

# BRANCHES



**A Call to Action**  
for graduate students  
of health sciences



**Exploring Ethics**  
underlying health inter-  
ventions



**Securing  
Reinforcements**  
arming students to  
lead safe work design

## RAISING AN ARMY RECRUITING GRADUATE STUDENTS TO ADVANCE PATIENT SAFETY

**F**ive years have passed since the Institute of Medicine reported up to 98,000 hospital deaths every year due to preventable medical error. This report validated southwestern Pennsylvania's efforts to perfect healthcare delivery as conceived by the Pittsburgh Regional Healthcare Initiative (PRHI), established in 1997, and spurred even greater attention to medical error.

Regionally, we're making progress, but the battle for safe, high-quality, lower-cost health care needs more artillery.

The Jewish Healthcare Foundation, through its grant agenda and the PRHI, funded demonstrations to test whether better work design at the point of service would reduce healthcare costs while improving healthcare quality. Several healthcare leaders did pursue healthcare perfection, quantified by a goal of zero medical errors, in areas such as central-line associated bloodstream infections.

They discovered they could attain nearly perfect performance in targeted areas when the daily work of healthcare delivery was transformed to remove waste, error, inefficiency, redundancy, overcapacity, and variations in practice. Similar work redesign efforts in high performing industries, like manufacturing and aviation, have met similar success.

Successes come only with informed and dedicated efforts. Accordingly, PRHI

developed methods to train staff and leadership in principles of the Perfecting Patient Care™ or PPC framework—adapted from the Toyota Production System. But work redesign efforts or even basic safety improvements meet resistance. Many healthcare professionals have no prior exposure to the science and application of safety principles. The rationale for safety improvements, if not understood, cannot spur team members to acceptance and action.

In response, our region is raising the army necessary to defend thousands of people annually endangered by hospital-acquired infections, medical errors, and poor work design. The Foundation and its partners are producing a new generation of healthcare practitioners capable of delivering care that is as error-free, efficient, evidence-based, and patient-centered as possible.

For example, the PRHI's educational arm, the Center for Shared Learning (CSL), has already taught hundreds of local and national healthcare professionals to understand PPC principles. The Foundation's Fellowship programs for graduate students in health sciences incorporate curricular concepts from CSL and other disciplines. The programs expose students to patient safety principles and methods, suggesting pathways to perfect patient care free of error.

*"If 98,000 Americans were killed by a foreign power, we'd raise an army and provide the necessary ammunition, whatever the cost. Shouldn't we be just as aggressive against medical error? When do we commit to "never again?"*

Karen Wolk Feinstein  
President  
Jewish Healthcare Foundation

## A LOOK AT THE NUMBERS

### Without Safety Applications: Casualties of Error

In Southwestern Pennsylvania:

- Nearly 1.7 million medication errors and 15,300 adverse drug events (ADEs) occur annually.
- ADEs add about \$39,703,500 in annual healthcare costs.
- Illegible and incomplete medication orders occur one out of four times.

### With Work Redesign: Battlefield Successes

- The region has reduced central-line associated bloodstream infections (CLABs) by a whopping 55 percent between 2001 and 2004.
- Allegheny General Hospital has reduced CLABs by 90 percent in the past year, saving \$1.4 million in direct costs and dozens of lives.
- At the VA Pittsburgh Health System's main hospital, PPC has helped the 4–West unit nearly eliminate antibiotic-resistant staph infections in only two years.



# A CALL TO ACTION

*“My fellowship experience has given me a passion for the care of patients that extends well beyond any didactic learning experience that students will ever receive. It truly has changed how and why I practice pharmacy.”*

Andrea Wilson  
Pharmacy Doctoral Candidate, 2006  
Mylan School of Pharmacy  
Duquesne University



**W**hat if graduate students in health sciences were exposed to the best of the region’s healthcare leaders in safety and quality working to perfect patient care? What if they learned, in only eight weeks, some fundamentals for removing the potential for error, harm, and suffering to each patient? The Jewish Healthcare Foundation posited that intensive, interdisciplinary “learning by observing” and exposure to medical pioneers could produce a new cadre of healthcare leaders.

In 2001, the Jewish Healthcare Foundation tapped students at Pittsburgh’s rich healthcare education system—including three of the country’s leading universities and their respective health-related professional schools and teaching hospitals, two major medical centers, and several small colleges. The Foundation established a fellowship program to expose health professionals in training to methods to assure a better standard of care for their patients. Through the program, students would be better prepared to lead efforts to transform the healthcare systems in which they would ultimately work.

The Foundation developed the program to assure a multi-disciplinary applicant pool. An advisory board, made up of leaders from the region’s universities and colleges, worked closely with staff to recruit students and develop strong curricular components each year.

The Coro Center for Civic Leadership contributed leadership skills to the curriculum.

In 2004, the Foundation made a commitment to the exploration and introduction of a new patient safety curriculum. It prompted an evolution of the Fellowship program to better expose students to the current condition of medical error and poor work design in the healthcare system. Students were offered a new curriculum, inspired by the Perfecting Patient Care (PPC) framework, to:

- understand systemic problems through observation at the point of patient care;
- refine team-based approaches to solving observed problems;
- test solutions and refine them in real-time; and
- redesign work based on results.

Students saw how the daily work of health care could be improved at the point of service through observation and team-based problem-solving. They observed the flow and processing of patients, workers, and even laboratory specimens through a variety of healthcare settings. They discovered the potential for perfect patient care.

## THE FELLOWSHIP MISSION:

**SEE** WITH NEW EYES

THE POTENTIAL FOR HARM.

RESPOND **AT ONCE.**

**ENGAGE** YOUR TEAM.

**FIX** THE SYSTEM.

**SHARE** YOUR LEARNINGS.

# “TROOPS” ON THE GROUND: EMBEDDING FELLOWS IN UNITS

In weekly five-hour sessions over eight weeks in the summer of 2004, Fellows waded into patient safety culture. Readings and weekly research presentations offered a conceptual grounding in the current condition of healthcare safety and methods to improve it. Regional leaders in patient safety shared success stories and challenges. For example, Dr. Richard Shannon, chief of medicine at Allegheny General Hospital, discussed methods to reduce central-line associated bloodstream infections. Dr. Michael Culig, at West Penn Allegheny Hospital, shared safety techniques to prevent tangling of intravenous and equipment lines following invasive cardiac surgery.

Students visited a variety of research and healthcare settings to observe work processes and their effects on patient care. Sites included Carnegie Mellon University’s Bone and Tissue Engineering Center, the Peter M. Winter Institute for Simulation, Education & Research (WISER), Allegheny General Hospital (AGH), and UPMC Shadyside. Fellows were encouraged to question their assumptions about healthcare quality and safety and recognize the limitations of conventional education and training in basic safety science and systems design.

At WISER, Fellows performed hands-on life-saving techniques at the “SimMan” training facility. SimMan, a human simulator used for training in emergency medicine techniques, provides instant feedback to his “rescuers.” Each Fellow, as a member of a life-saving team, attempted to rescue SimMan as he suffered from cardiac arrest. They assessed in real time their teamwork processes and outcomes, revealing crucial environmental factors that can optimize individual and team performance, from team member positioning around a patient, to the right number of team members essential for safe care, to the right design of a room, or to assuring the right supplies are on hand.

In small groups at AGH, Fellows shadowed individual workers, observing a variety of work processes in high-stress, high-demand situations. One Fellow followed a mobile x-ray technician into emergency situations, going from the Medical Intensive Care Unit, Neuro Intensive Care Unit, and the Emergency Room. At each of the technician’s stops, the Fellow witnessed error prevention in stressful situations through specified team-member roles and safety precautions. At one point, the x-ray technician arrived on the scene just as a patient went into cardiac arrest. The Fellow could see that the frantic activity to save the patient’s life was actually managed by a designated team leader and smoothly executed by a team with clear roles.

*“The fellowship ‘energized’ this healthcare provider. With new eyes I see the vision: an accessible, safe environment for customers and employees providing healthcare from birth to death.”*

Lexie Koscho, RN, BSN, Fellowship Class of 2004  
Robert Morris University, School of Nursing



## Fellow Feedback

- 100 percent of students say they would recommend the Fellowship to a colleague or friend.
- 95 percent of students say they want continued contact with JHF for professional networking, continuing educational and social opportunities.
- 90 percent of graduates still live in the Pittsburgh area. Those who left did so to pursue further education.

*Source: 2004 Fellowship Survey, Jewish Healthcare Foundation*

## Learning Objectives...

Curricular goals were ambitious but effective, according to internal and external evaluations and student feedback. By the end of the summer, students could:

- understand the PPC framework
- recognize the current condition
- build observation and problem-solving skills
- connect data collection and use to improved patient outcomes
- appreciate the role of patient as part of the safety team
- build communication skills for safety
- experience high-performance teamwork
- hone safety skills/analytic methods
- recognize the importance of information technology in safety design
- consider lessons from other industries
- explore concepts from human factors engineering, occupational ergonomics, cognitive psychology, systems theory, organizational theory, and risk management

## In response

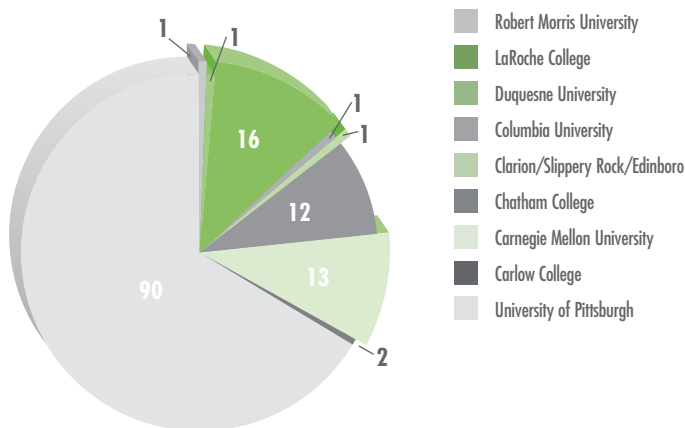
A new Fellowship Alumni Association will keep students connected to each other and JHF. The Association’s first endeavor is a Conversation Café series, beginning in January 2005. Alumni and current Fellows will examine a book or article related to patient safety and will explore implications for their respective studies and work.

# A CLOSER LOOK AT THE SUMMER FELLOWSHIP

## 2001-2004 Student Participation

**137 Students Total**

Each summer approximately 40 students participate.



## 2001-2004 Program Disciplines

### Students

Dental Medicine	2
Exercise Physiology	2
Health Administration	3
Health Care Policy & Management	12
Health Law	5
Health Management Systems	2
Library/Health Information	2
Medical Informatics	2
Medicine	14
Nursing	12
Occupational Therapy	19
Pharmacy	22
Physician Assistant	7
Psychology	6
Public Health	8
Public Policy and Management	3
Social Work	4
*Other	12

\*Includes Motor Control/Motor Learning, Toxicology, Speech Language Pathology, Bioethics, Maternal and Child Health, Nurse Anesthesiology, Nurse Case Management, and Pediatric Nurse Practitioner, Education, Environmental and Occupational Sciences, Hepatic Liver Growth Generation, Home Health Advance Practice Nursing, Physical Therapy

## 2001-2004 Fellowship Program Sites

- Allegheny County Health Department
- Allegheny General Hospital
- Center for Healthy Aging
- Center for International Nursing at Duquesne University
- Hillman Cancer Center
- Jewish Healthcare Foundation
- Lawrenceville Family Health Center
- McGowan Institute for Regenerative Medicine
- Peter M. Winter Institute for Simulation, Education & Research (WISER)
- Three Rivers Center for Independent Living
- University of Pittsburgh Graduate School of Public Health
- UPMC Presbyterian
- UPMC Shadyside
- UPMC Sports Center
- VA Hospital
- West Penn Hospital



# EXPLORING HEALTHCARE ETHICS: THE JHF/SALK FELLOWSHIP

**G**iven the chance, would graduate students in health sciences take several hours each month during the school year to explore complex yet daily moral and ethical dilemmas that arise in healthcare delivery? Would they welcome the opportunity to challenge their preconceptions and, in some cases, refine their perspectives?

The short answer is yes.

The JHF/Salk Fellowship, a collaborative program between the Jewish Healthcare Foundation and the Edward and Rose Berman Hillel Jewish University Center (JUC) established in 2001, introduces graduate students in a variety of health science disciplines to the region's efforts to perfect patient care through a lens of ethics and values, guided by healthcare experts and rabbis. A graduate student coordinates the fellowship program with university and JUC support.

An intimate class of 15 students examines provocative topics. Fellows meet once every month during the academic year to explore challenging dilemmas, ranging

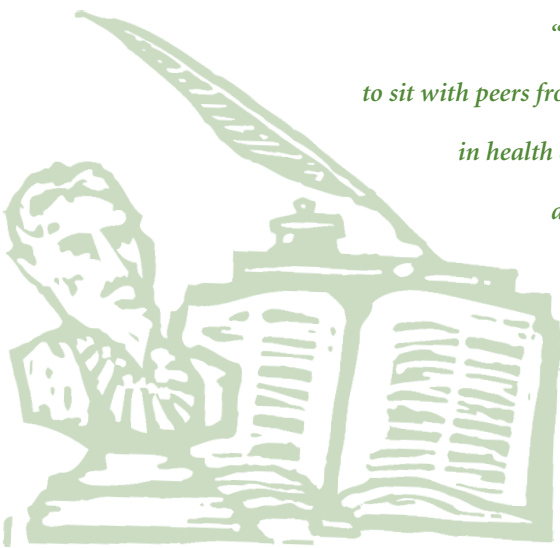
from abortion to organ donation, from addiction among medical professionals to end-of-life care. Aaron Weil of the JUC remarks, "The JHF/ Salk Fellowship is unique in that it offers access not only to a whole panoply of issues confounding today's healthcare professionals but an ethical and moral lens through which to view them."

In its two years, the program has transcended its original objectives, attracting scores of outstanding performance- and value-driven professionals often by word of mouth alone. Jewish students are excited to tell other Jewish students about the program; while non-Jewish students are a growing candidate list, as the experience offers a unique perspective to their formal education.

Take one of the most intriguing sessions in 2004 as an example. It featured a doctor who had struggled with drug addiction early in his medical education. He ultimately overcame his addiction to prescription drugs, but not until after his dependence nearly destroyed his life. The Fellows' conversation with the doctor was

followed by a conversation with Rabbi Abraham Twerski, a psychiatrist renowned for his work with addictions, including the founding of the Gateway Rehabilitation Center. Rabbi Twerski believes there is a universal vulnerability to addiction, as it is an illness, not a weakness. Fellows learned first hand from the rabbi that caregivers' compassion and awareness of risk factors can identify the illness for early intervention, increasing the likelihood for recovery.

In the 2004–2005 JHF/Salk Fellowship, patient safety content represents an even larger share of the curriculum, featuring sessions that will explore medical errors, hospital-acquired infections, and the ethics and daily practice of medicine.



*"The Salk Fellowship gave me an unprecedented opportunity to sit with peers from other disciplines and philosophize with them and leaders in health care about important issues. After some meetings, I'd just sit and shake my head in amazement to know that I'd been part of what had just taken place."*

Richard Altman  
2002 Salk Fellow  
2003 Salk Coordinator  
University of Pittsburgh  
School of Medicine

# SECURING REINFORCEMENTS



The Jewish Healthcare Foundation hopes to catalyze patient safety curriculum innovations in health science education. Ideally, every health science student and professional will know that it is possible to redesign work, perfect patient care, and never again cause harm to patients. More important, they will be leading the effort.

Curriculum investments, when of proven value, can spread through replication and adaptation. The Foundation's grant making history offers examples of how the foundations can sponsor the exploration of new frontiers in health.

- Academy of Pediatrics: immunization education
- Carlow College: distance learning for advanced practice geriatrics
- Carlow College School of Nursing: advocacy for quality patient care
- Children's Hospital of Pittsburgh: training in developmental pediatrics
- Coordinated Care Network: chronic disease management under Medicaid managed care
- Faith-Based Network: LPN training
- Office of Child Development: children's behavioral health model
- Pittsburgh Regional Healthcare Initiative: Center for Shared Learning
- PPC in Community-Based Organizations Demonstration Project
- Shadyside Hospital: pathology process improvement
- University of Pittsburgh Graduate School of Public Health: curriculum development for epidemiology of women's health
- University of Pittsburgh Medical Center: Dr. Leo H. Crip Chair in Patient Care
- University of Pittsburgh School of Law, Center for Medical Ethics: end of life education
- University of Pittsburgh School of Law, Center for Medical Ethics: treating patients with AIDS
- University of Pittsburgh School of Medicine: physician-patient relationship
- University of Pittsburgh School of Medicine: geriatric mentorship program (2001-2003)
- University of Pittsburgh School of Medicine: geriatrics curriculum
- University of Pittsburgh School of Pharmacy: pharmacy discharge planning

## To Apply for Either Fellowship

**JHF Patient Safety Fellowship** applications are available at [www.hcfutures.org](http://www.hcfutures.org) or [www.jhf.org](http://www.jhf.org). Or email Careen Szarmach at the Jewish Healthcare Foundation at [szarmach@jhf.org](mailto:szarmach@jhf.org).

To participate, students must be new, current, or recent graduate students of health science, complete an application, and submit a resume, personal statement, and two letters of recommendation. Upon selection by an advisory committee and Fellowship staff, Fellows participate over an eight-week period for five hours per week as well as complete supplementary readings each week. The final session features a case study to test Fellows' knowledge, and concludes with a graduation ceremony.

**JHF/Salk Fellowship** application information is available from Careen Szarmach ([szarmach@jhf.org](mailto:szarmach@jhf.org)) or through the Hillel Jewish University Center ([www.hilleljuc.org](http://www.hilleljuc.org)).



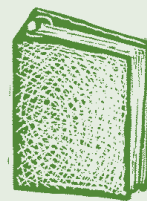
## Resources

Coro Center for Civic Leadership  
[www.coro.org](http://www.coro.org)

Pittsburgh Regional Healthcare Initiative  
Perfecting Patient Care  
[www.pphi.org](http://www.pphi.org)

Institute of Medicine  
[www.iom.edu](http://www.iom.edu)

Hillel Jewish University Center  
[www.hilleljuc.org](http://www.hilleljuc.org)



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