

Wisdom at Work: Retaining Experienced Nurses

An RWJF national program

SUMMARY

The Robert Wood Johnson Foundation (RWJF) launched *Wisdom at Work: Retaining Experienced Nurses* in 2006 to build an evidence base for what works to retain experienced nurses in hospital settings and to develop a better understanding of the impact of existing interventions on the work environment for older nurses.

Wisdom at Work supported the evaluation of 13 initiatives already in place aimed at retaining experienced nurses in hospitals:

- Six "ergonomic projects," such as patient lift teams and equipment designed to reduce physical practice burdens.
- Four "staffing projects" that used human resource strategies to improve organizational culture and retain experienced nurses.
- Three "other projects" that addressed employee wellness, clinical technology or leadership development.

The evaluation team also conducted case studies of seven top performing organizations—four health care and three non-health care—to identify proven and innovative worker retention strategies and approaches that could be applied to the retention of experienced nurses.

Key Program Results

- There is no single intervention that on its own will improve the retention of experienced nurses. The evaluation research projects and the case studies support this understanding, according to Colleen Hirschkorn, R.N., M.P.A., evaluation director, who said:
 - "At every hospital we visited we saw that retaining experienced nurses depends on many different efforts."

— "[In the case studies we found that] there is no one silver bullet. The structure of the organization, the culture of the organization and the commitment of senior leadership are pivotal."

Key Findings

Evaluation of The Robert Wood Johnson Wisdom at Work: Retaining Experienced Nurses Research Initiative, available online, reported these findings:

- In total, the 13 interventions evaluated did not have a positive impact on the retention of experienced nurses—although turnover varied:
 - For the six grantees focused on ergonomic projects, experienced nurse turnover increased from 6.8 percent before implementation to 10.3 percent after, although days lost to injury and disability costs declined substantially. One hospital was an exception, with turnover reduced by almost half.
 - While overall average experienced nurse turnover for the four grantees implementing staffing projects decreased from 8.2 percent before implementation to 7.7 percent after, two had significant decreases, one remained the same and the other experienced a large increase.
 - The "other" interventions had mixed results: two resulted in decreased turnover and the third (a technology project) experienced an increase.

Wisdom at Work: Retaining Experienced RNs and Their Knowledge—Case Studies of Top Performing Organizations, a report available online, reported these findings:

- Achieving and sustaining success in retaining experienced workers requires multiple efforts that build on these success factors:
 - Organizational leadership that is committed to building and sustaining a corporate culture valuing experienced workers.
 - Structured, organization-wide focus on managing and developing talent.

Program Management

RWJF program staff managed *Wisdom at Work* in-house, led by Nancy Wieler Fishman, senior program officer.

RWJF commissioned the Lewin Group (Lewin), to serve as the national coordinating center and evaluator for the program. The Lewin Group is a national health care and human services consulting firm headquartered in Falls Church, Va. Colleen Hirschkorn, R.N., M.P.A., senior vice president at Lewin at the time of the program, directed Lewin's involvement. Terry West, senior scientist at Lewin, was deputy director.

Funding

The program was authorized by the Board of Trustees in August 2006 for up to \$2 million.

CONTEXT

The average age of registered nurses in 2004 was 46.8 years, reflecting a rising trend in the age of the nurse population over the past two decades, according to the 2008 National Sample Survey of Registered Nurses (published March 2010) and conducted by the U.S. Department of Health and Human Services. By 2008, the average age had increased to 47.0 years.

In 2008, close to 45 percent of nurses were 50 years of age or older, compared with 33 percent in 2000 and 25 percent in 1980. Forty-six percent of practicing nurses over the age of 50 worked in the hospital setting.

These facts raise questions critical to patient care in the near future:

- How can hospitals retain a sufficient supply of experienced nurses to meet patient care needs?
- How can older, experienced nurses work differently to extend their time in practice?
- What can hospitals do to encourage experienced nurses to stay?

Why Retaining Older Nurses Is Important

Older, experienced nurses are repositories of deep practical knowledge, much of which is undocumented. When an older nurse leaves a longstanding hospital position, that knowledge is usually lost and must be relearned by younger, less experienced nurses, with resulting impacts on cost, organizational performance and—many experts believe—patient safety.

Replacement of nurses at any level is costly. Recruitment, hiring and training consume financial and staff resources. Replacing an experienced nurse is even more expensive as the knowledge lost is (and must be) replaced over time.

RWJF Interest in the Area

RWJF has invested over \$150 million in projects and programs over the past 30 years that have addressed critical issues related to the nursing shortage and the nursing profession, while consistently focusing on improving the quality of patient care. For more information, see Nurses & Nursing: Overview and Strategy on the RWJF website.

In 2006, RWJF commissioned a team of six national nurse leaders to prepare a white paper that identified promising strategies and opportunities for retaining experienced

nurses as a response to the crisis of the nursing shortage (see Program Results). "At the time we were very concerned with the nursing shortage," said Susan B. Hassmiller, Ph.D., R.N., RWJF senior adviser for nursing, "Everyone was focused on recruitment—how to get new nurses into the system—but we were [also] concerned with keeping what we have and looking at the work environment as a way to do that."

In a survey conducted by the team of nurse leaders, 25 health care experts cited "lack or inconsistent use of patient lifting devices and other technologies, and the presence of centralized workstations, long hallways, high patient census, and challenging work schedules" as contributors to the physical demands that negatively impact the retention of older, experienced nurses at the bedside.

The experts also said that changes in human resource policies—including increasing scheduling flexibility, expanding roles, enhancing employee-employer relationships and developing new career paths—would increase the likelihood of experienced nurses staying in their jobs. They said experienced nurses also needed to be part of any discussions about introducing new technologies into the hospital setting—both the way they are introduced and their role in enhancing patient safety.

The team quoted Kathleen MacInnis from her 2003 article in the *American Journal of Nursing* (volume 103(1): 31) to illuminate what it is like to be an older nurse:

We tilt our heads back to use our bifocals. Our knees are bad, our feet flat, backs out, and shoulders pulled. ... We are old nurses. But we still have something not found in the new nurse, something worth more than being swift; we have experience. Some patients can only be cared for by a veteran nurse, like those patients on ventilators, those with difficult families, or those with a variety of illnesses ... A more experienced nurse can better juggle the needs of such patients and we can better assess orders based on the patient's condition.

In their June 2006 white paper, "Wisdom at Work: The Importance of the Older and Experienced Nurse in the Workplace," the team of nurse leaders recommended that RWJF "create a system to develop and apply evidence-based criteria for best practices for the retention of older nurses, [and] support research to establish best practices, including the identification of their costs and benefits." In response, RWJF launched the national program *Wisdom at Work: Retaining Experienced Nurses* in the fall of 2006.

THE PROGRAM

RWJF designed *Wisdom at Work* to build an evidence base for what works to retain experienced nurses in hospital settings and to develop a better understanding of the impact of existing interventions on the work environment for older nurses.

Wisdom at Work comprised a set of research projects that evaluated initiatives already in place that were aimed at retaining experienced nurses in hospitals. "We wanted this to be a quick evaluation of what was out there already," said Nancy Wieler Fishman, RWJF senior program officer.

The Planning Phase

RWJF issued a call for proposals in the fall of 2006. The pool of eligible hospitals was limited to institutions recognized nationally for their design, nursing and/or technology excellence:

- Participants in the Center for Health Design's Pebble Project—health care organizations where facility design has made a difference in quality of care.
- Magnet hospitals designated by the American Nurses Credentialing Center as health care organizations that provide nursing excellence.
- The "100 Most Wired Hospitals and Health Systems" recognized in 2006 by *Hospitals & Health Networks* magazine as having the most advanced information technology in safety and quality, customer service, business, workforce and public health.

To receive funding, hospitals already needed to have implemented a discrete intervention to increase retention of experienced nurses, aged 45 or older, in one of three areas:

- Changes in physical design and ergonomics to improve work environment and processes.
- Introduction of human resources strategies, including projects to improve organizational culture.
- Use of technology to improve work processes.

In December 2006, RWJF awarded 18-month grants of \$75,000 each to 13 organizations. The projects funded were:

Ergonomic Projects (6)

- Cedars-Sinai Medical Center (Los Angeles, Calif.): Reducing the Physical Burden of Nursing Practice—A lift team program designed to reduce injuries and costs and improve nurse satisfaction and turnover.
- Florida Health Science Center—Tampa General Hospital (Tampa, Fla.): *Impact of a Lift Team on the Recruitment and Retention of Experienced Nurses*—A lift team initiative aimed at improving nurse retention by decreasing injuries and increasing job satisfaction.
- Greenville Hospital System (Greenville, S.C.): Addressing Retention of Experienced Nurses While Promoting Safe Patient Handling—A safe patient handling system for

- bariatric surgery patients that included a "nurse ergonomist" position to oversee the program and train staff.
- Saint Joseph's Hospital (Atlanta, Ga.): Decreasing the Number of Patient Movement-Related Injuries That are Prevalent Among Nurses—A minimal lift program launched with a goal of enhancing the recruitment and retention of experienced nurses.
- Strong Memorial Hospital at the University of Rochester Medical Center (Rochester, N.Y.): *The Minimum Lift Program Initiative to Reduce Lost Staff Time Due to Patient-Related Injuries*—A patient lift program intended to address experienced nurse concerns about the physical demands of their jobs.
- Vanderbilt University Medical Center (Nashville, Tenn.): Evaluation of a Safe
 Handling Program to Reduce Injury Among Nurses—A hospital-wide patient
 handling system designed to improve staff safety and reduce injury and turnover
 costs.

Staffing (Human Resources) Projects (4)

- Centra Health at Lynchburg General Hospital (Lynchburg, Va.): Using Closed
 Staffing as a Nursing Retention Strategy—A nurse staffing model that keeps nurses
 on their home units rather than assigning them to other units as needed.
- Mary Imogene Bassett Hospital (Cooperstown, N.Y.): Specialized Admission Role to Ease Patient Gridlock and Help Retain Experienced Nurses —A program relying on a specially designated and experienced admission nurses to facilitate patient admission.
- Poudre Valley Health System (Fort Collins, Colo.): Impact of the Base Staffing Model
 on Retention of Experienced Nurses—A nurse staffing model that staffs for frequent
 peak occupancy rather than average occupancy.
- Rush-Copley Medical Center (Aurora, Ill.): Giving Experienced Nurses More Control
 Over Patient Flow, Discharge and Admission —A program that uses experienced
 nurses to manage patient admission and placement.

Other Retention Projects (Including Technology) (3)

- Edward Hospital and Health Services (Naperville, Ill.): Evaluating a Wellness at Work Program to Help Retain Experienced Nurses —A program aimed at promoting a philosophy of wellness, especially among employees, through an incentive program, fitness center memberships and other components.
- Froedtert Hospital (Milwaukee, Wis.): *Using Virtual Intensive Care Units to Retain Nurses*—An initiative that uses experienced nurses to monitor intensive care unit patients at multiple sites through computer technology.

• University Health Systems of Eastern Carolina (Greenville, N.C.): *Improving the Retention Rate of Experienced Nurses Through Renewing and Reframing Their Nursing Practice*—A three-day off-site educational experience designed to reward experienced nurses and provide an opportunity to renew their nursing practice.

See Error! Reference source not found.for contact information on funded projects.

Management

National Program Office

RWJF program staff managed *Wisdom at Work* in-house, led by Nancy Wieler Fishman, senior program officer.

RWJF commissioned the Lewin Group to serve as the national coordinating center and evaluator for the program. The Lewin Group (Lewin) is a national health care and human services consulting firm headquartered in Falls Church, Va. Colleen Hirschkorn, R.N., M.P.A., senior vice president at Lewin at the time of the program, directed Lewin's involvement. Terry West, senior scientist at Lewin, was deputy director.

National Advisory Committee

A seven-member national advisory committee of leaders from nursing, hospital administration, human resources and AARP provided guidance to the program, assisted in the recommendation of grantees and participated in grantee meetings. See **Error!**Reference source not found. for a list of national advisory committee members.

The Evaluation

Lewin staff coordinated the evaluation of the 13 grantee research projects in two phases over 24 months:

• During the first 18 months (January 2007 through June 2008), staff provided technical assistance to the 13 grantees as they refined their research projects and collected and reported data.

Participating organizations reported annual staffing and financial data to Lewin staff through a Web portal for three years prior to each intervention and quarterly during the grant period (January 2007 through June 2008). Lewin staff used these data to track changes in turnover and calculate turnover costs.

Grantees evaluating ergonomic projects also reported changes in:

- Days lost due to work-related patient handling injuries
- Numbers of workers compensation claims related to these injuries
- Nurse-related hospital disability costs

• During the last six months of their contract (July through December 2008), Lewin staff synthesized the data and prepared an evaluation report.

RWJF and Lewin staff also convened two grantee meetings, in September 2007 and October 2008. The meetings brought together program staff, project directors and other staff from each of the 13 grantee organizations, nurse leaders and other experts to share key findings and recommendations from the research projects.

Evaluation Challenges

According to Hirschkorn, the evaluation of the 13 grantee projects presented two main challenges:

- Because the individual projects were all different from each other, even within the same category, "it was a challenge figuring out how to evaluate a program that is not a program but is a series of grants," said Hirschkorn. "It was a challenge to look at outcomes with such diversity."
- Data were not consistent across hospitals and "our ability to manipulate data to be useful was challenged," said Hirschkorn. "Data were not collected consistently and not set up to produce what we wanted. This took a lot of one-on-one time with grantees to get the data straight. But we still pulled useful data."

Another challenge led to the development of case studies. The original call for proposals did not produce as many and as strong candidates as program staff had hoped. As a result, only 13 projects received grants, although funding was available for up to 18 projects.

In order to "leverage what we had," said RWJF's Fishman, RWJF and Lewin staff decided to study several top performing organizations to identify and report on proven and innovative worker retention strategies and approaches that could be applied to the retention of experienced nurses.

The initial focus was on top hospitals but "then we did one further thing," said Hirschkorn, "and did not just limit this to health care. We thought that some other organizations might be doing interesting things that could work in health care."

The Case Studies

Lewin staff developed case studies of seven top performing organizations—four health care and three non-health care. These organizations have received external recognition and awards (such as from *Fortune* magazine, *Working Mother* magazine and the AARP) for their commitment to experienced employees.

The organizations were:

- Three multihospital health care systems:
 - Bon Secours Health System, Richmond, Va.

- Carondelet Health System, Tucson, Ariz.
- Scripps Health, San Diego
- Monongalia Hospital, Morgantown, W. Va.: A 199-bed community hospital within the larger Monongalia Health System
- Three non-health care organizations:
 - First Horizon National Corporation, Memphis, Tenn.: A financial services company with both retail and business customers in Tennessee and other U.S. and foreign markets
 - L.L. Bean, Freeport, Maine: An outdoor apparel and equipment mail-order and retail company
 - MITRE Corporation, McLean, Va.: A not-for-profit organization that provides systems engineering, research and development and information technology assistance to the federal government

During site visits of one or two days at each organization, Lewin staff conducted in-depth interviews and focus groups with personnel at all levels about the organization and its motivation and efforts to retain experienced workers.

OVERALL PROGRAM RESULTS

- There is no single intervention that on its own will improve the retention of experienced nurse, according to Lewin researchers:
 - Evaluation Director Colleen Hirschkorn: "There is no one initiative that is going to do the trick. At every hospital we visited, we saw that the issue of retention depends on many different programs.
 - "[In the case studies we found that] there is no one silver bullet. It is the organizations that have vested attention around retention. The most important finding is that the structure of the organization, the culture of the organization and the commitment of senior leadership are pivotal."
 - Evaluation Deputy Director Terry West: "There really isn't any single program by itself that will significantly improve experienced nurse retention. You need several things. You need a systemwide effort. You need leadership. Then you can provide a program that will flourish."

Evaluation Findings

Lewin researchers reported overall results from the evaluation of the research projects in the report *Evaluation of The Robert Wood Johnson Wisdom at Work: Retaining Experienced Nurses Research Initiative*, available online.

Experienced Nurse Turnover Results

• For the six grantees focused on ergonomic workplace redesign projects (patient lift teams in each case), experienced nurse turnover increased from 6.8 percent before program implementation to 10.3 percent after (2007). Greenville Hospital System, which *reduced* experienced nurse turnover by almost half (9.9 percent to 5.4 percent), was an exception to these results.

While the ergonomic projects did not have a positive impact on retention, they did produce other favorable results:

- The number of nurse days lost due to work-related injuries fell by 89 percent.
- Hospital disability costs related to patient handling injuries decreased by 28 percent.
- For the four grantees implementing staffing projects, overall average experienced nurse turnover decreased from 8.2 percent before implementation to 7.7 percent after, but not all had positive results.
 - Two grantees experienced substantial decreases in turnover: Centra Health (19 percent) and Mary Imogene Bassett Hospital (23 percent).
 - Another grantee, Poudre Valley Health System, remained about the same (1 percent increase).
 - The fourth, Rush-Copley Medical Center, showed a substantial increase of 21 percent.
- The three "other" interventions showed mixed results.
 - Edward Hospital saw its experienced nurse turnover rate fall by about half from 12.8 percent before implementation of its Wellness at Work program to 6.1 percent after.
 - Experienced nurse turnover at Froedtert Memorial Hospital increased from 1.9
 percent before implementation of its virtual intensive care unit to 5.5 percent after
 implementation.
 - Almost all (just over 97 percent) of the experienced nurses who participated in Pitt County Memorial Hospital's Fanning the Flame program (an off-site educational experience) remained at the hospital in 2007. Total experienced nurse turnover decreased from 9.5 percent before program implementation to 8.3 percent after.

For more information on individual grantee results, see Key Site Activities and Results.

Costs of Nurse Turnover

- Average replacement cost for a full-time-equivalent registered nurse was about \$36,567, based upon 2007 cost data from the 13 *Wisdom at Work* grantees. Nurse replacement incurs a variety of expenses, including:
 - Temporarily filling vacant positions and conducting new nurse training and orientation account for about two-thirds of replacement costs.
 - Advertising, recruiting and termination costs (e.g., payments for unused vacation time) account for the remainder.
- Nurse replacement costs for the 13 grantee organizations ranged from a low of about \$14,225 to a high of \$60,102, which is consistent with national studies. Variation in replacement costs result from differences in:
 - Hospital characteristics, such as size, staffing models and service-mix complexity
 - External market factors, such as local labor costs and competition for nurses

Case Study Findings

Lewin staff reported case study findings and best practices in *Wisdom at Work: Retaining Experienced RNs and Their Knowledge—Case Studies of Top Performing Organizations*, a report available online. The report includes findings from each case study, some of organizations outside the health sector. Overall findings include the following:

- Achieving and sustaining success in retaining experienced workers requires
 multiple efforts and building on supportive organization-wide success factors.
 The two key success factors that emerged from the case studies are:
 - Organizational leadership that is committed to building and sustaining a corporate culture valuing experienced workers. For example:
 - At Bon Secours Health System (Richmond, Va.): "We believe Bon Secours is a place to work for life," one nurse stated. The Bon Secours culture honors age and experience. The health system's flexible work and retirement arrangements, work-life benefits, education and internal communications create an environment that celebrates the seasoned worker.
 - First Horizon National Corporation (Memphis, Tenn.) established "FirstPower Culture," an initiative that puts employees first among corporate priorities, after discovering the highest levels of employee satisfaction and retention at their most profitable retail branches. FirstPower Culture highlights employee ownership, teamwork and inclusiveness—breaking down hierarchies to empower all employees to freely voice ideas.
 - Structured, organization-wide focus on managing and developing talent. For example:

- Scripps Health (San Diego, Calif.) annually updates a systemwide workforce strategic plan that forecasts talent needs based on retention and retirement trends and health system growth areas. Scripps manages talent through five career stages, beginning with entering the workforce through retirement.
- L.L. Bean (Freeport, Maine) is dependent on older workers since Maine, site of its headquarters, has many retirees and one of the oldest populations in the country. To support its planned growth strategy, L.L. Bean has implemented multiple programs that foster retention of its experienced workers, including flexible work scheduling, a focus on health, safety and wellness, and generous and flexible retirement benefits.

As it expands into new national and international locations, L. L. Bean intends to continue its long-term-strategy planning and offering benefits better than the local market.

Organizations that are successful managing and developing talent offer targeted benefits such as:

- Phased retirement options
- Flexible work scheduling
- Eldercare benefits
- Transfers to new roles (such as from bedside nursing to clinical mentoring)
- Gain-sharing (compensation based on organizational performance, such as exceeding patient satisfaction or financial performance targets
- Education opportunities
- Comprehensive wellness programs

• The best practices of the organizations studied are transferable to other hospitals and health systems. For example,

- "Any organization can start down this path," said Bonnie Shelor, senior vice president for human resources at Bon Secours Health System. "It's all about figuring out what you can do with the resources you have, having faith in your own abilities and a drive to achieve something." She indicated three steps organizations can take to improve retention of experienced workers, including nurses:
 - Develop a workforce retention strategy to guide program development
 - Develop a business case for proposed programs
 - Develop programs that benefit mature nurses

— MITRE Corporation (McLean, Va.) has focused on leadership buy-in, development of a business case for retention of experienced workers and creation of a corporate culture that values the contributions of mature workers. This focus "aligns well with those in place at the hospitals and health systems featured in this case study series," according to the Lewin evaluators. MITRE's phased retirement program could be attractive as a strategy to retain experienced nurses.

MITRE keeps on track, conclude researchers, as a result of its alignment of the organization's business strategy with its worker retention goals.

KEY SITE ACTIVITIES AND RESULTS

Lewin staff described site activities and reported site results in the report *Evaluation of The Robert Wood Johnson Wisdom at Work: Retaining Experienced Nurses Research Initiative*, available online.

Staff at highlighted projects were interviewed for this report; other projects are described in brief.

Ergonomic Projects

Highlighted Project

Addressing Retention of Experienced Nurses While Promoting Safe Patient Handling (Greenville Hospital System, Greenville, S.C.): In response to increased rates of patient handling injuries in a small acute care hospital of the Greenville Hospital System, the hospital initiated the pilot study for a safe patient handling program in 2005.

Marilyn Knoblauch, R.N., B.S., the original "ergonomics nurse" at the pilot hospital explains how they got involved in *Wisdom at Work*: "We were already involved in a proactive approach promoting employee safety and patient safety. We had had some injuries and we wanted to investigate possible causes and we also wanted to reduce the financial impact of these injuries. *Wisdom at Work* provided an opportunity to research this." With the *Wisdom at Work* grant, project staff was able to study whether the minimal-lift program had improved patient and nurse safety and contributed to the retention of experienced nurses.

To create a sense of in-house ownership once the initial contract with the equipment company and its consulting firm ended, the research team held a "name the minimal-lift program" contest, which produced the winning "UPLIFT" (*Use Portable Lifts In Facilitating Transfers*) moniker. The marketing department created a logo, and T-shirts sporting the new logo were given to the newly trained coaching team known as the UPLIFTERS.

Now, according to Knoblauch, "The need for assistive equipment is integrated into our online charting system. When a patient is admitted, responses to a set of questions about patient weight, mobility, etc., feed into the patient assessment program, and it automatically indicates which piece of equipment is needed. This information appears on the opening page of the chart and cannot be missed."

Knoblauch is enthusiastic about the results of the UPLIFT program: "The safety of our patients has increased. There has been a marked decrease in injuries, falls and nurse injuries." She also notes that "we have been able to adopt and roll out the program in each of our hospital system's facilities now and so it continues on."

With regard to retaining experienced nurses, Knoblauch reports: "We have lost very few experienced nurses. There are many reasons for this but the equipment is part of it. In employee surveys, very few nurses see themselves as leaving within the next five years. They appreciate the health system's investment to keep nurses and their patients safe."

Knoblauch relates a story that illustrates just how well the program works:

A morbidly obese patient weighing over 400 lbs. tried to get up on his own in the bathroom and fell. Years ago, we would have needed many people to get him up from the floor.

His nurse came in and asked him if he was injured, called for assistance to bring a slide sheet (called a MaxiSlide) to pull him safely out of the bathroom. Then just those two nurses were able to get him up and transferred to the bed using a piece of equipment (the Tenor) capable of lifting up to 704 lbs. They talked to him throughout the procedure and he was able to maintain his dignity. With bariatric patients, the dignity of the patient is critical and we are all trained to be sensitive to that. The patient was amazed that the equipment could help him.

Finally, Knoblauch, says, "I feel we were very proactive with this program. It [use of patient lift equipment] is not mandated in South Carolina, as it is in some states. We initiated the program before it became an issue because we believed it to be a safety best practice. The UPLIFT program does keep patients and nurses safer and it enables our nurses to remain on the job here longer."

Results

- Turnover of experienced nurses declined sharply, from 15.5 percent in the year before (2004) UPLIFT implementation to 5.3 and 5.4 percent in the two years after, 2006 and 2007 respectively. Greenville is the only ergonomic project that has resulted in a decrease in turnover of experienced nurses.
- The reduction in turnover of experienced nurses saved the hospital approximately \$170,000 in 2007.

- Since the UPLIFT implementation, the pilot hospital has incurred few or no days lost or disability costs related to patient handling injuries. Three years prior to implementation, 193.1 days of work per 100 experienced nurses were lost due to such injuries, with \$46,189 in associated disability costs. To date for 2010, there have been no lost days or claim costs.
- A full-time ergonomics nurse and UPLIFT coordinator have been hired to train and facilitate the program.
- Knoblauch and Susan A. Bethel, M.S.N, R.N., the project director, reported the
 results of the UPLIFT program in an article published in *Nursing* 2010 entitled "Safe
 Patient-Handling Program 'UPLIFTS' Nurse Retention" and also in numerous poster
 presentations at conferences and meetings around the state and region.

Other Ergonomic Projects

Reducing the Physical Burden of Nursing Practice (Cedars-Sinai Medical Center, Los Angeles): Cedars-Sinai Medical Center implemented a lift-team program in 2004—that included two teams operating at all times—with goals of decreasing back injuries, lost work days and injury-related costs and improving nurse satisfaction and retention.

Results

- The number of days of work lost due to patient handling injuries and disability costs declined on average, despite fluctuations year-to-year.
- Having a lift team available did not have an effect on retention of older nurses (age 45 and over). According to Cedars-Sinai project staff, most turnover among older nurses is a result of retirement, not the physical burdens of the job.
- Response time for requests for the lift team in this very large (952-bed) institution resulted in sporadic use of the team and mostly for the heaviest patients. Medicalsurgical nurses often preferred to complete patient transfers themselves rather than wait for the lift team.

Impact of a Lift Team on the Recruitment and Retention of Experienced Nurses (Florida Health Science Center-Tampa General Hospital): Florida Health Science Center-Tampa General Hospital implemented a hospital-wide lift team initiative in 2002 with the aim of improving nurse retention by reducing patient handling injuries among nurses and increasing job satisfaction.

Results

• The number of days lost by experienced nurses due to patient handling injuries decreased significantly, from 6.0 per 100 experienced nurses in the year before implementation to less than 1.0 (range of 0 to 0.8) per year from 2003 through 2007.

• While turnover among less experienced nurses declined, experienced nurse turnover grew after implementation, from 7.7 percent in 2002 to 13.8 percent in 2007. Increased intensity of care, required 12-hour shifts in some units and growing non-hospital job opportunities in the local market appeared to contribute to this shift.

Decreasing the Number of Patient Movement-Related Injuries That are Prevalent Among Nurses (Saint Joseph's Hospital, Atlanta): With a goal of enhancing recruitment and retention of experienced nurses, Saint Joseph's Hospital implemented the "Smooth Moves" Minimal Lift Program throughout its hospital in 2005.

Results

- Since implementation of "Smooth Moves," days lost due to patient handling injuries have declined from 5.7 per 100 experienced nurse two years before to 1.5 two years after. Total annual disability costs associated with these injuries decreased from \$71,093 two years before implementation to \$2,473 two years after.
- Experienced nurse turnover has remained constant since the implementation of "Smooth Moves," although turnover among less experienced nurse rose sharply. An unanticipated layoff in 2007 may have influenced these results, according to project staff.

The Minimum Lift Program Initiative to Reduce Lost Staff Time Due to Patient-Related Injuries (Strong Memorial Hospital at the University of Rochester Medical Center, Rochester, N.Y.): Strong Memorial Hospital in Rochester, N.Y., implemented a Minimum Lift Team Program in 2005 intended to reduce experienced nurse stress and address their concerns about the physical demands of their jobs.

Results

- Days of work lost by experienced nurses as a result of patient handling injuries increased from 1.3 per 100 experienced nurses two years before implementation of the lift team to 2.5 two years after. Associated disability costs also increased, from \$133,620 to \$256,597 over the period. Intensive care lift team members incurred injuries requiring replacement of lift-team members, which contributed to these results.
- While turnover of both experienced and less-experienced nurses is low, rates have trended upward since implementation of the lift team. Staff believe factors related to a new nursing education program may be contributors.

Evaluation of a Safe Handling Program to Reduce Injury Among Nurses (Vanderbilt University Medical Center): In 2006, Vanderbilt University Medical Center in Nashville, Tenn., implemented the "Smooth Moves" patient handling program throughout the medical center in order to improve staff safety and reduce costs of work-related injuries and turnover. At the same time, a hospital expansion required the hiring of additional nursing staff.

Results

- After the implementation of Smooth Moves in 2006, the number of experienced nurse days lost due to patient handling injuries per 100 experienced nurses fell from 14.6 in 2005 to 7.9 in 2006 (the year of implementation) to none in 2007. Associated disability costs went from \$232,000 in 2005 to zero in 2007.
- Experienced nurse turnover increased from 12.6 percent in the year before implementation to 14.7 percent in the year after. Project staff believes the increase resulted from demands placed upon experienced nurse to orient and mentor large numbers of new nurses in a short period due to hospital expansion.

Staffing Projects

Highlighted Project

Impact of the Base Staffing Model on Retention of Experienced Nurses (Poudre Valley Health System): In 2001, the nurse recruitment and retention committee at Poudre Valley Health System, Fort Collins, Colo., reported that nurses were experiencing high levels of job dissatisfaction as a result of patient workload and mandatory on-call. In response, senior nursing leadership initiated the Base Staffing Model, which staffs for frequent peak occupancy (about 70 percent), rather than for the more typical average occupancy.

With a grant under *Wisdom at Work*, nursing leadership at Poudre Valley sought to demonstrate to themselves and to other organizations the value of having the Base Staffing Model in place.

"This is a super nurse satisfier," said Candace Pruett, M.S., R.N., *Wisdom at Work* grant project director. "There is more control in the staff's hands. We don't cancel staff. If we have a lower census, we ask if anyone wants the day off. If no one does want the day off, and the nurse cannot be used anywhere else in the facility, we will have the nurse work on projects that need to be done (stocking, cleaning, auditing charts, discharge phone calls, etc.). This is also a benefit for quality because we get needed quality projects done."

Response to the Base Staffing Model has been very positive. "I hear from the staff: 'I feel good about being a nurse here. I can manage my patients. The staffing is good every day," Pruett said. "This makes me feel good because as a manager you know that you are meeting your staff's needs."

With the experienced nurses, Pruett said, "the physical demand is huge. If they are caring for fewer patients there is less physical demand. If there is more staff, there are more people available to assist in moving a patient."

The model also allows the experienced nurse more time to learn and handle electronic documentation. This is a new obstacle that nurses are faced with and is not always second nature to the experienced R.N. In fact, Pruett reported the following:

I chose an experienced wisdom worker (nurse) who was challenged by new technology to be an electronic medical health records specialist for our unit. I choose her because she knows the challenges of the older nurse. A lot of times you get the fastest people to work on technology, but they don't understand the challenges of older worker who is not comfortable to technology. This experienced nurse has brought a whole new learning curve to our group.

Finding niches for older nurses—ways to keep them in the system even if they don't want to be at the bedside—is important for retention. This keeps them in the system and you keep that body of knowledge.

Pruett feels good about the future. "We are looking at the impact of health care reform," she said. "There are likely to be mandated staffing ratios. If we get this in Colorado, we are already well above what would be mandated. We are well positioned and won't be scrambling to deal with this.

"Organizations have to be proactive with maintaining nurse staffing levels. Know the plans of your older nurses and when they will be making employment changes. Fill the position prior to the experienced nurse leaving so the opportunity is there to orient and prepare the new nurse. Capture the experienced nurses' knowledge by preparing case scenarios of their most memorable or challenging patients. Have them include in the scenario how they handled the situation. Do not wait for the shortage to hit your organization; stay on top of it and know what is coming."

Results

- While turnover among experienced nurses was low both before and after the implementation of the base staffing model, it was more stable after implementation than before (between 4.6 and 6.8 percent).
- The cost of using outside agencies to help staff units fell from about \$938,000 in 2001 (the year of implementation) to \$311,000 in 2005. Nursing overtime expenses also decreased over that period, from \$1.4 million to \$200,000.

Other Staffing Projects

Using Closed Staffing as a Nursing Retention Strategy (Centra Health at Lynchburg General Hospital, Lynchburg, Va.): In response to nurse dissatisfaction with the traditional staffing model (in which nurses may be pulled from one unit to another as needed), Centra Health implemented a "Closed Staffing" model in 2000. This model

keeps nurses on their home units with the aim of increasing job satisfaction and decreasing turnover.

Results

- After the Closed Staffing model implementation, experienced nurse turnover, which had been as high as 10.5 percent in the three years prior, declined to 5.6 percent in 2006, rising to 7.6 percent in 2007.
- Nurse absenteeism significantly declined immediately after implementation and the reduced rates continued for the next six years.

Specialized Admission Role to Ease Patient Gridlock and Help Retain Experienced Nurses (Mary Imogene Bassett Hospital, Cooperstown, N.Y.): Mary Imogene Bassett Hospital launched the "Admission Nurse" program in 2001 to improve the efficiency of the patient admissions process. The Admission Nurse facilitates patient admission and initiates medical and nursing plans before turning over the patient to a staff nurse. Experienced nurses are the desired candidates for the position, as it requires clinical experience, communication skills, critical thinking and prioritizing skills.

Results

• After introduction of the Admission Nurse position, experienced nurse turnover declined for several years, from a high of 28.3 percent two years before introduction to a low of 3.6 percent three years after. Turnover increased more recently, a result, according to hospital management, of growing expectations and accountability for nurses that has caused nurses to leave the workforce.

Giving Experienced Nurses More Control Over Patient Flow, Discharge and Admission (Rush-Copley Medical Center, Aurora, Ill.) Rush-Copley Medical Center implemented the Admission, Coordination, Transfer (ACT) Nurse Program in 2005. It uses experienced nurses to manage patient admission and placement. The hospital hoped to manage patient flow, improve nurse job satisfaction, create new job opportunities for experienced nurses and reduce nursing staff turnover.

Results

• Experienced nurse turnover decreased (from 9.4 percent to 6.1 percent) after the ACT Program was introduced in late 2005. After the program expanded in 2007, turnover increased (to 8.7 percent), but project staff believed the increase resulted from resignations related to decreased available working hours during reduced patient census, with nurses leaving for more stable positions. Another factor, according to project staff, was increased staff accountability requirements associated with revised performance standards.

"Other" Projects

Highlighted Project

Improving the Retention Rate of Experienced Nurses Through Renewing and Reframing Their Nursing Practice (University Health System of Eastern Carolina, Greenville, N.C.): Experienced nurses at Pitt County Memorial Hospital (part of the University Health Systems of Eastern Carolina) felt that they had exhausted the educational opportunities offered by the hospital. To improve the retention of these experienced nurses by providing an opportunity to renew their nursing practice, nurse leaders developed "Fanning the Flame," a three-day off-site educational experience. Between 2003 and 2007, the hospital offered five sessions of Fanning the Flame to about 25 nurses at each session.

According to Dianne Marshburn, R.N., Ph.D., the project co-director, project staff had anecdotes from nurses about the Fanning the Flame experience and had monitored turnover, but had not been able to validate outcomes. The *Wisdom at Work* grant offered that opportunity.

Project Director Judith Kuykendall, R.N., Ed.D., describes Fanning the Flame in this way:

"The program rewards and renews our nurses. They de-stress, learn about self-care, rethink where they are in their careers and next steps. They learn about how they can expand their opportunities while remaining at the bedside.

"It is a lot of fun. We bring in peers who have done research, who are leaders, who have done community service, including international trips. We talk about professional development and what's next. We talk about national certification and really push for them to see the value of this for themselves and for their patients."

The experience has been rewarding, to both participants and to nurse leadership. "We found that they feel valued after the experience, and there is increased job satisfaction," Kuykendall said. "Many take on additional responsibilities. Some become clinical training associates or mentors for new graduates. There has been a big increase in the number of nurses who are nationally certified." Kuykendall offered the following story as just one example among many:

One of our nurses, with 20 years experience in the organization and in her early 50s, is an excellent, very experienced nurse but felt burned out. She came to the retreat and since has become a clinical teaching associate at the East Carolina College of Nursing, helping to support nursing students at the hospital. Now she is getting her master's degree to be qualified for teaching. She told me after completing her clinical teaching associate program: "I just want you to know that I'd made up my mind that I was leaving; I was out of

here. It really turned things around for me." She is much happier and fulfilled in her new role.

Results

- Through 2007, only three nurses who had participated in Fanning the Flame had left the system. Experienced nurse turnover rates in general have been consistently low and about half that of younger nurses since the implementation of the program.
- Project staff reported increased job satisfaction and collegiality among participants.
- Staff produced a toolkit that includes a booklet on how to conduct the program, forms, applications, a budget and activities so that others may replicate the program.
- Based on the positive program experience, hospital leadership decided to offer two
 sessions of Fanning the Flame each year, and other disciplines (e.g., radiotherapists)
 at the hospital are interested in adapting Fanning the Flame for their own
 constituencies.
- Fanning the Flame was one of four case studies prepared for the *MetLife Mature Market Institute Tool Kit: Engaging the 21st Century Multi-Generational Workforce* by David DeLong & Associates, a research firm focused on the multigenerational workplace.

Additional "Other" Projects

Evaluating a Wellness at Work Program to Help Retain Experienced Nurses (Edward Hospital and Health Services, Naperville, Ill.): Motivated by a desire to promote a philosophy of wellness, especially among employees, Edward Hospital and Health Services launched "Wellness at Work" in 2003. The program consists of a set of initiatives (such as a Healthbuck\$ incentive program, free fitness center memberships, an annual walking challenge and a 100 percent tobacco-free environment) targeting lifestyle changes and fostering staff health and well-being and reducing stress-related and physical challenges of nursing for mature nurse.

Results

Experienced nurse turnover has fallen since program implementation, from 15.0 percent in the year before program launch to a low of 6.1 percent in 2007. Achieving Magnet status in 2005—and the addition of resources provided to nursing staff (such as nurse educators on each inpatient unit)—may also have contributed to low turnover.

Using Virtual Intensive Care Units to Retain Nurses (Froedtert Hospital,

Milwaukee): Froedtert Hospital implemented the Virtual Intensive Care Unit (VICU) in 2005 to improve patient health outcomes. VICU nurses use technology to monitor ICU patients at multiple sites and provide support to the bedside clinician. Experienced nurses are recruited from existing ICU staff. Unit goals are to lower mortality rates, decrease

length of stay and improve patient outcomes. At the same time it offers a critical care nursing environment for experienced nurses, without the physical demands of the traditional intensive care unit.

Results

- Experienced ICU nurse turnover has historically been low (between 0 and 3.7 percent) and that continued after VICU implementation. Nursing directors attributed a 2007 rise in turnover (to 5.5 percent) to relocation for personal reasons and the introduction of an organizational excellence initiative, which led to higher expectations of nurses.
- Focus group and survey data found the VICU to be less stressful, physically less demanding and intellectually challenging.

LESSONS LEARNED

Lessons Learned About Interventions to Improve Experienced Nurse Retention

In Evaluation of The Robert Wood Johnson Wisdom at Work: Retaining Experienced Nurses Research Initiative Lewin staff offered lessons that emerged from the research about the ability of interventions to improve retention of experienced nurses.

- 1. "There is no single silver bullet to improve experienced RN retention." Supportive organizationwide factors are important to achieving sustainable improvement in retention, including:
 - Ongoing leadership commitment
 - Corporate culture that values nursing
 - Structured approach to talent management
 - Ongoing performance measurement and evaluation
- 2. "Retention is a focused goal, but frequently not the only one sought by grantees." Grantees also wanted to address issues such as patient handling injuries, inefficient patient flow and leadership development.
- 3. "Single initiatives are often one piece of a large puzzle." The combination of multiple programs and strategies to retain nurses makes sorting out the impact of specific interventions difficult.
- 4. "Unplanned internal and external events occur with the passage of time that confound the ability to isolate and measure the impact of grantee initiatives." These other events may lead to nurse turnover. For example:

- Hospital expansions that result in the hiring of many new nurses can create stress for experienced nurses who must train and monitor new nurses while continuing bedside care duties.
- Changes in human resources and compensation practices negatively affected experienced nurse retention at several hospitals.
- 5. "Hospital data systems are often challenged to collect performance measures of interest." In some cases, data such as exit interview information and staffing and turnover data by age cohort had not been collected and analyzed. This realization raised organizational awareness of the need to collect these data.

Lessons Learned from Case Studies of Top Performing Organizations

In Wisdom at Work: Retaining Experienced RNs and Their Knowledge – Case Studies of Top Performing Organizations Lewin staff offered lessons learned from the case studies—"practical advice offered by these high-performing organizations" to others seeking to retain their experienced employees.

- 6. Make workforce planning a priority by including it in the organization's strategic plan.
- 7. Develop a business case for retention and demonstrate for the hospital leadership the return on investment of proposed strategies and programs.
- 8. Regularly identify staff retention risks and needs by tracking data and asking experienced workers' directly about their issues.
- 9. Be open to new or revised retention strategies as the workforce and the organization's business strategy change.
- 10. Do not resort to quick fixes but invest in improvements to enhance the entire system.

AFTERWARD

After the end of *Wisdom at Work*, most grantees continued the interventions on which they had been working. In some cases, staff presented information about their projects to nursing staff from other hospitals and provided consultation on implementing such an intervention at the other sites.

As of March 2010, Lewin staff and several of the authors of the original white paper were preparing an article for publication that addresses the retention of experienced nurses and the knowledge drain that results when they leave an organization. With a commitment from a peer-reviewed journal, researchers anticipate publication sometime in 2010.

According to Susan Hassmiller, RWJF senior advisor for nursing, the most significant accomplishment of *Wisdom at Work* was communicating the message and "getting on

everyone's radar screen that hospital nursing is very demanding, hard work, physically as well as mentally. We wanted health care organizations around the country to pay attention to why nurses are leaving. We wanted people to stop and think about the work environment and what they were doing and paying out by not paying attention and not making changes. So we got them thinking and then said, 'Here's what to do.'"

Prepared by: Mary B. Geisz

Reviewed by: Kelsey Menehan and Molly McKaughan

Program officer: Nancy Wieler Fishman
Program Management Team: Human Capital

APPENDIX 1

Funded Projects in Wisdom at Work

Ergonomic Projects

Wisdom at Work: Reducing the Physical Burden of Nursing Practice

Cedars-Sinai Medical Center (Los Angeles, Calif.)

ID# 059645 (December 2006 to November 2008): \$72,929

Project Director: Jane W. Swanson, R.N., Ph.D., C.N.N.A.

(310) 423-5185

swansonj@cshs.org

Wisdom at Work: Impact of a Lift Team on the Recruitment and Retention of Experienced Nurses

Florida Health Science Center Inc. (Tampa, Fla.)

ID# 059647 (December 2006 to November 2008): \$71,981

Project Director: Mary Kutash, M.S.N.

(813) 844-7040

mkutash@tgh.org

Wisdom at Work: Addressing Retention of Experienced Nurses While Promoting Safe Patient Handling

Greenville Hospital Systems (Greenville, S.C.)

ID# 059656 (December 2006 to November 2008): \$64,934

Project Director: Susan A. Bethel, M.S.N., R.N., C.N.R.N.

(864) 455-7007

sbethel@ghs.org

Wisdom at Work: Decreasing the Number of Patient Movement-Related Injuries that are Prevalent Among Nurses

Saint Joseph's Hospital of Atlanta, Inc. (Atlanta, Ga.)

ID# 059650 (December 2006 to November 2008): \$69,527

Project Director: Diana Meeks-Sjostrom, Ph.D., R.N., M.S.N., F.N.P.C.

(404) 851-5032

dmeeks@jha.org

Wisdom at Work: Minimum Lift Program to reduce Lost Staff Time from Patient-Related Injuries

University of Rochester School of Nursing (Rochester, N.Y.)

ID# 059657 (December 2006 to December 2008): \$72,189

Project Director: Gail L. Ingersoll, R.N., M.S.N., Ed.D.

(585) 275-8876

gail ingersoll@urmc.rochester.edu

Wisdom at Work: Evaluation of a Safe Handling Program to Reduce Injury Among Nurses

Vanderbilt University Medical Center (Nashville, Tenn.)

ID# 059651 (December 2006 to June 2009): \$69,109

Project Director: Nancy L. Wells, D.N.Sc., M.N., B.Sc.N.

(615) 322-6184

Nancy.wells@vanderbilt.edu

Staffing Projects

Wisdom at Work: Using Closed Staffing as a Nursing Retention Strategy

Centra Health, Inc. (Lynchburg, Va.)

ID# 059646 (December 2006 to November 2008): \$75,000

Project Director: Patty L. Bumgarner, B.S.N.

(434) 947-7327

patty.bumgarner@centrahealth.com

Wisdom at Work: Specialized Admission Role to Ease Patient Gridlock and Help Retain Experienced Nurses

Mary Imogene Bassett Hospital (Cooperstown, N.Y.)

ID# 059655 (December 2006 to November 2008): \$68,360

Project Director: Maureen F. Murray, M.S., R.N.

(607) 547-3568

maureen.murray@bassett.org

Wisdom at Work: Impact of the Base Staffing Model on Retention of Experienced Nurses

Poudre Valley Health System Foundation (Fort Collins, Colo.)

ID# 059648 (December 2006 to March 2009): \$71,981

Project Director: Candace Pruett, R.N.

(970) 624-4130

Cjp2@pvhs.org

Wisdom at Work: Giving Experienced Nurses More Control Over Patient Flow, Discharge and Admission

Rush Copley Foundation (Aurora, Ill.)

ID# 059654 (December 2006 to October 2008): \$74,970

Project Director: Carol A. Gouty, R.N., M.S.N., Ph.D., B.C.

(630) 898-3140

cgouty@rsh.net

Other Retention Projects

Wisdom at Work: Evaluating a Wellness at Work Program to Help Retain Experienced Nurses

Edward Foundation (Naperville, Ill.)

ID# 059649 (December 2006 to December 2008): \$74,978

Project Director: Patti Ludwig-Beymer, Ph.D., R.N., C.T.N.

(630) 527-3559

pludwig-beymer@edward.org

Wisdom at Work: Using Virtual Intensive Care Units to Retain Nurses

Froedtert Memorial Lutheran Hospital, Inc. (Milwaukee, Wis.)

ID# 059652 (December 2006 to November 2008): \$45,808

Understanding the Virtual ICU as an Alternative Work Environment for Experienced Nurses

ID# 063294 (November 2007 to June 2008): \$44,540

Project Director: Robert J. Herdrich, M.S.

(920) 262-4221

bobherdrich@charter.net

Wisdom at Work: Improving the Retention Rate of Experienced Nurses Through Renewing and Reframing their Nursing Practice

Pitt Memorial Hospital Foundation Inc. (Greenville, N.C.)

ID# 059653 (December 2006 to November 2008): \$68,360

Project Director: Judith W. Kuykendall, R.N., M.S., Ed.D.

(252) 258-8867

jkuykend@pcmh.com

APPENDIX 2

National Advisory Committee

Brenda Cleary, Ph.D., R.N., C.S.

Deputy Director AARP Foundation Washington, D.C.

George Conklin

Senior Vice President CHRISTUS Health Irving, Texas

Jennie Chin Hansen, M.S., R.N., D.N.S.

President AARP Washington, D.C.

Barbara Hatcher, Ph.D., M.P.H., R.N.

Principal Hatcher, Dubois, Odrick Group Washington, D.C.

Cheryl Herbert, M.B.A.

President Ohio Health-Dublin Methodist Hospital Dublin, Ohio

Margaret McClure, Ed.D., R.N.

Professor New York University College of Nursing New York, N.Y.

Pamela Paulk

Vice President for Human Resources Johns Hopkins Hospital Baltimore, Md.

BIBLIOGRAPHY

(Current as of date of this report; as provided by grantee organization; not verified by RWJF; items not available from RWJF.)

Articles

Bleich M, Cleary BL, Davis K, Hatcher BJ, Hewlett PO and Hill KS. "Mitigating Knowledge Loss: A Strategic Imperative for Nurse Leaders." *Journal of Nursing Administration*, 39(4): 160-164, 2009. Abstract available online.

Reports

Evaluation of The Robert Wood Johnson Wisdom at Work: Retaining Experienced Nurses Research Initiative, Final Report. Falls Church, VA: The Lewin Group, Inc., 2009. Available online.

Wisdom at Work: Retaining Experienced RNs and Their Knowledge—Case Studies of Top Performing Organizations. Falls Church, VA: The Lewin Group, Inc., 2009. Available online.

Grantee Websites

www.retainexperiencednurses.org (no longer available). "Wisdom at Work: Retaining Experienced Workers" included original information for potential grantees, such as the Call for Proposals and FAQs. The site does not include material from the program period and is not updated. Princeton, NJ: Robert Wood Johnson Foundation, 2006.