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Brenda G. Hansen

This article describes how one organization used process improvement to reduce the rate of nosocomial urinary tract infections (UTIs) based on patient days. The UTI team used Six Sigma methodology to guide the project. Data were collected, and the appropriate statistical tools were applied. The results prompted the team to focus on patients with indwelling catheters who developed a UTI 48 or more hours after admission until the time of discharge. Root causes and other factors were identified, and specific actions were developed to improve the outcomes. Intensive clinical staff education for management of patients with indwelling catheters was implemented. Physicians provided input and were offered continuing education regarding Centers for Disease Control and Prevention (CDC) guidelines for diagnosing nosocomial UTIs. Collaboration with the microbiology department in identifying UTI pathogens and increasing the accuracy of reporting only those UTIs that met CDC criteria was extremely beneficial. The combined effect of all improvements resulted in a 30% decrease in the rate of reported nosocomial UTIs.

W2-10 **q&a: Jennie Dulac on Structures and Processes for Quality at Spectrum Health**

Joann Genovich-Richards

Spectrum Health, headquartered in Grand Rapids, MI, is an integrated delivery system with annual operating revenue of $2 billion. It consists of seven tertiary-care community-based hospitals, more than 140 service sites, a network of 1,400 physicians, and the largest managed-care plan in the region, with 450,000 members in 31 counties. Jennie Dulac is the senior director of quality improvement for Spectrum Health. She has 30 years' experience as clinician, administrator, health services researcher, and educator and 10 years of leadership experience in initiating programs focused on clinical effectiveness, outcome measurement, and quality improvement in large healthcare systems. She currently oversees clinical decision support, clinical improvement, peer review, patient safety, diagnosis-related-groups assurance, and communication operations within the quality department at Spectrum Health. Under her direction, 160 statistically significant process changes concerning 17 clinical conditions have been implemented within 18 months.

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Reducing Nosocomial Urinary Tract Infections Through Process Improvement

Brenda G. Hansen

Abstract: This article describes how one organization used process improvement to reduce the rate of nosocomial urinary tract infections (UTIs) based on patient days. The UTI team used Six Sigma methodology to guide the project. Data were collected, and the appropriate statistical tools were applied. The results prompted the team to focus on patients with indwelling catheters who developed a UTI 48 or more hours after admission until the time of discharge.

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Key Words
nosocomial UTI
process improvement
Six Sigma

A variety of process improvement methods are used in the healthcare setting. Over the years, Thibodaux Regional Medical Center, Thibodaux, LA, has used several:

- continuous quality improvement for major process improvements, such as developing care maps
- Do It Groups (DIGs) for finding solutions in 30 days or fewer for minor process improvements, such as developing various types of reporting forms
- Six Sigma, a structured data-driven approach, adopted by Thibodaux Regional in 2000
- Lean techniques, used for reducing waste and the number of steps in a process, adopted in 2004.

Approximately 17 Six Sigma projects, 12 Lean projects, and 35 DIGs per year have been undertaken. The majority of these projects resulted in significant process improvement. Each year a variety of projects are identified by the staff through forums or meetings. The executive team makes the final decision about the number and categories of projects to be implemented.

As a result of standards published by the Joint Commission on Accreditation of Healthcare Organizations, healthcare workers are renewing the emphasis on reducing nosocomial infections. After analyzing the nosocomial infection rate at Thibodaux Regional Medical Center for fiscal years 2000 and 2001, the hospital's executive team decided to focus on nosocomial UTIs as an improvement opportunity. The project was tied to the hospital's strategic goals of high patient satisfaction rates and high-quality care at the lowest possible cost.

The decision was based on the performance measures reported by the infection control analyst and quality resource officer, which indicated an increase in the total number of nosocomial UTIs reported in fiscal years 2000 and 2001. The information was derived from chart reviews of physician-diagnosed UTIs before culture results were obtained and physician-diagnosed UTIs after positive culture results were obtained.

On a national level, nosocomial UTIs have been recognized as the most common infection acquired in hospitals and are usually associated with catheterization (Warren, 2001). It has been found that about 80% of UTIs are catheter-associated (Wagenlehner & Naber, 2000). Patients with a catheter are more likely to develop a UTI, and the risk increases the longer the catheter is in place (Parker, 1999).

UTIs represent a qualitative and financial risk for hospitals. National data indicate that the cost of a UTI can range from $680 to $3,803 and can result in an increased length of stay—from 1 to 3.8 days (Bard Medical Division, 1998). Catheter-associated UTIs account for

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about 40% of all nosocomial infections and increase the duration of hospital stays, costs, and mortality (Kunin, 2001).

Methodology

Several staff members selected by the executive team underwent intensive training by a General Electric Master Black Belt and became Green Belts. After consulting with department managers, the chief financial officer, the quality resource manager, and the Green Belts, the executive team selected projects that aligned with the strategic goals set by the hospital.

The time frame set for the project was March 2002–December 2002. The Green Belts on the UTI project organized a team with representatives from infection control, medical-surgical units, case management, laboratory, and quality resource management. The process of gathering hospital data pertinent to the project began in March 2002 with mentoring from the Master Black Belt. National resources such as the Centers for Disease Control and Prevention (CDC), the Association for Professionals in Infection Control and Epidemiology (APIC), and the National Nosocomial Infections Surveillance System (NNISS) provided guidelines on preventing catheter-associated UTIs.

The Six Sigma strategy for process improvement guided the study (Harry & Shroeder, 2000). The five-phase process improvement cycles—Define, Measure, Analyze, Improve, Control—were followed (Pande, Neuman, & Cavanagh, 2000). The charter process began in earnest, and the team met regularly, analyzing data and adhering to each step in every phase. Input was obtained from departments that had any connection to the project: clinical and financial departments and others. At the completion of each phase, verbal and written reports were given to the Master Black Belt and the stakeholders. The reports at the end of each phase provided opportunities to make adjustments, if needed, before the beginning of the next phase to ensure that the time and effort spent were focused on the specific factors affecting the project and its outcomes.

Six Sigma is a data-driven approach that makes it possible to identify and prioritize all contributing factors, foster interdepartmental communication, and use a team approach to find solutions. In addition, the Minitab software program was used for statistical analyses of data. After data are entered into the program, a quick confirmation of the statistical validity is given, allowing the team to proceed on the same path, make adjustments, or change direction.

During fiscal years 2000 and 2001, 100 patients were reported as diagnosed with nosocomial UTIs. Because the team used actual numbers of UTIs reported, the recommended statistical tools for the discrete data included the L1 spreadsheet, chi-square test, graphs, pie charts, Pareto chart, fishbone diagram, failure modes and effects analysis (FMEA), and others. The various statistical tools support each other and afford several formats for viewing the same data.

The chi-square test was used to determine the probability of UTIs occurring by chance among patients or to show a statistical difference among patients with or without indwelling catheters. An analysis was made among 3 data sets based on the number of patients per set:

1. number of UTIs occurring in patients with indwelling catheters (73)
2. number of UTIs occurring in patients with in-out catheterizations (10)
3. number of UTIs occurring in patients with no catheterizations (17).

A statistical difference with a rounded-off value of $p = .00$ among the data sets indicated that patients with indwelling catheters had a higher rate of UTIs.

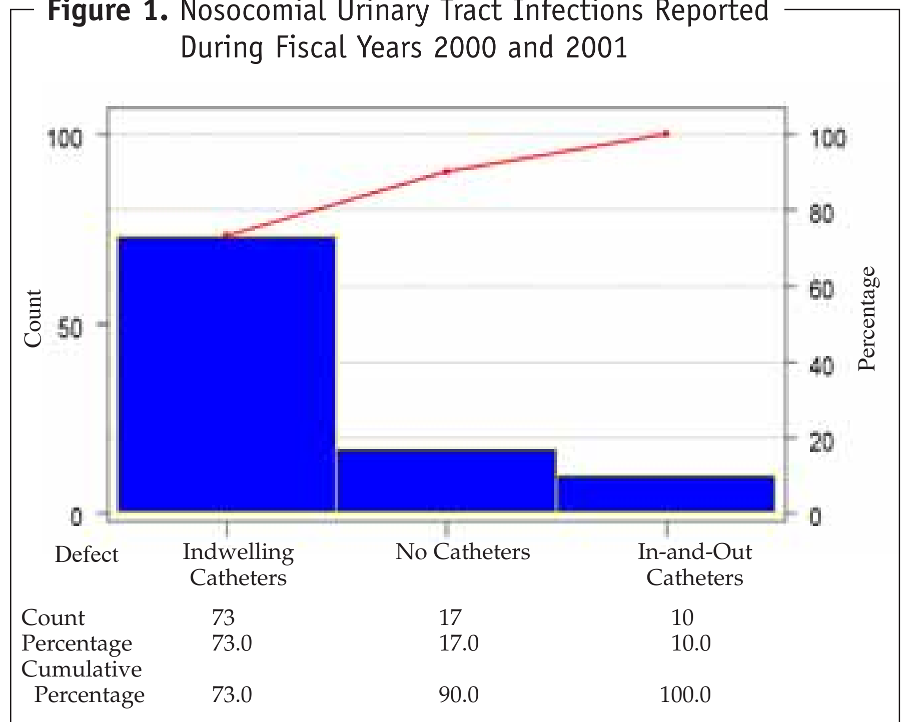
The Pareto chart for fiscal years 2000 and 2001 clearly indicated that the greatest opportunity for improvement was for patients with indwelling catheters. Seventy-three percent of the nosocomial UTIs reported during fiscal years 2000 and 2001 occurred in patients with indwelling catheters (see **Figure 1**).

The project goal was to reduce the rate of nosocomial UTIs in a selected group of patients beginning with fiscal year 2002 and to stay below 20 UTIs per quarter. The patients targeted included those diagnosed with onset of a UTI 48 hours or more after admission up to the time of discharge and excluded patients admitted with a current diagnosis of UTI (whether or not they had a catheter in place) and patients with a postdischarge diagnosis of UTI. This was done to narrow the focus of probable nosocomial infection. The infection control analyst submitted quarterly reports on all diagnosed nosocomial UTIs.

The FMEA tool was used to identify the possible failures in the process that might lead to a UTI and to rank them according to severity. It also afforded the opportunity to prioritize corrective actions that would bring the greatest improvement. Actions were developed to prevent the failures from occurring, thereby reducing the risk to the patient (see **Figure 2**). A follow-up FMEA was done in 2003 as part of the ongoing monitoring process in the control phase. In addition, the quarterly reports from the infection control analyst regarding the number of nosocomial UTIs reported and the unit location were used for continued monitoring in the control phase.

After reviewing the data collected and analyzing the results from the statistical tools used, the team decided that the number of UTIs could be reduced with a determined effort to improve the identified components critical to quality. The continuing education of nursing staff should include instruction in hand washing, catheter insertion and catheter care, urine specimen collection, and transportation of patients with a catheter. The continuing education of physicians should include the review of CDC guidelines for diagnosing UTIs and the interpretation of culture results using CDC criteria.

Figure 1. Nosocomial Urinary Tract Infections Reported During Fiscal Years 2000 and 2001



Procedure

The team, along with selected physicians, considered the possible causes of a UTI, using their clinical experiences as well as resources from CDC, APIC, and NNISS. Fishbone diagrams were used to identify the possible causes for a patient's developing a nosocomial UTI (Y-dependent variable). The causes (X-independent variables) were identified as those most likely to be targeted for corrective action or critical to quality; those labeled with an "n" (noise) were not of primary concern; those labeled with a "c" were constants that could not be altered (see **Figure 3**). At that time, the nursing staff was the focus of improvement efforts, but as the project proceeded, it became clear that physicians and laboratory personnel would play an important role in clarifying the reported rate of UTIs and further defining areas for improvement.

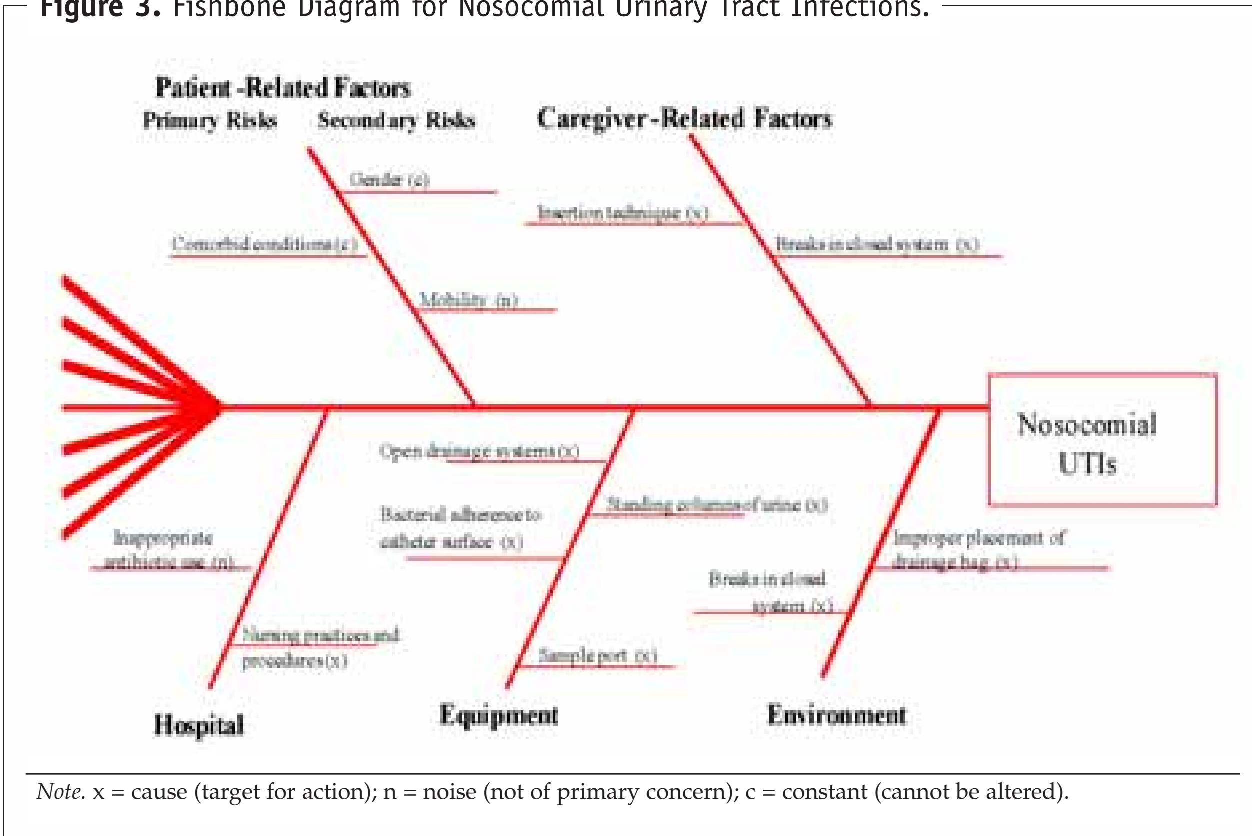
A chart audit tool was developed (see **Figure 4**) to gather information about patients diagnosed with a nosocomial UTI. The information collected on the chart audit was determined by consensus of the team members. The infection control analyst and the case manager worked together to gather information from the patient charts. The data-collection process occurred over a period of 4 weeks, during which time the team met weekly to review the data collected. Later the data from the chart audits were reviewed by the team. No outstanding similarities were found among the patients whose charts were audited, but questions arose about the culture results. Patient data were used by the hospital's microbiologist to identify patients whose culture reports met the threshold for measurement established by CDC guidelines for nosocomial UTIs. It was recognized that in a few cases, misinterpretation of data by staff and physicians prior to collaboration with the laboratory had contributed to an increase in the number of nosocomial UTIs. Communication between the microbiologist and the infection control analyst to correctly identify those specimens that were truly representative of a nosocomial UTI and to rule out the obvious contaminated specimens proved invaluable. Reculturing was encouraged and offered free of charge when a specimen was reported to be contaminated. Proper collection techniques for urine specimens were emphasized with nursing staff. As part of the improvement process, the staff pathologist

Figure 2. Failure Modes and Effects Analysis for Nosocomial Urinary Tract Infections

Process Step/Input	Potential Failure Mode	Potential Failure Effects	Severity	Potential Causes	Occurrence	Current Controls	Detection	Risk Priority Number
What is the process step and input under investigation?	In what ways does the key input go wrong?	What is the impact on the key output variables (customer requirements)?		What causes the key input to go wrong?		What are the existing controls and procedures (inspection and test) that prevent either the cause or the failure mode?		
Gender	Females at higher risk	UTI, increased LOS, increased costs	2	Anatomy	6	None	1	12
Comorbid condition	Diabetes, fecal incontinence	UTI, increased LOS, increased costs	3	Debilitated state	7	None	1	21
Collection techniques	Improper collection of urine specimen	Increased potential for diagnosis of UTI	5	Improper collection of urine, causing contamination	5	Review proper urine collection techniques with nursing staff	4	100
Policy and procedure (P&P)	Not reviewing P&P to keep up to date	Increased potential for UTI	2	Outdated information	3	Review annually or as needed	2	12
Method of reporting	Counting or not counting correct data	Inaccurate data reported	1	Skewed data	3	Check for accurate data	3	9
Insertion technique	Maintaining sterile technique	UTI, increased LOS, increased costs	7	Introducing bacteria	6	Training	7	294
Breaks in closed system	Disconnecting catheter from bag	Increased potential for UTI	4	Potential for bacteria to enter system	4	Training	5	80
Inappropriate antibiotic use	Sensitized to certain antibiotics	Increased potential for UTI	3	Bacteria resistant to antibiotics	4	Pharmacy and Therapeutics Committee	5	60
Bacterial adherence to catheter	Catheter care not done	UTI, increased LOS, increased costs	3	Potential for bacteria to enter system	4	Training	6	72
Sample port	Breaking the system to get specimen	UTI, increased LOS, increased costs	4	Potential for bacteria to enter system	4	Training	6	96
Placement of drainage bag	Bag on floor or above bladder level Not secure	UTI, increased LOS, increased costs	4	Movement of catheter Urine backup	4	Training	6	96

Note. LOS = length of stay.

Figure 3. Fishbone Diagram for Nosocomial Urinary Tract Infections.



Note. x = cause (target for action); n = noise (not of primary concern); c = constant (cannot be altered).

recommended that the physicians normally involved with patients most likely to develop a UTI be educated on the CDC guidelines for diagnosing a UTI.

In conjunction with this collaborative effort, the microbiology laboratory examined its own techniques to identify areas for process improvement. One factor leading to an increase in contaminated cultures (and thus skewing the data for nosocomial UTIs) was the inoculum size used in processing urine cultures. Clinical data suggest that an inoculum size of 0.001 ml is appropriate for the recovery of clinically significant pathogens in routine urine cultures (Murray & Baron, 1999). The current inoculum size of 0.01 ml did not offer any clinical advantage; it only aided in the cultivation of more contaminant organisms. Therefore, by reducing inoculum size, the laboratory was able to report more clinically relevant data with a more accurate representation of the status of the specimen.

A high level of nursing knowledge and skill is required to effectively and safely manage catheterized patients (Parker, 1999). It is important that nurses have the knowledge to provide optimal care so that problems associated with indwelling catheters are minimized (Godfrey & Evans, 2000). Education of the nursing staff, including registered nurses and nursing assistants, was a high priority. The infection control analyst and a case manager formed a subteam and shared the responsibility of implementing in-service training. The Bard Medical Division's booklet and video, *Preventing UTI: Care and Catheterization Techniques,* was shown to all nursing staff. The video shows a step-by-step approach to the proper techniques for catheter insertion and catheter care for both male and female patients.

In addition, hands-on instruction was provided on hand washing and aseptic techniques for catheter insertion, catheter immobilization, catheter care, pericare, urine collection techniques, proper transportation of patients with a catheter, and improved documentation. The training was enlightening to staff members and gave them a renewed awareness of their role in caring for these patients. The training became part of the nursing orientation program for new hires, and competence in those skills was tested annually on all units where UTIs had been identified. In addition to the nursing staff, other transporters on all units were trained on proper bag placement when transporting

Figure 4. Chart Audit Tool

Nosocomial UTI

Patient's Name: ________________ Hospital Account #: ____________________

Age: _________ Sex: _________ Room Type: ____Private ____Semi-private

Nursing Unit ____________ Nursing Unit/s transferred to ____________________

Physician: ____

Urology Consult? _____yes (name of physician ______________________) _____no

Diagnoses: Include all

If patient admitted with catheter, was UA ordered? _______yes ______no

Date UTI Identified: _______________

Surgical Procedure: Type ____

How long did procedure last? ___________________Date Admitted: ___________

Date Discharged: ________ LOS: _________

Risk Factors for UTI: Check all that apply __Urinary Incontinent __Fecal Incontinent __Bedridden __Diabetic __Elderly __Immobilized __Debilitated __Postsurgical __Comatose__Admitted from nursing home

Was a culture done? _____yes _____no

If yes, culture results?

The specimen collected was: _____catheterized specimen _____clean catch

Type of Catheter:

1) In/out catheter: How many times? __________ Size: _____________

Who inserted: ___________________________ Number of attempts: ______

2) Indwelling catheter: Size: ______

Date inserted: ________ Date removed: _______

Who inserted: ________________________ Number of attempts: ___________

Was catheter immobilized? _____yes _____no _____ don't know

Catheter care _____yes (how often? __________________) _____no

Antibiotic/s Prescribed: ____

Date Prescribed: _______________ Regimen: ________________________

Comments?

patients with a catheter from one area of the hospital to another. The infection control analyst, case manager, and clinical directors continued to randomly check staff on use of proper techniques on all units that had reported UTIs and to reeducate when needed. An analysis of the number of UTIs reported per 1,000 patient days (see **Figure 5**) and the most current quarterly reports (see **Figure 6**) suggests that the education and training efforts were successful. Continued monitoring is crucial to controlling the rate of nosocomial UTIs and maintaining acceptable results in the control phase of the project.

A continuing education program presented to all staff physicians by the team members and the staff pathologist provided an overview of the problem being studied and education on the latest CDC guidelines for diagnosing nosocomial UTIs. The physicians' input on ways to reduce the number of infections was solicited, and their response overwhelmingly supported the time and effort expended on the entire project.

Results

After all process improvements were implemented, the number of nosocomial UTIs decreased and remained below 20/quarter, which had been set as the upper limit of the goal. Since the close of the project in December 2002, the number of nosocomial

Figure 5. Urinary Tract Infections per 1,000 Patient Days

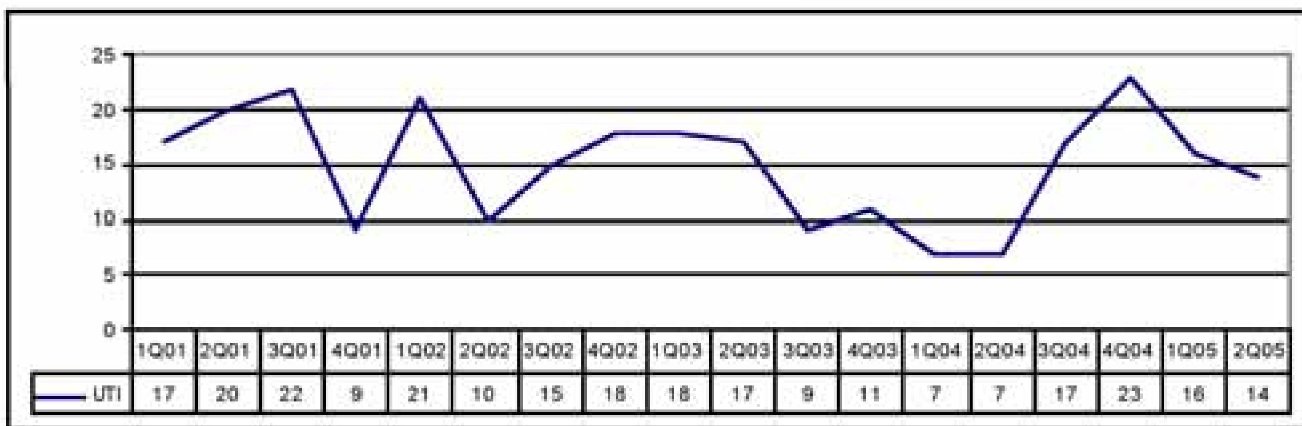
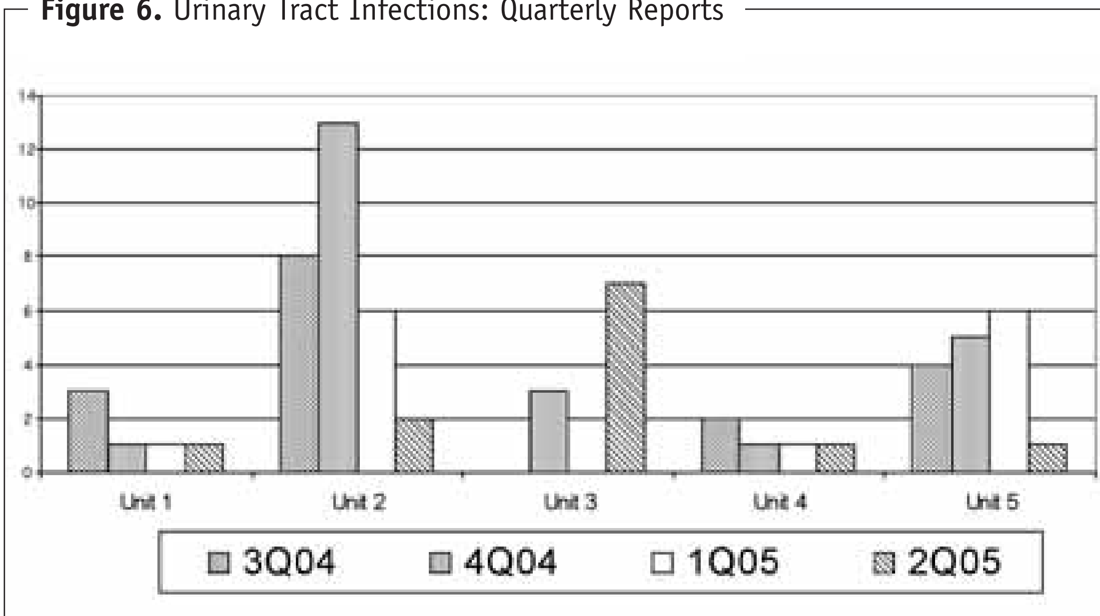


Figure 6. Urinary Tract Infections: Quarterly Reports



UTIs has remained within acceptable limits, according to the quarterly reports, except for the fourth quarter of 2004, when it reached 23. This increase provided an opportunity to focus on the units where the UTIs had occurred and to readdress the issues with current staff and monitor their techniques. Quality of care translates into a potential savings of $12,000 to $75,000 for patients based on length of stay and charges. In addition, the ongoing quarterly reports from the infection control analyst provide a method of accountability to monitor the number of nosocomial UTIs and their location by unit.

Conclusion

Through the Six Sigma process, the UTI team was able to identify areas for improvement. In the beginning, some areas were obvious, such as reeducation of nursing staff on techniques, but as the project went on, some less obvious areas needing improvement emerged, such as physician education and laboratory procedures.

By December 2002, significant progress had been made in reducing the number of nosocomial UTIs, and success continues. This success can be attributed to careful analysis of the data and to a focus on the primary causes of the increased rate of UTIs for which corrective action was taken. All nursing personnel were reeducated and retrained on aseptic techniques in hand washing, catheter insertion, catheter care, and urine specimen collection. The physicians were reeducated on the CDC guidelines for reporting UTIs, and laboratory personnel made process improvements regarding their culturing techniques. The quarterly report of nosocomial UTIs on each unit provided a systematic approach so that supervisors and staff were aware of any trends and were able to carefully monitor progress. All of these factors have contributed to maintaining a low nosocomial UTI rate.

Nurses are held accountable for using the proper aseptic techniques when they handle patients. Transporters are held accountable for ensuring that the urine bag is in the proper location below the patient's bladder when they are transporting the patient from one area of the hospital to another. All staff members involved with patients who have indwelling catheters are evaluated on competencies annually. The laboratory microbiologist continues to work with the infection control analyst in analyzing culture reports and reporting only those that meet the criteria set by CDC guidelines. Physicians are more aware of the needs of patients with indwelling catheters and are reminded by nursing staff to discontinue the use of the catheter when the patient can function without it, in order to reduce the risk of infection. Education of physicians regarding the CDC guidelines for reporting nosocomial UTIs is ongoing, and this has helped decrease inaccurate reporting.

A collaborative approach helped identify the process improvements needed to accurately identify patients with a nosocomial UTI and to implement solutions that would reduce the number, thereby reducing additional length of stay and costs. In addition, the nursing staff, transporters, physicians, and laboratory personnel were recognized for their efforts to provide excellent patient care and to contribute to a significant reduction in the number of nosocomial UTIs at Thibodaux Regional Medical Center.

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q&a: Jennie Dulac on Structures and Processes for Quality at Spectrum Health

Joann Genovich-Richards

Spectrum Health, headquartered in Grand Rapids, MI, is an integrated delivery system with annual operating revenue of $2 billion. It consists of seven tertiary-care community-based hospitals, more than 140 service sites, a network of 1,400 physicians, and the largest managed-care plan in the region, with 450,000 members in 31 counties. Jennie Dulac is the senior director of quality improvement for Spectrum Health. She has 30 years' experience as clinician, administrator, health services researcher, and educator and 10 years of leadership experience in initiating programs focused on clinical effectiveness, outcome measurement, and quality improvement in large healthcare systems. Dulac is a noted national speaker and author. She holds an MS from Dartmouth Medical School, where she completed her graduate training in the evaluative clinical sciences. She has earned a reputation as a student and teacher of collaboration, innovation, and decision making based upon data. She currently oversees clinical decision support, clinical improvement, peer review, patient safety, diagnosis-related-groups assurance, and communication operations within the quality department at Spectrum Health. Under her direction, 160 statistically significant process changes concerning 17 clinical conditions have been implemented within 18 months.

q Over the past 3 years, Spectrum Health has set forth an ambitious quality measurement and quality improvement agenda. How is the strategic vision for quality being defined, communicated, and evaluated by senior leadership?

a The strategic vision at Spectrum Health is defined in its mission and vision statements:

- Mission statement: To improve the health of the community by serving each individual and family with superior quality personal care
- Vision statement: To be in the top 10th percentile for quality and the lowest 10th percentile for cost.

In addition to these core statements, a strategic plan for the system and entity has been developed for fiscal years 2005–2007 and is updated annually. The annual quality plan is also defined and updated annually.

The strategic vision is communicated in various ways, including (1) an annual retreat with senior leadership teams; (2) monthly management meetings led by hospital CEOs and attended by directors and vice presidents; (3) internal (intranet, publications, e-mail) and external (trade press, billboards, community annual meeting) system communication programs; (4) quarterly town meetings; (5) monthly improvement team meetings; (6) monthly quality oversight meetings with a medical staff quality-improvement committee, medical directors council, medical executive committee, senior operating team for safety, and senior operating team for quality; (7) pocket cards with Spectrum's mission, vision, and core values and the expected behaviors for leadership; (8) glass-case bulletin boards on the clinical units; (9) quality department publications, including *MD Alert* to publish new evidence-based medical research and *Synergy* to highlight and tell the story of interdisciplinary teamwork; and (10) team-based and department- or unit-specific tool sets.

The strategic vision is continuously evaluated with a balanced scorecard, which is published and updated quarterly for seven strategic tactics. Dashboards [visual displays of critical operation variables that leaders and managers use to monitor and improve services] are also published for Joint Commission on Accreditation of Healthcare Organizations (JCAHO) measures; high-volume, high-risk clinical conditions (quarterly); and patient safety information (monthly). Team measures for rapid-cycle improvement and point-of-service measures are available monthly. The professional standards committees review physician-level data for these initiatives each month.

Key Words
health education
healthcare quality
healthcare workforce

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q The governing board has an increasingly important role in the oversight of quality. How have you been able to encourage board members to move beyond simply receiving routine reports to reviewing and analyzing information?

a The board's quality committee meets monthly, and a formal orientation program for all new board members is conducted annually. We hold an annual retreat for all board members and executive team members to review the national agenda for clinical quality and patient safety, system initiatives, and progress to date. Recently, board members have begun making monthly rounds with executive team members for the purpose of conversing with patients and their family members regarding the patient's stay and eliciting real-time feedback from them and the staff. We have also identified board sponsorship for quality and safety initiatives—board members participate with the teams and report to the board every 6 months. Feedback is sought from the board on the development of system, entity, clinical, and safety dashboards.

q How extensive are the measurement sets that your staff currently manages for various initiatives and departments? What strategies have you used to move from trending reports to statistical displays and analyses?

a We prepare and analyze system-level and hospital-level dashboards for clinical quality and patient safety. We prepare and disseminate physician-level dashboards for feedback and peer review. Team-level dashboards are prepared for 22 medical conditions, JCAHO safety initiatives, and JCAHO clinical initiatives. Ambulatory care dashboards are relevant to the National Committee for Quality Assurance (NCQA) Health Employer Data and Information Set (HEDIS) measures. Clinical and safety dashboards are color coded to indicate opportunities for improvement (red) and best practices (green).

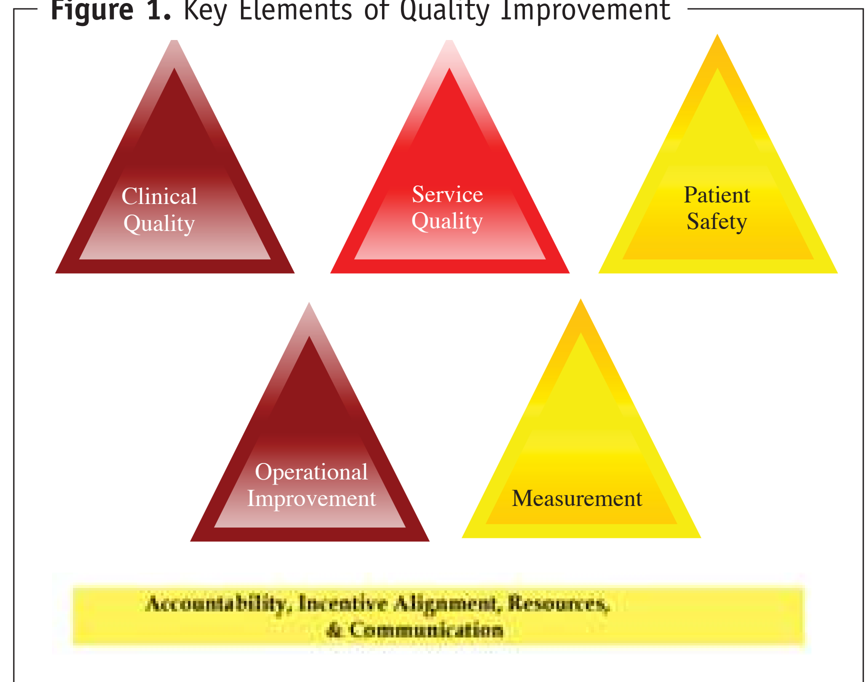
Clinical-condition data are also displayed in statistical-process control charts for all indicators. The clinical outcome report usually includes 12–15 measures per condition, displayed in the dashboard and control charts. Successful interventions are also tracked and displayed to identify early wins and successful interventions to be replicated. Process measures include all key aspects of care identified in the medical literature and known to affect best patient outcomes. Outcome measures currently include mortality, comorbidities, and average length of stay for all conditions.

The patient-safety dashboard identifies all JCAHO and National Quality Forum–recommended patient safety goals. Data are trended in run charts or control charts as available. Availability is determined by sampling strategies and points of service.

q You have taken a full-service-bureau approach to the design of your quality department. Can you describe your departmental structure and staffing resources?

a See **Figure 1** for the strategic triangles that form the basis of our quality improvement model. Structure follows function, as defined by our strategic goals and deliverables, and includes clinical decision support; clinical improvement and peer review; patient, medication, and environmental safety; infection control; diagnosis-related-groups assurance; communications; and computerized physician order entry.

Figure 1. Key Elements of Quality Improvement



See **Figure 2** for the quality department organizational chart. The department has been developed using a centralized model and is composed of approximately 50 staff members.

q What words of advice would you give your quality leader peers who are thinking of restructuring their quality departments?

a Accountability and oversight of structure are key, as are defined roles and responsibilities to accelerate improvement. Paid medical directors are instrumental in carrying the message and implementations forward. We currently have approximately 15 medical directors who are assigned by subspecialty or department. As the quality department was developed, existing full-time equivalents were generally reallocated to quality, rather than adding all new full-time equivalents to create a centralized service bureau.

The leadership structure should enjoy direct communication with the chief executive officer(s) and the board of trustees within the organization. Igniting the passion and intellectual curiosity of our clinicians is a key to success, and data for improvement—not for judgment—is instrumental. Collaboration at Spectrum Health is more than teamwork; it capitalizes on the intellectual throughput of the organization. Building a departmental team of diverse skill sets that lie outside clinical expertise drives change!

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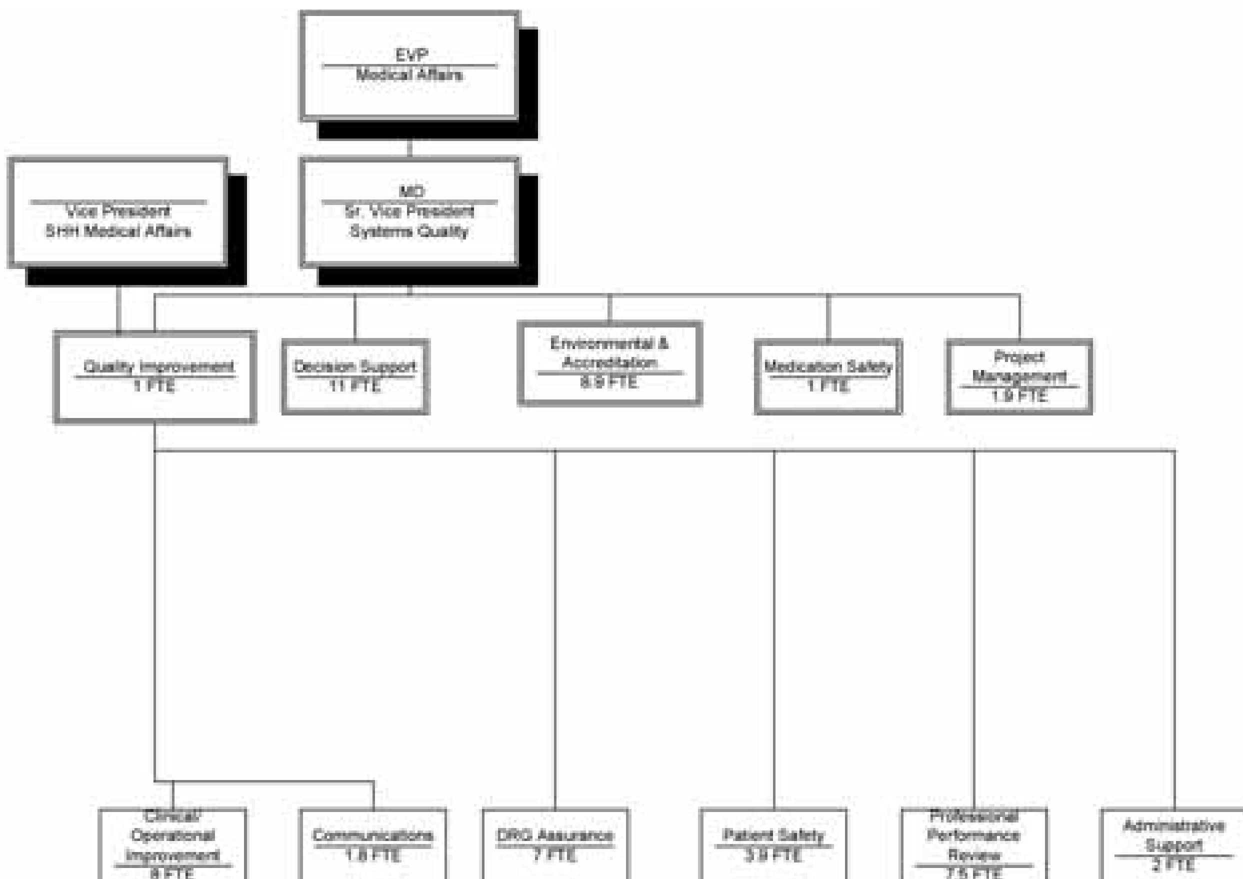
Figure 2. Spectrum Health Quality Department (December 2005)



Note. FTE = full-time equivalent.

Quality NETwork

Robert J. Rosati and Daniel van Leeuwen, Quality NETwork Editors

"Quality NETwork" offers reviews of selected Web sites relevant to healthcare quality professionals. The editors welcome comments and feedback on the column as well as suggestions for further reviews. To read previous reviews that have appeared in the journal, visit www.nahqplus.org, the exclusive Web site for NAHQ members.

The Studer Group

www.studergroup.com

Key Words: administration and management, consumer satisfaction, organizational behavior change and development, process improvement

The Studer Group works with organizations to create a culture of service and operational excellence guided by the five-pillar approach to goal setting (people, finance, service, quality, growth) and the Nine Principles of organizational behavior to achieve desired results. Three levels of participation are possible on this proprietary site. A tantalizing amount of introductory information is available to the unregistered user. A broad spectrum of articles is available at no cost to the registered user; the articles address fundamental principles of organizational change, service excellence, and leadership development for moving organizations "from good to great."

The registered user has access to tools and tool kits including behaviorally based interview questions, recommended actions in specific focus areas for low scores on patient satisfaction surveys, a Got Chart? checklist of questions to help nurses prepare for calling physicians as a method of improving physician satisfaction, and meeting-agenda templates using the five pillars to structure content and process. Performance results of partner hospitals that have agreed to share results are also available. The Ask Quint Q & A was interesting, but the user must click on Ask a Question to access the list of previously asked questions.

Partner hospitals participate at the third level. These hospitals have contracted services with the Studer Group, have Studer coaches on site, and have access to the full range of tools on the site including a standards tool kit for implementing standards of behavior in an organization and a kit that shows how to implement peer interviewing.

Contact information is available at the bottom of most of the Web pages. This site, launched in November 2005, is an expansion of a previous Web site. According to the Webmaster, those who register with the site will not receive unsolicited e-mails from the Studer Group; the Studer Group takes a "let users come to us" approach. The site is easy to navigate, information available only to partner hospitals is clearly marked, and products are available for purchase on the site. Healthcare quality professionals working in organizations committed to Studer principles will want to bookmark this site for reference.

Reviewed by Michelle Horvath, MSN RN CPHQ

Utilization Review Accreditation Commission

www.urac.org

Key Words: accreditation, benchmarking, case or care management, continuous quality improvement, consumer education

The Utilization Review Accreditation Commission (URAC) Web site includes pertinent information for organizations interested in URAC accreditation and certification programs. URAC "promotes continuous improvement in the quality and efficiency of health care management." The site provides a wealth of information on URAC and on the programs and services it offers. URAC serves not only healthcare quality professionals but also consumers who want to determine whether an organization maintains a standard of excellence.

Click on Frequently Asked Questions to learn about the process of accreditation and how to obtain an application. By clicking on Board of Directors, users will be able to examine the board's broad representation from various organizations. By clicking on Programs and Services, users may review one of URAC's 15 accreditation programs such as Health Plan, Health Call Center, Case Management,

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Disease Management, and Health Utilization Management. The certification program is for any "organization that offers one or more products or services that enable URAC accredited companies to comply with URAC standards." Click on URAC Consultant to research a specific area or a specific program available in your area. URAC maintains strategic alliances with the National Institute of Standards and Technology and America's Health Insurance Plans.

Links to URAC's educational programs, government recognition, workshops, and research and grants are also provided. Navigation is easy, and use of the site is free of charge. The latest version of Macromedia Flash player is necessary to view the URAC Corporate Overview CD.

Reviewed by Sandra E. Ward, MA MS RN CPUR CPHQ

California Department of Health Services

www.dhs.ca.gov

Key Words: government regulations, health promotion and screening, public health

The words "to protect and improve the health of all Californians" appear on the first page of this Web site. The site also contains a message from the director of the Department of Health Services (DHS) and a link to the California governor's home page. Exploring the rest of the Web site leads the visitor to information about such topics as bioterrorism; information on birth, death, and marriage certificates; career opportunities; forms, public notices, regulations (with links to specific DHS regulations); and general contact information. The most useful material was listed under Services, with information about such programs as BabyCal (emphasizing prenatal care) and the DHS Breast and Cervical Cancer Treatment Program, which serves low-income California residents who need treatment for breast or cervical cancer. The home page also includes information for consumers about the flu and head lice.

Overall, this Web site is quite simplistic and focuses almost exclusively on California-specific information, as would be expected. Although it is in the public domain, the site offers no information of particular interest to healthcare quality professionals.

Reviewed by Pamela K. Scarrow, CPHQ

College of American Pathologists

www.caps.org

Key Words: accreditation, allied healthcare professionals, benchmarking, competency, public policy issues

The College of American Pathologists (CAP) Web site contains information related to clinical laboratory science and pathology. Examples of categories are education, advocacy, references and publications, and accreditation and laboratory improvement. The visually appealing and easily navigable site loads quickly and contains simple headings and menus. Any healthcare quality professional who works with laboratory services or pathology will find well-referenced information and tools on a wide variety of subjects such as autopsy, Clinical Laboratory Improvement Amendments–waived testing, cancer protocols, and proficiency testing, and also on compliance with regulation of the Office of Inspector General (OIG) and the Health Insurance Portability and Accountability Act (HIPAA). The Web site also includes an area called Superlinks, a collaborative effort between CAP and Pathmax ("a free site designed by a pathologist for pathology education"). Superlinks contains hundreds of laboratory-related links grouped into intuitive subcategories. The site was fully revised December 11, 2005.

Reviewed by Sue Boisvert, MHSA BSN

Help Identify and Review Sites

The *JHQ* team invites you to help identify and review Web sites. A review consists of the name of the site or sponsoring organization, a URL, key words, the intent of the site, and comments about ease of navigation, value, pertinence to the healthcare quality professional, timeliness, and cost, if any.

Please forward—via e-mail—questions, sites for review, or, better yet, sites with reviews, to Quality NETwork co-editor Robert Rosati at robert.rosati@vnsny.org.

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Quality Products & Resources

Susan Yeager-Chowning

This *JHQ* feature provides members with interesting up-to-the-minute resources that will help them navigate in the constant flood of healthcare quality information. Brief descriptions of recently released media are provided, as well as ordering and Internet access information. New product announcements and company contact information are also provided.

Product

New AHRQ Resource Guide Aids Patients After Diagnosis

The Agency for Healthcare Research and Quality (AHRQ) has released a new resource booklet, *Next Steps After Your Diagnosis: Finding Information and Support.* The booklet provides general advice for people with almost any disease or condition.

Every patient is different, and a diagnosis will affect each patient differently, but research shows that many people have some of the same reactions and needs following a diagnosis. The booklet describes five steps to aid patients in coping with their diagnosis and subsequent decisions about treatment:

- taking the time needed and not rushing important decisions
- getting necessary support from family, friends, and other patients with the same condition
- talking with the physician and perhaps obtaining a second opinion (good communication can increase satisfaction with care, and obtaining a second opinion may increase the patient's comfort with the diagnosis and care)
- seeking information based on review of the latest scientific findings from medical journals
- deciding on a treatment plan that best meets the patient's needs.

The booklet also lists organizations and publications that will help the patient identify more resources.

For more information, visit www.ahrq.gov/consumer or contact the AHRQ Publication Clearinghouse at 800/358-9295.

Resources

Initial Research Study Released on Pay-for-Performance

Researchers, with support from the Commonwealth Fund, examined a pay-for-performance program implemented by PacifiCare Health Systems, one of the nation's largest health plans. For one of the three clinical quality measures studied, a physician network that was offered bonus payments outperformed another network that was not. As reported in "Early Experience with Pay-for-Performance: From Concept to Practice," an article published in 2005 in the *Journal of the American Medical Association,* physicians who were part of the incentive program performed the same or slightly better than physicians in the other network on the other two measures.

In 2003 PacifiCare began offering bonuses to approximately 172 medical groups in its California network if those groups met or exceeded 10 targets for clinical and service quality. Comparison was made between PacifiCare's California network and its Pacific Northwest network of 33 medical groups. This research focused on three clinical care measures: cervical cancer screening, mammography, and hemoglobin testing for diabetic patients.

Improvements were seen on all three measures in both the California groups and the Pacific Northwest groups. The only significant difference between the groups was in cervical cancer screening. The California network improved screening rates by 5.3%, compared with the Pacific Northwest network's increase of 1.7%.

Monetary awards of $3.4 million were distributed. The study researchers found that those groups historically considered to be the high performers garnered the majority of the awards, receiving $1.18 million. The lowest performers, despite improving the most, received the least in bonus payments, a total of $360,155. Researchers speculated that the historically high performers began the program with the understanding that they needed to

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maintain the status quo to obtain the bonus. The researchers reasoned that the historically low performers may have viewed this program as a signal of increasing pressure to improve, despite the low short-term chances of receiving bonuses.

Incentive programs offering bonuses based on achieving a specified level of performance may not reward those with the most significant increases in performance. According to the researchers, both performance and improvement can be rewarded through carefully designed incentive programs.

For more information, see Rosenthal, M. B., Frank, R. G., Li, Z., & Epstein, A. M. (2005). Early experience with pay-for-performance: From concept to practice. Journal of the American Medical Association, 294, *1788–1793.*

Follow-Up Plans and New Guidelines Needed for Cancer Survivors

In the report *From Cancer Patient to Cancer Survivor: Lost in Transition,* the Institute of Medicine and the National Research Council of the National Academies recommend that each cancer patient receive a "survivorship care plan." Citing inadequacies in the care of the country's 10 million cancer survivors, the report noted that information critical to the patient's long-term care needs to be provided in several areas: diagnosis, treatment, and potential consequences; follow-up visits; healthy lifestyles; recurring and new cancers; legal rights affecting insurance and employment; and availability of support services.

For survivorship care plans to be carried out successfully, an organized set of clinical practice guidelines with the best available evidence is needed. "There is currently no organized system to link oncology care to primary care," notes committee chair Sheldon Greenfield, professor of medicine and director of the Center for Health Policy Research, University of California–Irvine. Models should be developed to include other healthcare providers such as nurses and social workers.

Other recommendations include establishment of additional quality measures specific to the cancer survivor's particular treatment; for example, patients receiving radiation need to be monitored for thyroid conditions. Another recommendation notes that medical education and professional training curricula should be expanded to include more instruction about cancer survivors' needs. Last, the committee recommends that steps be taken to ensure that survivors have affordable health insurance and are reimbursed for evidence-based care.

Copies of From Cancer Patient to Cancer Survivor: Lost in Transition *are available from the National Academies Press. Call 800/624-6242 or visit www.nap.edu. The cost is $69.95 (prepaid) plus shipping.*

Challenges in Establishing a National Health Information Network

Despite the great potential of information technology (IT) to improve the safety and quality of healthcare, the adoption of IT by healthcare institutions has been slow. Financial and personnel constraints cause smaller providers such as home health agencies and skilled nursing facilities to lag behind larger providers in adopting IT.

"Functional Gaps in Attaining a National Health Information Network," an article published in *Health Affairs* in September–October 2005, reports on the findings of an expert panel convened to develop a model national health information network (NHIN) that could be attained within 5 years. The panel agreed that this network should include electronic viewing of test results, electronic health records (EHRs), physician order entry, electronic claim submission, electronic eligibility verification, and online secure patient communication. The panel agreed that the network should span physician offices, hospitals, skilled nursing facilities, home health agencies, clinical laboratories, and pharmacies. If smaller stakeholders lag behind, continuity of care will be impaired when patients move from a highly computerized inpatient setting to a paper-based outpatient setting.

Using current levels of adoption and interviews within two markets as a predictor, the team predicted that electronic claim submission and eligibility checks would advance the most in 5 years and that clinical functions would likely lag behind. Results-viewing capability is expected to be the most widely adopted function, with 51%–60% of office practices and 70%–83% of hospitals using this capability in the 5-year time frame. The group estimates

that EHRs and physician ordering will triple or quadruple within this time period.

In general, larger facilities such as hospitals are expected to have more clinical functions in place in the NHIN than small stakeholders. The authors recommend that policy interventions target smaller stakeholders to prevent inequities.

The study was supported by the Commonwealth Fund and the Harvard Interfaculty Program for Health Systems Improvement.

For more information, see Kaushal, R., Bates, D. W., Poon, E. G., Jha, A. K., & Blumenthal, D. (2005, September–October). Functional gaps in attaining a national health information network. Health Affairs, 24, *1281–1289.*

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