



# LEADING THE QUEST FOR QUALITY

2009 PROFILES IN QUALITY AND PATIENT SAFETY



# INTRODUCTION

The Healthcare Association of New York State (HANYS) and its members are committed to innovative practices and implementing continuous improvements in quality, safety, and effectiveness of care. HANYS' Pinnacle Award for Quality and Patient Safety is one way to recognize organizations that are playing a leadership role in promoting quality in health care delivery.

*2009 Profiles in Quality Improvement and Patient Safety* is a compendium of 132 profiles of initiatives nominated for the Pinnacle Award. Each initiative profile includes a program description, achievements to provide readers with insight and inspiration on what it takes to create positive change, and a contact person for more information.

This year, HANYS had four winners in the categories of multi-entity or system, large hospital, small hospital, and unit or division-based. In addition, HANYS recognized submissions that ranked in the top tenth percentile, based on the scoring guidelines.

HANYS congratulates and thanks all of its members for their willingness to share ideas, experiences, and successes. HANYS encourages all members to take advantage of the information in this publication as a strategy to inform and accelerate efforts for improving quality and patient safety.

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## THEMES

The 2009 profiles are categorized into four themes:

- **Clinical Care Management**—*Improving Patient Care*
- **Operations**—*Improving Systems and Processes*
- **Patient Safety**—*Falls, Infection Control, Medication Management, and Pressure Ulcers*
- **Specialty Services**—*Behavioral Health, Emergency Department, Home Care, Maternal-Child, Oncology, Outpatient, and Pediatrics*

## SELECTION COMMITTEE MEMBERS

**Nancy Foster** is the Vice President for Quality and Patient Safety Policy at the American Hospital Association (AHA). In this role, she is AHA's point person for the Hospital Quality Alliance and is AHA's representative to the National Quality Forum. She serves on several advisory panels and co-chairs the Agency for Healthcare Research and Quality (AHRQ) Patient Safety Coordination Center Advisory Committee. She provides advice to hospitals and public policymakers on opportunities to improve patient safety and quality. Before joining AHA, she was Coordinator for Quality Activities at AHRQ. In this role, she was the principal staff person for the Quality Interagency Coordination Task Force, which brought federal agencies with health care responsibilities together to jointly engage in projects to improve quality and safety. She also led the development of AHRQ's patient safety research agenda and managed a portfolio of quality and safety research grants. Ms. Foster is a graduate of Princeton University and completed graduate work at Chapman University and Johns Hopkins University.

**Maulik S. Joshi, Dr.P.H.** is President of the Health Research and Educational Trust (HRET) and Senior Vice President for Research at the American Hospital Association (AHA). As the independent, not-for-profit research affiliate of AHA, HRET conducts applied research in improving quality and patient safety, reducing costs, eliminating health disparities, improving leadership and governance, payment reform, and care coordination. Before joining HRET, Dr. Joshi served as President and Chief Executive Officer of the Network for Regional Healthcare Improvement and was previously a senior advisor for the office of the director at the Agency for Healthcare Research and Quality. Dr. Joshi served as President and Chief Executive Officer of the Delmarva Foundation, was Vice President of the Institute for Healthcare Improvement (IHI), co-founder and Executive Vice President of DoctorQuality, Senior Director of Quality for the University of Pennsylvania Health System, and Executive Vice President of The HMO Group. Dr. Joshi serves on numerous governance and advisory boards. Dr. Joshi has a Doctorate in Public Health, a Master's degree in Health Services Administration from the University of Michigan, and a Bachelor of Science degree in Mathematics from Lafayette College.

**Andrea Kabcenell, R.N., M.P.H.** is Vice President at the Institute for Healthcare Improvement, where she devotes the majority of her time to IHI's Research and Demonstration portfolio, leading innovation projects and fostering better performance in IHI programs. In addition, Ms. Kabcenell teaches in topic areas including collaborative improvement methods and the Pursuing Perfection Program. She helped develop IHI's programs on improving office practice, chronic illness care, end-of-life care, and eliminating disparities in health care. Ms. Kabcenell has been key faculty in the Breakthrough Series College and has directed 13 IHI Breakthrough Series Collaboratives. Before joining IHI, Ms. Kabcenell was a senior research associate at Cornell University's Department of Policy, Analysis, and Management, and before that she served for four years as Senior Program Officer at The Robert Wood Johnson Foundation.

**Vahe Kazandjian, Ph.D.** is President of the Center for Performance Sciences, Senior Vice President for the Maryland Hospital Association, and a member of the Board for the Maryland Patient Safety Center. He is the original archi-

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**Lynn Leighton, R.N., M.H.A.** is the Director of Clinical Strategy and New Program Development for Capital Blue Cross in Harrisburg, Pennsylvania. In this role, Ms. Leighton is responsible for ensuring that the health plan's clinical programs continue to add value and respond to emerging trends. Ms. Leighton also served as the Vice President, Health Services, for the Hospital and Healthsystem Association of Pennsylvania, a statewide association that represents Pennsylvania hospitals and health systems with public policymakers and other trade and professional associations. In this position, she was responsible for working with key stakeholders to support the development of health care public policy with respect to health care quality, patient safety, delivery system accountability, professional supply, professional practice, public health, and workforce development. Ms. Leighton has a Bachelor's degree in Nursing from the Pennsylvania State University and a Master's degree in Health Services Administration from the University of Pittsburgh.

**Arthur A. Levin, M.P.H.** is co-founder and Director of the Center for Medical Consumers, a New York City-based non-profit organization committed to informed consumer and patient health care decision-making, patient safety, evidence-based, high-quality medicine, and health system transparency. Mr. Levin was a member of the Institute of Medicine's (IOM) Committee on the Quality of Health Care that published the *To Err is Human* and *Crossing the Quality Chasm* reports. He served on the IOM committee that made recommendations to Congress in IOM's *Leadership Through Example* report, and was a member of the committees that issued *Opportunities for Coordination and Clarity to Advance the National Health Information Agenda* and *Knowing What Works in Health Care: A Roadmap for the Nation*. He serves on the IOM committee charged by Congress with making recommendations for prioritizing \$400 million for comparative effectiveness research. At the state level, he has served on numerous state health department task forces and workgroups focused on safety, quality, informed consent, and bioethical concerns. Recently, he served on a state workgroup to develop office-based surgery policy. He also serves on the board of Taconic Health Information Network and Community, a not-for-profit health information organization in the mid-Hudson Valley, and is a founding board member of the New York State E-Health Collaborative. Mr. Levin earned his Master of Public Health degree from Columbia University School of Public Health and a Bachelor of Arts degree in Philosophy from Reed College.

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\* Denotes initiatives that were ranked in the top 10th percentile by the selection committee.

\*\* Denotes Pinnacle Award winners.

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## Patient Safety Fridays: A Method for Advancing a Culture of Safety

NewYork-Presbyterian Hospital, New York City

NewYork-Presbyterian Hospital implemented a patient safety system across its five hospital campuses to promote a culture of safety through a visible leadership commitment, consistent messaging, and involvement of the entire staff. Each Friday, up to 1,000 members of the entire management staff convene at each site for a one-hour didactic session on one clinical and one environment of care (EOC) topic. Following the didactic session, tracer teams go to all clinical departments and units for two hours, engage the staff in that week's patient safety focus, and collect data. Supplemental education materials and job aids are available on the health system's Intranet. Data are shared and managers reinforce the topics with the front line staff throughout the week. No other meetings can be scheduled during this time. The hospitals addressed 65 EOC and 100 clinical measures throughout the year. Major improvements have been seen in areas such as hand hygiene (compliance improved from 70% to 96%), medication reconciliation (compliance improved from 76% to 100%), and patient verification (compliance improved from 78% to 100%.)



*Eliot Lazar, M.D., Vice President and Chief Medical Officer (right), accepts the 2009 Pinnacle Award for Quality and Patient Safety (Multi-Entity or System) on behalf of NewYork-Presbyterian Hospital, for the Patient Safety Fridays initiative. Presenting the award is David Kruczynski, HANYS' Chairman and President and Chief Executive Officer of Glens Falls Hospital.*

## Changing the Prescribing Culture Through Systematic Processes Winthrop-University Hospital, Mineola

Winthrop-University Hospital implemented an extensive computerized provider order entry (CPOE) system that improved quality, starting with two fundamental principles:

- all evidence-based order sets, checklists, risk assessments, and tools were to be tested and proven to be successful before automating; and
- no “out-of-the-box” system procedure would be used.

This initiative took ordering practices to the next level and allowed for a smooth transition to CPOE. The system enabled comprehensive decision-support functions, prompts, and mandatory selection fields; and integration of current quality tools, laboratory data, and algorithms. In the area of medication management, the team built in mandatory fields for guidelines, documentation for exceptions, restricted medications, high-risk medications, weight-based dosing, and decision-support information. To date, patient harm from medication variance decreased from 6% to less than 1%, telephone orders dropped from 14% to less than 1%, inappropriate proton pump inhibitors decreased by 55%, Surgical Care Improvement Project (SCIP) antibiotic measures increased to 100%, and venous thromboembolism prophylaxis increased from 74% to 100%.



*Maureen Gaffney, R.N., Chief Medical Information Officer (right), accepts the 2009 Pinnacle Award for Quality and Patient Safety (Large Hospital) on behalf of Winthrop-University Hospital. Presenting the award is David Kruczynski, HANYS' Chairman and President and Chief Executive Officer of Glens Falls Hospital.*

## ST Elevation Myocardial Infarction (STEMI) Alert

St. Mary's Hospital, Amsterdam

The goal of the Centers for Medicare and Medicaid Services (CMS) "door-to-balloon" time core measure is to ensure that ST elevated myocardial infarction patients are in the cardiac catheterization laboratory (cath lab) in less than 90 minutes from their arrival into the emergency department. Currently, there is no corresponding CMS standard for those same patients presenting to small, rural, or non-cath lab hospitals. St. Mary's Hospital took on the challenge of reducing balloon-to-door time that includes a 30-minute ambulance ride. Working in conjunction with Schenectady Cardiology Associates, Ellis Hospital's cath lab, and local emergency response systems, St. Mary's developed, tested, and implemented timely communication protocols, medication kits, checklists, and other tools. The hospital set time standards for each step and kept in close contact through huddles, virtual sharing of data, and real-time review of data on the process steps. There was a 25% reduction in balloon-to-door time, achieving a mean of 102.1 minutes, with 70% of the patients below 90 minutes since April 2008.



*Robert Quist, R.N., Emergency Department Manager of St. Mary's Hospital, Mickey Swartz, Operations Manager for Greater Amsterdam Volunteer Ambulance Corp., and Robert Joy, M.D., accept the 2009 Pinnacle Award for Quality and Patient Safety (Small Hospital), on behalf of St. Mary's Hospital in Amsterdam. Presenting the award is David Kruczlnicki, HANYS' Chairman and President and Chief Executive Officer of Glens Falls Hospital (left).*

AWARD-WINNING INITIATIVES  
2009 PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY  
Unit or Division-Based Award

**CCU High Reliability/Exemplary Clinical Unit**  
Stony Brook University Medical Center Cardiac Care Unit

Working under the hypothesis that unreliable processes contribute to poor outcomes and operational inefficiencies affecting safety, capacity, flow, access, mortality, finance, and other key metrics, a team at Stony Brook University Medical Center researched and identified characteristics of highly reliable organizations and exemplary care. The goal was to test and implement key elements of high reliability, systematic communication, redundancy, error checking, default behavior, and mindfulness

in a complex clinical unit with major clinical processes. The effort was paced by biweekly interdisciplinary meetings, weekly unit huddles, and rapid cycle testing. The changes were supported by dashboard reports and ongoing education. The work featured adoption of daily rounds, daily goal sheets, medication and specimen safety steps, and patient- and family-centered care including involvement at shift reports with medication reconciliation and assessment. The initiative resulted in a 20% reduction in mortality, with no central line-associated catheter infections in two years; no falls in one year; no medication error in six months; and corresponding reductions in specimen errors, restraint use, pressure ulcers, and other indicators.



*Steven L. Strongwater, M.D., Chief Executive Officer (right), accepts the 2009 Pinnacle Award for Quality and Patient Safety (Unit or Division Based), on behalf of Stony Brook University Medical Center for their Cardiac Care Unit High Reliability/Exemplary Clinical Unit initiative. Presenting the award is David Kruczlnicki, HANYS' Chairman and President and Chief Executive Officer of Glens Falls Hospital.*

## “Going for Green” with Pre- and Post-pain Assessment Documentation

Adirondack Medical Center, Saranac Lake

### PROJECT DESCRIPTION

Because the surgical unit pre- and post-pain assessment documentation was less than 50% compliant, Adirondack Medical Center’s performance improvement team developed a multidisciplinary approach to gain compliance. The team used the “Plan-Do-Check-Act” methodology and developed a “Going for Green” program to incorporate a color-based reporting method for tracking performance. Green indicates compliance with benchmarks, yellow indicates partial compliance—within 10% of benchmarks, and red indicates non-compliance with benchmarks.

Specifically, the team completed the following:

- **Plan:** Gained understanding of the gaps, set priorities, and developed the action plan to close the gaps.
- **Do:** Developed and redesigned pain assessment documentation, updated policies, educated staff, provided tools to staff, revised the data collection audit tool/process, and implemented all of the changes. Collected data to determine if gaps were changing.
- **Check:** Monitored the results of the data, pinpointed problem areas, and implemented individual staff report cards to increase compliance.
- **Act:** Unit and individual results were monitored, with compliance, rewards, and recognition initiated.

### OUTCOMES

- First quarter 2007 pre-pain assessment documentation was at 48.2%; by the fourth quarter 2008, compliance reached 97.1%.
- Post-pain documentation was at 41% in first quarter 2007 and increased to 92.6% compliance in fourth quarter 2008.

### CONTACT

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## Preventing VTE: Risk Identification, Stratification, and Prophylaxis

Claxton-Hepburn Medical Center, Ogdensburg

### PROJECT DESCRIPTION

Evidence-based medicine has conclusively determined that high-risk hospitalized patients benefit from venous thromboembolism (VTE) prophylaxis. Physicians have been slow to adopt this procedure into their daily routine. Claxton-Hepburn Medical Center (CHMC) performed a retrospective review to determine its incidence of hospital-acquired VTE. In 2007, CHMC had six hospital-acquired VTE events over 18,038 patient days. Some of these patients who had VTE events had appropriate VTE prophylaxis; however, others did not. CHMC performed a financial analysis that showed that the cost of increased prophylaxis was easily covered by the savings incurred by reducing VTE events. Armed with the above data, CHMC convened an ad-hoc committee that included front-line nurses, nurse managers, the chief medical officer, and a physician champion.

The committee evaluated multiple nursing VTE screening tools, but ultimately developed a tool of its own that “screened out” patients already on appropriate prophylaxis, as well as patients who were currently anti-coagulated. The remaining patients were screened by nurses using this tool, and categorized as low- and high-risk based on such factors as mobility, underlying malignancy, and history of previous VTE. High-risk patients had a computer generated VTE prophylaxis order sheet, which included options for both mechanical and chemical prophylaxis, on the chart to be addressed by the physician at his/her next visit.

### OUTCOMES

- Retrospective review of nosocomial events can be a powerful motivator to begin a quality initiative.
- A nursing VTE screening tool, used on 96% of patients admitted to the hospital in 2008, can be effective at improving VTE prophylaxis rates.
- Considering the economic costs related to the care of a VTE event and the additional costs of prophylaxis incurred with this type of VTE initiative—there is an overall cost savings.
- Appropriate VTE prophylaxis improved from 69% in 2007 to 95% in 2008.

### CONTACT

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## Optimizing Glycemic Management: Common Denominator or Critical Success Factor?

Claxton-Hepburn Medical Center, Ogdensburg

### PROJECT DESCRIPTION

Claxton-Hepburn Medical Center serves a county that has above average rates of diabetes; obesity; and hospitalizations for congestive heart failure, chronic obstructive pulmonary disease, and coronary artery disease. Its glycemic control team was tasked with standardizing glycemic management within the intensive care unit (ICU), and successfully tackled glycemic management within both acute and rehabilitative care units.

Management information systems staff developed a means of tracking and reporting glucose values within established parameters. Aware of the challenges of determining statistical significance in a rural (low-volume) setting, the hospital nevertheless wanted to be alert to any improvement opportunities. Collected data were all-inclusive—not adjusted or corrected for acuity, age, or diagnosis. This information was shared with ICU, acute rehabilitation, and medical/surgical unit nurse managers. They, in turn, posted and shared colorful graphs with staff, substituting the terms “glycemic management” for the harsher “glycemic control.” This was also kept as an agenda item at meetings of the department of medicine, critical care committee, pharmacy and therapeutics staff, and the performance improvement council.

The hospital’s attention to glycemic management coincided with the onset of several clinical initiatives. Positive clinical outcomes have paralleled a five-year reduction in glycemic averages, leading the hospital to believe that attention to the patient’s glycemic status positively affects the clinical course.

### OUTCOMES

Outcomes included:

- **ICU:** 18% reduction in the number of blood glucose values greater than 180 mg/dl, with no clinically significant hypoglycemia. 70% of aggregate were in 60-180 mg/dl range in 2008. There was no ventilator-associated pneumonia (VAP) in the ICU from October 2004 to date.
- **Medical/surgical unit and acute rehabilitation unit:** 8% and 6% reduction, respectively, in the number of blood glucose values greater than 180 mg/dl, with no clinically significant hypoglycemia.
- **House-wide mortality (observed/expected):** 2007—1.15%, 2008—0.85%; 30-day readmission/same diagnosis: 2007—4.4%, 2008—3.41%; complication rate: 2007—2.41%, 2008—0.88%.

### CONTACT

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## Glycemic Control Adult Medical/Surgical Care

Crouse Hospital, Syracuse

### PROJECT DESCRIPTION

Crouse Hospital implemented glycemic control within the intensive care unit in 2005. As the project progressed, the spread of glycemic control became a concern. In 2007, an interdisciplinary team was created to develop a protocol to address this issue on the surgical unit. The team included an internal medicine physician; advance practice nurse; certified diabetes educator/clinical nurse specialist; and dietary, physical therapy, pharmacy, and information technology staff. The goals were to develop an insulin protocol for adult inpatients to meet the goal of a capillary blood glucose level of 140 dl/ml.

Working with the nursing practice leadership, the physician leader developed insulin and treatment of hypoglycemia protocols. Education for nurses was initiated. Care issues for nursing included basal and bolus dosing, correct timing of fingerstick, carbohydrate counting diets, and the quality impact of glycemic control. Working with nutritional services, changes were made to meal delivery including color-coded trays and announcement of arrival times, supporting capillary sampling timing and bolus insulin administration. Information technology staff developed order sets for glycemic control to increase consistent orders related to blood glucose determinations, diet, and nursing assessment. Pharmacy staff eliminated mixed insulins, supported the move to individual pens for basal insulin, and supplied only one rapid acting insulin for coverage. Interdisciplinary rounds prioritize patients in relation to medical management or educational needs.

### OUTCOMES

Hospital-wide results include significantly lower average blood glucose, decreased hypoglycemia, decreased medication errors related to insulin, and increased provider awareness of basal and bolus insulin effects.

### CONTACT

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## Reducing STEMI Door-to-Balloon Time

Crouse Hospital, Syracuse

### PROJECT DESCRIPTION

Crouse Hospital assembled a multidisciplinary team to improve and streamline the time from presentation to reperfusion (door-to-balloon or D2B) for patients with ST elevation myocardial infarction.

The team evaluated current literature and planned improvements using Lean Six Sigma tools. Cardiology and emergency medicine physician groups collaborated for emergency department activation of the cardiac catheterization team. A process algorithm was referenced to define action steps. An alert STEMI was established for the emergency department. Barriers identified by the multidisciplinary team were removed.

Initial results in January 2008 were favorable. The multidisciplinary team developed a process interval time documentation tool to measure interval times and to further define additional process improvement opportunities. Education was provided to emergency department and catheterization laboratory staff. Results of the team's efforts and patient outcomes were shared with emergency department staff, the cardiac catheterization teams, and emergency medical services crews.

Results showed an increase in the number of cases less than 90 minutes and documentation of cases in less than 60 minutes. Sixty-minute D2B was an internal goal. The median time for D2B in 2007 was 78 minutes; after process improvement, the overall median time for D2B in 2008 was 63 minutes. The D2B process continues to develop based on continued result review and the identification of opportunities for improvement.

### OUTCOMES

By establishing intra- and inter-disciplinary goals and fostering teamwork, the median door-to-balloon time experienced a favorable change, with a mean time from 73.3 to 68.8 minutes and decreased variation. Coincidentally, the mean mortality rate for all acute myocardial infarction patients experienced a favorable change from a previous mean of 6.45% to 4.58%.

### CONTACT

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## Improving Surgical Prophylactic Antibiotic Administration

Crouse Hospital, Syracuse

### PROJECT DESCRIPTION

Compliance with evidence-based practices can reduce the occurrence of surgical site infections. The Surgical Care Improvement Process guidelines address these practices, including administration of surgical prophylactic antibiotics within one hour prior to surgical incision and discontinuation of prophylactic antibiotics within 24 hours after surgery end-time. The hospital undertook this project to improve compliance with these practices.

Six Sigma's "Define-Measure-Analyze-Improve-Control" methodology guided the project. A multidisciplinary team was formed and the project scope was defined as improving compliance with the SCIP practices. Initially, a detailed process flow of the existing process was created. Baseline data were collected on process steps influencing antibiotic administration timing. In the analysis phase, quality improvement and data analysis tools were used to provide recommendations for process improvement.

Based on this analysis, strategies for improvement were developed, including:

- standardized pre-operative and post-operative prophylactic antibiotic order sets;
- identification of specific process steps for pre-operative antibiotic administration;
- implementing a process on the nursing units for timing of post-operative prophylactic administration; and
- communication of results.

Compliance with prophylactic antibiotic administration continues to be monitored using statistical process control charts.

### OUTCOMES

- Compliance with antibiotic administration within one hour prior to incision has increased from 75% before this initiative to 94% after process improvements.
- Compliance with antibiotic discontinuation within 24 hours has increased from 77% to 94%.
- Continued compliance is monitored using statistical process control charts.

### CONTACT

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## From Poor to Great: A Core Measures Journey to Excellence

Champlain Valley Physicians Hospital Medical Center, Plattsburgh

### PROJECT DESCRIPTION

The saying, “In God we trust, while others must bring data” applies to Champlain Valley Physicians Hospital Medical Center (CVPH), where all improvement efforts are based on data. The journey started in 2006, with a focus on patient-centered care as part of a five-year strategic plan.

Identified as a low performer on Surgical Care Improvement Project measures, CVPH changed strategy from a quarterly organization-wide dashboard to weekly department-specific dashboards, with data drilled down by unit, provider, and specialty service. This shifted accountability to each department and allowed for rapid cycle improvements. Weekly debriefing huddles were instituted. Data were discussed, top performers were recognized, and opportunities for further improvement were identified. Multidisciplinary teams developed clinical pathways. Comparative data per physician were shared at medical staff meetings. Weekly “Q Tips” were sent to physicians to help improve performance.

By March 2008, SCIP scores improved from 58% to 98%. Overall scores improved from 78% to 96%. CVPH celebrated the successes at all levels. This was a turning point for the organization in believing that rapid cycle process improvement will lead to big changes in quality. By hard-wiring new processes and making it part of the culture, CVPH has sustained top decile performance for more than a year now. The outcomes data show that CVPH did indeed achieve an improvement in quality, as evidenced by decreasing infection rates and length of stay (LOS).

### OUTCOMES

- SCIP scores improved: 58% to 98%—top decile.
- Overall core measures: 78% to 96%.
- Sustained top decile scores for one year.
- Infection rates: 3.27 to 1.45—savings of \$385,371.
- Overall LOS lowered by 0.25; for hips/knees by 0.6—savings of \$531,908.
- Pneumonia/influenza vaccine scores: 62% to 99%—top decile.

### CONTACT

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## Reducing Central Line-associated Bloodstream Infection Rates in a Community Hospital

Glens Falls Hospital, Glens Falls

### PROJECT DESCRIPTION

Hospital leadership recognized the need for improved outcomes related to the medical intervention of central venous access devices, specifically, reduced rates of infections associated with those devices.

Although already adhering to the Institute for Healthcare Improvement (IHI) bundle of best practices for central line insertion, rates of central line-associated bloodstream infection (CLABSI) remained unacceptably high. A multidisciplinary team of individuals committed to reduction of CLABSI was formed to work on this quality improvement project.

### OUTCOMES

Glens Falls Hospital made significant improvement in 2008, including:

- decreasing the CLABSI rate from 10.2 infections per line days in the critical care unit to 1.8;
- there were zero CLABSIs in non-critical care areas in the fourth quarter of 2008; and
- hand-washing compliance rose to 83%.

### CONTACT

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## Service-line Focus Improves Safety and Evidence-based Care

Huntington Hospital/North Shore-Long Island Jewish Health System, Huntington

### PROJECT DESCRIPTION

The Huntington Hospital Center for Orthopaedics and Joint Replacement was launched in 2006 with the goal of building an integrated service to “deliver consistently safe, evidence-based, and patient-centered care for patients undergoing hip and knee replacement surgery.”

Patients receive a pre-admission educational program coordinated by the orthopedics nurse manager. Pre-operative evaluation is carried out by a pre-surgical testing unit. Consultative intervention from the internal medicine hospitalist program ensures that comorbidities are managed expertly. Program-wide physician order sets guide treatment, facilitate communication, decrease variation in care, enhance patient safety, reduce length of stay, and ensure that evidence-based practices are consistently delivered. Unit-based physical therapists provide services to all patients post-operatively, according to established protocols. Optimal anticoagulation—key to preventing both thromboembolic complications and bleeding—is carried out with the input of a dedicated team of staff.

Quality improvement, patient safety, and experience of care are overseen by an orthopedic coordinator and the orthopedic department’s performance improvement committee group, which meets monthly and employs process and outcome metrics to inform leadership, drive process changes, and measure success. Joint Commission certification is anticipated in the next four weeks, making Huntington the third hospital in New York State to achieve this recognition for joint replacement surgery.

### OUTCOMES

- Surgical volume is up 14%.
- The facility achieved 10% performance for antibiotic selection and preoperative timing; appropriate perioperative beta blockade; and appropriate VTE prophylaxis.
- VTE reduction goals were achieved, with zero events last two quarters.

### CONTACT

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## Collaborative Practice—Not Just Reducing SICU Infection Rates

Jacobi Medical Center/New York City Health and Hospitals Corporation, Bronx

### PROJECT DESCRIPTION

In 2007, a multidisciplinary intensive care unit team at Jacobi Medical Center recognized the need to institute an aggressive effort to reduce infections. The Institute for Healthcare Improvement ventilator-associated pneumonia evidence-based bundles were successfully implemented the previous year in the medical ICU and critical care unit. However, the nature of the population in the surgical ICU raised questions about the implementation of the bundle in the surgical environment, and the collaborative team reviewed, analyzed, and adapted the bundle to its unique patients.

Implementation of the IHI bundles was commenced in spring 2007. A major component of the initiative was the commitment to daily goal-orientated interdisciplinary rounds, serving as a catalyst for the timely recognition of issues or problems and the performance of additional infection reduction strategies. Monitoring tools and checklists were adapted and standardized to reflect the unit's needs. A key element of success was the education of the rotating house staff.

The unit's physicians and nurse leaders focused nurse involvement to ensure proper technique in placing central lines, drawing blood cultures, and hand-washing. Physicians, dietitians, pharmacists, and nurses have been reviewing and ensuring proper use of total and peripheral parenteral nutrition in patients.

### OUTCOMES

From 2007 to 2008:

- the VAP infection rate decreased 63%, with a corresponding decrease in ventilator days; and
- the central line infection rate decreased 45%, with a corresponding decrease in central line days and standardization of blood culture procedures.

### CONTACT

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## **Pain Management: Achieving the Patient's Comfort Goal**

Lawrence Hospital Center, Bronxville

### **PROJECT DESCRIPTION**

Lawrence Hospital Center set a goal of improving the nursing assessment of pain post-intervention, employing nurse-to-nurse peer review, to promote achievement of the patients' own comfort goal. Initial audits showed deficiencies in compliance with the established pain protocol—which included documentation of pain assessment for all patients, pre-intervention assessment, documentation of the patient's comfort goal, and re-assessment of the patient's comfort goal one hour post-intervention.

The initiative assigned each nurse to one patient per day to monitor. In some cases, this was the nurse's own patient, in others, it was someone else's patient. Results were reported back by the manager to the responsible nurse. Peer review improved compliance with the protocol and encouraged nurses to develop their own solutions. At the suggestion of staff, a link was added to the computerized medical record that mandated a pre-intervention pain assessment before an analgesic could be documented. The rapid feedback loop allowed staff to adjust performance to achieve compliance in a very short timeframe.

### **OUTCOMES**

- The pre-intervention pain assessment went from 25% in February 2008 to 100% in February 2009.
- Achievement of patients' comfort goals improved from 20% to 92%.

### **CONTACT**

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## **Saving Heart Muscle in the Acute Myocardial Infarction Patient: A Collaborative Approach**

Long Island Jewish Medical Center/North Shore-Long Island  
Jewish Health System, New Hyde Park

### **PROJECT DESCRIPTION**

Evidence-based literature demonstrates that early percutaneous coronary intervention (PCI) performed in acute myocardial infarction (AMI) patients who present with ST segment elevation or left bundle branch block results in significant reduction in morbidity and mortality. To improve patient outcomes and reduce time to PCI within 90 minutes, an AMI task force was developed. Before initiating this project, Long Island Jewish Medical Center's 90-minute to PCI compliance rate was just 47%. This rapid performance process improved patient outcomes.

A collaborative, multidisciplinary team with representation from administration; quality management; and the departments of cardiology, emergency medicine, nursing, bio-medical engineering, and telecommunications met weekly to analyze the current process and establish timeline benchmarks for each step of the process. All participants assumed responsibility for data collection, analysis, process improvement identification, implementation, and evaluation. This required accountability through ownership of the action plan and teamwork across the continuum of patient care.

Within six weeks, this initiative resulted in improved time to PCI from timely, organized, and integrated care of patients undergoing emergency cardiac intervention regardless of time, day, or mode of entry; eliminated barriers to communication; and empowered shared ownership. The initiative subsequently led to the development of a process and work tool that has been shared and used at other system hospitals.

### **OUTCOMES**

- Compliance improved from 47% pre-project to 96% for the 12 months post-project initiation.
- Average time to PCI improved from 110 minutes to 60 minutes.
- Processes and tools developed were shared with other system hospitals as best practices.

### **CONTACT**

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## Redesigning Diabetes Care in a Public Hospital System

New York City Health and Hospitals Corporation, New York City

### PROJECT DESCRIPTION

New York City Health and Hospitals Corporation (HHC) began an ambitious improvement effort to standardize diabetes care across its public hospital system. Multidisciplinary teams from across HHC were assembled to develop strategies and test innovations. Using established improvement methods, successful practice innovations were identified, including a diabetes registry, care management, nutritional therapy, goal-setting instructions, self-management support tools, planned visits, and partnerships with community providers for patient follow-up.

System-wide monitoring of outcomes by clinical champions and chronic disease coordinators using the diabetes registry was invaluable in identifying barriers to care, such as lack of standardization and inadequate or complex processes of care. To respond to the newly identified barriers, HHC developed a system-wide task force to develop corporate diabetes guidelines. The task force included expert clinical champions from each of the 11 acute care facilities, including endocrinologists, nephrologists, cardiologists, nurses, certified diabetic educators, administrators, and dietitians. The task force galvanized opinions and tested standardized management guidelines tailored to HHC's workflow.

The success of this improvement strategy represents a huge shift in corporate culture from a hierarchical structure to teamwork and cooperation. Consensus for corporate-wide diabetes guidelines was established and testing began. This seminal corporate work resulted in a standard.

### OUTCOMES

Outcomes included:

- new diabetes guideline;
- culture transformed;
- A1c less than 7 improved 18%;
- LDL less than 100 improved 10%;
- blood pressure improved 9%;
- goal-setting: 100%;
- average A1c reduction was 1.3%;
- 353 complications avoided; and
- three-year cost savings: \$290,000.

### CONTACT

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## Patient Safety and Pre-operative Obstructive Sleep Apnea Assessment

Phelps Memorial Hospital Center, Sleepy Hollow

### PROJECT DESCRIPTION

Providing a safe post-operative environment for surgical patients receiving anesthetics and sedation is an ongoing concern for all surgical departments at Phelps Memorial Hospital Center. A case review of a patient who required increased monitoring of respiratory status in the post-anesthesia care unit revealed that the hospital needed a more consistent method of accurately identifying patients who might be at increased risk for post-operative complications due to obstructive sleep apnea (OSA).

A team was convened consisting of medical staff, respiratory therapy, and nursing staff from pre-operative assessment, operating room, and post-anesthesia care. Case reviews were undertaken of patients requiring increased monitoring due to oxygen desaturation. Contacts were initiated with professional organizations to determine best practices. A literature search revealed that OSA is indeed under-diagnosed. Patients themselves are often unaware of their risk profile.

The team concluded that a standardized screening protocol was needed to better identify patients at risk. Nursing assessment was modified. A standardized, validated, formal screening tool was chosen to augment the assessment. Upon administration of the protocol, if a patient is determined to meet criteria for actual or potential OSA, a referral to anesthesia is initiated for further evaluation and interventions as necessary prior to surgery.

### OUTCOMES

- Phelps achieved 100% compliance with using the screening protocol and 100% of necessary referrals were made to physicians.
- Enhanced post-operative monitoring was implemented during and after post-anesthesia recovery.
- An automated pharmacy warning occurs upon order of medication that may suppress respiratory status.

### CONTACT

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## Lean Sigma Strategies to Improve the Care of the Acute Myocardial Infarction Patient

Rochester General Hospital, Rochester

### PROJECT DESCRIPTION

Rochester General Hospital's project aimed to standardize the care that an acute myocardial infarction patient receives by implementing Lean Six Sigma strategies. Senior administration endorsed the Lean Six Sigma methodology, and a team underwent formal training. By focusing on the customer's expectations and values, the team was coached on identifying non-value added processes, or waste.

Appreciation of the staff is equally important to the sustenance of Lean improvement. Lean Six Sigma's mantra is "those who do the work design the work. Since "time is muscle," the team was asked to time each step of the process. Problems were solved more quickly by implementing a "Plan-Do-Check-Act" cycle. Once the process flow with the corresponding times was plotted, new work standards for each staff member to follow were developed.

The greeter was given specific presenting criteria to direct the chest pain patient immediately to the unit technician for a diagnostic electrocardiogram (EKG). The triage nurse would simultaneously complete his/her assessment. Once the unit technician had completed the EKG, it was taken to the emergency department provider for immediate review. Extra EKG machines and stretchers were implemented in the triage area. An emergency physician was assigned to the triage area to collaborate with the triage nurse to enable rapid medical evaluation. The interventional cardiologists are now available 24 hours a day, eliminating delays.

### OUTCOMES

- Door-to-EKG time went from 32 to five minutes.
- 90-minute reperfusion improved to 75%.
- Patients receive reperfusion therapy within 76 minutes.
- Mortality decreased significantly.
- Patient satisfaction went from the 28th to 54th percentile.

### CONTACT

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## Eliminating Post-operative Pneumonia

Rome Memorial Hospital, Rome

### PROJECT DESCRIPTION

Rome Memorial Hospital established an aggressive goal to eliminate the incidence of post-operative pneumonia by introducing a patient-centered protocol developed by its respiratory therapy department. National fatality rates for post-operative pneumonia range from 20% to more than 45%.

Hyperinflation therapy, coupled with chest physiotherapy, is the gold standard in preventing post-operative pneumonia; however, differences in physician practice patterns and clinical assessment skills of respiratory therapists make it challenging to deliver a consistent standard of care.

Respiratory therapy staff developed a protocol based upon American Association of Respiratory Care research that introduced an airway clearance system known as “VEST.” Patients are risk-stratified into one of three categories: (1) major surgery on patients with chronic obstructive pulmonary disease; (2) upper abdominal or thoracic surgery and/or presence of pulmonary atelectasis; and (3) otherwise healthy surgical patients with low risk of pulmonary complications.

Patients are educated pre-operatively in the use of the incentive spirometer. A respiratory therapist follows them after surgery and re-instructs them on incentive spirometry and proper cough technique. If patients are unable to achieve 75% of an individually calculated goal, VEST therapy is initiated twice a day for 48 hours. Patients are re-evaluated for sputum production, effectiveness of cough, and ability to deep breathe.

### OUTCOMES

- eliminated postoperative pneumonia, reducing the rate from 2.9 per 1,000 surgical days in 2006 to 0 in 2008;
- saved \$288,000 in 24 months; and
- empowered therapists to deliver an evidence-based standard of care.

### CONTACT

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## Urinary Catheter Usage: Avoiding the Unnecessary Through a Multidisciplinary Approach

St. Anthony Community Hospital, Warwick

### PROJECT DESCRIPTION

St. Anthony Community Hospital implemented quality improvement strategies to decrease indwelling urinary catheter usage. Findings from an internal risk assessment were consistent with national trends on catheter usage. The majority of urinary tract infections were catheter-associated and urinary catheters were being left in place after they were no longer needed, impacting clinical, financial, and patient satisfaction outcomes. The goal of this project was to significantly decrease catheter usage through a culture change that would be sustainable over time.

Standardized practices, based on evidence-based guidelines, were developed to minimize catheter duration. Implementation of insertion criteria, maintenance requirements, and daily catheter appropriateness reviews by the multidisciplinary team led to successful outcomes.

### OUTCOMES

- Sustained 38% reduction in urinary catheter usage (February-November 2008) compared to pre-intervention period.
- Standardized practices are utilized consistently, resulting in culture change and adoption of best practices.

### CONTACT

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## Do Not “SCIP” a Step

St. Barnabas Hospital, Bronx

### PROJECT DESCRIPTION

In 2006, inconsistencies existed between St. Barnabas Hospital's current surgical care prevention practices and evidence-based practice recommendations. The hospital's goal for participating in the Surgical Care Improvement Project was to reduce surgical care post-operative complications through better adherence to evidence-based practice recommendations and to design systems with redundant safeguards. The “Plan-Do-Study-Act” methodology was used to improve clinical practice performance. Senior administrative staff and the department of surgery coordinated with anesthesia, nursing, pharmacy, infection control, and quality assurance staff.

The objective was to identify and improve critical areas for the most positive impact on compliance. Multidisciplinary interventions were implemented and compliance was accomplished through the following:

- **Standardization:** Developed a post-operative antibiotic order sheet and pulmonary embolism/deep vein thrombosis clinical pathway, and revised the nursing intra-operative form to use clippers for hair removal.
- **Effective communication and transparency:** Shared SCIP non-compliance reports, and distributed SCIP guidelines at orientation for new practitioners and on the hospital's Intranet for quick reference.
- **Accountability:** Designated an anesthesiologist for antibiotic selection and on-time administration, and appointed nurses to use an acceptable method of hair removal.
- **Collaboration:** Approved use of Invanz with the department of pharmacy, and made prophylaxis medications easily accessible for anesthesia staff.

### OUTCOMES

Data collection analysis demonstrates significant improvement in each of the SCIP measures and improved patient safety through reductions in post-operative complications.

### CONTACT

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## A Technology and Bundle Approach to Reduce Hospital-acquired Urinary Tract Infection

St. Elizabeth Medical Center, Utica

### PROJECT DESCRIPTION

Urinary tract infections (UTIs) are the most frequently occurring hospital-acquired infection (30%), causing an increase in morbidity, cost, and length of stay. St. Elizabeth Medical Center developed a bundle approach to reducing this costly and compromising health care-acquired infection.

The goal was to reduce UTIs by 10% in the first year, with continued reduction and sustained results. St. Elizabeth Medical Center used the Centers for Disease Control and Prevention's National Healthcare Safety Network case definitions to review study results. The project study period was one year and included significant reductions in UTIs and the cost of care.

### OUTCOMES

Results for the study period, March 2008-March 2009:

- 26.8% reduction in UTIs in six months following intervention;
- 32 UTIs prevented;
- direct cost savings: \$224,000 for the six-month period; \$169,000 bottom line savings; and
- added length of stay avoided: 185 days.

### CONTACT

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## Deming's Way to Higher Heart Failure Core Measure Compliance Rates

St. Francis Hospital, Roslyn

### PROJECT DESCRIPTION

A member of Catholic Health Services of Long Island, St. Francis Hospital (SFH) carries out the healing ministry of the Catholic Church. Its mission emphasizes respect for the dignity of individuals and compassionate treatment for all. SFH is a Magnet-recognized facility, voted one of the best places to work in New York. The people who work at SFH have a special spirit and vested interest in seeing SFH succeed. Doing right by the patient is always the number one priority.

Deming's 14 Points describe guiding principles that are consistent with what SFH does to increase core measure compliance and deliver quality patient care. Each point applies to continuous performance improvement. The SFH team applies these points to improve core measure compliance rates for the heart failure angiotensin-converting enzyme inhibitor (ACEI) and angiotensin receptor blocking (ARB) for left ventricular systolic dysfunction (LVSD) indicator. With strong leadership buy-in, SFH developed multidisciplinary teams, encouraged feedback, and weaved its core vision throughout the work.

Lessons learned include: increasing communication, building trust, thinking positively, being non-punitive, accepting normal variation, not giving up, increasing education, documenting contraindications, increasing documentation of left ventricular assessment, revitalizing the core measure documentation form, and always searching for how to improve the system. The SFH team strives to reflect excellent patient care in its core measure rates.

### OUTCOMES

SFH used Deming's principles to increase heart failure core measure compliance rates for the ACEI/ARB for LVSD indicator to 100%. SFH's Deming skills will drive excellent patient care, helping with pay-for-performance.

### CONTACT

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## Reducing Multi-drug Resistant *Acinetobacter Baumannii* in Critical Care Units

St. Luke's-Roosevelt Hospital Center, New York City

### PROJECT DESCRIPTION

The incidence of resistant *Acinetobacter baumannii* (*A. baumannii*) colonization and infection has increased at St. Luke's-Roosevelt Hospital Center over the past three years, with the major burden in two critical care units. This initiative involved the 24 beds in the medical ICU and surgical ICU at one campus.

*A. baumannii* is a gram-negative bacterium that may have many reservoirs in hospitals. The organism can be found in water systems and on healthy human hands and skin. It can be especially troublesome because it is inherently resistant to commonly used antibiotics and may persist on environmental surfaces. The respiratory tract is commonly involved. It is the organism most frequently isolated from patients with ventilator-associated pneumonia.

The combined incidence rate of colonized and infected patients in these two units more than doubled from 5.1 per 1,000 ICU patient days in 2005 to 12.6 cases per 1,000 ICU days in 2007. Despite traditional infection prevention measures such as contact precautions, environmental disinfection, and emphasis on hand hygiene, the rate further increased to 17 per 1,000 patient days in the first half of 2008.

An interdisciplinary team recommended enhanced control measures. These included twice daily disinfection of the high touch areas of the ventilators, oral hygiene protocol with a chlorhexidine gluconate (CHG) mouthwash, use of CHG washcloths instead of basin baths, additional cleaning of the core nursing stations, and removal of sink aerators.

### OUTCOMES

- *A. baumannii* rates decreased 83%, from 17 per 1,000 patient days to 2.8 in fourth quarter 2008 and to 0.9 as of February 2009.
- The rate decreased in the pulmonary beds that accept ICU transfers: one case since July 2008.
- 80% reduction in VAPs from all organisms.

### CONTACT

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## ST Elevation Myocardial Infarction Alert

St. Mary's Hospital, Amsterdam

### PROJECT DESCRIPTION

Studies have shown that ST elevation myocardial infarction patients have a better outcome if the time from arrival to a health care facility to the time when the artery is opened via percutaneous coronary angioplasty is less than 90 minutes.

St. Mary's Hospital participated in a STEMI alert program—a program done in collaboration with the Schenectady Cardiology Associates, Ellis Hospital Cardiac Catheterization Laboratory, and Greater Amsterdam Volunteer Ambulance Company in August 2007. This collaborative was aimed at providing the same treatment to patients with a STEMI presenting to St. Mary's emergency department as those presenting to a hospital that has a catheterization laboratory.

The goals of the collaborative were to:

- facilitate prompt interdisciplinary treatment of STEMI patients;
- shorten “door-to-balloon time” for STEMI patients; and
- improve patient outcomes.

SMH created an inter-agency and inter-disciplinary STEMI task force that developed the STEMI policy, protocol, and orders. A STEMI kit was developed using the “Plan-Do-Check-Act” approach.

SMH's specific goal was to improve patient outcomes and survival rate by:

- reducing door-to-balloon time by 25% compared to baseline data;
- reducing arrival to EKG time by 30% compared to baseline data; and
- reducing emergency department length of stay by 25%.

### OUTCOMES

- Implementation of the STEMI alert program led to a 27% reduction in the average door-to-balloon time (from 133.8 minutes prior to the STEMI program to 102.1 minutes post implementation).
- There was a reduction of 68% in the average arrival-to-EKG time (average of 8.8 minutes pre-STEMI program to 4.9 minutes post-STEMI).
- There was a 48% improvement in the average ED length of stay (reduction from 58.4 minutes to 40.5 minutes).
- Significant improvement in inter-agency communication resulted in improved patient outcomes.
- Improved performance was achieved by reducing individual practice variation by implementing STEMI protocol, checklist, and medication kit.

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## First Do No Harm: Journey to Proactively Prevent Harm

Stony Brook University Hospital, Stony Brook

### PROJECT DESCRIPTION

Stony Brook University Hospital (SBUH) has embarked on a journey to become a “High Reliability Organization” (HRO), the key to which is a focus on systematically deploying failure-free processes. SBUH implemented significant strategies to create a culture of patient safety to proactively mitigate risk, implement world-class processes and best practices, and ensure that all staff are actively engaged in performance improvement efforts to promote processes yielding improved outcomes.

Stony Brook used these approaches:

- adopted organization-wide performance improvement priorities emphasizing patient safety;
- implemented all aspects of the Institute for Healthcare Improvement 100,000 Lives Campaign (mentor hospital) and IHI’s 5 Million Lives Campaign;
- implemented modified early warning system/pediatric early warning system to ensure patient deterioration is more readily and systematically communicated to appropriate health care team members for rapid follow-up/resolution;
- Failure Mode and Effect Analysis Focus: Trained all department heads and nurse managers to facilitate FMEA on every unit/in every department to proactively reduce risk. All managers must conduct FMEA on a regular basis for high-risk processes; more than 40 FMEAs are currently in progress;
- used team-based simulation models for interdisciplinary training/crew resource management;
- implemented HRO pilot units to use “Red Rules”; and
- implemented electronic patient record/computerized physician order entry.

### OUTCOMES

- The mortality rate decreased from 2.13 in 2002 to 1.62 in 2007.
- The harm rate at 100 discharges decreased from 38.33 in first quarter 2008 to 23.33 in third quarter 2008.

### CONTACT

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## Cardiac Care Unit: High Reliability/Exemplary Clinical Unit

Stony Brook University Medical Center, Stony Brook

### PROJECT DESCRIPTION

Unreliable processes contribute to poor outcomes and system inefficiencies that impact all operations related to health care delivery. The potential impacts include patient safety, capacity, flow, access to care, and mortality.

In October 2007, a steering committee was convened at Stony Brook University Medical Center to explore the concept of an exemplary clinical unit, with the goal that the unit would become error-free over time. Extensive research and networking was undertaken and the concepts of high reliability organizations were married to Institute for Healthcare Improvement bundle and reliability concepts and “Plan-Do-Check-Act” methodologies to assist efforts to deliver perfect care in a high-risk environment (ten-bed cardiac intensive care unit).

A demonstration unit was selected and the characteristics of an exemplary unit were identified that focused on patient safety, enhanced communication, staff and patient satisfaction, team building/training, and improved financial/administrative outcomes. Administrative and clinical leaders participate along with staff in meetings held on the cardiac intensive care unit. Previous performance data were reviewed and the team set goals and identified a timeline for success to achieve targets. Updated data are reviewed monthly. High level leadership is engaged and visible.

### OUTCOMES

- Since January 2008, mortality, falls, specimen mislabeling, and restraint use have been reduced significantly.
- There were no central line infections all year.
- There were no medication errors or pressure ulcers in the last quarter of 2008.

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## Moving Beyond the Central Line Bundle

Stony Brook University Medical Center, Stony Brook

### PROJECT DESCRIPTION

Stony Brook University Medical Center expanded on the Institute for Healthcare Improvement's central line bundle efforts to decrease central line infections. Efforts were made to standardize the education and certification of medical and nursing staff for both the insertion and maintenance of central lines.

A central line maintenance protocol was developed and disseminated throughout the hospital to standardize the method to access, assess central lines, and tubing changes. In addition, central line infection rates are posted on the intensive care units to heighten staff awareness and ownership.

### OUTCOMES

Central line infection rate comparisons from 2007 to 2008:

- pediatric ICU experienced a 41% reduction;
- surgical ICU experienced a 66% reduction; and
- medical ICU experienced a 61% reduction.

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## Efficient Transfer of Patient Information to Promote Continuity of Care

The Brooklyn Hospital Center, Brooklyn

### PROJECT DESCRIPTION

The accurate communication of a patient's reconciled medication list to the next provider of service reduces the risk of transition-related adverse drug events and enables the next provider of service to safely manage the subsequent stages of the patient's care. According to the 2006 Joint Commission Patient Safety Goals, a reconciled list of medications must be communicated to the known primary care provider at hospital discharge. The Brooklyn Hospital Center's objective was to promote more effective transitions of care. By understanding the key challenges and adopting strategies to improve patient care in the transition from hospital to home, hospital physicians could significantly reduce medication errors in the post-discharge period.

Using the "Plan-Do-Check-Act" model, improvement opportunities were identified in the discharge process, focusing on communication between inpatient and outpatient physician teams. An institution-wide documentation tool was developed to ensure reconciliation upon discharge. A "Communication with Primary Medical Doctor Discharge Summary Flow Chart" and "Reconciliation Process Flow" were developed to streamline the process. Family medicine residents received structured in-service education on germane aspects of discharge planning, discharge summary documentation, and appropriate communication with patients and primary care physicians. Discharge summaries were reviewed for areas of deficiency and immediate feedback provided to the residents on their individual performance.

### OUTCOMES

This initiative resulted in improved medication reconciliation and communication between hospital-based and primary care physicians. Improvement percentages:

- Communication between inpatient and outpatient physicians: 90%
- Effective reconciliation of prescribed medication regimens: 88%
- Adequate education of patients about medication use: 74%
- Closer medical follow-up: 91%
- Greater clarity in physician-patient communication: 72%

Lessons learned include:

- Inadequate transfer of information occurs commonly at the time of hospital discharge.
- Structured educational programs decrease discharge medication discrepancies at the time of discharge and promote continuity of care.

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## Eliminating Surgical Site Infections in Cardiac Surgery

University of Rochester Medical Center, Rochester

### PROJECT DESCRIPTION

University of Rochester Medical Center's adult cardiac surgery group formed an interdisciplinary team in March 2008 to address the occurrence of surgical site infections. The team was led by the associate director of cardiovascular nursing and the chairman of cardiac surgery. The team used a Failure Mode and Effect Analysis process to identify opportunities for improvement and stratify them according to criticality and ease of implementation.

Some of the changes implemented consisted of environmental cleanliness process improvements, antibiotic customization, a hybrid dressing adaptation, and initiation of forward-looking quality assurance controls. The measures were implemented April through October 2008 and achieved below benchmark rates for cardiac surgical site infections by the fourth quarter of 2008.

### OUTCOMES

University of Rochester Medical Center has been able to decrease the rate of surgical site infections in cardiac surgery from 9.5 per 100 procedures in the first quarter to 2.8 in the fourth quarter 2008. The first quarter of 2009 continues to show improvement.

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## A Pilot Program to Enhance Anticoagulation Safety

Bassett Healthcare, Cooperstown

### PROJECT DESCRIPTION

Bassett's Anticoagulation Management Service started as a pilot program designed to enhance and ensure the safety of anticoagulated patients. Anticoagulation therapy can be essential to the health and wellbeing of patients by preventing life-threatening strokes and heart attacks, and in treating and preventing detrimental and/or fatal blood clots. Anticoagulant medications are known to have a very narrow range between being efficacious and dangerous. Should the patient receive too much anticoagulation, bleeding may result; not enough anticoagulation, and the patient could develop a thrombotic complication. Given this narrow range of benefit, safety is paramount.

While specialized anticoagulation management services have been used with success in metropolitan areas, no data had been collected to suggest an equal benefit exists for the rural population. As a result, Bassett implemented a specialty care clinic to monitor and manage the rural ambulatory patient population receiving anticoagulation.

The primary goal of the service is to increase the length of time anticoagulated patients are within therapeutic range, and decrease the rate of hospitalizations and emergency department visits from anticoagulation-related adverse events.

### OUTCOMES

- Bassett's Anticoagulation Management Service managed nearly 8,000 patient encounters in 2008. Time in therapeutic range was 84.6%, far surpassing the average of 75% reported in the literature.
- Anticoagulation-related hospitalizations have been reduced by 61% (vs. usual medical care by physician providers) and 56% (vs. existing system).
- The initiative reduced anticoagulation-related emergency department visits by 68% (vs. usual medical care by physician providers) and 78.5% (vs. existing system).

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## Optimizing the Benefits of Therapy and Reducing the Risks of Anticoagulation

Claxton-Hepburn Medical Center, Ogdensburg

### PROJECT DESCRIPTION

Tasked with meeting several concurrent safety goals, Claxton-Hepburn Medical Center's director of pharmacy and chief medical officer developed a "wish list" for improving medication safety, specifically of anticoagulant use.

Using an abbreviated Failure Mode and Effect Analysis, they worked in concert with the information technology department to develop and implement tools that are now used by the pharmacist. These tools provide two views—real-time and retrospective—of clinically significant "safety triggers." This has enhanced multidisciplinary collaboration, providing a clear focus on a team approach to patient safety, medication efficacy, and adverse event recognition.

In addition, the project has:

- increased visibility of the pharmacist in the clinical arena;
- heightened hospital-wide awareness of the need for patient-focused teams;
- welcomed participation in clinical management; and
- fostered shared responsibility in the prevention of adverse events.

### OUTCOMES

Outcomes included:

- daily pharmacist review of patient-specific anticoagulation therapy and pertinent laboratory results through a simplified process;
- all-inclusive retrospective review;
- reduction of Vitamin K reversal of warfarin from one to two times per month to zero for the last ten months;
- reduction in the number of reported anticoagulant medication events;
- reproducible system that can be used for other high-alert medications; and
- tool enables active "data mining" for medication events instead of relying on self-reporting.

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## Anticoagulation Safety Program

Mercy Medical Center, Rockville Centre

### PROJECT DESCRIPTION

Although commonly used, anticoagulants are extremely potent medications. The safe use of anticoagulants is part of The Joint Commission's National Patient Safety Goals. Mercy Medical Center formed a multidisciplinary team in the first quarter of 2008 to evaluate the performance gap analysis in use of anticoagulants. Members of the team include representatives from administration, medical staff, quality management, pharmacy, nursing, dietary, and laboratory. The principle of Failure Mode and Effect Analysis was applied, and published information from Agency for Healthcare Research and Quality, Institute for Safe Practice, The Joint Commission, and others were used as references.

The team also outreached to other health care institutions for networking and benchmarking and several opportunities for improvement were identified. Responsibilities were then assigned to members of the team. All recommendations and subsequent findings were presented to various hospital committees to obtain input and approval. Ongoing progress was monitored by using an anticoagulation dashboard, which trends the results on a quarterly basis.

### OUTCOMES

The dashboard monitors anticoagulation occurrences, appropriate laboratory results, proper anticoagulant indication and dosage, and patient/family education. Internal thresholds were developed, with ongoing efforts to reach goals.

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## Anticoagulation Initiative Improving Patient Safety and Communication

Putnam Hospital Center, Carmel

### PROJECT DESCRIPTION

It is well documented that using International Normalized Ratio (INR) monitoring improves patient safety. To build in reliability, Putnam Hospital Center made a number of process step changes.

As the pharmacist enters the warfarin order into the hospital's computer system, he or she also enters a "marker" for warfarin, which shows up on the organization's paper-based medication administration record (MAR) and serves as a clinical reminder for INR monitoring.

This marker stays on the MAR as long as a patient is on warfarin, showing every care provider who looks at the MAR that the patient is on warfarin and that an INR is pending.

### OUTCOMES

Putnam Hospital Center improved its baseline INRs within 24 hours of therapy initiation from a mean of 90% to 96%. The work has also enhanced medical, nursing, pharmacy, and dietary staff communication throughout the care continuum.

### CONTACT

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## Improving Patient Safety for Inpatient Therapeutic Anticoagulation Treatment

Winthrop-University Hospital, Mineola

### PROJECT DESCRIPTION

In 2000, the hospital's quality oversight committee recognized a trend of bleeding complications in patients receiving therapeutic anticoagulation (AC). Case reviews revealed provider errors, system failures, and care variability. A committee was chartered to develop performance improvement interventions related to AC. The committee recognized the following process failures in the use of therapeutic AC:

- failure to fully balance the risks and benefits of AC for specific patients—AC was often used inappropriately, particularly in patients with atrial fibrillation; and
- failure to recognize sentinel symptoms of bleeding; any new symptom developing in an anticoagulated patient may be an indicator of internal bleeding—back pain and headache are rarely due to significant pathology; however, in anticoagulated patients these symptoms have great significance.

#### PI Interventions:

- Clinicians fully weigh the risks and benefits of AC using a standardized form with a checklist methodology.
- The AC safety checklist requires clinicians to evaluate for evidence of undetected bleeding on a daily basis.
- A new policy requires any new symptom in an anticoagulated patient to be evaluated face-to-face by a clinician.
- Every caregiver takes accountability for each patient and escalates issues beyond traditional hierarchical boundaries.

### OUTCOMES

In 2001, of the reported anticoagulation drug variations, 50% did not reach the patient, 14% reached the patient but caused no harm, 22% required some intervention (“minor harm”), and 14% caused major harm.

Reporting has increased each year. In 2008, of the reported anticoagulation drug variations, 86% did not reach the patient, 14% reached the patient but caused no harm, and there were zero instances of moderate or major harm.

### CONTACT

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## Preventing Central Line-associated Bloodstream Infections in the NICU

Jacobi Medical Center/New York City Health and Hospitals Corporation, Bronx

### PROJECT DESCRIPTION

By focusing on key processes, Jacobi Medical Center's neonatal intensive care unit (NICU) nursing team reduced the central line-associated bloodstream infection rate for neonates by 73% in a single year, achieving one of the lowest rates in the state.

Embracing their mission to care for the most vulnerable infants, the staff were alarmed when they saw the infection rates in the NICU in 2007. Working as a team, the nursing staff adapted the central line bundle (CLB) used to reduce infection in the adult patients to their tiny patients. Knowing how long a central line is in place affects infection rates in adults, this was also monitored. The physicians fully supported this new approach.

Nurses worked with the medical staff and agreed that these new tools were effective and would be used. The nurses were given the authority to ensure the new CLB protocol was followed—and could stop the procedure if it was not. Nursing developed the training program, and education was conducted for the NICU staff. Nurses trained new residents in the patient safety protocols of hand-washing and the use of the CLB with the infants. The physicians were questioned daily about the need to continue the central lines. By working together, the NICU team developed a creative solution to reduce infection rates, improve skills of the nurses and residents, and improve patient safety.

### OUTCOMES

- The CLABSI rate was 3.4% in 2008, versus 12.6% in 2007—a 73% decrease.
- In 2007, there were 24 CLABSIs, while in 2008 there were only five—a 79% decrease.
- Device utilization days decreased 22% in 2008 for all weight categories.

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## Reduction of Catheter-related Bloodstream Infections

Oneida Healthcare Center, Oneida

### PROJECT DESCRIPTION

To decrease catheter-related bloodstream Infections (CRBSIs), Oneida Healthcare Center established a multidisciplinary team to evaluate current processes related to the insertion and ongoing care of central lines. The team consisted of the medical director, a certified intravenous access nurse, and representatives from infection control, quality management, nursing staff, and staff education.

After a proactive risk assessment, the team identified multiple areas for improvement, education, and standardization of care. Re-education of staff by product representatives, implementation of the Institute for Healthcare Improvement's evidence-based central line bundle, ongoing evaluation and audits of vascular access devices in use, improved access to hand sanitizers, reduction in variation of management of central lines, and increasing awareness have led to improved patient safety and a reduction in CRBSIs.

Ongoing monitoring to ensure process compliance, central line site management, and infection rates will provide evidence of success and provide early indication for additional interventions.

### OUTCOMES

- There was a reduction in CRBSIs from 7.32 per 1,000 line days between January and June 2008 to 1.26 per 1,000 line days from July to December 2008.
- Process variation in care and management of central lines was reduced.

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## Maintaining Zero Central Line-associated Bloodstream Infections in the ICU

White Plains Hospital Center, White Plains

### PROJECT DESCRIPTION

Central line catheters are commonly used in intensive care units to provide vascular access. The use of these catheters places patients at risk for developing a central line-associated bloodstream infection. The Centers for Disease Control and Prevention (CDC) reports that each year, an estimated 250,000 cases of CLABSI occur in hospitals in the United States, with an estimated attributable mortality of 12% to 25% for each infection. The marginal cost to the health care system is approximately \$25,000 per episode.

White Plains Hospital Center began CLABSI surveillance in the ICU in February 2007, and by the end of the surveillance period in December it achieved a rate of 9.3 per 1,000 central line days, which was above the CDC National Safety Healthcare Network rate of 3.2. In 2007, White Plains Hospital Center instituted evidence-based interventions based on the CDC guidelines for the prevention of intravascular catheter-related infections, but was unsuccessful in reducing infection rates. The challenge was to focus on and successfully eliminate CLABSI in the ICU.

### OUTCOMES

For the surveillance period of January through December 2007, the ICU CLABSI rate decreased from 9.3 in 2006 to 4.6 per 1,000 central line days. Following the implementation of the Biopatch in late 2007, there have been zero CLABSIs per 1,000 central line days in the ICU from November 2007 to date.

By decreasing the number of CLABSIs, White Plains Hospital Center was able to demonstrate a savings of approximately \$150,000 in one year, along with a substantial reduction in patient morbidity and mortality.

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## Development of a Rapid Response Team

F. F. Thompson Hospital, Canandaigua

### PROJECT DESCRIPTION

In an effort to improve and promote patient safety, F. F. Thompson Hospital used information from the Institute for Healthcare Improvement white paper, "Move Your Dot." In particular, the hospital used the IHI mortality review tool to prioritize effective evidence-based intervention. The tool identified which category contained the highest percentage of deaths. This category was then correlated to best practices in the medical literature to identify mortality reduction opportunities.

The tool indicated that the priority category for mortality reduction was patients admitted in non-intensive care units for acute care. One of the recommended best practices was the development of a rapid response team. This small group of experienced health care professionals is an effective strategy to rescue patients by responding quickly at any time, providing early intervention.

### OUTCOMES

About two rapid response team codes are called per month; 40% of calls result in transfer to the intensive care unit and 10% result in moving the patient to a telemetry bed. Staff have increased confidence and comfort working with rapid response teams.

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## Implementation of a Rapid Response Team Program in an Acute Care Hospital

Maimonides Medical Center, Brooklyn

### PROJECT DESCRIPTION

In response to the Institute for Healthcare Improvement 100,000 Lives Campaign, Maimonides Medical Center established a multidisciplinary rapid response team (RRT) to provide rapid assessment and stabilization for patients whose clinical status deteriorates while in the hospital. The purpose of the team is to rescue “at-risk” patients in a non-intensive care unit setting early in their decline, before a crisis occurs. The goal of the RRT is to decrease the number of cardiac/pulmonary arrests and achieve lower inpatient mortality.

In 2006, with commitment from senior medical and administrative leadership, Maimonides made implementing the RRT a priority. The hospital’s team consists of an experienced critical care nurse, a hospitalist, and a respiratory therapist. Guidelines were developed, including specific clinical criteria for activating the RRT. The RRT process can be activated by any health care professional in the facility who has concerns about the patient’s condition. Team members arrive within five minutes to assess and stabilize the patient. An encounter form is completed for each RRT call and entered into a database. RRT data are analyzed and reviewed monthly to identify opportunities for improvement. In May 2006, an initial pilot was conducted on one medical unit. The RRT pilot project was well received, and in March 2007, the process was expanded hospital-wide.

### OUTCOMES

Improved patient outcomes are evidenced by the following:

- 9.2% decrease in inpatient mortality;
- 27.6% decrease in non-ICU codes;
- 29.2% decrease in RRT patients transferred to the ICU; and
- 17.7% increase in survival to discharge.

### CONTACT

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## Effective Rapid Response Teams in a Small Rural Hospital

Massena Memorial Hospital, Massena

### PROJECT DESCRIPTION

Massena Memorial Hospital wanted to implement a rapid response team in accordance not only with The Joint Commission National Patient Safety Goals, but also because evidence-based practice supported positive patient outcomes. Published models of the RRT included a multidisciplinary approach. Massena Memorial Hospital's challenge was to develop an effective model with limited team members, particularly without a physician or mid-level provider. Joyce Smith, R.N., M.S.N., Director of Medical/Surgical/Pediatrics, took on the challenge and developed an RRT policy. Nurse leaders and experienced critical care and emergency nurses were identified as primary team members, along with respiratory therapy and medical staff when they are in the hospital.

Following policy development, two of the nursing supervisors—Fran Fenlong, R.N., and Betty MacDonald, R.N.—educated nursing and respiratory therapy staff on the purpose and implementation of the newly developed RRT policy. The nursing supervisor holds a debriefing with the staff involved after each rapid response intervention.

Rapid responses are documented on a rapid response form and reviewed by the nurse executive committee for trends and patterns. Effectiveness reports are given to the performance improvement committee.

### OUTCOMES

- An RRT policy recognizing limited human resources was developed.
- The number of patient codes was reduced 38%.
- The survival rate increased 28%.
- The program fosters development of critical thinking skills in the novice nurse.

### CONTACT

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## Condition A for Assistance—The Rapid Response Team Partnering with Patients

Mercy Medical Center, Rockville Centre

### PROJECT DESCRIPTION

At Mercy Medical Center, staff are empowering patients and families to notify the health care team when a noticeable change in the patient's condition occurs.

As a part of its commitment to partnering with patients to provide quality and compassionate care to the whole person, Mercy Medical Center embarked on a program of communication and education for staff, patients, and families so that changes in a patient's condition could be reported to the health care team using the existing rapid response program, called "Condition A for Assistance."

### OUTCOMES

Baseline patient satisfaction:

- positive attitude toward requests—82%;
- kept patient informed—84%; and
- felt safe—93%.

After three-month pilot:

- positive attitude toward requests—99%;
- kept patient informed—97%; and
- felt safe—99%.

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## Rapid Response Team and SBAR Communication

Mount St. Mary's Hospital and Health Center, Lewiston

### PROJECT DESCRIPTION

Development of a rapid response team was another step in Mount St. Mary's Hospital and Health Center's long list of initiatives that prevent poor patient outcomes and mortalities. An integral part of this program is effective communication. To ensure accurate and efficient communication, SBAR (Situation, Background, Assessment, Recommendation) was introduced to the hospital staff.

The journey began June 2005 with the introduction of the RRT/SBAR programs to prevent avoidable deaths. Staff education was critical. The program is based on the idea that communication is more than just speaking—communication is thinking, sending, receiving, and interpreting messages. Hospital personnel communicate constantly, but do we get the message out? The education program defined SBAR, spoke of rationales and obstacles for using it, and introduced tools and behaviors to ensure effective communication and teamwork.

### OUTCOMES

- In-house codes decreased by 42% from November 2005 to December 2008.
- Unplanned intensive care unit admissions decreased 33%.
- The mortality rate was -1.5 in the second quarter 2008, and was -0.8 in the third quarter 2008.

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## Rapid Assessment Teams Save Lives

Samaritan Medical Center, Watertown

### PROJECT DESCRIPTION

Patient safety and preventable in-hospital mortality remain crucial aspects of optimum medical care. In 2004, as part of its 100,000 Lives Campaign, the Institute for Healthcare Improvement encouraged American hospitals to implement rapid response teams. According to IHI, as of June 2006, an impressive 122,300 lives had been saved since the implementation of this evidence-based intervention in 2004.

In January 2007, Samaritan Medical Center developed and implemented a rapid assessment team to respond to clinical deterioration, in effect, bringing critical care to the bedside of any patient in any location of the hospital.

### OUTCOMES

2007 (year one):

- 23% decrease in code team calls;
- 56 documented rapid assessment team calls; and
- 41 patients remained on their unit.

2008 (year two):

- 60 documented rapid assessment team calls; and
- 48 patients remained on their unit.

### CONTACT

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## Harm Report: Rapid Response to Patient Safety Problems

Strong Health/University of Rochester Medical Center, Rochester

### PROJECT DESCRIPTION

Strong Health/University of Rochester Medical Center recognizes that internal transparency and communication are key elements of patient safety. Safety culture surveys and feedback received identified that staff and providers often were not aware of the frequency of occurrences that cause harm, the impact of such events on patients/families, the cost to the hospitals, or actions implemented to prevent further occurrences.

After senior leadership and clinical chairs attended safety/quality retreats, the decision was made to implement an innovative and best-practice approach to communication by distributing a weekly report of hospital-associated select adverse events to the board of directors, senior leaders, clinical leaders, and managers. The report is a collaboration of the system's two hospitals. It includes volume, by unit/service of infection-related events, non-infection events, and actual examples of trends and corrective actions.

Leadership commitment was evidenced by implementation of the process within two weeks of the decision to proceed. Response to the report was immediate and positive. The "Harm Report" is now the foundation for discussion of the hospital boards and all quality committees. It serves as a catalyst for improvement in patient safety and reflects a culture of enhanced accountability at all levels of the organizations.

### OUTCOMES

The health system has achieved an increase in awareness and commitment to patient safety at the unit, organizational, and system level. Clinical chiefs are recommending that all physicians read the reports.

### CONTACT

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## Improving the Care of Stroke Patients

F. F. Thompson Hospital, Canandaigua

### PROJECT DESCRIPTION

In 2008, F. F. Thompson Hospital embarked on a mission to improve the quality of stroke care by improving care outcomes. The hospital formed a multidisciplinary committee led by a neurologist. Much of this group's work focused on the development of clinical protocols and standing order sets.

First, a formal process for the identification of a stroke patient had to be developed. This was done by calling a "Code 15." This overhead page was the trigger to provide immediate medical and diagnostic treatment. The organization used the American Medical Association-recommended software to obtain results data. This tool allowed the team and the organization to identify areas for improvement. The stroke team meets monthly to review outcomes and implement actions. These results are presented monthly to the quality improvement committee of the board of directors. The organization was able to improve in all clinical outcome measures in 2008.

### OUTCOMES

A significant number of the stroke indicators demonstrated improvement, with between 97% and 100% compliance. The most difficult indicators nationally, cholesterol reduction prescription and lipid profiles, improved by 65% and 89%, respectively.

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## Center for Excellence: Improving Stroke Care at Geneva General Hospital

Finger Lakes Health, Geneva

### PROJECT DESCRIPTION

According to the American Stroke Association, about 795,000 Americans each year suffer a new or recurrent stroke. On average, strokes occur every 40 seconds and kill more than 143,000 people each year. It is the third leading cause of death in the United States behind diseases of the heart and cancer. On average, every three to four minutes someone dies of stroke. Of every five deaths from stroke, two occur in men and three in women.

In 2006, Geneva General Hospital set out to become designated as a Stroke Center by the Department of Health. The ultimate goal of becoming a designated center was to improve quality of care for all patients with a presumptive diagnosis of stroke through full implementation of evidence-based standards of care. Since then, Geneva General Hospital has continued to strive for excellence. In April 2008, it became the first hospital in the Finger Lakes region to earn a Certificate of Distinction for Stroke Care by The Joint Commission.

Through continuous performance improvement efforts, Geneva General Hospital has made great strides in continuing to improve performance with nationally accepted standards of care for stroke.

### OUTCOMES

From 2007-2008, improvement was as follows:

- 43%—appropriate stroke-related education to patients;
- 17%—administering tissue plasminogen activator (tPA);
- 7%—deep vein thrombosis prophylaxis; and
- 5%—dysphasia screening.

### CONTACT

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## Teaming Up for Action: Developing a Comprehensive Stroke Program

North Shore-Long Island Jewish Health System, Westbury

### PROJECT DESCRIPTION

The need to improve care provided to patients suffering from a stroke by developing a comprehensive care management program was deemed a priority by North Shore-Long Island Jewish Health System's (NS-LIJ) senior leadership and board of trustees. The challenge was to agree on a uniform set of standards and implement them across the entire health system.

This was accomplished through the efforts of a stroke task force comprised of neurologists, interventionalists, and nurses representing each hospital, as well as emergency services (inter-facility transport), rehabilitation, and NS-LIJ's home care network. The task force agreed to adopt evidence-based protocols to establish a uniform methodology for performance measurement and improvement through participation in the American Hospital Association's "Get With the Guidelines" stroke program.

Education is also an integral part of the program. Nursing competencies for stroke care, teleconferences, physician continuing education, emergency medical services education, and community events are offered. In keeping with its commitment to transparency, NS-LIJ posts stroke performance measures on its public Web site. Additional innovative initiatives include patient satisfaction reports with customized benchmarks specific to stroke patients, developed in collaboration with Press Ganey; and a long-term outcomes project that measures compliance with treatment and determines functionality at 90 days post-discharge.

### OUTCOMES

- 4.5% increase in composite score;
- 24% increase in timely administration of IV-tPA;
- 5% decrease in risk-adjusted mortality;
- 3% decrease in risk-adjusted average length of stay; and
- 7% decrease in risk-adjusted variable cost/case index.

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## Performance Improvement: Ventilator-associated Pneumonia

Arnot Ogden Medical Center, Elmira

### PROJECT DESCRIPTION

The ventilator-associated pneumonia task force at Arnot Ogden Medical Center was established in December 2004 as part of the Institute for Healthcare Improvement 100,000 Lives Campaign to reduce pneumonia in mechanically-ventilated patients and to enhance patient safety. Arnot Ogden used a multidisciplinary team approach to decrease its already low VAP rate by using the “Plan-Do-Study-Act” methodology.

The initial focus was on individual VAP bundle components, but by participating in educational programs sponsored by IHI and HANYS, Arnot Ogden was able to change its focus on total bundle compliance, or the “all or none” approach. To verify success, the facility standardized collection of ventilator days according to the National Healthcare Safety Network criteria, which enabled benchmarking with other facilities nationwide.

Over the past few years, Arnot Ogden has made adjustments in care for mechanically-ventilated patients by following best practices and recommended guidelines from the Centers for Disease Control and Prevention, using a team approach. The facility found that it is necessary to have all members of the health care team on board to be successful.

Arnot Ogden has celebrated one year since its last VAP. If trauma patients are eliminated from the data as suggested by HANYS, the last VAP actually occurred in 2006.

### OUTCOMES

- Arnot Ogden was consistently achieving 100% on its bundle composite score by the fourth quarter of 2008.
- The 2008 VAP rate was 0.52 per 1,000 ventilator days.

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## Partners in Care: Working Together to Prevent Ventilator-associated Pneumonia

Brooks Memorial Hospital, Dunkirk

### PROJECT DESCRIPTION

A partnership working toward a common goal can achieve incredible results. Brooks Memorial Hospital has gone 20 months without a single case of ventilator-associated pneumonia. This achievement was attained through the teamwork of the nurses in the intensive care unit, the cardiopulmonary department, infection prevention coordinator, and physicians on the medical staff. Brooks Memorial Hospital joined the Institute for Healthcare Improvement 100,000 Lives Campaign in 2005 and adopted the “ventilator bundle” protocol. The cardiopulmonary team implemented other equipment and procedure changes based on Centers for Disease Control and Prevention and American Association for Respiratory Care recommendations. A change to dual-heated wire ventilator circuits reduced ventilator tubing condensation. The therapist began performing cuff pressure checks to maintain adequate cuff pressures, as opposed to performing the minimal leak technique.

The hospital is now using metered dose inhalers to deliver aerosol medications and changing vent circuits only when soiled or malfunctioning. The medical staff endorsed a ventilator discontinuance protocol, using spontaneous breathing trials to assess readiness to wean on a daily basis. The most recent intervention uses non-invasive ventilation to reduce the need for intubation and mechanical ventilation.

Adoption of all of these evidence-based recommendations has contributed to sustaining a VAP rate of zero.

### OUTCOMES

- In 2005, the VAP rate prior to implementation was 17.49 per 1,000 ventilator days.
- In 2006, the VAP rate was reduced by more than 50% to 8.88 per 1,000 ventilator days.
- Since August 2007, the VAP rate is zero per 1,000 ventilator days.

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## Improving Care of Pneumonia Patients in a Complex Care Environment

Glens Falls Hospital, Glens Falls

### PROJECT DESCRIPTION

Pneumonia performance measure data showed need for improvement, so Glens Falls Hospital reorganized its work effort through a team methodology. Because of its complex care environment, multiple teams were involved, including pneumonia core measures, oversight, and change management teams.

A multidisciplinary group of professionals championed this project. Representatives from across the organization included physicians, nurses, information management experts, pharmacists, laboratory personnel, medical imaging staff, and performance improvement (PI) specialists. With their collective expertise, multiple strategies were developed, implemented, and evaluated using rapid cycle “Plan-Do-Study-Act.”

Initiatives facilitated through partnership with the information technology staff resulted in refinements to the electronic medical record that include pneumonia power plans, accurate timing of blood culture specimens, and easy identification and selection of patients eligible for influenza and pneumococcal vaccination.

PI specialists transitioned to a concurrent review process that identifies patients with pneumonia based on specific criteria. Pneumonia progress notes, color-coded pneumonia documentation reminders, and chart stickers were created. Organization-wide education and information sharing was provided at leadership and board committee meetings, and at medical staff and nursing meetings using storyboard presentations and flyers. A link to core measures data on the hospital’s Intranet was instituted.

### OUTCOMES

Glens Falls Hospital’s annual goal for pneumonia performance data was a roll-up score of 89% in 2008. The hospital exceeded its expectations by achieving 92% in the third quarter of 2008.

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## Zero VAP Utilizing IPRO Bundle in a Small Community Hospital

New Island Hospital, Bethpage

### PROJECT DESCRIPTION

Recognizing the impact of HANYS' Ventilator-associated Pneumonia Prevention Initiative on patient safety and the prospect of reducing length of stay in the cardiac care unit (CCU), New Island Hospital enrolled in the Initiative and established a goal of zero VAP occurrences in 2008. The VAP rate in 2007 was assessed at 2.2 per 1,000 patient days.

The project consisted of evidence-based clinical indicators. CCU nurses and leadership, respiratory therapy staff, and the director infection control monitored six factors: head of bed elevation, oral care, sedation vacation, readiness to wean, and peptic ulcer and deep vein thrombosis prophylaxis. Education of direct patient care staff was key. A daily ventilator bundle checklist ensured that the bundle was followed for all ventilator patients. Daily data collection showed VAP bundle compliance. Initially, compliance with the sedation vacation component was monitored at 60%.

The team was committed to a goal of a zero VAP rate in 2008 and devised a solution: a sedation vacation policy that clarified that patients not receiving sedation would not be in the denominator for the sedation vacation. Following staff education on the policy, steady performance improvement was noted, and 100% compliance was achieved. Through 100% compliance with the guidelines, New Island Hospital achieved a zero VAP rate in 2008.

### OUTCOMES

- The CCU VAP rate decreased from 2.2 per 1,000 patient days in 2007 to zero in 2008.
- VAP bundle compliance improved in 2008 from 60% to 100%.
- Ventilator days (per 1,000 patient days) decreased from 0.71 in 2007 to 0.47 in 2008, a 34% decrease.

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## Ventilator-associated Pneumonia Prevention in a Community Hospital

Olean General Hospital, Olean

### PROJECT DESCRIPTION

Pneumonia accounts for approximately 15% of all hospital-associated infections and 27% and 24% of all infections acquired in the medical intensive care unit and coronary care unit, respectively. The primary risk factor for the development of hospital-associated bacterial pneumonia is mechanical ventilation—with its requisite endotracheal intubation. With a mortality rate approaching 50%, ventilator-associated pneumonia is one of the most dreaded infections that can strike a hospital patient. Reducing mortality due to VAP requires an organized process that assures early recognition and consistent application of the best evidence-based practices: the ventilator bundle, which includes elevation of the head of the bed, daily “sedation vacations,” assessment of readiness to extubate, and peptic ulcer disease and deep venous thrombosis prophylaxis.

A team of ICU registered nurses and respiratory therapists researched best practices on care of ventilator patients. Ventilator bundle protocols were developed and implemented, exclusive use of subglottic suctioning endotracheal tubes for intubation was introduced, and tracheal sterile saline injections at the time of suctioning were suspended.

### OUTCOMES

Since the implementation of the project, improvements have been realized/sustained:

- 2005 VAP rate: 4.2%; vent days: 303
- 2006 VAP rate: 0%; vent days: 305
- 2007 VAP rate: 0%; vent days: 321
- 2008 VAP rate: 0%; vent days: 371

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## Pre-admission Testing and H&P Program

Bassett Healthcare, Cooperstown

### PROJECT DESCRIPTION

Bassett Healthcare's pre-operative history and physical (H&P) program, implemented in late 2007, enhanced both operational efficiency and patient outcomes through a comprehensive approach to pre-operative patient evaluation. This was accomplished through development of a pre-operative standardized risk assessment and risk reduction measures during the pre-operative period. The process was enhanced by an electronic documentation system providing templates for completing the work.

Because of the evidence-based, standardized processes involved, the clinical outcomes have been striking. Additionally, utilization of the electronic documentation system has resulted in stellar compliance with Surgical Care Improvement Project measures.

The program integrates the use of specially trained administrative coordinators, registered nurses, clinical support staff, and mid-level providers (nurse practitioners), with general oversight by an anesthesiologist. This team supports the surgeons in the pre-operative evaluation process.

This program covers six clinical locations in four counties in the middle of New York State. This distribution assures quality care, close to home for patients, while retaining the attention to detail and standardization required in the pre-operative assessments that have allowed Bassett to achieve the desired outcomes.

### OUTCOMES

Based on the American College of Surgeons National Surgical Quality Improvement Program comparative database, there has been a 15% improvement in surgical site infection rates, a 50% decrease in post-operative myocardial infarction rates, and a 21% improvement in 30-day mortality rates.

There has also been a decrease in the day-of-surgery cancellation rate to 5% or less, with less than 2% of those due to the patient's medical condition.

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## Improving Quality and Patient Safety Through Technology and Community Collaboration

Catholic Health System, Sisters of Charity Hospital, and Mercy Hospital of Buffalo, Buffalo

### PROJECT DESCRIPTION

In 2006, as at most hospitals, patient care units within Catholic Health System (CHS) were congested and noisy, often resulting in caregivers and internal and external care managers competing for space, charts, information, and clinician time. These situations often led to fragmented, less efficient care, with the potential to cause unsafe and poor care outcomes for patients.

CHS invested in quality management software to provide integrated clinical outcome data and serve as an automated electronic record for care management staff to better manage patients from admission to post-acute discharge. CHS also formed a unique collaboration with local health plans. By providing them with secure, remote access to CHS' software, the plans are able to better manage their members off-site, reducing inefficiencies, with the following goals:

- improve care coordination, assuring the right care at the right time;
- enhance patient safety and clinical outcomes;
- increase access to clinical information, reducing unit congestion and chart competition;
- increase efficiency in communication between case managers, caregivers, and health plans;
- reduce claim denials through improved authorization processes;
- reduce costs to health plans, providers, and patients; and
- improve staff satisfaction with enhanced processes and technology.

The system has been in place since March 2007, with additional health plan remote access expansions planned.

### OUTCOMES

This initiative:

- reduced 2008 inpatient retrospective level of care denials by 11%;
- achieved annual savings of \$300,000 in reduced staff tracking of denials;
- reduced unit congestion with remote access; and
- improved staff productivity and satisfaction.

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## Safety Improvement Initiative: Specimen Collection and Labeling of Laboratory Specimens

Erie County Medical Center, Buffalo

### PROJECT DESCRIPTION

Many medical decisions that affect patient care and treatment require the prompt and accurate reporting of laboratory results. In 2008, Erie County Medical Center organized a multidisciplinary performance improvement team to promote a culture of safety and error prevention to address a concern of appropriate labeling of specimens sent to the laboratory for testing. The team consisted of staff from the nursing, surgery, emergency, laboratory, and radiology departments.

This project reviewed the process of obtaining laboratory specimens at the patient's bedside to the point of the laboratory receipt of the specimens. The work flow process from the time of the physician order to the delivery of specimen to the laboratory was evaluated for opportunities for improvement. The initiative adhered to quality improvement methodologies including: brainstorming, survey of front line staff, flow charting of the process, using bar graphs for data collection and analysis, and the "Plan-Do-Study-Act" process.

### OUTCOMES

- This initiative has decreased the number of specimens that are not appropriately labeled by 87%.
- The workflow process was improved and barriers to labeling were mitigated.
- The team focused on the process and outcomes, not the people.

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## Service Excellence: A Framework for Delivering on Our Promise of High-Quality Care

Lawrence Hospital Center, Bronxville

### PROJECT DESCRIPTION

Through its Service Excellence Project, Lawrence Hospital Center strives to deliver on the promise made to the community in its mission statement: "To provide caring, high-quality, fiscally responsible health care services that meet the needs and expectations of the communities we serve." The hospital accepts Press Ganey feedback as the voice of the customer and works to improve service delivery to meet patients' needs. In this regard, the organization set two goals:

- achieve the 35th percentile for "Overall Survey Score" and the "Likely to Recommend" questions in the Press Ganey survey; and
- upon achieving the 35th percentile, to further meet the 50th percentile on these two benchmarks.

The deadline for meeting these goals is December 2009. Probably the greatest efforts have been made in terms of creating a short, quick loop between experience and recovery. Nurse rounding was instituted in 2008 and the results have been dramatic.

A service representative was hired in mid-2008 to organize the forwarding of surveys, do targeted rounds, and intervene as appropriate. The vice president for patient services has been instrumental in demanding that rounding take place and explaining its value to staff. The process of answering why a patient experience went astray strengthened the pressure to be on top of the patient experience at the unit and departmental level, and pushed the organization to correct recurring process issues.

### OUTCOMES

Overall Press Ganey inpatient score:

- 2007: 81 (9th percentile).
- 2009 (year-to-date): 85 (58th percentile).

Patients "Likely to Recommend" the hospital:

- 2007: 83 (11th percentile).
- 2009 (year-to-date): 88 (53rd percentile).

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## Patient Throughput: A Key Driver of Quality and Safety

Long Island Jewish Medical Center/Long Island Jewish Health System, New Hyde Park

### PROJECT DESCRIPTION

Growing evidence shows a link between over-utilization of resources and poorer outcomes. The leadership of Long Island Jewish Medical Center developed a framework for creating a more efficient environment of care with goals of improving inpatient risk-adjusted mortality and complications. Administration, in collaboration with the medical and nursing staff, identified patient throughput as a priority for 2007 through 2008 after metrics revealed long emergency department (ED) wait time, admitted patients being held in the ED, long inpatient stays, post-anesthesia care unit (PACU) holds, and discharges late in the day.

These process measures correlated with a higher than expected risk-adjusted mortality. The case for change was made using national benchmarking via the Dartmouth Atlas, the Delta Group, and Premier data sets. A rollout of key initiatives was undertaken to establish an effective and efficient inpatient-centered care model from arrival to discharge. This occurred under the guiding principle, "The right care, at the right time, in the right place, by the right people, and no more than the right care." Components included:

- hospital-wide, patient-centered throughput;
- Diagnosis Related Group (DRG)-based utilization and standardization;
- ongoing communication to ensure all levels recognize and participate in improvement activities; and
- extensive metric and scorecard development for domains including the ED, nursing units, ancillary departments, long-stay patients, specific DRGs, and ancillary test turnaround time.

### OUTCOMES

This initiative resulted in the following:

- decreased length of stay from 5.9 to 5.3 days;
- decreased ED holds at midnight from 20+ to 5.1;
- decreased PACU holds from 80 per month to 29 per month; and
- risk-adjusted mortality index (observed:expected) declined from 1.28 to 1.08.

### CONTACT

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## Use of a Value Analysis Team to Guide Safe Patient Care

Nassau University Medical Center, East Meadow

### PROJECT DESCRIPTION

While the economic challenges facing hospitals today cannot be overemphasized, it is imperative that institutions maintain patient safety and quality amid cost containment. To preserve quality care in an era where needs are infinite and resources finite, Nassau University Medical Center developed a dynamic, multidisciplinary value analysis team (VAT) that was charged with making decisions that assure the selection of cost-effective products, services, and procedures that maintain safety and quality.

The team, co-chaired by the patient safety officer and the director of supply chain management, established a formalized process for product introduction. It includes development of a product/device request worksheet stipulating cost factor analysis; formal documentation of due diligence and literature review; and an in-service education component with vendor competency stipulation, verification of 90% staff in-service target group achievement, and analysis of distributor lead time and order receipt time. Once this process has been completed, VAT determines the length of the evaluation period, anticipates the go-live date, and routes proposals to additional committees for their input. Implementation of the product or device is dependent upon successful completion of these steps.

### OUTCOMES

Achievements include the standardization of products throughout the hospital that increase the quality of care, while minimizing external costs:

- 24-hour chlorhexidine gluconate mouth care kit (prevention of ventilator-associated pneumonia)—annual expense of \$240,000, with savings of \$40,000 per event;
- Stericycle Rx Waste Compliance Program for management of state, federal, and local water regulations—annual expense of \$50,000-\$75,000, with environmental gains; and
- patient admission kit—annual expense of \$66,000, with benefits of consolidation of components, freed space for other products, and annual savings of \$23,000.

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## Effective Utilization of CPOE to Improve Patient Care Outcomes

Nassau University Medical Center, East Meadow

### PROJECT DESCRIPTION

Nassau University Medical Center established several patient safety priority areas for 2008, including reducing ventilator-associated pneumonia, improving medication management (medication reconciliation, recording of allergies, height and weight, and pregnancy/lactation status); and anticoagulation safety. Multidisciplinary teams developed specific programs for each area, including literature searches, review of appropriate studies, checklists, ordering protocols, and intensive education.

Despite education at many levels of staff, compliance with bundles, checklists, and safe ordering practices remained suboptimal. With renewed teaching, the development of internal tracers, and “just-in-time” teams, compliance in some areas remained as low as 28%.

A computerized physician order entry system, part of the Eclipsys software package, was introduced in November 2008. All medication orders and admission orders must be placed using this system.

Recognizing suboptimal compliance with the hospital’s patient safety initiatives, the checklists and protocols were all placed on CPOE, with “hard stops” added at key points, preventing the prescriber from continuing without completing the VAP bundle checklist, medication reconciliation, and/or the necessary patient-specific information. In addition, as part of the anticoagulation safety program, coumadin and heparin protocols must be followed, with appropriate laboratory work available.

### OUTCOMES

The patient safety outcomes from this initiative have been impressive:

- VAPs decreased from five to ten per month, to zero for three months;
- VAP bundle compliance is near 100%; and
- medication reconciliation has increased from 28% to near 100%.

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## Creating a Culture of Patient Safety Through Nursing Informatics

North Bronx Healthcare Network/New York City Health and Hospitals Corporation

### PROJECT DESCRIPTION

North Bronx Healthcare Network's information technology (IT) department developed an electronic medical record (EMR) in the early 1990s. Until 2000, IT provided technical support and training to all hospital staff. In 2001, the department of nursing education began providing EMR training to nursing staff, but there was no structured on-unit support, and initially "on the job training" was the order of the day.

The nursing staff had difficulty navigating the medical record, resulting in poor compliance and inadequate interdisciplinary communication. IT provided technical support but it was up to the nurses to develop templates in the EMR related to patient care, communication between disciplines, and patient outcomes.

The chief nurse executive formalized nursing's role and established a department of nursing informatics in April 2006. The department was charged with improving the computer skills of the nursing staff, facilitating data entry and retrieval, and supporting clinical decision making. The vision was to provide accessible "real time" clinical information, to achieve a paperless documentation system in the domain of nursing practice, and to support nursing research. The department of nursing informatics achieved this goal and ensured accurate and complete documentation by implementing a seamless and simple EMR in a user-friendly system with improved navigation and enhanced hand-off communication among disciplines. As a result, nurses are able to spend more time at the bedside.

### OUTCOMES

This initiative resulted in:

- improved documentation of patient assessment, reassessment, and treatment;
- an auto-populated interdisciplinary plan of care;
- an online tool that facilitated hand-off communication; and
- increased nurse time at bedside.

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## Blood Culture Contamination Rate Reduction

O'Connor Hospital, Delhi

### PROJECT DESCRIPTION

O'Connor Hospital's project began in 2007 after first and second quarter findings showed elevated blood culture contamination rates as high as 6.1%. Infection control and laboratory staff met to identify any trends. Findings suggested contamination rates for the emergency department were elevated. In-services began with laboratory and nursing staff who obtain blood specimens.

In early 2008, a multidisciplinary meeting was held, where it was noted that two separate policies were being used for obtaining blood cultures: the older policy (betadine and alcohol) and the newer policy (chlorhexadine). The team decided to adopt the use of chlorhexadine due to evidence-based recommendations. The policy was reviewed, with competency testing initiated for all blood-drawing staff. The first two quarters showed great improvement (0% for both); then, in March it spiked to 3.8%. Once again, the laboratory and infection control staff reviewed the procedure with all involved staff and competencies were re-tested. The year 2008 ended with an overall contamination rate of 0.43%.

### OUTCOMES

- This organizational collaborative effort reduced the blood culture contamination rate to 0.43%.
- Cost savings were between \$7,700 to \$27,000 per contaminate.
- Achieved staff compliance with new policy and procedure, as well as competencies.
- Decreased pharmacy costs and length of stay.

### CONTACT

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## Critical Values Reporting System for the Medical Imaging Department

St. Mary's Hospital, Amsterdam

### PROJECT DESCRIPTION

In June 2008, St. Mary's Hospital in Amsterdam implemented a Critical Values Reporting System (CVRS) for its medical imaging department because this was an area identified as high-volume and high-risk. During the CVRS planning process, St. Mary's was in a capital freeze, so this project was implemented with no increase in capital or human resources.

The CVRS replaced the emergency department discrepancy system that was deficient 68% of the time and did not have radiologist buy-in. CVRS is a functioning critical values reporting system that works not only for emergency department patients, but also inpatients and outpatients. Goals for the project were to:

- obtain 100% buy-in by radiologists;
- improve radiologist compliance with the coding to 99% or better; and
- report on all critical findings (code red) in 30 minutes or less.

The codes developed included:

- **Code R (Red):** Immediate threat to life or health of the patient.
- **Code Y (Yellow):** Reports that, if not addressed within a week or longer, may become critical to the life and health of the patient.
- **Code G (Green):** A normal report or a report with no urgent findings.
- **Code D (Discrepancy):** There is a significant discrepancy with the preliminary report of the ED physician or on-call radiologist.
- **Code C (Concur):** The final report does not contain any significant discrepancies from the preliminary report of ED physician or on-call radiologist.

### OUTCOMES

Pre-CVRS:

- Coding compliance was 32.4% (in March 2008, 719 ED imaging reports were coded, out of a total of 2,217).
- No prior data available for median/mean time of code red reporting, due to difficulty in monitoring this system.

Post-CVRS:

- Percentage of coding compliance was 99.4% in June 2008 (2,126 ED imaging reports coded out of a total of 2,238) and up to 100% by December 2008 (all 2,219 ED imaging reports coded).
- Median code red call-back time since inception is two minutes.
- Mean code red call-back time since inception is 10.81 minutes.

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## Using Nursing Evidence-based Practice at the Bedside to Improve Patient Care

Vassar Brothers Medical Center, Poughkeepsie

### PROJECT DESCRIPTION

Incorporating evidence-based practice into the acute-care setting at Vassar Brothers Medical Center has empowered bedside nurses to question traditional practices and use the current best evidence to guide health care decisions and improve outcomes for patients, physicians, and staff.

Initially, an outside expert was brought in to inspire nurse leaders and staff. A nursing evidence-based practice council was established in September 2006. The appointed members were staff nurses, nurse educators, members of the nursing leadership team, and the medical center librarian. The goal was to empower nurses to become change agents to develop and implement best practices in nursing. A simplified three-page toolkit was created based on the University of Iowa model.

At each monthly council meeting, project information is updated and new projects are reviewed for approval. To date, 18 projects have been presented to the council. At completion of each project, the team designs a poster outlining the purpose, steps, and outcomes. Several posters have been presented at regional and national conferences. Team leaders proudly present their evidence-based practice projects to the medical center's senior leadership and the clinical improvement council at monthly meetings.

### OUTCOMES

- Nurses are empowered to change practice based on evidence.
- Twelve projects were completed that promote clinical excellence, patient satisfaction, and cost reduction.

### CONTACT

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## Changing the Prescribing Culture Through Systematic Processes

Winthrop-University Hospital, Mineola

### PROJECT DESCRIPTION

Winthrop-University Hospital's systematic journey toward medication management excellence began in 2000 with the publication of the Institute of Medicine report, *To Err Is Human: Building a Safer Health System*. The application of a multidisciplinary approach to address medication complication identified trends via case review and revealed provider errors, system failures, educational deficits, and care variability.

Medication ordering processes were changed to use evidence-based order sets, risk assessments, and safety checklists. This approach proved successful. Computerized Physician Order Entry became the next step in the hospital's efforts to improve the safety of the prescribing process. The hospital committed to building the CPOE system on the foundation of processes already proven successful in the organization. This approach provided an automated environment that took ordering practices to the next level and enabled a smooth transition to the electronic record. Ordering pathways with embedded decision support such as prompts, risk assessments, safety checklists, laboratory data, mandatory selections, and order sets based upon best practice guidelines, national initiatives, and hospital priorities maximize the benefit of an automated approach to medication management and have facilitated a change in the prescribing culture and improved outcomes.

### OUTCOMES

From 2006 to 2009:

- medication variance-caused patient harm decreased 6% to less than 1%;
- verbal orders decreased 14% to less than 1%;
- inappropriate proton pump inhibitor orders decreased 55%;
- Surgical Care Improvement Project compliance improved;
- achieved 100% prophylactic antibiotic selection for colon surgical patients;
- 100% of patients receive venous thrombolytic embolism prophylaxis within 24 hours prior to or after surgery; and
- documentation mandatory via system of approved reasons: drug indication and deviation from standards.

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## Clinical Ladder Program: Paying Nurses for Performance to Improve Quality

Wyoming County Community Health System, Warsaw

### PROJECT DESCRIPTION

Wyoming County Community Health System's (WCCHS) clinical ladder program was designed to increase nurse retention while improving the quality of patient care provided by registered nurses and licensed practical nurses (LPNs). LPNs were included in the program due to the number of LPNs employed and the need to develop their skills. Recognizing and rewarding expertise in clinical practice through a clinical ladder program accomplished these goals.

The objectives were to raise the standard of nursing care by providing financial incentives for education, advanced training, professional growth, and participation in performance improvement. The framework of the program consists of longevity, continuing education, cognitive exams, PI/safety, unit-specific competencies, and performance evaluations. Compensation is based on maintaining established criteria for the level achieved. PI projects are developed by the nurses themselves and approved by the unit manager. Projects must be based on evidence with stated goals and objectives, implementation strategies, and include an evaluation of the project and/or process change. PI projects can be developed independently or in collaboration with co-workers, nursing leadership, other departments, and/or administration. PI project updates are submitted quarterly to the director of nursing and a "PI Showcase" is displayed via storyboards in the lobby, highlighting improvements in patient care and/or customer satisfaction and conveying WCCHS' investment in the nursing staff and commitment to quality.

### OUTCOMES

- Nurse turnover reduced 2.4%.
- Urinary tract infections associated with catheters were reduced 28%.
- Surgical site infections on obstetrics/gynecology unit were reduced 40%.
- Documentation requirements increased 46%.
- Emergency triage and throughput improved.

### CONTACT

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## Medical Resident Performance Improvement and Peer Review Training Module

Catholic Health System, Sisters of Charity Hospital, and Mercy Hospital of Buffalo

### PROJECT DESCRIPTION

The University of Buffalo Internal Medicine Training Program's Performance Improvement and Peer Review Module, developed by Catholic Health System's Sisters of Charity Hospital and Mercy Hospital of Buffalo, is an innovative approach to medical education with a special concentration in quality improvement and patient safety. This unique, mandatory, month-long rotation provides valuable training in all aspects of quality management and patient safety to better prepare medical residents for the agencies, measurement tools, and programs they will encounter in private practice. Specifically, the program was developed to prepare medical residents for full application of mandatory Joint Commission standards and Accreditation Council for Graduate Medical Education competencies, especially in patient care, interpersonal communication skills, and practice-based learning.

By fully integrating core measures and other quality improvement tools, these doctors are better equipped to meet the challenges of 21st century medical practice, deliver higher quality care, and see improved patient outcomes. This program further educates the doctors of tomorrow on quality and patient safety practices in accordance with the Institute of Medicine and The Joint Commission. To date, nearly two dozen residents have completed the training module, investing more than 3,000 hours of clinical study and evaluation. Nearly 1,000 chart reviews, occurrence investigations, and focused reviews have been conducted, positively impacting the care of hundreds of patients.

### OUTCOMES

This initiative resulted in:

- enhanced interpersonal and communication skills;
- increased awareness of the importance of appropriate documentation;
- appreciation for seamless continuity of care from the inpatient to outpatient setting; and
- increased confidence and experience.

### CONTACT

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## **Innovations in Health System-wide Nursing Orientation: A Solution for Quality and Safety**

North Shore-Long Island Jewish Health System, Great Neck

### **PROJECT DESCRIPTION**

Committed to becoming a quality leader, North Shore-Long Island Jewish Health System has established a zero tolerance standard for patient safety and error prevention. The mission of the Health System's Institute for Nursing is to promote health and quality through innovations in nursing practice, research, and education. NS-LIJ believes patient safety can only be achieved through staff competency. Thus, an innovative, standardized, centralized, system-wide nursing orientation program was developed to integrate and disseminate evidence-based practice and standards across the health system.

The program uses blended learning strategies including state-of-the-art, high-fidelity simulation, asynchronous e-learning, and realistic case studies to orient clinical staff. Measurement instruments were designed and quantitative data collected. Pre- and post-program measures of safety across the continuum of care are analyzed and recommendations made. All simulation sessions are video-recorded and conclude with a debriefing session with a nurse educator. Newly hired nurses demonstrate the application of knowledge in priority areas including assessment, prevention of hospital-acquired infections and pressure ulcers, safe medication practices, and interdisciplinary communication. The nursing orientation curriculum addresses process of care measures, The Joint Commission National Patient Safety Goals, Institute for Healthcare Improvement 5 Million Lives Campaign interventions, and World Health Organization recommendations.

### **OUTCOMES**

- Critical performance outcomes improved from 27.5% and 57.4% to 92.7% and 84.6%, respectively.
- Site-based orientation programs reduced from four to seven days, to one to two days, on average.
- Program variation and redundancy were eliminated.

### **CONTACT**

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## “Can We Talk?” About Communication and Patient Safety

North Shore University Hospital, Manhasset

### PROJECT DESCRIPTION

The leadership of North Shore University Hospital recognized that clear communication is essential for promoting patient safety and positive outcomes. A comprehensive health literacy/patient education program standardized the development of patient education tools and enhanced multidisciplinary communication. The patient and family education committee was used as a foundation and vehicle for many of the initiatives.

The objective was to develop health literate patient education materials using a consistent method and process, enhance staff awareness of health literacy, educate staff regarding the link between patient safety and health literacy, and empower patients and families to ask “who is in charge” of their care. More than 80 patient/family/staff materials were developed. The tools developed improved rapid response activations and heart failure discharge instructions.

Over the past 2-1/2 years, with no additional staffing, the committee, through its structure and use of consistent methodology and technology, has begun to change the hospital culture to be more safety-oriented.

### OUTCOMES

Outcomes included:

- 83 patient education materials available on HealthPort;
- heart failure discharge instructions improved from 58.6% to 100%;
- rapid response activations increased from 166 to 584; and
- “Who’s in Charge” physician identifier in medical record 92% of the time.

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## Building a Patient Safety Culture

Aurelia Osborn Fox Memorial Hospital, Oneonta

### PROJECT DESCRIPTION

In 2007, Aurelia Osborn Fox Memorial Hospital established a goal of building a patient safety culture in the hospital. Recognizing that culture change involves education, buy-in, and support from all different levels in the institution, the quality team has been the driving force, with its pulse on the various departments and personalities involved. The hospital used the quality improvement principle of teamwork within the quality management system and the patient safety team, and between disciplines, units, and departments throughout the hospital. Another goal was to implement the Institute for Healthcare Improvement 5 Million Lives Campaign's "Boards on Board" initiative.

The facility recognized that building a patient safety culture is a process with no defined end, but one that will constantly change as new ways of thinking are embraced throughout the facility. Therefore, the changes and improvements that have been achieved thus far are only the beginning.

### OUTCOMES

- Increased staff accountability/involvement with quality measures.
- Positive response to the patient safety fair.
- Cost-effective implementation, including postage, office supplies, and staff resources.
- Agency for Healthcare Research and Quality safety culture survey responses:
  - "We are actively doing things to improve patient safety," increased from 68% in 2005 to 95% in 2008.
  - "Patient safety is never sacrificed to get more work done," increased from 51% to 92%.
  - "Mistakes have led to positive changes," increased from 49% to 86%.

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## Building a Culture of Safety, One Survey at a Time

Clifton Springs Hospital and Clinic, Clifton Springs

### PROJECT DESCRIPTION

Clifton Springs Hospital and Clinic's concentrated efforts to build a culture of safety began in 2001 when a survey revealed that 76% of employees felt they would be blamed if they reported a mistake. In 2008, only 9% of respondents report that fear of being blamed. What changes were made?

The facility implemented evidence-based guidelines for many conditions including ventilator-associated pneumonia (zero cases in last 14 months). Analysis of causes of variation has led to many process changes, improved flow, increased efficiency, and reduced waste. The governing board is "Getting on Board" and patients are "speaking up." The World Health Organization Surgical Checklist is being tested.

However, all of these important changes are not enough to make care safe. The facility understands that system and process issues have potential for placing patients at risk, and the first step is to understand those issues. To that end, the facility has worked continuously since that first survey to build trust through leadership, to reduce barriers to effective communication among all members of the team, and to reduce variation in processes to make care predictable and safe. Clifton Springs' work in 2009 has been prioritized using the Agency for Healthcare Research and Quality's (AHRQ) "Ten Dimensions of Culture" and data from 2008.

### OUTCOMES

- 76% employees feared blame in 2001; 37% in 2003; 26% in 2005, and 9% in 2008.
- Improved scores from 2005 to 2008 AHRQ survey and 83% of questions scored above AHRQ benchmark in 2008.
- 34% employees reported a "near-miss" in 2005 survey; this increased to 71% in 2008.
- 56% employees report that mistakes have led to positive changes in 2005; 74% report same in 2008.
- In 2005, physicians said 20% calls from nurse are appropriate; this rose to 68% in 2007; nurses rate doctor approachability at 76% in 2005 and 94% in 2007.
- Patient rating of care is linked to employee satisfaction: peer group ranking (Press Ganey) in 2004 was 62; this increased to 95 in 2008.

### CONTACT

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## Team Action Planning for Safety and Quality Improvement

Clifton Springs Hospital and Clinic, Clifton Springs

### PROJECT DESCRIPTION

Learning from mistakes can be humbling. In the environment of behavioral health care, learning opportunities often come from mistakes made, but also from processes deemed inefficient and procedures deemed ineffective. In 2007, a multidisciplinary behavioral health team embraced a request from the State Office of Mental Health (OMH) to report incidents electronically.

The team translated what could have been simply a bureaucratic requirement into an opportunity for improvement of clinical practice and operations that directly impact patient safety and clinical quality. A three-phase incident management and team action planning (TAP) model was developed to involve all stakeholders, resulting in specific practice improvement actions, accountabilities, and timelines.

The three-phase incident management and TAP model involves:

- identification and investigation of incident or near-miss events, with requisite reports to OMH, Outcome and Assessment Information Set, and/or Quality Care Commission via the New York State Incident Management Reporting System;
- convening a special review and root cause analysis meeting by the clinical, administrative, and performance improvement teams—actual practice is analyzed against best practice standards, and process, human, and/or environmental issues are identified; and
- the behavioral health leadership team and PI director develop actions, accountabilities, and timelines for completing actions. Outcomes are assessed by the leadership team, including performance measures and direct feedback from clinical staff and patients.

### OUTCOMES

Quantitative and qualitative outcomes have been observed in response to the TAP model of incident management:

- untoward events and major incidents were identified, reported, and analyzed with greater frequency from 2007 to 2009;
- 100% of behavioral health clinical, administrative, and system quality team participants agree or strongly agree that TAP increases reporting accuracy, promotes root cause analysis, encourages practice standard assessment, and results in actions that increase safety and quality; and
- TAP yielded actions improving safety and quality with greater frequency from 2007 to 2009.

### CONTACT

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## Maintaining a Culture of Sustainable Quality in a Community Hospital

Lakeside Health System, Brockport

### PROJECT DESCRIPTION

Lakeside Health System has sustained high-quality care using Lean Manufacturing and Six Sigma principles. Process development included input from interdisciplinary teams. Processes related to Institute for Healthcare Improvement recommendations and Centers for Medicare and Medicaid Services (CMS) quality metrics were initial targets of standardization, with sustained success in acute myocardial infarction, congestive heart failure, and pneumonia. Standardization of surgical care was also expanded.

A Surgical Service Flow Sheet (SSFS) prompts and documents actions in accord with CMS and Surgical Care Improvement Project metrics. The SSFS documents compliance with deep vein thrombosis (DVT) prophylaxis consideration, surgical site marking, and pre-operative verification. The surgical team took immediate ownership of the process and changed the culture throughout perioperative services.

The SSFS accompanies patients during the operative process. The standard process gives several chances to comply with SCIP initiatives. Pre-operatively, there are several chances for DVT prophylaxis and confirmation of antibiotic orders and infusion. The time-out, which includes SCIP initiatives, is initiated before incision. The post-operative period offers a third chance for DVT prophylaxis, time to take patients' temperatures, and halt antibiotics.

SSFS data serve as cues during the process and allow real-time quality assurance.

### OUTCOMES

Lakeside maintained gains in CMS measures while achieving 100% compliance with 19 SCIP metrics applicable to the facility. For 14 SCIP metrics, this has been sustained for several quarters.

### CONTACT

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## Creating a Culture of Mutual Respect

Maimonides Medical Center, Brooklyn

### PROJECT DESCRIPTION

Mutual respect is a critical ingredient for patient safety. Disrespectful behavior has been linked to poorer patient outcomes. The Joint Commission recently issued a “Sentinel Alert” concerning disruptive behavior in hospitals, and as of January 2009, TJC requires accredited hospitals to have a process in place to treat all members of the health care team equally—in particular, physicians. In 2004, the Maimonides Medical Center (MMC) medical staff endorsed a “Code of Mutual Respect.”

Beginning with perioperative services in 2005, a pilot program was designed and implemented to help team members be more respectful and to hold them accountable for their behavior. The key components included: nurse/physician leadership, mediated conversations, communication skill building, and the tracking of systems issues causing frustration. Surveys were used to measure respectfulness before, during, and after a year of training sessions, with a two-year follow-up. Qualitative and quantitative data indicating improvement in respect led to extending the initiative to pediatrics and obstetrics/gynecology.

A hotline was established to encourage the reporting and investigation of disrespectful behavior, with a consistent progressive discipline process created for all members of MMC. Transforming the culture at MMC to achieve a critical mass required continued leadership, diligence, and support from all levels to embed respect, teamwork, and patient safety.

### OUTCOMES

Results show improvements; notably: a 22% increase in the operating room (OR) staff’s willingness to speak up, a 20% increase in OR staff’s perception of how leaders handle disrespectful behavior, and a 19% increase in overall OR respectfulness.

### CONTACT

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## Patient Safety Fridays: A Method for Advancing a Culture of Safety

NewYork-Presbyterian Hospital, Manhattan

### PROJECT DESCRIPTION

In 2008, NewYork-Presbyterian Hospital instituted a schedule of formalized rounds across its five campuses. Each Friday, up to 1,000 members of the hospital's management staff (clinical and non-clinical) convene at 8 a.m. at each of its sites for a one-hour didactic session on one clinical and one environment-of-care topic. Clinical topics include medication reconciliation, "do not use" abbreviations, and patient verification. EOC topics include fire safety, medical equipment, and emergency management.

Following these didactic sessions, tracer teams visit all clinical areas, including laboratories, radiology, operating suites, and patient care units. These teams engage the staff in tracer activities based on the weekly topics. A standardized "tracer tool" was developed for data collection. Following the two-hour tracer period, teams debrief and report results of their tracer activity. Unit-level tracer results are entered into a centralized database.

Educational material is posted on the hospital's intranet and "job aids" are provided as teaching tools for unit managers and staff. During the week, management reinforces the education topics with front line staff.

To ensure focus, the morning is designated as e-mail- and Blackberry-free.

Fridays are further reserved for quality and patient safety-related meetings and activities; no other meetings are scheduled.

### OUTCOMES

- Data are collected weekly from among 65 EOC and 100 clinical measures.
- Areas with significant improvement include hand hygiene (improved from 70% to 96% compliance), medication reconciliation (76% to 100%), and patient verification (78% to 100%).

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## Engaging Front Line Staff in Patient Safety

North Bronx Healthcare Network/New York City Health and Hospitals Corporation

### PROJECT DESCRIPTION

In mid-2006, leadership committed to increase visibility and solicit staff participation in identification of patient safety issues via “good catch” reporting and executive walk rounds, and to take action on the information obtained.

Staff were receptive and enthusiastic about sharing problems; however, the issues they discussed were initially generic. This changed as the staff learned to trust that leadership was committed to problem-solving in an atmosphere of mutual respect. The issues became more substantive, with increased reporting of patient occurrences. As a result, system changes have occurred, especially in the high-risk system areas of patient identification and communication. These changes have led to improved patient safety and staff engagement:

- a change in radiology patient access;
- using Failure Mode and Effect Analysis on patient identification;
- more efficient and accurate labeling of specimens in the emergency department;
- rapid response team expanded to psychiatry;
- expansion of Pyxis medication dispensing;
- more crash carts;
- revised patient transport protocol;
- pediatric security system improved;
- safeguards to ensure that patient food allergies are properly considered; and
- changes in the magnetic resonance imaging suite.

### OUTCOMES

An increase in the number of patient safety concerns reported and a decrease in the number of claims and mortalities evidences the commitment of staff to improve every facet of patient safety.

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## Spreading the “LifeWings” of Safety

Northern Dutchess Hospital, Rhinebeck

### PROJECT DESCRIPTION

In April 2008, Northern Dutchess Hospital (NDH) initiated “LifeWings,” an innovative program designed to streamline communication, optimize teamwork, and enhance patient safety.

Originally developed for the aviation sector, LifeWings protocols readily translate to health care facilities. Its concepts are now successfully used in NDH’s operating room and obstetric areas—the hospital’s largest and busiest units—with plans to branch out into other departments, starting with the emergency department. The program exceeds 2009 mandated time-out requirements for preventing wrong-site surgery.

NDH’s partnership with LifeWings began with staff training and communications tool development, followed by implementation, evaluation, adjustments, and ongoing monitoring. In August, NDH senior team members—including Denise George, R.N, President and Chief Executive Officer—“scrubbed in” to observe how the time-out process was working, with an eye toward addressing challenges.

During training, physicians and staff were given the skills to communicate more effectively and coordinate their duties—skills that are especially critical at shift change or when patients are being moved to another department. The team developed standardized templates for checklists and briefings that assure all relevant patient information is transmitted during “hand-offs.” The OR developed a standardized time-out protocol for invasive procedures. These proprietary tools have resulted in across-the-board commitment and 100% compliance.

### OUTCOMES

Due to checklist standardization, improved communication, and unit teamwork, patient safety was enhanced, and there were rate decreases in many key areas from 2007 to 2008:

- discrepancies—48%;
- near misses—64%; and
- medical errors—63%.

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## Creating Culture Change Utilizing Innovative Educational Methods

South Nassau Communities Hospital, Oceanside

### PROJECT DESCRIPTION

In response to staff learning needs, South Nassau Communities Hospital's behavioral health unit (BHU) began a journey that ultimately created a culture change throughout the organization. The nursing leadership team and BHU staff noticed an increase in staff injuries correlating with a rise in patients' violence and acting-out behaviors. The staff's ability to function competently, confidently, and cohesively was adversely affected.

The leadership team researched programs that would address a multitude of issues. Problems included the ability to process and manage escalating situations, increase tolerance for pathology, and maintain patient/staff safety while being able to intervene in a cohesive manner. An evidence-based practice program to educate direct care staff on innovative de-escalation and protective strategies was implemented with support from nursing administration and BHU leadership. This translated into practice, aligning with the Institute of Medicine's major aims, i.e., providing safe, patient-centered, cost-effective, and efficient health care.

The education met many goals including promoting patient/staff safety through the early recognition of escalating situations, enhancing verbal/nonverbal strategies for de-escalation, utilizing protective safety strategies, and cultivating a multidisciplinary team approach. The outcomes were significant and resulted in the expansion of the program to include other acute inpatient and outpatient areas, the security department, and nursing administrators.

### OUTCOMES

- A direct correlation was made between staff satisfaction and de-escalation/protective strategies education and decrease in restraints.
- Reduced unit restraint rate by 86% and time in restraints by 80%.
- Decreased staff injuries by 61%, thereby eliminating need for benefit/overtime use.
- Increased unit staff satisfaction 3.2%.
- The increased staff confidence/cohesiveness and enhanced intervention skills resulted in sustained positive outcomes. Staff trained: 243.
- Receptiveness to the education program and its values led to an increased dedication/commitment to restraint reduction.
- Culture change was created across the hospital continuum via innovative educational concepts.

### CONTACT

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## A Date With Patient Safety

St. Francis Hospital—The Heart Center, Roslyn

### PROJECT DESCRIPTION

St. Francis Hospital's unwavering commitment to patient safety is embedded within its culture and is evident in every patient encounter. At orientation and at every opportunity, patient safety is a topic of discussion. However, promoting patient safety initiatives can become a daunting task as regulations and requirements are added, enhanced or revised by federal agencies and accrediting bodies. Communicating these changes to staff in a timely and effective manner can be a challenge to both those providing the information and those receiving it. The new information staff receive can be lost or overlooked, or simply not retained with the many competing priorities with which staff must contend.

St. Francis Hospital's patient safety committee sought a new delivery medium to communicate patient safety to staff on a daily basis, and designed the first St. Francis Hospital Patient Safety Calendar in 2006. The calendar serves many purposes, the most important of which continues to be communicating patient safety to staff in a delightful and acceptable manner. It includes safety practices such as needle-stick safety, influenza prevention, fire prevention, emotional wellness, fall prevention, hand-off communication, rapid response team—including Condition-H for patients and families—emergency management, anticoagulation safety, universal protocol, infection control, medication reconciliation, and preventing medication errors.

### OUTCOMES

Measures of success used to determine the success of the patient safety calendar were setting and meeting required deadlines, its usability, staff feedback, and setting and meeting budget requirements—all three editions met all measures.

### CONTACT

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## Lift By Exception: Taking Care of Patients and Staff

Champlain Valley Physicians Hospital Medical Center, Plattsburgh

### PROJECT DESCRIPTION

Studies show that patient caregivers have more work-related musculoskeletal disorders than truckers or laborers. In January 2008, Champlain Valley Physicians Hospital Medical Center developed a “Lift By Exception Program” to lessen staff and patient injuries related to patient handling. The premise is that any patient handling requiring more than minimal assistance should be done using mechanical equipment.

All staff were educated on using new equipment to meet all transfer needs, ranging from gait belts for ambulation, to lateral transfer sheets, standing-transfer aids, and lifts for totally dependent patients. A patient handling assessment tool that determines the level of assistance each patient requires, is used on admission or when patient status changes. This documentation is passed on in daily nursing kardex printouts.

Equipment is stored in a designated room, with slings and transfer sheets hung for easy access. Laundering is done in-house to prevent loss and promote speedy turnaround for re-use. Disposable single-patient slings are available for isolation patients. Correct amount, size, and type of slings ensure availability when needed.

With proper equipment and removing obstacles for ease of use, CVPH significantly decreased patient handling injuries and related costs. Less lost work days from injuries also means better staffing for patient care. Due to this program’s success, it is being launched on other units.

### OUTCOMES

- 55% decrease in staff patient handling injuries.
- 97.5% cost reduction spent on medical claims (\$50,000 less on one unit).
- 92% fewer lost work days for staff.
- Staff satisfaction on survey rose from 35% to 86%.
- 25% reduction in patient falls.

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## Patient Safety is NOT a Bowl of Cherries

Saint Francis Hospital and Health Centers, Poughkeepsie

### PROJECT DESCRIPTION

St. Francis Hospital and Health Centers' journey began with a near-miss in 2007 when a bowl of fruit cocktail was delivered to a patient with a severe cherry allergy. The review of her record showed only one discipline had noted the allergy. A root cause analysis surfaced other types of allergy-related events and the organization realized its action plans had been too specific—the problem was organization-wide.

A Failure Mode and Effect Analysis team conducted an initial record review and found about 18 places where allergies could be documented. No records had consistent information. With the FMEA template, St. Francis mapped all the ways allergies could be in a record, identified failure modes, and calculated severity probability and detectability to find modes most at risk for patient harm.

Using The Joint Commission principles of medication reconciliation, the hospital created a centralized allergy reconciliation e-form. The form was pilot-tested, revised, and launched in June 2008.

All clinical departments were educated and their forms revised; allergy sections now direct users to the new e-form.

Some physicians were reluctant to make this change; in December 2008, with a collaborative rather than confrontational approach, the organization engaged them in the re-design.

### OUTCOMES

- 100% of records reviewed now have accurate and consistent allergy documentation, providing reliable information to all.
- The form is electronically generated upon re-admission.
- The process saves time, improves care, and everyone buys in!

### CONTACT

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## Unit-Based Patient Safety Nurses

Strong Memorial Hospital, Rochester

### PROJECT DESCRIPTION

In response to The Joint Commission Goal 7, Strong Memorial Hospital developed a unit-based “safety nurse” role to improve quality care outcomes. In addition to the delivery of direct patient care, the safety nurse assumes responsibility for collaborating with infection prevention nurse practitioners and industrial health hygienists to promote safe care delivery practices that focus on both the patient and the employee, to:

- ensure nursing staff adherence to scientifically accepted principles of infection prevention strategies;
- help monitor staff performance related to the prevention of hospital-acquired infections; and
- collaborate with the unit leadership team to achieve targeted outcomes reflective of safe and effective delivery of care.

The department of nursing practice, in consultation with nursing and medical experts, developed a formal safety course that covers risk reduction strategies and best practices for prevention of hospital-acquired infections and pressure ulcers, and for improved employee safety. Continuing education is provided on a monthly basis to support continuing role development. Safety nurses have been instrumental in the peer vaccination program for influenza immunization, participated in the quarterly pressure ulcer surveillance for the Nursing Database for National Quality Indicators, identified patient equipment requiring replacement, conducted chart reviews for line-related infection investigation, and have taken the lead role in the Methicillin-resistant *Staphylococcus aureus* surveillance project.

### OUTCOMES

In 2008:

- hand hygiene compliance improved from 75%-80% to 92-95% before and after patient care, respectively;
- the pressure ulcer rate decreased from 15% to 6%; and
- falls decreased in adult medical units from 5.8% to 2.6%.

### CONTACT

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## Hourly Rounding: A Surgical Unit's Shared Governance Approach

SUNY Upstate Medical University Hospital, Syracuse

### PROJECT DESCRIPTION

A nursing shared governance team for a 33-bed surgical unit enhanced the culture of patient safety and improved patient satisfaction using an innovative approach to hourly rounding. The “5 Ps” were implemented during hourly rounding: pain, potty (toileting), positioning, per os (PO—fresh drink), and possessions (in reach). Staff helped develop the following tools to hard-wire success: bedside whiteboards, communication bulletin boards in halls and staff rooms, patient doorway magnets visually identifying rounding completion, identification badge scripting cards, and framed posters describing the 5 Ps in each patient room. These tools were used to communicate expectations; for scripting; and to enhance teamwork, participation, and accountability for hourly rounding.

Staff focused on proactive anticipation of patients' needs and communicating more effectively with patients. Allowing staff to be creative and innovative with hourly rounding increased participation in shared governance. The charge nurses, manager, and the nursing executive team hard-wired accountability, not through compliance with rounding logs, but rather by asking the patients. The hospital knows hourly rounding is occurring because its patients say so. All nurse leaders actively round on patients daily to ensure their expectations and needs are being met. Nurse leaders use thank-you cards and personal praise during their nurse leader rounds to recognize good performance, and support continued efforts to improve hourly rounding by giving staff effective feedback.

### OUTCOMES

- Press Ganey patient satisfaction with nurses score improved from 5th to 94th percentile.
- Quarterly unit-acquired pressure ulcers decreased from 4% to 0%.
- Monthly fall rate decreased from 8.21 falls per 1,000 patient days to 2.84.

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## Reduction of Patient and Employee Injuries Due to Patient Aggression

WCA Hospital, Jamestown

### PROJECT DESCRIPTION

The National Institute for Occupational Safety and Health has found that an average of 20 workers are murdered each year in the United States. In addition, an estimated 1 million—18,000 per week—are victims of nonfatal workplace assaults.

Patients often become violent due to a variety of medical issues and feelings of frustration, vulnerability, and lack of control over the situation. WCA Hospital had experienced an increase of employee and patient injuries, and new restraint and seclusion standards limit the viability of these methods to control violence. In 2007 and 2008, WCA Hospital began a program to reduce violence by educating staff on the risk factors for violence in health care settings and to provide strategies for reducing exposure to these factors.

The impact of this has not only been a reduction in employee injuries, but also patient injuries. Patient injuries were reduced through fewer physical interventions between staff and patients.

### OUTCOMES

- Employee injuries due to patient violence—39% reduction.
- Patient injuries due to patient aggression—35% reduction.
- Minutes per 1,000 patient hours of physical intervention—39% reduction (adolescent mental health unit).

### CONTACT

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## Falls Reduction Initiative

Canton-Potsdam Hospital, Potsdam

### PROJECT DESCRIPTION

A 2008 rate of 2.52 falls per 1,000 patient days is inconsistent with Canton-Potsdam Hospital's culture of patient safety. A falls reduction initiative, including staff education, safety equipment, and rewards/recognition, effected an 84% reduction in the fall rate during the first two months of 2009.

In divisional meetings, the chief nursing officer asked that staff remain in rest rooms with patients at risk to fall. The physical therapy director re-educated staff on the use of gait belts to assist with moving patients. Gait belts, previously scattered throughout the units, were placed in each patient room to ensure ease of access/use. Medical-surgical unit directors added more Wander Guards, increasing the number available to more than 30, shared across two 27-bed units. The Colors of Patient Safety Program was implemented in February with the universal yellow indicating a patient is at risk to fall. The hospital chief executive officer (CEO) and senior leaders provided rewards/recognition for success.

Medical-Surgical Unit 2 led the way, tracking results daily, creating a banner hung prominently on the unit, visible to staff, patients, and visitors, with numbers updated for every day without a fall. Medical-Surgical Unit 3 adopted this strategy, following the example of "days without injuries" used in many industries. Senior leaders pledged rewards at 60 and 75 days with no falls, with a CEO-sponsored dinner if 100 days were achieved. Medical-Surgical Unit 2 achieved a high of 73 days with no falls.

### OUTCOMES

An average of 0.55 falls per 1,000 patient days was achieved year-to-date in 2009, down from an average of 2.52 falls per 1,000 patient days in 2008. The staff are more aware of fall risks and more consistent in efforts to prevent falls.

### CONTACT

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## Decreasing Risk of Injury Related to Falls in the Neuroscience Unit

Ellis Hospital, Schenectady

### PROJECT DESCRIPTION

Considerable attention has focused on reducing inpatient falls in the acute care population over the past decade. Patient safety initiatives have included interventions such as early identification of high-risk patients, initiation of bed and chair alarms, hourly rounding, and use of one-on-one sitters. Despite these interventions, neurologically impaired patients continue to fall in the acute care setting. Since 2005, the neuroscience unit has worked on identifying high-risk patients and implementing appropriate interventions to reduce the number of falls that occur in the acute care setting. However, after substantial efforts to reduce all falls, Ellis Hospital recognizes that every fall cannot be prevented; therefore, the current focus is on prevention of injuries related to falls.

Using the “Plan-Do-Study-Act” methodology, steps were taken to understand why patients continued to fall and what types of falls resulted in patient harm. The team reviewed all patient falls for trends from 2005 to 2007. A significant number of injuries resulted from bed-related falls.

With the cooperation and support from senior management, low beds were introduced into the neuroscience unit. Initially, beds were rented and extensive education was presented to the inpatient team, including the use of inclusion and exclusion criteria for patients qualifying for a low bed.

### OUTCOMES

Using a severity scale, patient falls were rated to define type of injury and harm to patients. No severe injuries were reported on high-risk fall patients who were placed in low beds based on inclusion/exclusion criteria.

### CONTACT

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## SAFE Program and Patient Care Sitters for Patient Safety 1:1

John T. Mather Memorial Hospital, Port Jefferson

### PROJECT DESCRIPTION

The nurse executive committee at John T. Mather Memorial Hospital was challenged to ensure patient safety and provide appropriate staffing in a cost-effective manner. To assist with one-to-one (1:1) patient safety needs, the committee developed and implemented a new position classification called patient care sitters, which did not require the skill set of a nurse aide.

The Patient Care Sitter Program provided 1:1 coverage for medical surgical patients who were determined to be a moderate fall safety risk. The sitter would provide companionship; prevent patients from dislodging tubes or therapeutic devices; assist with feeding; walk ambulatory patients; and help staff with bed-making, toileting, and patient positioning. Patient care sitters could not be assigned to patients with complex care needs, behavioral health problems, or those patients who were at risk for aspiration.

Recruitment measures to secure per diem status patient care sitters began in September 2008. Successful recruitment yielded five patient care sitters who were educated, oriented, and in place by November 2008. Each month thereafter additional patient care sitters were recruited. By February 2009, 30 per diem patient care sitters were in place.

### OUTCOMES

- Overtime utilization for 1:1 patient safety day shifts decreased by 28 shifts over four months.
- Nurse aide staffing ratios improved for the medical/surgical units.
- One repeat fall occurred over four months.

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## SmartMoves

Mount St. Mary's Hospital and Health Center, Lewiston

### PROJECT DESCRIPTION

Mount St. Mary's Hospital and Health Center implemented SmartMoves, a safe patient handling program designed to eliminate preventable patient handling injuries to patients and associates by creating a safe and healthy lifting environment. The program combines state-of-the-art patient handling equipment, evidence-based policies and procedures, and mentor-based nurse and other care provider training to create a safe work environment for both employees and patients.

The project uses "Super Users," staff trained in different departments in the hospital that have become "experts" in patient handling and equipment. These staff are the ones who promote the ideology of safe patient handling in the departments and assist in conducting in-service and facility trainings. With this program, Mount St. Mary's Hospital looks to create a culture of safety surrounding the handling of all patients. The ultimate goal will be to reduce worker injury and address the reduction of pressure ulcers, falls, and care for bariatric patients.

### OUTCOMES

In the two units where the program was initially rolled out, staff use patient handling equipment to maneuver patients. In the first six months, there were two patient handling injuries, compared to five injuries in the same period of the prior year.

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## An Organizational Approach to Fall Prevention

Southampton Hospital, Southampton

### PROJECT DESCRIPTION

In 2006, the patient fall index at Southampton Hospital was 5.0, with 19% of the patients who fell sustaining a Level 2 injury or higher. A multidisciplinary team was formed with representatives from nursing, quality, physical therapy, pharmacy, and a physician consultant. The team:

- conducted a nursing survey for staff input;
- conducted an environmental safety assessment of patient rooms;
- reviewed staffing, policies/procedures, practice standards, and documentation; and
- conducted root cause analysis of a fall and Failure Mode and Effect Analysis of the process.

Action plan:

- created fall tracking form with post-fall assessment;
- trending analysis including time of day, polypharmacy, etc.;
- concurrent fall review by nursing and physical therapy;
- education on risk assessment, use of bed alarms, including family in plan of care;
- revised nursing assistant hiring practice and orientation;
- reviewed and implemented evidence-based practices;
- changed slippers to match color of safety;
- rapid response by nursing supervisor to all patient falls with assessment, planning, and intervention (physician involvement as needed);
- revised patient care assignments, breaks, and meal periods;
- developed chief nurse officer (CNO) report card with monthly tracking of nursing-sensitive indicators, patient care hours, and patient outcome;
- periodic review/revision of the fall plan; and
- competency validation.

### OUTCOMES

- Enhanced communication, supervisor support, staff education, and an organizational commitment resulted in a 29% reduction in patient falls and an 89% reduction in Level 2 or above injuries resulting from a fall (down from 18 in 2006 to two in 2007 and two in 2008).
- Using restraints was not acceptable, which led to major revision of the restraint policy as an organizational initiative, resulting in a 53% reduction in the average restraint index in 2007, which was maintained in 2008.
- The CNO report card provides a monthly summary of outcomes; benchmarking for safe staffing resulted in identification of and approval to increase the hours per patient day from 4.8 to 6.1.

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## Hospital Environmental Services Staff: Important Drivers of the Infection Control Agenda

Northeast Health/Albany Memorial Hospital/Samaritan Hospital

### PROJECT DESCRIPTION

Samaritan Hospital and Albany Memorial Hospital, members of Northeast Health, used strategies that allowed environmental services staff to become active participants in reducing infection rates through interdisciplinary meetings, huddles, and focused infection control training. This was done with a multidisciplinary group that included the infection control practitioner and nursing and education staff.

A pilot unit was picked at each hospital for testing a high-touch area room cleaning checklist. The use of the checklist was measured as an all-or-nothing score. Each one of the 20 items on the checklist had to be cleaned properly for the room to be considered clean. Inspections of the rooms were done by the environmental services supervisor, with immediate feedback to the staff person.

This process and use of the checklist resulted in marked improvement in cleaning of high-touch areas in the rooms.

### OUTCOMES

The initial results found that less than 10% of the rooms met compliance with the high-touch checklist. The goal was to have 80% of the rooms meet compliance with the checklist. This goal was reached by August 2008 and has been sustained.

### CONTACT

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## Hand Hygiene Improvement

Columbia Memorial Hospital, Hudson

### PROJECT DESCRIPTION

Columbia Memorial Hospital formed a multidisciplinary hand hygiene committee comprised of nursing, infection control, education, materials management, environmental services, medical records, primary care, speciality centers, and laboratory staff to address hand hygiene. The committee developed a facility-wide awareness and education plan and implemented the following measures.

Staff education was implemented through in-services that consisted of a video, verbal instruction, return demonstration using a blacklight, and completion of hand hygiene competency. Hand hygiene education is also incorporated into new employee orientation. A hand hygiene article was submitted and published in local newspapers in fall 2008 titled, *Hospital Stresses Hand Hygiene During Flu Season*. An article was also published in the hospital newsletter to reinforce hand hygiene concepts. Similar articles will be published throughout 2009 to continue to stress the importance of effective hand hygiene and the impact it has on decreasing infections.

Access to hands-free, alcohol-based hand sanitizers was increased throughout the facility by placing them near entrances, in the cafeteria, by elevators, in patient rooms, and in hallways in clinical areas. Patient awareness for appropriate hand hygiene prior to eating was increased by placing alcohol based-hand sanitizer towelettes on all patient meal trays. Lastly, signage was placed with the alcohol-based hand sanitizers.

### OUTCOMES

- There was an increase in staff awareness and education, as evidenced by 1,007 employees being in-serviced, with a completion rate of 81%.
- 250 more hand sanitizers were purchased and installed.
- 60,000 towelettes were placed on meal trays.

### CONTACT

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## A Model to Reduce *C. difficile* in a Major Tertiary Care Health Care System

Continuum Health Partners/Beth Israel Medical Center,  
Manhattan

### PROJECT DESCRIPTION

Continuum Health Partners, a non-profit health care system made up of six teaching hospitals throughout the New York metropolitan region, operates more than 2,700 beds, provides 650,000 days of inpatient care, and has a workforce of more than 15,500 people, making it the sixth largest private employer in the region.

*Colostrum difficile* (CDI) is the most frequent cause of health care-associated diarrhea and can cause life-threatening colitis and death. The number of cases in the New York region is the highest in the country. Continuum initiated a CDI prevention bundle that included hand-washing, prompt use of contact precautions for any patient with diarrhea, with immediate access to gowns and gloves; dedication of rectal thermometers when used; and cleaning of rooms, stretchers, and equipment using a hypochlorite-based product. Interdisciplinary teams were formed, composed of administrative and clinical leadership, front-line health care workers, and support staff from the environmental and transport services units. The team composition was designed to “pull” from front-line staff strategies to improve adherence to infection prevention practices that would reduce CDI using the “Plan-Do-Study-Act” methodology. Data definitions for CDI infection were standardized. The teams developed assessment tools to measure compliance with bundle components and cleaning protocols.

### OUTCOMES

- 25% decrease in the CDI, from eight per 10,000 patient days to 6.1.
- Compliance with the CDI bundle and cleaning protocols increased from 67% to 100%, which has been sustained.
- 17% reduction in all cause mortality.
- \$964,000 in avoided costs.

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## A Bundle Approach to Improving Hospital Employee Influenza Vaccination Rates

Champlain Valley Physicians Hospital Medical Center, Plattsburgh

### PROJECT DESCRIPTION

Champlain Valley Physicians Hospital Medical Center set a goal to increase the percentage of hospital staff who received influenza vaccination. Previous efforts had focused on the benefit to the employee in terms of fewer illnesses and fewer lost work days. In fall 2006, CVPH's chief executive made a personal challenge to management to increase vaccination in each department, with the focus on patient safety and professional duty. This was accompanied by continuous departmental feedback of vaccination rates through the vaccination season.

In 2007, CVPH added mandatory education of all employees through an e-learning program on the patient safety benefits of vaccination and instituted a required declination statement acknowledging the potential danger to patients and staff of individual refusal of vaccination.

In 2008, CVPH worked with emergency preparedness staff, the county health department, and local nursing schools to add a 12-hour mass vaccination drill. On the main campus, a "pull" process delivered vaccination in the board room, complete with food, music, and prizes. At off-campus locations, employee health staff went to locations to "push" the vaccine to employees. The drill was heavily advertised through multiple modalities and was a successful test of a hospital point of distribution/dispensing plan.

### OUTCOMES

Employee vaccination rates:

- 2005-2006—41.3% (baseline)
- 2006-2007—55.1%
- 2007-2008—79.4%
- 2008-2009—84.4%

The 2008 12-hour vaccination drill alone reached 1,044 employees, with 980 vaccinated and 64 declinations.

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## A Personal Commitment to Patient Safety: Improving Influenza Immunization Among Health Care Providers

Good Samaritan Hospital Medical Center, West Islip

### PROJECT DESCRIPTION

Annual influenza vaccinations for health care providers have been recommended by many national and professional organizations including the Centers for Disease Control and Prevention and The Joint Commission. Yet, 2007 data from the U.S. Department of Health and Human Services (HHS) revealed that vaccine acceptance rates among health care providers was less than 50%. Good Samaritan Hospital Medical Center's (GSHMC) own study showed a 48% influenza vaccine acceptance rate.

GSHMC's infection prevention committee recognized this as an improvement opportunity and designed a campaign to achieve HHS' "Healthy People 2010" objective of a 60% acceptance rate.

Thirty-eight infection prevention liaisons volunteered to immunize their colleagues. In October 2008, the infection prevention committee meeting was devoted to providing education on vaccine storage, administration, and documentation requirements. The director of pharmacy and the employee health nurse provided each liaison with a cooler, ice pack, influenza vaccine, documentation logs, and educational handouts.

Posters with photographs of staff receiving the vaccine from their colleagues lined the corridors, elevators, and entrances. This, along with the decentralization of the vaccine administration through unit-based liaisons, mobile carts, and "Flu Stations" for the night shift, enabled the liaisons to exceed their goal and achieve a 65% acceptance rate.

### OUTCOMES

The infection prevention liaisons achieved a 2008 health care provider influenza vaccine acceptance rate of 65% which is higher than the U.S. Department of Health and Human Services' "Healthy People 2010" objective of 60% acceptance.

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## Improving Patient Safety by Appropriate Use of Influenza and Pneumococcal Vaccines

Harlem Hospital Center, Harlem

### PROJECT DESCRIPTION

The hemodialysis (HD) unit at Harlem Hospital Center started a multidisciplinary performance improvement project in October 2000 to reduce the number of HD patients who are susceptible to respiratory tract infections, by appropriate use of vaccines. The project attempted to overcome known barriers by staff in-service education, a nurse-assigned patient panel, standing orders for both pneumococcal and influenza vaccines, and weekly review of vaccine status by the nurse manager. Of the 48 HD patients, 29 were eligible for pneumovax and 48 were eligible influenza vaccine.

At the end of the project, five patients had refused, one was hospitalized elsewhere, and 24 of 29 (82.3%) had received pneumococcal vaccine. For influenza vaccine, seven refused, one was hospitalized elsewhere, and 40 of 48 (83%) had received influenza vaccine. One year later, at the beginning of the flu season, the percentage of subjects immunized with pneumococcal vaccine had declined because of the failure to vaccinate new HD patients.

It was recognized that:

- a yearly campaign at the beginning of the flu season is adequate for influenza;
- pneumococcal vaccine should be given year-round and is not appropriate for annual campaigns;
- pneumococcal vaccination status should be assessed and eligible patients vaccinated by standing order on admission to the HD program; and
- these procedural changes were instituted and three months later the immunization rates were again high at 84.8% for influenza and 87.5% for pneumococcus.

### OUTCOMES

A well-organized performance improvement project can have sustainable results in patient care and safety. At the end of the project and eight years later, vaccination rates remained high and were significantly above national averages (91.7% for both).

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## Increasing Hospital Employee Influenza Vaccination Rates

Olean General Hospital, Olean

### PROJECT DESCRIPTION

An important patient safety priority of Olean General Hospital (OGH) was to increase influenza vaccination rates of hospital employees. Influenza, a highly contagious disease, can be spread before symptoms appear. Thus, hospital employees contracting the flu may spread the infection to patients and other workers before realizing they are sick. Research shows influenza vaccination decreases influenza infection and health care workers' absentee rates.

The Centers for Disease Control and Prevention lists vaccination clinics, peer vaccination, and incentives for vaccination as useful strategies to increase vaccination rates. Accordingly, OGH conducted influenza "pods" to efficiently and rapidly administer vaccinations. Employees unable to attend the flu pods received the vaccine in their respective departments from nurse managers. To encourage participation, raffles were held for participating employees. A final measure stipulated that unvaccinated employees wear masks within three feet of patients during peak influenza season. Informational postings for patients and visitors throughout the facility explained the rationale for the use of masks.

### OUTCOMES

OGH's employee vaccination rate for 2005-2006 was 39%. In 2006-2007 and 2007-2008, the rate increased to 48% and 66%, respectively. In 2008-2009, the hospital's influenza vaccination rate was 89%, compared to a national rate of 42%.

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## Improved Influenza Vaccination Rate for Staff

Oneida Healthcare Center, Oneida

### PROJECT DESCRIPTION

The Joint Commission reported that in the 2005-2006 influenza season, only 42% of surveyed health care workers received the flu vaccination. Historically, at Oneida Healthcare Center (OHC), the flu vaccination rate among staff was less than 40%.

Its dedication to the health and safety of its employees and patients led OHS to join The Joint Commission's "Flu Vaccination Challenge." The goal was to increase the flu vaccination rate among health care workers to a total of 43% or more.

The infection control department worked diligently to increase awareness of the need for flu vaccination, to dispel myths regarding the vaccine, and increase the availability of, and access to, the vaccine. OHC units and departments were placed on teams and a fun internal competition was begun to recognize and reward the three teams with the highest vaccination rates.

### OUTCOMES

OHC's flu vaccination rate for staff increased from less than 40% in the previous year to 61.21% for this flu season; achieving a 53% increase in flu vaccinations. The top team in the competition achieved an 83% vaccination rate.

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## Pneumococcal Vaccination Project

St. John's Episcopal Hospital, Far Rockaway

### PROJECT DESCRIPTION

The staff of St. John's Episcopal Hospital's medical/surgical care center were determined to improve their performance for the Pneumonia Core Measure Quality Bundle. They were particularly concerned about the indicator that required eligible patients to receive the pneumococcal vaccination prior to discharge. In reviewing their unit's 2007 performance, they quickly realized they trailed their colleagues on other units in achieving this goal.

They formed a multidisciplinary performance improvement team that included management and front line staff to review the current process, consider variables that were preventing success, and develop a new process to ensure improvement in a measure that was important to the quality of care and safety of frail, elderly patients. The team developed key steps to improve. They assigned responsibility to the admitting nurse for screening eligibility and the discharge nurse to ensure all eligible patients received the vaccine. They worked with the PI coordinators, who developed a database of patients vaccinated as a reference on readmission. Extended care facilities were called for information if they failed to provide vaccination status. Everyone was educated on the new process.

The PI team measured their success monthly and shared results to support and encourage continued focus on improving outcomes. The team expanded the process to include all patients eligible, not just those qualifying for the pneumonia bundle, and became the hospital leaders for this indicator.

### OUTCOMES

This initiative resulted in:

- expanded pneumococcal vaccination to all eligible patients;
- steady increase in compliance from 70.5% in 2007 to 97% year-end 2008, with the last several months at 100%; and
- a model for the rest of the hospital.

### CONTACT

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## Culture Change: From Infection Control to Infection Prevention

Unity Health System, Rochester

### PROJECT DESCRIPTION

Unity Health System offers a wide range of specialty programs and continuum of care services at Unity Hospital, the Unity St. Mary's Campus, and multiple sites across Monroe County. In 2006, an acute care hospital initiative to transition from a culture of reactionary response to a culture of proactive infection prevention became a health system goal. Using the evidence-based practice and treatment model, Unity's efforts led from the basic principles of primary, secondary, and tertiary prevention to a system of universal, selective, and indicated prevention. To address universal prevention, Unity implemented initiatives in which everyone who comes through the system can participate—participation changes culture; hand-washing changes infection rates.

Combining the basic principles of infection prevention with a powerful data mining system using Nosocomial Infection Markers (NIMs), Unity provides focused, unit-based, disease-specific education and intervention at the community, primary, acute, and long-term care levels. Indicated prevention outcomes are seen in patients and families who present to the acute care setting with some knowledge of infection prevention and thereby have the potential for a safer hospital stay.

Those who need transitional or long-term care continue to reap the benefits of basic infection prevention practices as well as the benefits of timely and focused interventions identified through the infection prevention data mining system. Unity has accomplished much, but this is one initiative with no foreseeable endpoint.

### OUTCOMES

- Prevention programs are in place across the continuum of care.
- 13.26% decrease in overall acute care NIM rate.
- 50% decrease in urinary NIMs in rehabilitation unit.
- Projected savings: \$2.5 million.
- 2,440 avoided hospital days.
- 249 patients were protected from infections.

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## **“Return to Hand Hygiene”—The Effectiveness of an Innovative Hand Hygiene Campaign**

White Plains Hospital Center, White Plains

### **PROJECT DESCRIPTION**

According to the Centers for Disease Control and Prevention, hand hygiene is the single most important means of preventing the spread of infection. Hand hygiene compliance among health care workers is poor; less than 40% globally, with many health care-acquired infections being transmitted on the hands of health care workers. Since many disease-causing germs are spread by the hands, patients are also at risk from themselves and visitors.

The “Return to Hand Hygiene” initiative was designed to re-energize all hospital staff about hand hygiene and to educate and engage patients, families, and visitors toward taking an active role in improving hand hygiene compliance in this 300-bed community hospital where hand hygiene compliance statistics were as low as 59.3%.

### **OUTCOMES**

Overwhelmingly successful results demonstrate that more than 600 employees were educated through this program. Hand hygiene compliance rates increased to 93% in October and 95% in November. Hand hygiene gift bags were well received by patients and many remarked that the education materials were very informative. In addition, patients reported that the accessibility of the hand sanitizers at the bedside made it easier for them to comply with hand hygiene. Staff are noticing that some patients are taking the initiative to ask them and their visitors to wash their hands before touching them.

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## Leveraging Technology: Improving Medication Safety at the Point of Care

Finger Lakes Health/Soldiers and Sailors Memorial Hospital/  
Geneva General Hospital

### PROJECT DESCRIPTION

In 2000, the Institute of Medicine reported that medication administration errors account for as many as 7,000 deaths annually. Studies in the Veteran's Administration health system in the 1990s showed that use of bar-code medication administration reduced medication errors by as much as 86%. Bar-code point-of-care (POC) technology can significantly reduce medication errors by ensuring the right patient receives the right medication in the right dose at the right time and in the right route of administration. Finger Lakes Health recently completed a strategic objective to implement electronic bedside medication verification (BMV) and electronic medication administration records (eMAR).

The current state of technology adoption related to patient safety includes strategies for POC documentation, BMV, and eMAR. These solutions have been studied and have all been identified as key factors in reducing errors. As a result, Finger Lakes Health included BMV and eMAR in its strategic plan for 2008. Using the new technology, pharmacists transcribe medication orders into the main computer system (Meditech). Nurses verify the orders entered by pharmacy. The nurses then remove medications from an automated drug dispensing machine. At the bedside, the nurse scans the patient's identification bracelet and the bar code on the medication. The system alarms if there is a mismatch between the order entered or the patient and the medication scanned.

### OUTCOMES

Finger Lakes Health successfully launched eMAR and BMV on two pilot units in September 2008. In November 2008, all remaining units were successfully launched. One hundred and eight potential medication errors have been prevented.

### CONTACT

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## Review of the ISMP Medication Safety Alert to Prevent Medication Errors

Glens Falls Hospital, Glens Falls

### PROJECT DESCRIPTION

The Glens Falls Hospital (GFH) Medication Use Committee (MUC) seeks to provide a safe and effective medication management cycle by engaging multiple disciplines and services in continuous improvement. MUC actively develops safe medication practices across the medication management cycle including: medication selection and procurement, storage, ordering and transcribing, preparing and dispensing, administration, and monitoring. This group effectively reviews and addresses medication errors by acting on identified trends to improve current policies and practices. In addition to reacting to identified risks, MUC sought a strategy to proactively identify high-risk areas.

Although GFH's specific medication safety outcome data are readily retrievable, the response to these outcomes is, by definition, reactive. To enhance the robustness of the medication safety program, GFH sought to prevent errors before they occur. To identify and address high-risk medications or problem-prone processes, GFH decided to use the Institute for Safe Medication Practices (ISMP) Medication Safety Alert as a determinant of potential risk areas. The ISMP Medication Safety Alert provides insight into problem-prone medication issues that have been identified by other health care practitioners and provides evidence-based best practice recommendations for mitigation and prevention of risk. The MUC has begun utilizing the recommendations in the Alert to proactively review and revise medication practices.

### OUTCOMES

By reviewing the ISMP Medication Safety Alert and learning from the mistakes reported, the medication safety team at GFH is able to proactively identify and mitigate risk within the medication management cycle to prevent errors and patient harm before it occurs.

### CONTACT

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## Using Bedside Medication Verification to Improve Patient Safety

Lawrence Hospital Center, Bronxville

### PROJECT DESCRIPTION

Bedside medication verification is the process of electronically matching the correct patient with the correct medication using bar codes. Implementation requires that all medications be bar-coded in unit dose form. An electronic medical record with e-MAR (electronic medication administration record) capability is required. Implementation of BMV addresses the “5 Rs” of medication administration, reduces medication errors, decreases costs associated with treating adverse events, reduces liability, improves outcomes, increases customer satisfaction, and addresses the danger associated with look-alike/sound-alike medications.

Implementation was challenging and involved many different disciplines. It was complicated by lack of consistency among pharmaceutical companies with respect to bar-coding and unit dose availability. The hospital elected to lease bar-coding and repackaging equipment to address this issue. The timeline for implementation was tight—the hospital needed to train staff and physicians and ensure bar-coding of all medication within a four-month window. An information technology pharmacist and a pharmacy technician were hired for this project. Nursing leadership undertook an ambitious schedule of unit-based training. Measures of success would include medication errors, percent of medications not bar-coded, and percent of “manual” bar codes (medication administered without scanning bar code).

### OUTCOMES

- Medication errors decreased by 40% in 2008.
- More than 90% of medications are now scanned.

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## Improving Infusion-related Medication Safety Through Technology and Practice

Lutheran Medical Center, Brooklyn

### PROJECT DESCRIPTION

Lutheran Medical Center (LMC) noted that 35% of all medication errors that result in significant harm are the result of infusion pump errors, primarily due to incorrect programming of the infusion parameter. The Institute for Safe Medication Practices and others recommend smart pump technology and double-check systems to reduce these errors. Over three years ago, LMC began a journey to improve medication infusion safety by optimizing the use of technology with clinical practice changes.

Two hundred and seventy-five “smart” pumps with dose-limiting technology and a custom-built drug library were implemented. At three and 27 months post-implementation, data logs were collected from a random sample of pumps. Infusion-related medication events were tracked and data logs analyzed for incidence of averted events (near-misses), dose corrections, and overrides.

Elimination of infusion-related events was due to:

- implementation of smart pump technology that was easy to use;
- multidisciplinary development of a drug library that reflected true clinical practice;
- adoption of policies and processes to support independent double-checks on overrides, dose standardization, weight-based dosing, and 100% compliance;
- ongoing education of nursing, pharmacy, and resident staff with use of educational tools (booklets, pump charts); and
- data analysis to identify opportunities for improvement and necessary library adjustments, and total engagement; as well as effective collaboration among pharmacy, nursing, medicine, and biomedical engineering departments.

### OUTCOMES

Year 2008 pump data analysis demonstrated a low incidence of error (0.7%) and 100% use of smart pump features to avert error. Infusion pump-related events decreased from seven in 2005 (pre-implementation) to zero in 2008.

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## Increased Glycemic Control, Yielding Decreased Insulin-related Adverse Drug Events

New Island Hospital, Bethpage

### PROJECT DESCRIPTION

To augment its medication safety culture, New Island Hospital's pharmacy and therapeutics committee reviewed recent literature for opportunities to accomplish this task. The committee decided to focus on the diabetic population for several reasons. Diabetes is a prevalent illness and the literature and evidence support goal-directed management of hospitalized hyperglycemic diabetic patients. A systemic review of diabetic therapy has shown wide use of sliding-scale insulin protocols to control patient hyperglycemic conditions. Despite physician concurrence that inpatient hyperglycemia treatment using a sliding scale protocol poses a major risk regarding adverse effects in hospitalized patients, the institution followed no specific protocol for insulin administration.

The pharmacy and therapeutics committee, in concert with the medical board, reviewed existing protocols and conditions and implemented the following universal sliding-scale protocols, based on blood glucose level testing:

- non insulin-dependent diabetic protocol;
- insulin dependent diabetic protocol;
- continuous tube feeding protocol; and
- *Nihil Per Os* (NPO) protocol.

### OUTCOMES

Standard insulin sliding scale protocols foster a culture of medication safety evidenced by a 60% decline in insulin related hypo/hyperglycemia. Insulin-related adverse drug events declined from 0.34 in 2007 to 0.14 in 2008 per 1,000 patient days.

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## Organization-wide Medication Safety

Phelps Memorial Hospital Center, Sleepy Hollow

### PROJECT DESCRIPTION

Medication safety is a paramount concern in the health care community. Patients at Phelps Memorial Hospital Center rightly demand zero tolerance for errors. A multitude of professionals and numerous support staff ultimately are involved in the proper administration of medications. Therefore, medication safety involves an organization-wide approach using different strategies and tactics to maximize safety at each link in the chain of medication management across the continuum. Phelps' approach includes:

- computer-assisted "medication reconciliation" designed to ensure that a patient's medication history is compiled and reviewed by the professionals involved in the patient's care so that medications are not omitted and potential adverse drug interactions are avoided;
- bedside medication verification and double patient identification using bar-code readers dramatically reduces any chance of wrong patient/wrong drug errors;
- carefully track errors and "near-misses";
- physician order entry—enlisting physicians as allies in directly entering orders into the computer dramatically reduces communication errors;
- pharmacy-driven safety measures to avoid any possible confusion, such as labeling and storage of so-called "look-alike/sound-alike drugs," and strict control on orders accepted for filling; and
- patient safety issues are reported to and monitored by senior management and the board of directors.

### OUTCOMES

- Wrong-patient/wrong-drug errors almost zero.
- 80% physician direct computer order entry after two months.
- 97% of drugs scanned.
- Ongoing development of logical physician order sets.
- Ongoing development of computer-driven safety warnings.

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## Implementing New Technologies to Improve Medication Safety

Samaritan Medical Center, Watertown

### PROJECT DESCRIPTION

Samaritan Medical Center implemented an electronic medication administration record and bedside medication verification system to improve medication safety for patients. Samaritan implemented eMAR and BMV simultaneously, which enabled the end-user to administer medications using technology to confirm the five rights of medication administration at the point of care: the right patient, the right drug, the right dose, the right time, and the right route.

A culture of medication safety requires a collaborative approach; therefore, Samaritan formed a multidisciplinary team that included the chief information officer, director of pharmacy, director of nursing, clinical informatics specialist, clinical analyst, physicians, staff nurses, staff pharmacists, and staff respiratory therapist. The group developed a strategic initiative, gap analysis, process overview, work-flow study, equipment requirements, and implementation plan.

This innovative approach enables the caregiver at the bedside who administers medications to access up-to-date patient and medication information. As a result, medication safety is enhanced and medication errors that may potentially reach the patient are reduced.

### OUTCOMES

- 94% of medications were scanned before administration by year-end 2008.
- Positive patient identification using bar-code technology occurred before every medication administration.
- Medication errors that reached the patient decreased by 77%.

### CONTACT

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## Prevention of Hospital-acquired Pressure Ulcers

Northeast Health/Albany Memorial Hospital/Samaritan Hospital

### PROJECT DESCRIPTION

Northeast Health's goal was to achieve zero hospital-acquired pressure ulcers by identifying patients at risk and reliably implementing prevention strategies for these patients. This initiative was undertaken by a medical unit at Albany Memorial Hospital and Samaritan Hospital. A multidisciplinary team comprised of the enterostomal therapy nurse, dietary, performance improvement, nursing, and management information systems staff reviewed the six essential elements of pressure ulcer prevention as outlined by the Institute for Healthcare Improvement.

A systemic approach to the identification of patients at risk of developing pressure ulcers was developed and implemented, and standardized actions for at-risk patients were established. For example, Northeast Health uses the Braden scale, which scores patients for their risk factors daily; any deviations from their initial risk score signals staff to implement changes in the patient's plan of care. Northeast Health also developed a body mass index (BMI)/Braden Score Report that prints daily for every patient. It includes the Braden score, BMI, and whether a pressure ulcer was present on admission. Changes in process included beginning hourly rounds, requiring the skin care protocol be started on all patients, and using the daily report.

### OUTCOMES

- Measures show admission bundle completion at 100%, daily reassessments at 100%, and high-risk patients with protocol bundle in the 88th percentile at Albany Memorial Hospital for 2008.
- Samaritan Hospital's numbers are: admission bundle, 96%; daily reassessment bundle, 86%; high-risk bundle, 78%.

Twice-yearly studies at both hospitals show that pressure ulcer prevalence rates are below the national average. The prevalence rate of inpatients with a facility-acquired wound at Albany Memorial Hospital was 0% and at Samaritan was 2.3%, with a national average of 4.0%. Both hospitals have had only Stage 1 and 2 pressure ulcers. Neither has had a Stage 3 or Stage 4 ulcer.

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## Pressure Ulcer Prevention Made E.A.S.Y.

Strong Memorial Hospital, Rochester

### PROJECT DESCRIPTION

Strong Memorial Hospital convened a multidisciplinary pressure ulcer prevention task force, with representation from several adult medical/surgical units, the Cardiovascular Center, the Cancer Center, nursing leadership, wound ostomy care nurses, nutrition, physical therapy, and value analysis. The task force reviewed the current literature and examined the hospital's current pressure ulcer prevention guidelines. A standardized approach was developed, focusing on four interventions that have demonstrated the greatest success in preventing hospital-acquired pressure ulcers (eating, activity, staying dry, and changing the behavior of you, the provider—E.A.S.Y.). The interventions include optimizing nutrition, reducing friction, maintaining mobility, and managing moisture. Required interventions are listed for patients not meeting the desired goals under each component.

Nurses and patient care technicians on all medical/surgical, observation, and cardiovascular units were oriented to the process as part of the transformation plan. Each unit assembled a unit-based E.A.S.Y. skin care team, which is responsible for weekly data collection, attending the pressure ulcer task force meetings, and disseminating information and program changes to staff.

Consultation was obtained from the Clinical Nursing Research Center to develop an audit tool to monitor compliance with the program. In addition, data from the quarterly pressure ulcer prevalence study are reviewed to measure the effectiveness of the program.

### OUTCOMES

A surgical unit that has fully implemented the E.A.S.Y. program decreased its unit-acquired Stage 2 and above pressure ulcer rate from nearly 8% in the first quarter of 2007 to zero in the second and third quarters of 2008.

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## Eliminating Mechanical Restraints in the Behavioral Services Unit Cayuga Medical Center at Ithaca

### PROJECT DESCRIPTION

Cayuga Medical Center's behavioral services unit contains two programs: the adult program (serving patients 18 years and older) and the adolescent program (serving 13-17 year-olds). Both programs serve patients in need of short-term emergency psychiatric care. The program is holistic, addressing patients' psychological, physical, and spiritual care needs.

The average length of stay for patients in both programs is about seven days, and both provide individual and group psychotherapy, medication management, recreation therapy, education, psychological testing, family meetings, and discharge planning services. The multidisciplinary treatment team includes psychiatrists, a psychologist, social worker, recreation therapists, discharge planners, registered psychiatric nurses, psychiatric technicians, the program director, and hospital chaplains. Cayuga Medical Center believes that restraint and seclusion should be limited to emergencies in which there is imminent risk of patients physically harming themselves or others.

The behavioral services unit staff share the philosophy that patient recovery is possible only in a culture of support and empowerment. Mechanical restraints can be frightening and harmful for the restrained patient, other patients, and staff. Many psychiatric patients have a trauma history of some kind, and Cayuga Medical Center staff members believe that restraints are counter-intuitive in an environment of safety and healing.

### OUTCOMES

In 2005, there were 25 mechanical restraint incidents on the behavioral services unit. In 2006, there were four restraint incidents; in 2007, there were two; in 2008, there were zero.

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## Building a Quality Improvement Process in a Public Sector Hospital from the Ground Up

Nassau University Medical Center, East Meadow

### PROJECT DESCRIPTION

With immense pressure brought by a rapidly growing patient population on a fast-expanding department, the new leadership team in psychiatry recognized the need to develop a culture of quality and safety in a department that lacked any structured quality improvement (QI) processes. Early in the process, specific systems and measures were designed to improve staff's QI knowledge and commitment through education and linking quality improvement with patient safety. By making quality indicators and safety initiatives easy for staff to comprehend, staff became more appreciative of the impact of their day-to-day activities on the overall quality of care and patient safety, resulting in marked improvement in quality and safety outcomes.

The focus of the initiatives is to develop a culture of quality and train staff in best practices for patient safety. The measures of success were reductions in the use of behavioral restraints and serious incidents. The rationale for the project is rooted in the belief that while hard data are important, it is equally important to manage interpersonal and group processes. The goal is to set up a successful QI system in a public sector hospital with very few resources and onerous clinical demands, and to inspire administrators of psychiatric or any other clinical specialties in medicine to successfully introduce and sustain such systems elsewhere.

The strategy was to build a bottom-up QI process that empowers staff and incorporates their input and patient feedback into decision making.

### OUTCOMES

Staff's ownership of the QI process resulted in a 38% reduction in the restraint use index, from 1.04 to 0.65 within a year, and a 46% reduction in ratio of total incidents to reportable incidents from 7% in 2007 to 3.8% in 2008.

### CONTACT

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## **Agitated Patient Management Team: De-escalation in the ED**

Coney Island Hospital/New York City Health and Hospitals Corporation, Brooklyn

### **PROJECT DESCRIPTION**

To foster patient and staff safety, the leadership of Coney Island Hospital identified the need to address the behavior of highly agitated patients in the emergency setting. More than 100 highly agitated patients are brought to the hospital annually. Many of these patients arrive in forensic restraint with alcohol abuse and positive street drug toxicology, with co-existing medical conditions that could contribute to agitation.

In 2007, the agitated patient management team (APMT) was created to proactively identify causes of agitation and provide appropriate treatment by creating a standardized approach to the assessment, management, and disposition of these patients. The goal was rapid de-escalation of dangerous behaviors and expedited removal of forensic restraints. The hospital sought to minimize the role of law enforcement in the clinical setting and expedite the patient's disposition. APMT includes an emergency department supervising physician, psychiatrist, ED head nurse, and psychiatric ED nurse.

APMT addresses The Joint Commission's National Patient Safety Goals of improving caregiver communication, identifying patient safety risks, and recognizing/responding to changes in a patient's condition. The APMT code is called when a highly agitated patient is identified. The patient is immediately triaged, placed in the trauma room, assessed by APMT, placed on one-to-one observation, monitored every 15 minutes, positioned face-up/upright to prevent aspiration/positional asphyxiation, and specimens are drawn to check for blood alcohol levels and toxicology.

### **OUTCOMES**

- Since the inception of APMT, triage and assessment time for highly agitated patients was reduced to 15 minutes.
- Removal time for forensic restraint was reduced to 15 minutes.
- Staff/patient injuries in the ED were reduced to zero when the APMT was activated.
- "Turfing" issues between the medical and psychiatric EDs were eliminated.

### **CONTACT**

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## Emergency Department Average Length of Stay

Ellenville Regional Hospital, Ellenville

### PROJECT DESCRIPTION

Ellenville Regional Hospital is a 25-bed Critical Access Hospital in a small community with a service area of 28,000. The emergency department volume in 2008 was 10,716. The role of a Critical Access Hospital ED is to provide primary emergent care; patients who have emergency conditions beyond the scope of the hospital are transferred. On average, 85% of ED patients are discharged home. One of the measures of quality is the amount of time it takes to receive care. Average length of stay for 2006 in the ED was approximately 2.5 to 3.0 hours. Administration felt that this was too long and could be shortened by reducing wait time in the processes that occur when treating emergent patients.

A multidisciplinary process team consisting of physicians, nursing, quality, laboratory, radiology, registration, and administration was created to facilitate expediting and removing time from each step. With the shorter ALOS, the hope was to reduce stress levels for patients, family members, and ED and ancillary staff. Each step of the process was evaluated with the “Plan-Do-Study-Act” methodology. With the Office of Rural Health’s Rural Performance Management Web-based balanced scorecard tool, the facility was able to accurately monitor ED data to gauge results. Implementing this low-technology project required little expense, as the root cause of the delays was process problems. The result was a significant decline in ALOS for ED patients discharged home and increased satisfaction for patients, families, and staff.

### OUTCOMES

- ALOS of ED patients discharged home declined from 151 to 93 minutes.
- Patients leaving “against medical advice” declined 1.29% to 0.92% and “left before examination” declined 0.63% to 0.29%.
- ED volume increased 29%.

### CONTACT

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## Improving Patient Flow in ED and Medical/Surgical Unit

F. F. Thompson Hospital, Canandaigua

### PROJECT DESCRIPTION

The average length of stay in the three medical/surgical nursing units at F. F. Thompson Hospital increased over a two-year period, with corresponding increases in “hold patients” in the emergency department. On the “3 West “ unit, ALOS increased from 3.5 days in 2005 to 4.7 days in 2007, with corresponding declines in patient and employee satisfaction for treatment timeliness. Because many ED holds need telemetry beds on 3 West, ED holds had subsequently increased from a few per week in 2005 to several per day in 2007.

Leadership chose the Lean Six Sigma business methodology to improve medical care and patient flow. “Waste” is defined in Lean Six Sigma methods as non value-added activity. Reducing wastes would satisfy customers, reduce time and costs, and reduce employee frustration. With no capital expenses, the following processes were addressed, under the leadership of an in-house Lean Six Sigma “Black Belt”:

- **Staffing:** Disaccord between staffing levels when patients arrived.
- **Triage:** Inconsistent processes among nurses delayed patients getting to the doctor.
- **ED Supplies:** Inconsistent stocking wasted treatment time.
- **Discharge Process:** Lack of clear communication caused discharge delays, increasing daily costs and patient dissatisfaction.
- **Patient Medication:** Administration times and pharmacy replenishment process caused extra trips from bedsides to get medications.
- **Patient Communications:** Quick trips to patient rooms to answer multiple, non care-related questions from patients and visitors interrupted staff from other care activities.

### OUTCOMES

This project:

- reduced medical/surgical unit ALOS 34%, and LOS for ED holds at 17%;
- saved \$100,000 in six months;
- improved ED triage/restocking;
- introduced new discharge orders and patient guide;
- streamlined medication administration; and
- 5% more time at bedside.

### CONTACT

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## Expanding HIV/AIDS Testing and Education for Communities at High Risk

Jacobi Medical Center/New York City Health and Hospitals Corporation, Bronx

### PROJECT DESCRIPTION

Screening for human immunodeficiency virus (HIV) status and immediate linkage of positive patients to care are important safety interventions. Inherent to the process is patient counseling (considered the “gold standard” for promoting risk reduction) and informed consent. Yet the time/resource-consuming nature of these functions is an obstacle for institutions attempting to provide widespread screening, especially for populations at high risk. Emergency departments have long served the urgent care needs of the medically disenfranchised. It is in this arena that the idea for a new approach to high-volume screening was born.

Jacobi Medical Center established Project BRIEF (Behavior intervention, Rapid HIV test, Innovative video, Efficient cost/health care savings, Facilitated linkage to HIV care) in 2005 in the ED. By supporting testing and counseling with customized videos and software, BRIEF increases access to HIV screening, provides risk reduction education, and offers seamless linkage to care for those testing positive.

Screening is offered as patients await treatment. The technology enables patients to input sensitive, high-risk behavior/sexual history in a private manner. If the result is positive, the counselor shifts into the role of navigator, immediately offering linkage to care. Consent is very high (98.7%) and, since October 2005, 18,729 patients were tested. Due to its success, BRIEF was also established at North Central Bronx Hospital.

### OUTCOMES

Outcomes included:

- 98.7% consented to testing—18,729 were tested;
- 100 positives—87 people linked to care;
- 14,005 completed a survey;
- 88% learned moderate to large amount of new HIV information;
- 83% felt information influenced them to change sexual practices; and
- 99.6% found the program helpful.

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## Breakthrough: The Lean Road to Patient Safety for Two Acute Care Urban Hospitals

North Bronx Healthcare Network/New York City Health and Hospitals Corporation

### PROJECT DESCRIPTION

North Bronx Healthcare Network used “breakthrough” activities for performance improvement, using the Lean methodology. Problem identification begins at the executive level where “value streams” (operational areas) are competitively ranked in terms of opportunity for improvement against specified metrics: patient safety, clinical effectiveness, patient satisfaction, staff engagement, revenue collection, and operational effectiveness. This project focused on two value streams: emergency department patient flow and outpatient revenue.

Process improvement occurred through rapid improvement events (RIEs) as a catalyst for change. Participants are chosen from the area being improved along with “fresh eyes” from other disciplines who work together to create sustainable change. Traditional quality improvement tools and Lean-specific tools such as the “Gemba walk” (visit of area during RIE) are used. Sustained monthly breakthrough activities promote lasting improvements and support the ability to increase capacity, revenue, and patient safety. These enhancements are achieved using existing resources, which are the hallmark of Lean, and fostering culture change by empowering employees to identify and solve problems.

The Lean transformation, driven from the top down, promotes a culture of continuous improvement by using its most valued resource: the collective brainpower and expertise of the workforce.

### OUTCOMES

Results included:

- ED: eliminated nursing in clerical processes; triage reduced from 20 to 5 minutes; dwell time from 10:27 to 7:48 hours; chart completion 89%;
- permanent patient ID banding;
- 100% patients get discharge instructions; and
- revenue up \$3 million.

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## Emergency Department 30-minute Service Standard

Nyack Hospital, Nyack

### PROJECT DESCRIPTION

Long emergency department wait times are a nationwide problem. The emergency department at Nyack Hospital is a Level II trauma center, state-designated stroke center, and chest pain center with 43,000 annual patient visits and accounts for 60% of hospital admissions. Toward the end of 2006, ED performance was lagging in many key performance indicators. Visits had decreased 3.8% from the prior year, average length of stay was well over eight hours, door-to-electrocardiogram times exceeded 35 minutes, and the patient “left without being seen” rate was more than 3%. Patient satisfaction (as measured by Press Ganey) was at the 21st percentile level of New York State hospitals, and staff morale was low.

The project goal was to determine whether implementing a service standard that established a goal of no greater than 30 minutes between patient arrival time and time seen by a physician would result in an improvement of clinical and operational performance that would, in turn, lead to a significant increase in patient satisfaction and volume.

From a quality perspective, the concept was that seeing patients faster could translate to improvement in specific quality indicators, such as decreased walkouts, improved door-to-EKG times, and improved patient satisfaction, all of which were demonstrated through this initiative.

### OUTCOMES

A soft launch of the program in April 2008 resulted in 86% compliance with the 30-minute standard for seeing a physician, which improved to 95% by August 2008. From November 2006 to August 2008, discharge LOS decreased by 34% (1.75 hours) in the main ED and 15% in the fast track. Patient satisfaction vaulted from the 17th percentile to the 91st percentile. Walkouts decreased from 2.9% to 0.1%, and door-to-EKG time decreased 80%. August 2008 patient volume was 16% greater than that of January 2008, and 30% greater than November 2006.

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## Condition Yellow: A Hospital-wide Response to ED Overcrowding

SUNY Upstate Medical University, Syracuse

### PROJECT DESCRIPTION

Emergency department overcrowding is not unique to SUNY Upstate Medical University—it is a national problem that negatively impacts patient care and safety, resulting in increased ambulance diversions, patients leaving without being seen (LWBS), long ED length of stay, boarding admitted patients, and lost revenue. By 2007, the hospital experienced a 3.8% decrease in inpatient admissions and a 3.4% decrease in ED visits due to overcrowding. Between 2004 and 2007, several committees and teams were formed. Patient flow initiatives were implemented, with little impact on overcrowding.

In July 2008, University Hospital implemented a hospital-wide response plan based on the National Emergency Department Overcrowding Scale. Under the leadership of the deputy director of nursing inpatient services and the ED medical director, a transformation of hospital culture occurred. ED overcrowding was now seen as a hospital-wide problem that required hospital-wide solutions. This was accomplished by:

- empowering staff and managers to pilot new ideas on patient flow and safety;
- communicating overcrowding in the ED hospital-wide;
- implementing a new ED care delivery model to support projected volume increases; and
- collaborating with area hospitals to reduce diversion citywide.

University Hospital learned that culture change starts with engaged staff and communication, organizational commitment is key to sustainability, and proactively addressing ED overcrowding is cost-effective.

### OUTCOMES

- Diversion hours fell 85%.
- LWBS dropped 50%.
- LOS of ED admissions decreased one hour.
- Monthly revenue losses decreased 77%, saving \$1.5 million.
- The patient satisfaction score increased 32.9 points.
- ED admissions increased 3%.

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## **Telehealth Presentation**

Brookhaven Memorial Hospital Medical Center, Patchogue

### **PROJECT DESCRIPTION**

Brookhaven Memorial Hospital Medical Center (BMHMC) had a persistent variance in readmission rates under 30 days after hospital discharge of patients with pulmonary diseases. This project aimed to increase the number of patients discharged to home care with these diagnoses and place them on telehealth (TH) monitoring to reduce the 30-day readmission rate to the hospital with exacerbation of pulmonary disease.

In conjunction with BMHMC's case management and registration departments, and on-site coordinators for home care, the pulmonary patients were targeted for discharge to home care whenever possible. The BMHMC Certified Home Health Agency accepted the majority of these discharges with the goal of improving the readmission rate and patient outcomes. In addition to placing these patients on home care with the provision of skilled nursing, physical and/or occupational therapies, nutritional therapy, and/or home health aide services, TH monitoring was also added to the armamentarium to proactively manage symptoms prior to emergent need.

The goals were twofold: to increase referrals of chronic obstructive pulmonary disease (COPD) patients to the home care TH service, and to demonstrate that the addition of the TH service would reduce the readmission rate compared with those COPD home care patients not using TH.

### **OUTCOMES**

Customer satisfaction drove the increase in referrals for COPD patients. Home care without TH risked readmission within 30 days of discharge (14.6%). For TH patients, it reduced to 4.6%. The overall readmission rate decreased from 15.5% to 8.9%.

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## Preventing Hypothermia During Neonatal Stabilization

Albany Medical Center, Albany

### PROJECT DESCRIPTION

Increasing attention has been focused on the importance of keeping newborn infants warm, particularly those premature infants who weigh less than 1,500 grams. Most published studies reveal that hypothermia occurs in the majority of these patients due to the physical characteristics of the premature infant. Available evidence indicates that there is 28% increased mortality associated with every one degree Celsius decrease in admission-to-neonatal intensive care unit temperature in low birthweight babies. Aware of an effort by the Vermont-Oxford network—a quality improvement collaborative involving more than 500 NICUs—to benchmark this issue, the NICU at Albany Medical Center began standardizing temperature monitoring methods and the processes used to maintain babies' temperatures in the delivery room, during transit to NICU, and upon arrival in the NICU. Interventions to minimize heat loss were adopted and education efforts launched to ensure that interventions were being done properly and consistently.

Interventions included:

- use of battery-operated, temperature-sensitive, and automatically-adjusting radiant warmers and warmed blankets during transit from delivery room to NICU;
- maintenance of side rails in “up” position and closing door to resuscitation room to minimize heat loss;
- wrapping infants' heads and torsos with separate pieces of plastic wrap to minimize evaporation and convection losses;
- continuous data feedback to nursing and medical staff, enabling a “Plan-Do-Check-Act” approach; and
- educational initiatives.

### OUTCOMES

The result was a dramatic 18% improvement in the number of infants being maintained with optimum temperatures—from 67% to 85% of these infants. The staff continue to work toward achieving an ultimate target of 90%.

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## Improving Perinatal Care and Outcomes

Olean General Hospital, Olean

### PROJECT DESCRIPTION

Fetal heart rate (FHR) monitoring, the most common method of intrapartum monitoring, can alert obstetric (OB) professionals to potential complications that can lead to catastrophic fetal results. Olean General Hospital's safety goal was to control variation in visual interpretations/communication of FHR tracings. A two-pronged approach was implemented to control variation: provide education to OB professionals and adopt National Institute of Child and Human Development (NICHD) nomenclature for FHR tracings. Maternal fetal problems in labor and delivery and resuscitation/stabilization of neonates were the central project focus.

Staff competency relative to perinatal care was assessed. Based on the assessment, developmental needs were identified and programs presented to staff.

OB professional staff attended the programs covering:

- basic fetal monitoring;
- Strong Memorial Hospital's Peri-fax program;
- Association of Women's Health, Obstetric, and Neonatal Nurses intermediate and advanced fetal monitoring;
- high-risk obstetrical management;
- Noelle simulator competency training and emergencies rehearsal;
- neonatal resuscitation program;
- "STABLE" neonatal education; and
- sudden infant death syndrome risk reduction.

Most programs were presented on site to control expenses and ensure staff access.

### OUTCOMES

Through this project, the processes to achieve control of variations associated with FHR tracings were defined and implemented:

- Education relative to requisite staff competencies regarding perinatal care was provided and competencies documented.
- Labor flow records were revised to include the NICHD fetal monitoring definitions for standardized and simplified key clinical terminology.
- Perinatal team members now use the NICHD nomenclature when communicating fetal assessment.
- Staff and providers are able to provide care during resuscitation and post-resuscitation/pre-transport stabilization, organized in accordance with regional and national standards.

### CONTACT

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## NICU Multidisciplinary Infection Control Initiative

Winthrop-University Hospital, Mineola

### PROJECT DESCRIPTION

Winthrop-University Hospital's neonatal intensive care unit was plagued by 12 central line infections over nine months. This unit prided itself on excellent outcomes and has enjoyed an excellent reputation within the community. The staff were frustrated by the increased infections in this very vulnerable population. A multidisciplinary team was assembled, led by the director of infection control. The team was comprised of neonatologists, infection control physicians, nurse practitioners, and nurses. The charge of the team was to evaluate causative factors and identify solutions that would eliminate potential future infections.

Sustainability of the solutions was dependent upon a change in culture and buy-in from all staff members. "We have always done it this way" needed to be eliminated in the process and changes implemented to achieve the desired results based on evidence and good practice. Initial brainstorming yielded many areas where the team felt there was room for improvement. Facility space constraints including identification of clean and dirty areas within the nurseries were the most challenging issue the team faced. Other areas for improvement included review of hand hygiene practices, visitor protocols, central line insertion and maintenance practice, and data collection inconsistencies.

Each identified area was evaluated for contributory impact to the problem and solutions proposed. A timeline was set to implement each improvement and process change, including a monitoring and evaluation period.

### OUTCOMES

Monitoring of methodologies and data analysis validated the process changes and achieved the goal of zero central line infections from March 2008 to present in the NICU.

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## Oncology Fast Track Protocol

NewYork-Presbyterian Hospital/Weill Cornell Medical College

### PROJECT DESCRIPTION

Oncology patients who are immunocompromised and present with fever and neutropenia in the emergency department must have antibiotics administered in a timely manner to prevent serious complications, including septic shock. The organization identified a need to reduce the time from triage-to-antibiotic administration in this high-risk population upon arriving in the ED. Baseline data collected between July and November 2006 showed a mean triage-to-antibiotic administration time of 353.3 minutes. The target goal for the fast track protocol was 60 minutes.

A multidisciplinary team consisting of clinical and administrative representatives from the ED, division of hematology-oncology, and other departments was established. Team members worked closely to improve communication across services and develop a fast track protocol to manage these critically ill patients.

Key features of the protocol include:

- providing patients a yellow fast track card to distinguish them;
- triaging patients to specialized nurse practitioners in the ED;
- a 30-minute laboratory turnaround time/ability to initiate first dose of antibiotics prior to complete blood count results;
- availability of antibiotics in the ED Pyxis machine;
- around-the-clock availability of a hematology-oncology fellow to address questions related to neutropenic or immunosuppressed patients; and
- extensive education to staff and patients.

### OUTCOMES

Triage-to-antibiotic time decreased from a mean of 353 minutes to a mean of 30 minutes. Post-intervention, all but five cases were within target (April 2007-February 2008) and 100% of cases were within target (March 2008-December 2008).

### CONTACT

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## **Meeting the Demands of a City That Doesn't Sleep: 24/7 Primary Care Services Available**

Beth Israel Medical Center, Manhattan

### **PROJECT DESCRIPTION**

In October 2008, the Beth Israel Medical Group office located at 23rd Street and 7th Avenue in Manhattan expanded its hours to provide open access to primary care and urgent care 24 hours a day, seven days a week, 365 days a year. The service hours are staffed by board-certified physicians providing comprehensive primary care.

The objective is to provide patients with affordable open access to primary care “after hours” as an alternative to utilizing costly and overcrowded hospital-based emergency departments.

### **OUTCOMES**

- Since October 13, 2008, there have been 2,500 visits during the expanded hours, of which more than 65% were new patients to the practice.
- Forty-five percent of patients come between 8 p.m. and midnight, 20% between midnight and 8 a.m., and 35% between 3 and 8 p.m. on weekends.
- In the first two months, patients were asked to complete a survey to determine where they would have gone “after-hours” had the office not been open. On average, more than 60% answered that they would have gone to an emergency room.
- Patients requiring emergency medical services are transported via ambulance to Beth Israel's emergency department.

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## **Thyroid Nodule Clinic**

Cayuga Medical Center, Ithaca

### **PROJECT DESCRIPTION**

Cayuga Medical Center identified a need for multidisciplinary coordinated care for patients diagnosed with thyroid nodules. Patients had fragmented care involving multiple appointments with various practitioners over several weeks. It was identified that these services could be coordinated in an outpatient setting at Cayuga Medical Center. The design and preparation for this clinic involved meetings with key members of the multiple disciplines required for appropriate diagnosis and treatment. These members included an endocrinologist, pathologist, radiologist, general and ear, nose, and throat (ENT) surgeons, as well as staff members from various departments. This coordinated group of physicians, in collaboration with Cayuga Medical Center staff members, identified a systematic scheduling approach for patients to be evaluated, diagnosed, and a treatment plan initiated in one clinic visit.

Patients are seen on a referral basis. They are initially evaluated by an endocrinologist in the clinic. After evaluation, their ultrasound biopsy is performed by a radiologist, with immediate results available by the on-site pathologist. The physicians collaborate regarding their findings as needed and a treatment is discussed and provided by the endocrinologist. In cases of positive or malignant findings, the patient will be seen by either a general or ENT surgeon the same day. In addition, Cayuga Medical Center has its own local liaison to the local cancer support group available to provide information and guidance.

### **OUTCOMES**

- Volume increased 85% in the first year, with a 0% repeat biopsy rate.
- All patients requiring a surgical evaluation received it the same day.
- All required surgical interventions were performed within six weeks.

### **CONTACT**

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## Diabetes Guidelines Project

East New York Family Care Center/New York City Health and Hospitals Corporation

### PROJECT DESCRIPTION

To enhance care provided to diabetic patients, the new diabetes guidelines prepared by New York City Health and Hospitals Corporation were applied to a study group of 212 patients. The guidelines consist of an aggressive medication treatment algorithm and nurse care management. A control group of 212 patients received conventional diabetes treatment.

Patients in both groups were matched for similar demographics and hemoglobin A1c levels. There were three inclusionary criteria: hemoglobin A1c value of seven or greater, compliance with medications, and compliance with follow-up appointment. There was one exclusionary criterion: psychiatric disorder.

Throughout the span of the study (May through October 2008), an interdisciplinary approach was followed involving the providers, registered nurses, personal care assistants, nutritionists, and social workers.

### OUTCOMES

- Comparing pre- and post-study data, hemoglobin A1c improved from 0% to 18% for the study group and from 0% to 10% for the control group. Low-density lipoprotein (LDL) improved from 51% to 62% for the study group and from 47% to 51% for the control group. Self-managed goals improved from 40% to 100% for the study group, and from 60% to 64% for the control group.
- The study group had an 8% improvement in hemoglobin A1c over the control group. Improvement in LDL of 10% was noted for the study group over the control group. For self-managed goals, the study group showed 40% improvement over the control group.

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## Community-wide Pediatric Asthma Improvement Effort

Golisano Children's Hospital at Strong/University of Rochester Medical Center

### PROJECT DESCRIPTION

Staff at Golisano Children's Hospital recognized that effective pediatric asthma treatment could not occur solely within the confines of the hospital. A multidisciplinary team involving both hospital- and community-based physicians and nurses worked to improve pediatric asthma treatment in the community with the goal of reducing several undesirable outcomes: preventable inpatient admissions, pediatric intensive care unit (PICU) admissions, intubations, and emergency department visits for pediatric asthma patients.

The team met once a month to review data and plan strategies for improvement. Data were collected and monitored on inpatient admissions, PICU admissions, emergency room visits, and the time between emergency department visit and follow-up with primary care providers.

Improvement efforts were based on asthma guidelines published in July 2007 by the National Heart, Lung, and Blood Institute. Strategies to improve quality of care included increasing referrals from the hospital to the regional community asthma network, increasing referrals of parents to the New York State Smoker's Quit Line, implementing the GetWellNetwork asthma video education program, and use of the asthma control test in the ED to identify patients who might benefit from daily asthma control medication. The hospital has also involved its child life specialist in asthma education for inpatients.

### OUTCOMES

- Admissions for asthma were reduced by 10%.
- ED visits for asthma were reduced by 10%.
- PICU admissions for asthma were reduced by 35%.
- Intubation for asthma was reduced by 30%.
- Time from ED visit to primary care physician follow-up for asthma was reduced 50%.

### CONTACT

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## Patient Care Initiatives: Accountability

The Brooklyn Hospital Center, Brooklyn

### PROJECT DESCRIPTION

The demand for accountability of health care provider performance has increased significantly. Hospitals and ambulatory care centers must meet measures of quality established by third-party payers, The Joint Commission, and other accrediting bodies.

The Brooklyn Hospital Center's Family Medicine Health Center identified the lack of staff clarity of their roles in the provision of care and communication problems as major barriers to meeting its strategic goals.

A flowchart describing the roles and accountability of all members of the practice (faculty, residents, nurses, medical assistants, and support staff) was developed, visually depicting the operations and interrelatedness of quality, patient safety, finance, and patient satisfaction. Staff participated in ongoing education regarding their roles related to the strategic goals as outlined by the accountability chart. Performance data were collected before, during, and after the intervention. The performance measures tracked were:

- Diabetes Care
- Cancer Screening
- National Patient Safety Goals
- Patient Satisfaction
- Registration and Billing

### OUTCOMES

- There was significant improvement in the mean scores of all measures: cancer screening rates (90%), diabetic care parameters (95%), patient safety parameters (98%), and patient satisfaction scores (92%).
- Patient flow and throughput improved due to improvements in practice management operations such as appointment confirmation calls, insurance verification, better scheduling, and prompt service.
- The declining no-show rate and improved continuity of care resulted in increased volume and revenue.
- These outcomes have been sustained throughout 2008 without any additional cost or investment and have been extended to other ambulatory care centers of the hospital.

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## **Same-day Mammography Results/Center for Imaging and Medical Arts**

WCA Hospital, Jamestown

### **PROJECT DESCRIPTION**

Although growth in mammography and ultrasound services at WCA Hospital slowed in recent years, WCA had identified under-served populations and knew that there was room for additional growth.

WCA's Women's Imaging Services sought to find ways to make improvements and expand these services. This project has five main initiatives to:

- offer patients same-day mammography results;
- increase space, especially for ultrasound;
- improve timeliness from mammogram to biopsy and follow-up procedures;
- expand women's services so they are readily accessible and key lines of services are in one location; and
- improve access to scheduling.

A new outpatient Medical Arts and Imaging Center was planned and opened in May 2008. Extensive planning went into the move and implementing all of these improvements. A dedicated radiologist and new registered nurse were added to this new area.

### **OUTCOMES**

WCA now offers same-day mammography results and same-day biopsy. Mammography report turnaround time has been reduced from 42.2 hour to 19.7 hours. Time from mammogram to ultrasound examination has improved from 5.86 days to 1.46 days.

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## Dialysis Unit Fistula First Initiative

WCA Hospital, Jamestown

### PROJECT DESCRIPTION

WCA Hospital's dialysis unit joined the National Vascular Improvement Initiative "Fistula First" project in 2003. Arteriovenous fistulas (AVFs) in hemodialysis patients are associated with the lowest failure and complication rates, while providing optimum blood flow, which results in more efficient treatment. WCA's AVF rate in 2003 was 22.2%. It became clear that increasing its AVF rate would be a win-win situation. The hospital would improve patient outcomes and increase patient satisfaction, as well as decrease costs associated with necessary interventions when access complications develop.

The goal was to increase the rate of AVFs in prevalent patients to ensure every eligible patient would receive the most optimal form of vascular access while avoiding complications, through appropriate monitoring and early interventions.

As of March 2008, the hospital was required to decrease the quality deficit by 20%—or achieve the goal of 60% of prevalent patients having AVFs.

### OUTCOMES

Continued participation in the initiative resulted in WCA exceeding the Centers for Medicare and Medicaid Services 2009 goal of a 66% AVF rate in prevalent patients. In July 2008, 67.1% of WCA prevalent patients had an AVF.

### CONTACT

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## **Pediatric Asthma Management Program**

South Nassau Communities Hospital, Oceanside

### **PROJECT DESCRIPTION**

South Nassau Communities Hospital (SNCH) addressed the challenge of pediatric asthma using a multidisciplinary team approach. The team consisted of nursing, pediatric medicine, respiratory therapy, pharmacy, social work, and home care staff; and the Asthma Coalition of Long Island.

Parents and children admitted to the hospital received asthma education during their stay, and follow-up referrals were made to the Department of Health and to the SNCH Home Care Department.

To gauge the effectiveness of this initiative, the pediatric registered nurses followed 22 families through telephone calls at intervals of one month, three months, and six months post-discharge.

After one year, data showed that only one child was readmitted with asthma. There was a large decrease in asthma-related physician visits, missed school days, emergency department visits, and readmissions.

### **OUTCOMES**

- Missed school days decreased by 89.7% (from 29 days to three).
- ED visits for asthma decreased by 92.3% (from 39 visits to three).
- Hospital admissions for asthma decreased by 95.5% (from 22 admissions to one).

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