

## **FINAL REPORT**

**Title of Project:** Improved Patient Safety Through Web-Based Education

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**Principal Team Members:** Asta Sorensen, MA  
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**Organization:** This grant was awarded to the National Patient Safety Foundation, with William R. Hendee, PhD, serving as Principal Investigator. The purpose of the grant was to improve patient safety through web-based education. Over the course of the grant, Dr. Hendee, who is a founding member of the Foundation's Board of Directors, served as Secretary and, subsequently, Vice Chair of the Foundation. Content development of the grant was separated into four parts (physicians, nurses, patients/families, and anesthesia), which were compiled simultaneously, plus an Information Center to support the education modules. Individuals responsible for this development were physicians, Dr. Hendee; nurses Dr. Cummins, and subsequently Ms. Sokol; patients/families, Dr. Cummins, and subsequently Ms. Sokol and Ms. Keating-Christensen; and anesthesia, Dr. Harwood, Ms. Sorensen, and subsequently Ms. Keating-Christensen. Website development for the project was subcontracted to the Medical College of Wisconsin under the direction of Mr. Krogull. The Patient Safety Information Center was implemented by Ms. Holly Burt of the NPSF.

**Inclusive Dates:** 9/30/01 – 8/31/04

**Project Officer:** Shelley Benjamin

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**Grant Award Number:** 5U18 HS012043-03

## Structured Abstract

**Purpose:** Develop, evaluate, and disseminate web-based, population-specific education modules on patient safety under the direction of the National Patient Safety Foundation (NPSF).

**Scope:** Education modules on patient safety have been developed by healthcare professionals to inform physicians, nurses, patients, and families about specific things that can be done to make healthcare safer for patients in all healthcare settings and in the home. The modules are as follows: Physicians (12 units); Nurses (13 units); Patients and Families (8 units); and Patients and Families Anticipating Anesthesia (7 units). The Information Center (4 units) provides supporting resources. Dissemination of information about these modules and their availability is managed through the Patient Safety Education Center of the National Patient Safety Foundation.

**Methods:** Content of the educational modules has been developed, reviewed, and updated by groups of consultant experts identified by the NPSF. Content of the Information Center module was based on the resources provided by the educational modules. Design of the website and formatting of the modules were achieved through a subcontract with the Medical College of Wisconsin. Dissemination of information about the modules and their accessibility is managed by the NPSF Patient Safety Education Center.

**Results:** All the modules are accessible through [www.npsf.org](http://www.npsf.org). These modules have active links to other educational sites as well as to additional information about the concepts presented in the educational units within each module. The website is maintained by the Medical College of Wisconsin under contract with the National Patient Safety Foundation. Instructions for obtaining CME and CEU credits for completing the online patient safety units are available on the website.

**Key Words:** Patient Safety, Healthcare Errors, Hospital Safety, Safety Education, Patient Information, Healthcare Quality, Medication Error, Medical Error

**Purpose:** Develop, evaluate, and disseminate web-based, population-specific education modules on patient safety under the direction of the National Patient Safety Foundation (NPSF).

**Objectives:**

- Basic educational modules on the fundamentals of patient safety designed for  
Physicians  
Nurses  
Patients and Families
- An education module on anesthesia-specific safety topics for patients and families
- Information Center for easy access to resources
- Dissemination network for educational modules through the NPSF Patient Safety Education Center

**Scope:** The safety of patients in healthcare settings has become a national priority. Attention to this priority demands educational materials that are targeted to specific audiences and widely available at low cost. Web-based educational materials that are electronically accessible satisfy the availability and cost criteria. Among the audiences that need targeted are physicians, nurses, and patients and families. In the latter case, procedure-specific information related to anesthesia would be useful in addition to general information on patient safety and how patients and families can help make healthcare safe. Educational materials developed to address these audiences must be compiled by knowledgeable individuals and vetted through an expert review process before being made accessible to healthcare practitioners and the public. In addition, materials need to reflect the educational needs of the different audiences, as determined through personal surveys, focus groups, and other means of data acquisition. Finally, a process should be established to update and improve the information on an ongoing basis, once the educational modules are made accessible on a website.

**Methods:** The initial proposal outlined a process whereby the various educational modules would be developed in sequence, starting with physicians, then nurses, then patients and families, patients and families anticipating anesthesia, and finally an Information Center to support these modules. Between the submission and the awarding of the grant supporting the work reported here, a change in principal investigator occurred (from Dr. Turnbull to Dr. Hendee). At that time, it was recognized that approaching the modules sequentially would not permit the entire project to be completed within a 3-year time frame. Consequentially, the design of the project was changed to develop the four educational modules in parallel.

Topics to be included in each of the basic educational modules were identified by mail surveys to population groups identified by the study principals and by focus groups of representative physicians, nurses, and patients/families. For the anesthesia module, input from representative of the Anesthesia Patient Safety Foundation was solicited. The identified topics were then assigned for development to knowledgeable authors identified by the study principals. Authors, titles, and institutions contributing to the educational modules include

**Physicians' Modules:**

William R. Hendee, PhD  
Sr. Associate Dean and Vice President  
Medical College of Wisconsin  
Board Member and Officer, National Patient Safety Foundation

Deborah Cummins, PhD  
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### **Nurses Modules:**

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Daniel O'Connell, PhD  
Clinical Psychologist  
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Faculty, Northwest Center for Physician-Patient Communication.

## **Anesthesia Modules:**

Jeffrey Cooper, PhD  
Director, Biomedical Engineering, Partners Health Care System, Inc.  
Associate Professor of Anesthesia, Harvard Medical School  
Department of Anesthesia and Critical Care, Massachusetts General Hospital  
Director, Center for Medical Simulation  
Anesthesia Patient Safety Foundation

Tim Harwood  
Assistant Professor of Anesthesiology  
Wake Forest University Health Sciences

Jill Blim, MS  
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George Blike, MD  
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David M. Gaba, MD  
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Roxanne Goeltz  
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Each of the units in each of the modules was peer reviewed by expert consultants, and suggestions for additions and revisions were incorporated into the units. Editing and initial formatting of the units were done by the individuals in charge of the individual educational modules (Dr. Hendee: physicians; Dr. Cummins, Ms. Sokol, and Ms. Keating-Christensen: nurses; Dr. Cummins, Ms. Sokol, and Ms. Keating-Christensen: patients and families; and Dr. Harwood, Ms. Sorensen, and Ms. Keating-Christensen: patients and families anticipating anesthesia).

As the educational modules were completed, terms appropriate for the glossary unit of the Information Center module were identified by the consultants and members of the development team and were researched by the NPSF librarian. Bibliographies from the units were identified and provided in module-based and unit-based formats. To complete the Information Center, biographies of the consultants were collected and a link to the NPSF Patient Safety Education Center was added. Editing and initial formatting of this unit were done by Ms. Burt.

Final formatting of all units for web presentation was performed by Ms. Keating-Christensen. Design of the website and installation of the teaching units were conducted under the direction of Mr. Krogull. References to additional education materials associated with each module unit were verified and formatted by Ms. Burt. Dissemination of information about the availability of the website was also directed by Ms. Burt.

**Results:** Each of the educational modules contains a number of instructional units, with each unit prepared by one or more individuals particularly knowledgeable about the topic that is addressed. The units targeted to physicians and nurses contain questions (in the case of the physicians units, pre and post questions) to help the reader ascertain his or her level of comprehension of the material. The units are formatted for website presentation, have printable versions, and contain illustrations and active links to additional information.



The Information Center module provides centralized information and is accessible from each of the educational modules.

Information about the availability of the modules is present within the NPSF Patient Safety Education Center and has been announced also in the NPSF Newsletter and through other channels. The Education Center also provides references to additional readings and serves as a resource to individuals interested in specific topics in patient safety. The entire package of informational materials is available at [www.npsf.org](http://www.npsf.org). Individual modules and units are as follows:

#### *Physicians*

- *Systems Thinking*
- *Use of Technology*
- *Team Communication*
- *Special Populations*
- *Human Factors*
- *Physician-Patient Communication*
- *Learning from Mistakes*
- *Disclosure of Injuries and Errors*
- *Retrospective Analysis*
- *Technologies for Error Reduction*
- *Learning and Disseminating*
- *Issues in Medical Education*

#### *Nurses*

- *Patient Safety: An Ethical Imperative*
- *Changing the System and the Culture*
- *Breaking Down Barriers*
- *Impact of a Close-Call Reporting System*
- *Learning from Error*
- *Reporting Error and Follow Up*
- *The Proactive Approach to Error*
- *Health Literacy*
- *Technology and the Nurse*
- *Implications of the Patient Safety Movement*
- *Staffing*
- *Geriatric Nursing*
- *Home Healthcare*

#### *Patients and Families*

- *The Patient and Safety*
- *Advocacy*
- *Communication*
- *Medication Safety*
- *Pediatric Care*

- *Elder Care*
- *Medical Device Safety*
- *Patient Checklist*

#### *Patients and Families Anticipating Anesthesia*

- *Introduction*
- *General Overview*
- *Before Anesthesia*
- *After Anesthesia*
- *Anesthesia Safety for Special Populations & Chronically Ill*
- *Alternative Medicine & Anesthesia*
- *Anesthesia Safety for Tobacco, Alcohol, & Drug Users*

#### *Information Center*

- *Project Authors*
- *Glossary*
- *Bibliographies*
- *Additional Resources*

*The following web pages have been updated with live links:*

- [www.npsf.org](http://www.npsf.org)
- [www.npsf.org/html/programs.html](http://www.npsf.org/html/programs.html)
- [www.npsf.org/html/education.html](http://www.npsf.org/html/education.html)
- [www.npsf.org/html/patients\\_web.html](http://www.npsf.org/html/patients_web.html)
- [www.npsf.org/html/patients.html](http://www.npsf.org/html/patients.html)
- [www.npsf.org/html/patients\\_family.html](http://www.npsf.org/html/patients_family.html)

### **List of Publications and Products**

The products produced through this effort are available at [www.npsf.org](http://www.npsf.org). Two print publications have resulted from the project to date. They are

Sokol P, Cummins DS. Needs assessment for patient safety education: focusing on the nursing perspective. *Nurs Econ.* 2002; 20(5): 245-248.

Van Geest JB, Cummins DS. An educational needs assessment for improving patient safety: Results of a national study of physicians and nurses. White Paper, Report 3, National Patient Safety Foundation, 2003.

Presentations of the web-based educational modules have been conducted at the following:

National Patient Safety Foundation: 6<sup>th</sup> Annual Patient Safety Congress, Boston MA (May 3-7, 2004)

Wisconsin Patient Safety Institute: 5<sup>th</sup> Annual Wisconsin Patient Safety Forum  
(November 12-13, 2004)

AHRQ: 3<sup>rd</sup> Annual Patient Safety Research Conference, Arlington, VA  
(September 26-28, 2004)