of nursing schools from major universities, nurse educators, researchers, doctoral candidates, a surgical nurse, risk managers, and a nurse attorney. In addition, a total of 386 nurses responded to the mailed survey (response rate, 34 percent). Most of the survey respondents were women (96.1 percent), had been in practice more than 20 years (mean 23 years), and were involved in direct patient care (74.9 percent). Survey respondents also represented a range of practice types and specialties, with over 60 percent working in hospitals and a majority in the primary care specialties.

Patient Safety as an issue in health care

Over 90 percent (95.2 percent) of the nurses responding to the survey identified patient safety as an important issue in health care today (see Figure 2.1). Quality of care and workplace safety again figured prominently in this assessment. An overwhelming majority of nurses articulated a clear relationship between patient safety and quality of care (97.9 percent). Similarly, when asked what images they have of "safety in health care," focus group discussants identified patient safety as a necessary component of quality care. In particular, nurses spoke of patient safety as an important — if unrealized — component of quality across the full continuum of health care. They also believed that **once addressed as a quality issue, the subject of patient safety would move to the forefront of medical discourse.**

Figure 2.1: Importance of Patient Safety in Health Care Today (N=356)
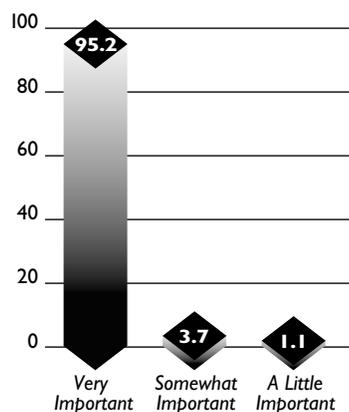
Nurse respondents to the survey also thought that safer environments for patients produced safer environments for healthcare workers (95.6 percent). Focus group discussants also identified patient safety as a component of a safe work environment and could not separate safety in health care from staffing and personnel issues, the need to identify and promote the use of safe procedures, and other work-related processes.

Nurses also described patient safety as a collective issue. Eighty-eight percent of the nurses surveyed thought, **"everyone in health care shares a collective responsibility for error."** Over 90 percent (93.0 percent) thought multidisciplinary partnerships were essential to address error in

"Patient safety is synonymous

with quality health care."

• *Nurse Focus Group Participant*

health care. Similarly, focus group participants identified the need for all health professions and health occupations to be integrated and comprehensive in their approach to safety issues, working together to make sure that patients are as safe as possible. This all-inclusive perspective extends responsibility for safety to physicians, interdisciplinary patient care team members, administrators, pharmacists, and others who come in contact with the patient. Nurses in the focus group were also quick to recognize **safety as a systems issue**, further extending responsibility for patient safety to those who work to maintain the system's environment. This was attributed, in part, to the fact that the work typically done by nurses is already imbedded in teams and as an acknowledgement of the growing complexity of health care. Despite this recognition, however, only 49 percent of survey respondents thought that patient safety is best addressed at the system level. The focus group discussion again shed some light on this apparent discrepancy, suggesting that nurses, in general, think in terms of individual patients rather than systems. In this environment, error is not viewed as a potential tool to edify others in the profession. Discussants also identified the system itself as failing to empower nurses to report error in health care. A more detailed discussion of barriers to improving patient safety is provided in the next section.

**Barriers to Improving
Safety in Health Care**

While the survey did not ask questions about impediments to improving safety, focus groups were quick to identify cultural and systematic barriers to identifying, reporting, and analyzing error. The **growing complexity of health care** was initially singled out as one such barrier. It can be fairly stated that the healthcare system is industry's most complex model. It is also a system that is increasing in complexity at a remarkable rate, straining the ability of nurses to maintain their responsibilities and duties to patients, to other nurses, and to promoting changes within the system. Increasing complexity also demands extraordinary communication between healthcare team members and within systems. Yet, despite this demand, discussants identified the **failure of communication** as an important barrier to the reporting of medical errors and to improving safety in health care.

"We have to begin to speak

of it [patient safety] as a

core value in health care

as opposed to an add-on."

• *Nurse Focus Group Participant*

Discussants focused on the **culture of health care** as the most significant barrier to improving patient safety. The culture of the current healthcare system was again described as one of **tolerance**, in which it is okay to commit error and where there are few incentives for reporting error. The **historical reaction to error** was identified as a major factor contributing to this culture of tolerance. Discussants agreed that error has always been a factor in health care. Historically, however, health care has been designed with efficiency rather than safety in mind; consequently, the immediate reaction to error has typically been one of blame and isolation rather than using errors as educational tools to prevent further events. As a result, some focus group discussants even spoke about an "Omerta" type **code of silence**

"Safety reflects quality of care and cannot be separated from staffing issues and the utilization of human resources."
  • *Nurse Focus Group Participant*

"We need to be proactive about safety in health care, to look at systems to make sure that they are as safe as possible."
  • *Nurse Focus Group Participant*

"In the operating room we are always getting new equipment, new equipment, new equipment. I can't keep nurses competent on all the equipment they have to know as part of their job."
  • *Nurse Focus Group Participant*

that permeates much of the healthcare system and discourages professionals from speaking up in situations where error occurs.

According to discussants, the code of silence permeating health care is **especially problematic for nurses**, as it is a part of the nursing task and responsibility to report error. Despite this responsibility, nurses are not generally empowered within the hierarchy of medical professionals. A nurse who commits an error is likely to feel isolated from peers and other team members and may not know what to do next. The same can be said for a nurse who observes an error in the delivery of health care. In either instance, there are a number of systematic reasons why the error may go unreported, including fear and/or humiliation, the system's punitive procedural processes, and the feeling that reporting will not result in actual change. According to the nursing focus group participants, the number one reason for failure to report is not fear. Rather, error often goes unreported because nurses do not think that reporting an error will result in change, making it unlikely that someone would "stick their neck out" just to maintain the status quo. The failure of communication was again noted as an important contributor. Discussants noted that while hospitals are changing, there is little or no feedback to individual nurses, giving them the impression that nothing really changed as a result of their [courageous] efforts.
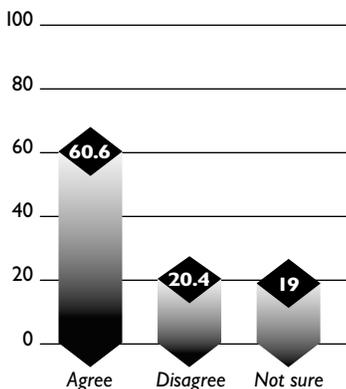
Common Reasons for Failing to Report Error
● The perception that reporting error does not necessarily generate change
● Fear and humiliation
● The system's punitive procedural processes

Nurses, by isolating the culture of health care as the primary impediment to the identification, reporting, and analyzing of error, identify patient safety as a systems issue. As a systems issue it is impossible to attribute error solely to individual misconduct or negligence. It also means, however, that the system will need to change before meaningful improvements can occur. This was made clear by the focus group participants, who insisted on the need for (1) a proactive rather than reactive response to error in medicine, (2) uniform communication among staff and employees, (3) increased availability and utilization support groups, and (4) further education as a means for breaking down existing barriers. Nursing education was singled out as a potential catalyst for individual as well as system change. Education must make it clear that nurses will make errors but also equip nurses with the knowledge of what to do when an error occurs. Change, however, if it occurs, will not likely be rapid. Cultural transitions can take 10 years or more, suggesting that nurses must remain proactive and persistent if they wish to reshape their practice environment.

Professional Experiences

As expected, the culture of medicine greatly influenced nurses' professional experience with error. Over 80 percent of the respondents to the survey (83.1 percent) indicated having identified error in health care. However, only 60.6 percent of nurses thought patient safety was "a major area for improvement at my institution" (Figure 2.2). This was supported in focus group discussions, which clearly identified a need for organizations to make a greater commitment to improving the environment of health care. Similarly, less than 40 percent of nurses (35.2 percent) indicated having worked with non-punitive systems for error reporting or examination. As previously indicated, focus group discussants identified the reactive or punitive responses of institutions as a major barrier to improving care. At the individual level, while 87 percent of respondents indicated knowing the proper channels to report safety concerns and over 90 percent (92.4 percent) reported having discussed patient safety concerns with colleagues and/or supervisors, only 52 percent indicated having advocated for standardized processes within their institution; 21 percent had conducted patient safety training programs; and only 30 percent reported reading either of the Institute of Medicine's reports on patient safety. Over 72 percent of nurses, however, were actively engaged in practices to identify and reduce medication error.

While policy must remain intolerant of error, it is clear from the focus group discussions and the survey responses that nurses continue to work in systems with a reactive rather than a proactive response to error. This punitive response robs the profession of the opportunity to use errors as educational tools, resolve error incidents, and improve care. Furthermore, the punitive system generates fear and apathy on the part of healthcare providers. Both of these facts were evident in the earlier discussion of common reasons for nurses' failure to report error. Nurses are not confident in their ability to be heard and have no infrastructure within which to initiate change. But fear is not limited only to nurses. When error is not effectively dealt with, fear also permeates the patient/provider relationship, breaking down the trust that is necessary to the effective delivery of care. Thus, it is not surprising that over 80 percent (81.3 percent) of survey respondents agreed with the statement that **"error represents a significant ethical challenge to health care."**

Figure 2.2: Patient Safety is a Major Area of Improvement at My Institution (N=368)

Education and Training Needs

Over 90 percent (94.0 percent) of nurses surveyed indicated at least some interest in education or training on patient safety. Focus group discussants also identified a number of thematic training issues (next page), which could be organized into a patient safety curriculum for nurses. Survey respondents were also asked about their interest in a variety of educational/training topics (following page). While there is considerable overlap in the issues identified by the different groups, survey respondents were asked to respond to a wider array of initiatives, including medication safety practices, ethics, and patient safety in out-of-hospital settings. Respondents were asked to rank their interest in each topic using a three-

"Health care has been very tolerant of errors; almost so tolerant that we don't see them anymore."
  • Nurse Focus Group Participant

"The cultural element is a huge, huge nut we have to crack."
  • Nurse Focus Group Participant

"Nurses are torn between their role and identity as a nurse that says to report [error] and their need to fit into a team that says we don't tattle like that."
  • Nurse Focus Group Participant

point scale from "very interested" to "not at all interested." Topical areas in which they were already active (eg, medication safety) or where they had previously acknowledged need (eg, non-punitive environments, ethics, and designing jobs for safety) fared well in this assessment.

Curriculum Topics Identified by Nursing Focus Group Participants

- Ethics (transparency and truthfulness).
- A proactive approach to error in health care.
- Framing mistakes: the system vs. individual.
- Reporting error and follow up.
- Learning from mistakes.
- Staffing issues and error.
- Technology and error.
- Nursing education and mentoring.
- Patient education.

Discussants thought it very important that a comprehensive curriculum be relevant to both nurse education and practice. It should stress the complexity of patient safety, using near misses as well as seminal events as educational tools to improve delivery of care. A curriculum should also be case-based, providing opportunities for role-play in "ideal" models (eg, institutions that have successfully broken down cultural barriers) as well as "real" situations. Scenarios should stress truth-telling, responsible behavior, reporting error, and follow-up to error reporting. These would provide nurses the opportunity to think through how they will respond to error in an ethical fashion from beginning to end. It also helps nurses prepare to do what is right from a patient safety perspective even in cases where the healthcare bureaucracy may get in the way. Finally, a comprehensive curriculum should prepare nurses to anticipate the potential for error. For example, nurses should be exposed to the diverse patients in healthcare environments and educated about the patient safety issues, (eg, health literacy, culturally competent care), which are related to different population groups. In such instances, communication and comprehension once again become critical elements of error prevention.

All agreed that education and training opportunities must also empower nurses. In many instances, the expert nurse or nursing instructor may not be educated in error prevention or trained as a patient safety coach. When a "teachable moment" presents itself, these nurses will typically base educational outcomes (in nursing education and practice) on success or failure, automatically designating errors or near misses as failures without analyzing the circumstances surrounding the incident. Education and training must overcome this reaction by preparing nurses as coaches in error prevention and reporting, and by teaching them to take full advantage of the educational opportunities error presents to convey critical thinking skills to students and other nurses. The hierarchies of healthcare teams and institutions must recognize this need for nurse empowerment. For teaching

scenarios to improve the safety of patients, they must present real solutions to error, (both near misses and sentinel events), help nurses overcome their fear, and work to break down cultural barriers.

Topics Ranked by Nursing Survey Respondents	% Very Interested
Proven medication safety practices	75.8
Designing jobs for safety (eg, work hours, work loads, staffing ratios)	75.7
Ethical issues	72.1
Non-punitive environments and systems for reporting error	69.1
Models for constructively dealing with unsafe practices	68.7
Safety practices (eg, standardization and simplification of key processes)	67.2
Patient safety in hospital-based settings	66.4
Information-based strategies to improve patient safety (eg, practice guidelines and standards)	65.7
Models for error reduction	64.7
Methods for making safety a system-wide objective (eg, a culture of safety)	62.1
The patient's perspective on error in medicine	61.4
Legal, tort, and malpractice issues	58.8
Interpersonal communication strategies	57.8
Methods of disclosure to patients, family and/or media	56.9
Establishing and promoting interdisciplinary teams	54.7
Models for error identification	46.7
Patient safety in non-hospital-based settings	43.3
Theories of human error	36.4

"We keep getting back to the environment in which we try to promote patient safety and in which we try to redesign systems. It's the cultural piece of it that I think is the biggest piece."

• Nurse Focus Group Participant

Because this culture is pervasive at the team, professional, and systems levels, focus group discussants were quick to note that nurses will need ongoing support in redesigning care delivery. They also made it clear that because this was a system issue and not just a nursing issue, everyone in health care (nurses, physicians, and administrators) must make changes to improve patient safety. They endorsed a bilateral movement for patient safety occurring both within nursing, and the healthcare system, and an interdisciplinary curriculum designed for multiple audiences.

"You can't change a system without changing the people in the system."

• Nurse Focus Group Participant

Lastly, a curriculum on patient safety needs to address the problem presented by complex healthcare technology and the constant introduction of new and improved technology often without sufficient training. Focus group discussants identified this as a potential source of error in health care. Healthcare technology is supposed to augment human performance, and technological advances have raised society's expectations for error-free outcomes. It is important for nurses to learn to properly assess and analyze the information technology provides and to have a fundamental understanding of the technology used on their patients' behalf.

Conclusion

Evidence of error in medicine has brought the issue of patient safety to the top of the healthcare policy agenda and the forefront of the public debate. While there are ongoing efforts to improve safety in health care, evidence suggests that there has not been much improvement in the last decade.[24] This research explained this lack of development with several important "systems" obstacles. One such obstacle is the growing complexity of health care, which demands improved communication and cooperation among healthcare professionals. Advances in technology contribute to the increasing complexity of health care and communications among health professionals have not kept pace with the evolving technology. While the original IOM report, *To Err is Human*,[1] stressed the importance of automating repetitive and error-prone tasks through technology, new technologies introduce the potential for new and different errors. A second obstacle and the greatest barrier to improving safety in health care is the culture of health care. It is culture of tolerance that teaches reactive and punitive responses to error, making physicians and nurses less willing to report error and less likely to capitalize on key educational opportunities to improve patient safety. Although many physicians and nurses are qualified and well prepared in the science and art of medicine, few have the skills necessary to improve patient safety or are offered education or training opportunities on the topic.

Efforts to improve patient safety must include teaching health professional new skills.[1, 25] Our research suggests that this can be done with a systematic approach and a comprehensive curriculum. While physicians and nurses share many concerns in patient safety, interventions should aim to both address issues specific to physicians or nurses and yield measurable results. Our research also suggests that changes need to be made in the organizational culture of healthcare environments. Physicians and nurses must cooperate in promoting a change in the system from tthe current "culture of blame" to a "culture of safety." This comprehensive curriculum must encourage a multidisciplinary approach to patient safety by fostering an environment of collaboration and continuous problem-solving among healthcare team members. Efforts in improving patient safety should incorporate evidence-based medicine. Clinical effectiveness and quality of care are important components of patient safety and must be constantly reassessed and reevaluated. Health professionals need to be comfortable learning from error. Efforts identify error and improve safety must be guided by a primary focus on systems and not individuals.

While teamwork is important to organizational learning, leadership must also be encouraged. Physicians have an opportunity to provide strong and visionary leadership in patient safety.[26-27] To succeed, however, they must understand the relationship between errors in healthcare system and different kinds of safety issues. They must recognize that these errors are

amenable with interventions. Likewise, nurses must be actively engaged as leaders in the development and implementation of changes and improvements in healthcare safety.[28] Actively involving nurses requires the enthusiasm and support from leadership for every aspect of the initiative, the identification of and focus on nurse-specified topics (eg, establishing care protocols, improving communication), and effective measurement of progress and frequent feedback.

Recommendations

This report summarizes an educational needs assessment for improving patient safety. NPSF will use these results to develop a comprehensive web-based patient safety curriculum for physicians and nurses. While this is an important contribution, our research shows that other actions are also needed. To be effective, patient safety education of healthcare professionals must be accompanied by a corresponding change in organizational culture. This requires engaging healthcare leaders to publicly demonstrate their commitment to reducing medical errors. Finally, organizations need to encourage physicians and nurses to learn more about patient safety and provide opportunities for healthcare professionals to put this knowledge into practice.

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Appendix

A. Discussion guide used for nursing focus group

Objectives *(for moderator and investigators):* to explore nurses' attitudes, behaviors, and knowledge related to patient safety and to identify gaps in education and training to improve patient safety through a web-based curriculum on patient safety education.

Introduction   *(5 Minutes)*
- Welcome, thanks for participating
- Explain that session will be tape recorded and ask for written consent
- Introduce topic, moderator, participants – name, specialty, etc.
- Focus: your PROFESSIONAL perspectives, not personal

Overall Picture   *(10 Minutes)*
- Briefly, when you think about patient safety in health care, what pictures, if any come to mind? What words? Numbers (magnitude of issue)?
- How would you describe the importance of the issues? (eg, numbers, quality of care, ethics, …)

Managing Patient Safety (Role of the Nurse)   *(20 Minutes)*
- Would you characterize patient safety as a system or an individual issue/problem?
- Responsibility for error?
- What are the barriers to identifying, reporting, and analyzing error?
- Models for error identification
- Need for non-punitive environments and systems for reporting error
- What is the role of the nurse in promoting patient safety? (leadership, educator, patient advocate, etc.)
- What are the most useful resources to train/educate nurses on patient safety issues? (IOM reports, conferences, etc.)
- Satisfied with training and skills development in patient safety?

Training and Education Needs   *(40 Minutes)*
- What are the specific training/education needs of nurses related to patient safety? (eg, models for error identification and reduction, practice guidelines and standards, disclosure, communication, constructively dealing with unsafe practices, etc.)
- Do these needs differ for nurses in hospital-based settings as opposed to out-of-hospital settings? How?
- If you had to choose one area of patient safety education that would benefit you the most, what would it be?

Receptiveness to a web-based format   *(10 Minutes)*
- Would a web-based educational program on patient safety and error reduction be effective in reaching nurses?
- What are the barriers to the use of the web for educating and training nurses?

Wrap-up   *(5 Minutes)*
- Anything else we should know about educating nurses about patient safety issues?
- Thank participants.

B. Survey mailed to physicians

Please help the National Patient Safety Foundation learn more about what health care providers need to know in order to reduce health care errors by completing this short questionnaire and returning it to us in the enclosed self-addressed envelope. You can also fax your completed questionnaire to us at 312-464-4154.

1) Despite the findings of the IOM reports, there is disagreement on the extent to which errors occur daily in health care. Please rate the importance of patient safety as an issue in health care today.

❏₁ Very Important   ❏₂ Somewhat Important   ❏₃ A Little Important   ❏₄ Not at all Important

2) Please indicate whether you agree or disagree with the following statements.

A. Safety is better addressed at the system (organization) level than at the level of the individual.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
B. Safer environments for patients are also safer environments for workers.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
C. Everyone in health care shares a collective responsibility for error.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
D. Multidisciplinary partnerships are essential to addressing error in health care.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
E. There is a relationship between patient safety and quality of care.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
F. Patient safety has become a major area for improvement in my institution.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
G. I know the proper channels to report safety concerns.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure
H. Error represents a significant ethical challenge to health care.	❏₁ Agree	❏₂ Disagree	❏₃ Not Sure

3) In the last year, have you…

A. attended training programs or conferences on patient safety?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
B. implemented or worked with nonpunitive systems for reporting and analyzing healthcare error?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
C. conducted patient safety grand rounds or other training programs?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
D. advocated for simplified or standardized healthcare processes?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
E. read either of the IOM reports on patient safety?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
F. employed practices to identify and reduce medication error?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
G. discussed patient safety concerns with colleagues and/or supervisors?	❏₁ Yes	❏₂ No	❏₃ Not Applicable
H. identified errors in patient care?	❏₁ Yes	❏₂ No	❏₃ Not Applicable

4) Where do you typically go to get information or training on patient safety?

5) *Do you have an interest in education, training and skills development in patient safety?*

❏₁ A lot of Interest   ❏₂ Some Interest   ❏₃ No Interest

6) *Overall, how well is your need for ongoing training and skills development in patient safety being met?*

❏₁ Very Satisfied   ❏₂ Somewhat Satisfied   ❏₃ A Little Satisfied   ❏₄ Not at all Satisfied

7) *If you are not "very satisfied" with the training opportunities available to you, please indicate why not.*

8) *Please indicate your level of interest in learning more about the following topics:*

	VERY INTERESTED	SOMEWHAT INTERESTED	NOT AT ALL INTERESTED
A. Theories of human error	❏₁	❏₂	❏₃
B. Models for error identification	❏₁	❏₂	❏₃
C. Models for error reduction	❏₁	❏₂	❏₃
D. Information-based strategies to improve patient safety, including practice guidelines and standards	❏₁	❏₂	❏₃
E. Models for constructively dealing with unsafe practices	❏₁	❏₂	❏₃
F. Safety practices, such as the standardization and simplification of key processes	❏₁	❏₂	❏₃
G. Nonpunitive environments and systems for reporting error	❏₁	❏₂	❏₃
H. Patient safety in hospital-based settings	❏₁	❏₂	❏₃
I. Patient safety in out-of-hospital settings	❏₁	❏₂	❏₃
J. Proven medication safety practices	❏₁	❏₂	❏₃
K. Establishing and promoting interdisciplinary teams to address patient safety	❏₁	❏₂	❏₃
L. Methods for making safety a system-wide objective (eg, a "culture of safety")	❏₁	❏₂	❏₃
M. Designing jobs for safety (eg, work hours, work loads, staffing ratios, etc)	❏₁	❏₂	❏₃
N. The patient's perspective on error in medicine	❏₁	❏₂	❏₃
O. Legal, tort, and malpractice issues	❏₁	❏₂	❏₃
P. Ethical issues	❏₁	❏₂	❏₃
Q. Interpersonal communication strategies	❏₁	❏₂	❏₃
R. Methods of disclosure to patients/family and/or media	❏₁	❏₂	❏₃
S. Other	❏₁	❏₂	❏₃
T. Other	❏₁	❏₂	❏₃

9) *If you had to choose the one area of patient safety education that would benefit you the most, what would it be?*

10) What areas (eg, acute care settings, outpatient clinics, nursing homes, home health care, etc) do you see as being the most challenging in keeping patients safe?

_____

_____

11) Do you have experience with web-based education?   ❏₁ Yes   ❏₂ No

12) Would you use web-based educational programs and information on patient safety and error reduction in health care?

❏₁ Yes   ❏₂ No   ❏₃ Not sure

13) How do you connect with the internet?

❏₁ Phone modem   ❏₃ Cable modem
❏₂ DSL line   ❏₄ Other (SPECIFY)

Please complete the following personal information. Your answers are anonymous and all information will remain strictly confidential.

14) What is your primary specialty?

❏₁ General Internal Medicine   ❏₂ Family Practice   ❏₃ Pediatrics
❏₄ Medical subspecialty (SPECIFY)
❏₅ Surgical subspecialty (SPECIFY)
❏₆ Other (SPECIFY)

15) In what year did you complete postgraduate (residency/fellowship) training? 19_____

16) Which of the following best describes your position?

❏₁ Clinician, Private Practice   ❏₅ Clinician, Other   ❏₉ Other
❏₂ Clinician, Non-teaching Hospital   ❏₆ Medical Director
❏₃ Clinician, Teaching Hospital   ❏₇ Administrator
❏₄ Clinician, HMO Practice   ❏₈ Educator

17) What is your age?   _____ years

18) What is your gender?   ❏₁ Male   ❏₂ Female

19) What is your race? (Check all that apply)

❏₁ American Indian or Alaska Native   ❏₄ Hispanic
❏₂ Asian or Pacific Islander   ❏₅ White
❏₃ Black or African American

Thank you very much for your participation!

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About the National Patient Safety Foundation®	The National Patient Safety Foundation® was founded in 1996 by the American Medical Association, CNA HealthPro, 3M, and contributions from the Schering-Plough Corporation. The NPSF is an independent, nonprofit research and education organization. It is an unprecedented partnership of healthcare practitioners, institutional providers, health product providers, health product manufacturers, researchers, legal advisors, patient/consumer advocates, regulators, and policy makers committed to making health care safer for patients. Through leadership, research support, and education, the NPSF is committed to making patient safety a national priority.
About improving patient safety through web-based education	The National Patient Safety Foundation® is researching and developing an internet-based patient safety educational curriculum that will reach large audiences. The "Improving patient safety through web-based education" project is funded by grant # U18 HS12043 from the Agency for Healthcare Research and Quality (AHRQ). The major objectives of the project are:

1) to develop and deploy a web-based educational curriculum on basic patient safety principles for 3 audience groups: physicians, nurses, and the general public;
2) to develop and deploy a web-based educational curriculum on patient safety principles in anesthesia as a model specialized healthcare discipline; and
3) to provide an information clearinghouse and a model for information collection and dissemination related to the first two objectives.

NPSF is collaborating with many physicians, nurses, patient representatives, and educators throughout the United States to meet these goals. William Hendee, Ph.D., secretary of the NPSF board of directors and senior associate dean and vice-president of the Medical College of Wisconsin, is the principal investigator (PI); and Deborah S. Cummins, Ph.D., senior program manager at NPSF, is the project director.

Additional information and updates about this project are available on the internet at www.npsf.org

About *Stand Up for Patient Safety*™	The National Patient Safety Foundation®(NPSF) launched the *Stand Up for Patient Safety*™ campaign in 2002 to provide hospitals with a meaningful way to participate in the national patient safety movement. Under the banner of *Stand Up for Patient Safety*™, leading hospitals and health systems from across the country are joining forces with NPSF to reduce errors and improve patient safety. This movement calls for replacing traditional barriers to patient safety with a new culture of accountability, trust, system improvement, and continuous learning.

Now in its Charter phase, the *Stand Up for Patient Safety*™ campaign is committed to developing a hospital-focused, patient-centered agenda for change and forging a new environment of cooperation, dedication and action in health care. Founders and Charter members send a positive message to their staff, patients and communities about their commitment to reducing medical errors. NPSF provides member hospitals with new tools, strategies, and educational materials to help achieve this goal on an ongoing basis. Benefits include access to the leading experts in patient safety and health care, live programs and educational audio conferences on a variety of patient safety topics, patient and staff educational videos and literature, discounted enrollment fees for NPSF events, including the NPSF Annual Congress, and special prices on NPSF products and materials. For more information, visit www.npsf.org