



HEALTHCARE ASSOCIATION OF NEW YORK STATE
LEADING THE QUEST
FOR QUALITY
2011 PROFILES IN QUALITY
AND PATIENT SAFETY

HANYS Quality Institute

INTRODUCTION

The Healthcare Association of New York State (HANYS) and its members are committed to innovative practices and continuous improvement in quality, safety, and efficacy of care. HANYS' Pinnacle Award for Quality and Patient Safety recognizes organizations playing a lead role in achieving excellence and sharing best practices.

The 2011 *Profiles in Quality and Patient Safety* is a compendium of submissions for HANYS' Pinnacle Award that meet publication standards. Each profile includes a program description, outcomes, and lessons learned that provide insight into what it takes to accomplish and sustain successful change. This year there were winners in three categories: system, large hospital, and small hospital or division/specialty. In addition, HANYS recognizes submissions in the top tenth percentile based on the scoring guidelines.

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

For more information about the Pinnacle Award for Quality and Patient Safety, contact Nancy Landor, Senior Director of Strategic Quality Initiatives, at (518) 431-7685 or at nlandor@hanys.org.

The 2011 profiles are categorized into four themes, with the following sub-topics:

CLINICAL CARE

- General
- Preventing Pressure Ulcers
- Reducing Readmissions

OPERATIONS

- General
- Improving a Culture of Safety

PATIENT SAFETY

- Preventing Falls
- Infection Prevention
- Medications

SPECIALTY CARE

- Behavioral Health
- Emergency Department
- Home Care
- Long-Term Care
- Obstetrics
- Outpatient Programs
- Pediatrics
- Rehabilitation

SELECTION COMMITTEE

Nancee L. Bender, R.N., Ph.D., brings extensive expertise in patient safety, quality improvement, hospital administration, ambulatory care, critical care, emergency care, disaster management, and health care systems research to her role as a Continuous Service Readiness (CSR) and domestic consultant for Joint Commission Resources, Inc. Dr. Bender has a diverse background in nursing, administration, education, research, and performance improvement, and has served as the Executive Director for Ambulatory Accreditation for The Joint Commission.

Dr. Bender served as a professor in an academic faculty appointment at the University of Rochester School of Nursing, in Rochester, New York. While pursuing her research interest in the coordination of health care and performance improvement for quality, cost, and patient safety outcomes, she taught leadership, patient safety in health systems, population health, ethics, public policy, and evidence-based quality improvement practices in health care. She has presented the results of her research on coordination of care at the National Institutes of Health's National Institute of Nursing Research *State of the Science* conference in Washington, D.C., and the International Society for Quality conference in The Netherlands. She served as the Principle Investigator for a Robert Wood Johnson-funded program for pairing nursing graduate students and medical students on performance improvement planning and implementation teams. She served on solution teams for the World Health Organization and The Joint Commission focusing on prevention of pressure ulcers and falls. Dr. Bender received her Bachelor's and Master's degrees in nursing from the University of Michigan, Ann Arbor, and her Doctor of Philosophy degree from the University of Rochester.

Pamela A. Carroll-Solomon, M.J., R.H.I.A., C.P.H.Q., is Director of Quality Services at Catholic Health East (CHE), a multi-institutional Catholic health system that is co-sponsored by nine religious congregations and Hope Ministries, and includes 34 acute care hospitals, four long-term acute care hospitals, 25 freestanding and hospital-based

long-term care facilities, 14 assisted-living facilities, four continuing care retirement communities, eight behavioral health and rehabilitation facilities, 37 home health/hospice agencies, and numerous ambulatory and community-based health services. In her position, Ms. Carroll-Solomon is responsible for performance reporting across the continuum of care on key strategic initiatives to improve outcome and patient satisfaction scores. For her work on a CHE home care report, she received OCS HomeCare's 2010 Vision Award, which honors home care and hospice organizations for strategic and/or innovative use of OCS products in furthering agency performance. She has a Bachelor's degree in Health Records Administration and a Master's degree in journalism, both from Temple University, and is a certified Six Sigma green belt.

Paul A. Gitman, M.D., M.A.C.P., practiced general internal medicine until he accepted the responsibility as Chief of the Division of General Internal Medicine and Director of Quality Management at Long Island Jewish Hospital. Dr. Gitman advanced to Vice President of Clinical Care and Resource Management and then to Medical Director at both Long Island Jewish Hospital and North Shore University Hospital. He was promoted to Vice President of Medical Affairs for the North Shore-Long Island Jewish Health System, and retired in October 2009. Dr. Gitman is board certified by the American Board of Internal Medicine and the American Board of Quality Assurance and Utilization Review. He is certified in Medical Quality by the American Board of Medical Quality. Dr. Gitman is currently Chair of the Board of the American Board of Medical Quality. Until his retirement, Dr. Gitman was a member of the American Medical Association (AMA) Physician's Consortium, a national organization developing indicators that can be used to evaluate physicians. Dr. Gitman serves as Chair of the Executive Committee and chair of the Physician Alliance of the New York Quality Alliance. He is also a member of The Quality Subcommittee of the Medical Society of the State of New York and an alternate representative for AMA to The Joint Commission's Home Care Professional and Technical Advisory Committee. He received his

Bachelor of Arts degree from Columbia College and his Medical Doctor degree from Boston University School of Medicine.

Andrea Kabcenell, R.N., M.P.H., is Vice President at the Institute for Healthcare Improvement (IHI), where she serves on the research and demonstration team and leads a portfolio of programs to improve performance in hospitals. Since 1995, she has directed Breakthrough Series Collaboratives and other quality improvement programs, including Pursuing Perfection, a national demonstration funded by The Robert Wood Johnson Foundation designed to show that near perfect, leading-edge performance is possible in health care. Before joining IHI, Ms. Kabcenell was a senior research associate in Cornell University's Department of Policy, Analysis, and Management focusing on chronic illness care, quality, and diffusion of innovation. She also served for four years as Program Officer at The Robert Wood Johnson Foundation. Ms. Kabcenell received her undergraduate degree and graduate degree in public health from the University of Michigan.

Vahe Kazandjian, Ph.D., is Principal, Aralez Health LLC, a consulting group assisting health care organizations in achieving accountability through performance measurement. From 1987 until 2011, he was a Senior Vice President at the Maryland Hospital Association (MHA), and President of The Center for Performance Sciences, an MHA subsidiary outcomes research center. He is the original architect of the Maryland Quality Indicator Project. Dr. Kazandjian is Adjunct Professor of the Health Policy and Management Department of the Johns Hopkins Bloomberg School of Public Health, and Adjunct Professor of Preventive Medicine and Biometrics, Uniformed Services University of Health Sciences, Bethesda, Maryland. In addition, in 2002, Dr. Kazandjian was named President of LogicQual Research Institute, Inc., a not-for-profit organization dedicated to conducting research on clinical practice and accountability. From 2005 to 2010, Dr. Kazandjian served as the Principal Investigator for a quality-based reimbursement initiative by Maryland's Health Services Cost Review Commission. He has published extensively in clinical and health services peer review journals on the development of clinical protocols, indicators of quality, small area variation analysis, and

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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 committee 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*. Currently, he is a member of two IOM committees: one is looking at patient safety and health information technology and the other will make recommendations to advance a learning health care system. Mr. Levin is Chair of the National Quality Forum Consensus Standards Approval Committee and Co-chair of the National Committee for Quality Assurance Committee on Performance Measures. He has served on numerous New York State Department of Health task forces and workgroups focused on safety, quality, informed consent, and bioethics. 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's School of Public Health and a Bachelor of Arts degree in Philosophy from Reed College.

PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY

2011 AWARDEES



SYSTEM CATEGORY AWARD

*Reducing Adverse Outcomes
on Labor and Delivery*

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

William Walsh, Chief Executive Officer, accepts the Pinnacle Award on behalf of North Bronx Healthcare Network/New York City Health and Hospitals Corporation, from HANYS' President Daniel Sisto (left) and Board Chair-elect Joseph McDonald (right), President and Chief Executive Officer of Catholic Health System.



LARGE HOSPITAL CATEGORY AWARD

*Reducing Readmissions by Leveraging a
Comprehensive Care Transition Approach*

Bassett Medical Center

Dr. Komron Ostovar, Attending Physician, and Lorraine Stuble, Director, Care Coordination, accept the Pinnacle Award on behalf of Bassett Medical Center, from HANYS' President Daniel Sisto (left) and Board Chair-elect Joseph McDonald (right), President and Chief Executive Officer of Catholic Health System.



SMALL HOSPITAL OR DIVISION/ SPECIALTY CATEGORY AWARD

*Improving Hospital Access and Efficiency
of Care for Our Community*

Mercy Hospital of Buffalo/Catholic Health System

Kathleen Guarino, Vice President of Patient Care Services and Chief Nursing Officer, accepts the Pinnacle Award on behalf of Mercy Hospital of Buffalo/Catholic Health System, from HANYS' President Daniel Sisto (left) and Board Chair-elect Joseph McDonald (right), President and Chief Executive Officer of Catholic Health System.

SPECIAL RECOGNITION

SUBMISSIONS THAT SCORED IN THE TOP TENTH PERCENTILE

Pay for Performance—P4P

Continuum Health Partners

Successful Implementation of a Comprehensive Anticoagulation Safety Program

Continuum Health Partners

Implementation of TeamSTEPPS® to Improve Communication, Patient Outcomes, and Reduce Clinical Errors

Lincoln Medical and Mental Health Center

Improving Medication Management Following Hospital Discharge Through Patient-Centered Education and In-Home Monitoring

South Nassau Communities Hospital

Reducing Sepsis Mortality Through Early Identification of Systemic Inflammatory Response Syndrome and Implementation of “Change Bundles”

South Nassau Communities Hospital

Redesign of the Patient Care Model Across the Continuum to Improve Patient Flow

Southampton Hospital

A Nursing Strategic Plan Built Upon a Foundation of Patient Safety

Southampton Hospital

Prevention of “Naughty CAUTIs”

St. James Mercy Hospital

Patient-Centered Pharmacy Services at the Time of Hospital Discharge

Strong Memorial Hospital/University of Rochester Medical Center

Preventing Hospital-Acquired Pressure Ulcers in a Medical/Surgical Intensive Care Unit

Unity Hospital of Rochester

TABLE OF CONTENTS

CLINICAL CARE

General

<i>Achieving and Maintaining SCIP Normothermia</i>	1
Aurelia Osborn Fox Memorial Hospital	
<i>Mouth Care Compliance</i>	2
Good Samaritan Hospital	
<i>Rapid Response Team—Measurable and Sustained Success</i>	3
Highland Hospital of Rochester	
<i>The Value of an Organized Fracture Program for the Elderly: Improved Outcomes and Reduced Cost</i>	4
Highland Hospital of Rochester	
<i>Stop the Bleeding! Using a Nurse Practitioner to Impact Compliance in an Inpatient Anticoagulant Program</i>	5
Lutheran Medical Center	
<i>Medical/Surgical Multidisciplinary Rounding</i>	6
Olean General Hospital/Upper Allegheny Health System	
<i>A Successful Joint Academy Program—A Multidisciplinary Team Achieves Faster Healing</i>	7
Our Lady of Lourdes Memorial Hospital	
<i>Appropriate Sedation of Ventilator Patients</i>	8
Rome Memorial Hospital	
<i>“Knot So Fast”—Sustainable Restraint Reduction in Critical Care</i>	9
South Nassau Communities Hospital	
<i>Real-Time Feedback to Caregivers Can Improve Core Measure Outcomes</i>	10
Stony Brook University Medical Center	
<i>Evolution of a Rapid Response Team: Using Outcomes Data to Further Reduce Medical Emergencies</i>	11
The Brooklyn Hospital Center	
<i>Improving Compliance with Surgical Care Improvement Project Indicators</i>	12
The Brooklyn Hospital Center	
<i>Pulmonary Disease Management Program</i>	13
Thompson Health	
<i>Maintaining Glycemic Control Within a Medical/Surgical Intensive Care Unit to Enhance Patient Outcomes</i>	14
Unity Hospital of Rochester	
<i>Using Data to Drive “Golden Hour” Processes for Presumed Stroke Patients at a Designated Stroke Center</i>	15
Unity Hospital of Rochester	
<i>Hardwiring Dysphagia and Stroke Education Quality Improvements Using an Interdisciplinary Stroke Steering Team</i>	16
Upstate University Hospital	

*Denotes initiatives that were ranked in the 2011 Top Tenth Percentile by the selection committee.

**Denotes 2011 Pinnacle Award winners.

<i>Implementing a Safe and Effective Insulin Regimen to Manage Post-Cardiac Surgery Glycemic Control</i>	17
Winthrop-University Hospital	
<u>Preventing Pressure Ulcers</u>	
<i>Using Digital Imaging to Reduce Errors in the Identification, Assessment, and Treatment of Pressure Ulcers</i>	18
Coney Island Hospital	
<i>Preventing Hospital-Acquired Pressure Ulcers in a Medical/Surgical Intensive Care Unit*</i>	19
Unity Hospital of Rochester	
<u>Reducing Readmissions</u>	
<i>Reducing Readmissions by Leveraging a Comprehensive Care Transitions Approach**</i>	20
Bassett Medical Center	
<i>A Team-Based, Multidisciplinary Approach to Reducing Readmissions</i>	21
Ellis Medicine	
<i>Improving Medication Management Following Hospital Discharge Through Patient-Centered Education and In-Home Monitoring*</i>	22
South Nassau Communities Hospital	
<i>Reducing Hospital Readmissions Due to Heart Failure</i>	23
Stern Family Center for Extended Care and Rehabilitation/North Shore-Long Island Jewish Health System	
<i>Patient-Centered Pharmacy Services at the Time of Hospital Discharge*</i>	24
Strong Memorial Hospital, University of Rochester Medical Center	

OPERATIONS

General

<i>Building a Culture of Patient Safety: The Reduction of Order Entry Discrepancy in the Radiology Department</i>	25
Brooks Memorial Hospital	
<i>Effective Resource Utilization in the Business of Caring: Tearing Down Walls and Barriers</i>	26
Claxton-Hepburn Medical Center	
<i>Pay for Performance—P4P*</i>	27
Continuum Health Partners	
<i>Root Cause Analysis Across a Hospital System</i>	28
Health Quest	
<i>Patient Safety in Imaging: A Multidimensional Approach for Computerized Tomography Scans</i>	29
Jacobi Medical Center/New York City Health and Hospitals Corporation	
<i>Using Process Redesign and the Electronic Health Record to Improve Timely Notification and Documentation of Critical Laboratory Values</i>	30
Kings County Hospital Center/New York City Health and Hospitals Corporation	
<i>Developing a Fast Track Lung Cancer System to Improve Patient Safety by Expediting Diagnosis, Follow-Up, and Treatment</i>	31
Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation	
<i>Improving Patient Safety by Reducing Radiation Exposure From Computerized Tomography Imaging</i>	32
Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation	
<i>Implementation of TeamSTEPPS® to Improve Communication, Patient Outcomes, and Reduce Clinical Errors*</i>	33
Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation	

<i>Enhancing Patient Safety: Decreasing the Incidence of Flash Sterilization in Perioperative Services</i>	34
Maimonides Medical Center	
<i>Mock Code and Rapid Response Training Initiative</i>	35
New York Medical College at Westchester Medical Center	
<i>Physician Reporting of Clinically Significant Events Via a Computerized Patient Sign-Out System</i>	36
New York Medical College at Westchester Medical Center	
<i>Optimizing Patient Handoffs</i>	37
New York Medical College at Westchester Medical Center	
<i>Decreasing Incidents of Mislabeled Specimens in the Emergency Department by Integrating Daily Safe Practices for Proper Labeling</i>	38
Newark-Wayne Community Hospital	
<i>The Amazing Race—Delivering Greater Value Through a Collaborative Patient Throughput Program</i>	39
North Shore University Hospital	
<i>Developing a Medical/Surgical Unit Environmental Readiness Process to Improve Patient Satisfaction and Support Clinical Staff</i>	40
Northern Westchester Hospital	
<i>Center of Excellence for Wound Healing and Hyperbaric Medicine</i>	41
Olean General Hospital/Upper Allegheny Health System	
<i>Excellence in Critical Care: The Intensivist Program in a Community Hospital</i>	42
Olean General Hospital/Upper Allegheny Health System	
<i>Decreasing Orthopedic Elective Length of Stay Using Six Sigma Methodology</i>	43
Plainview Hospital/North Shore-Long Island Jewish Health System	
<i>A Nursing Strategic Plan Built Upon a Foundation of Patient Safety*</i>	44
Southampton Hospital	
<i>Ancillary Utilization Process Management</i>	45
St. Elizabeth Medical Center	
<i>Patient Safety is NOT a Bowl of Cherries!</i>	46
St. Francis Hospital, Poughkeepsie	
<i>Safe Handling of Compressed Oxygen Cylinders</i>	47
St. Francis Hospital—The Heart Center	
<i>Reducing Preventable Adverse Events Through TeamSTEPPS®</i>	48
St. Mary’s Healthcare	
<i>Using Simulation to Prepare Nurses for Barcode Medication Administration</i>	49
Strong Memorial Hospital, University of Rochester Medical Center	
<i>Improving Correct Patient Selection Before Order Entry Within an Electronic System Using a Patient Verification Screen</i>	50
Winthrop-University Hospital	
<u>Improving a Culture of Safety</u>	
<i>Creating an Organization-Wide Cultural Commitment to Quality Care: The Right Care, Right Time, Every Time</i> . . .	51
Oswego Hospital	
<i>Utilizing TeamSTEPPS® and Just Culture to Improve Patient Safety</i>	52
New York City Health and Hospitals Corporation	
<i>Design and Implementation of an Institute for Patient Safety and Clinical Excellence</i>	53
Rochester General Health System	

PATIENT SAFETY

Preventing Falls

Continuous Monitoring and Real-Time Data Review of Falls Intervention Program54
Bassett Healthcare Network/O’Connor Hospital

Reducing the Risk of Patient Harm Resulting From Falls55
Champlain Valley Physicians Hospital Medical Center

Conversion to Hendrich II Fall Assessment to Decrease Falls in the Medical/Surgical Areas and Intensive Care Unit56
Thompson Health

Infection Prevention

Implementing Strategies to Reduce Central Line-Associated Blood Stream Infections in the Neonatal Intensive Care Unit57
Albany Medical Center

Increasing Compliance with Pneumonia and Flu Vaccine Screening58
Albany Medical Center

Prevention of Hospital-Associated C. difficile Infections59
Beth Israel Medical Center

Double Whammy: Reducing HAIs on Two Critical Fronts60
Canton-Potsdam Hospital

Culture of Safety Initiative to Eliminate Health Care-Acquired Infections61
Ellis Medicine

Catheter-Associated Urinary Tract Infection Reduction in a Medium-Size Community Hospital62
Glens Falls Hospital

Reduction of Hospital-Acquired Infections in Critical Care Units63
John T. Mather Memorial Hospital

Reduction of Catheter-Associated Urinary Tract Infections in Medical/Surgical Patients64
Lutheran Medical Center

Doctors, Nurses, and Administrators Working Together to Reduce Central Line Utilization65
Lutheran Medical Center

CLABSI Bundle Implementation: From the Top Down and Multidisciplinary66
Mount St. Mary’s Hospital and Health Center

HPOD: Hospital Point of Dispensing67
Mount St. Mary’s Hospital and Health Center

Eliminating Central Line-Associated Blood Stream Infections in a Surgical Intensive Care Unit68
New York Hospital Queens

Sustaining Success in Preventing Health Care-Associated Infections69
North Shore University Hospital

Developing a Low-Cost Solution to a High-Risk Problem: Reducing Central Line-Associated Blood Stream Infections70
NuHealth—Nassau University Medical Center

Successful Reduction of Central Line-Associated Blood Stream Infections Outside the ICU: A Multi-Hospital Collaborative71
Rochester Consortium (F. F. Thompson Hospital, Highland Hospital, Lakeside Health System, Rochester General Hospital, Strong Memorial Hospital, and Unity Hospital)

<i>Reducing Horizontal Transmission of Drug-Resistant Organisms in Patients with Complex Medical Problems</i>	72
Rochester General Hospital	
<i>Tackling MRSA: An Orthopedic Infection Prevention Bundle</i>	73
Rochester General Hospital	
<i>Targeting Zero: Sustained Rate of Zero Central Line-Associated Blood Stream Infections in a Surgical Intensive Care Unit</i>	74
Rochester General Hospital	
<i>Reducing Sepsis Mortality Through Early Identification of Systemic Inflammatory Response Syndrome and Implementation of “Change Bundles”*</i>	75
South Nassau Communities Hospital	
<i>An Ounce of Prevention</i>	76
St. Charles Hospital	
<i>Infection Prevention Month in an Intensive Care Unit</i>	77
St. Elizabeth Medical Center	
<i>Prevention of “Naughty CAUTIs”*</i>	78
St. James Mercy Hospital	
<i>Antimicrobial Stewardship Committee—“The Bugs & Drugs” Committee</i>	79
St. Joseph’s Hospital of Elmira	
<i>A Hospital-Wide, Multidisciplinary Approach to Prevent Central-Line Infections</i>	80
Stony Brook University Medical Center	
<i>Hand Hygiene Initiative</i>	81
Syosset Hospital	
<i>Reducing Urinary Tract Infections Through a Systematic, Multidisciplinary Approach</i>	82
Upstate University Hospital	
<i>Using Crew Resource Management to Maintain Zero Central Line-Associated Bacteremia in Intensive Care</i>	83
Vassar Brothers Medical Center	
<u>Medications</u>	
<i>Complacency as a Root Cause of Medication Errors</i>	84
Clifton Springs Hospital and Clinic	
<i>Successful Implementation of a Comprehensive Anticoagulation Safety Program*</i>	85
Continuum Health Partners	
<i>Enhancing Patient Safety Using Smart Pump Technology</i>	86
Staten Island University Hospital	
 SPECIALTY CARE	
<u>Behavioral Health</u>	
<i>“Code Grey” Crisis Prevention Team Calms Agitated Patients in Psychiatric Units</i>	87
Coney Island Hospital	
<i>Decreasing Readmissions by Improving the Discharge Process in a Psychiatric Hospital</i>	88
St. Vincent’s Hospital Westchester, Division of Saint Joseph’s Medical Center	
<i>Recovery-Oriented Inpatient Mental Health Treatment: Yielding Decreased Mechanical Restraint Usage and Increased Safety</i>	89
WCA Hospital	

Emergency Department

System Patient Flow Team Reduction in “Left Before Medical Screening Exam” in Emergency Departments90
Bon Secours Charity Health System

30-Minute Arrival to Provider91
HealthAlliance of the Hudson Valley

*Improving Hospital Access and Efficiency of Care for Our Community***92
Mercy Hospital of Buffalo/Catholic Health System

Improving Appropriate Antibiotic Use for Emergency Department Community-Acquired Pneumonia93
Montefiore Medical Center

*Redesign of the Patient Care Model Across the Continuum to Improve Patient Flow**94
Southampton Hospital

Working Across Professions to Improve the Delivery of Emergency Care to Patients Throughout the Organization95
Southampton Hospital

Home Care

Congestive Heart Failure Program96
First to Care Home Care (joint venture of Metropolitan Jewish Health System and Maimonides Medical Center)

Long-Term Care

Creating TIME (The Intimate Meal Experience)97
Mountainside Residential Care Center

Medication Optimization Rounding in Long-Term Care98
Sea View Hospital Rehabilitation Center and Home

Distinguishing Symptomatic Urinary Tract Infection from Asymptomatic Bacteriuria in Long-Term Care Residents99
Wilkinson Residential Healthcare Facility

Obstetrics

KISS (Keep Infants Sleeping Safe)100
Good Samaritan Hospital Medical Center

*Reducing Adverse Outcomes on Labor and Delivery***101
North Bronx Healthcare Network/New York City Health and Hospitals Corporation

Perinatal Mood Disorders: Implementation of a Hospital-Based Screening Program102
Winthrop-University Hospital

Outpatient Programs

Use of Evidence-Based Practice in a Rural Community for Diabetes Care103
Claxton-Hepburn Medical Center

Improving the Primary Care Centers’ Medication Sample Program104
Delaware Valley Hospital/United Health Services

Targeted Approach Using the Chronic Care Model Improves Glycemic Control Among Registry Patients105
North Central Bronx Hospital/New York City Health and Hospitals Corporation

Patient-Centered Medical Home: An Initiative to Improve Care Coordination and Access to Health Care106
The Brooklyn Hospital Center

Pediatrics

Pediatric Protocol—Safety First107
Alice Hyde Medical Center

*Simulation at its Hottest: Development of a Fire Safety Training Program in a Pediatric Post-Acute
Care Setting*108
St. Mary's Hospital for Children

Rehabilitation

Under Pressure to Reduce Pressure109
Burke Rehabilitation Hospital

Achieving and Maintaining SCIP Normothermia

Aurelia Osborn Fox Memorial Hospital

Oneonta

PROJECT DESCRIPTION

Aurelia Osborn Fox Memorial Hospital's quality management team, led by the outcomes manager, partnered with the operating room (OR) staff to work on improving the temperature management of surgical patients in the OR and post-anesthesia care unit (PACU). In 2009, compliance with the Surgical Care Improvement Project (SCIP) infection measure was poor, with an average of 47% of surgical patients hypothermic as they entered the PACU. The team determined that several inconsistencies were causing patients to be hypothermic:

- inconsistent techniques used for accurate temperature measurement among the staff;
- inconsistent use of warmed blankets for pre-warming patients;
- some staff were unaware that unintended hypothermia causes poor outcomes, including higher mortality rates, increased hospital stays, and an increased rate of wound infection; and
- inconsistency between the clocks in the OR and PACU, sometimes causing the timing of the temperature to fall outside acceptable parameters.

The team embarked on an improvement plan that included new thermometers, forced air warming gowns, coordination of the clocks in the OR/PACU areas, and education of staff.

OUTCOMES

- Almost immediately after addressing the inconsistencies, the rate of achieving normothermia increased and has been maintained above 95% since the fourth quarter of 2009.
- The OR staff continued to partner with quality management staff on this and other measures.

LESSONS LEARNED

- Rapid improvement can be achieved and sustained using proven quality improvement tools.
- Partnerships between quality management staff and clinical staff are essential and achieve the best outcomes.
- Staff are more engaged in improvement measures when knowledge of the evidence is shared.

CONTACT

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Mouth Care Compliance

Good Samaritan Hospital

Suffern

PROJECT DESCRIPTION

Good Samaritan Hospital's Clinical Transformation Team guided the formation of a Ventilator-Associated Pneumonia (VAP) Team with a goal of decreasing cases of VAP to as close to zero as possible, to improve patient outcomes and reduce costs.

Using a multidisciplinary approach and researching the Society for Healthcare Epidemiology of America (SHEA) compendium of strategies to prevent hospital-acquired infections enabled the VAP Team to fully understand the importance of creating a successful mouth care program. This was achieved by adding mouth care to the VAP care intervention bundles and enforcing compliance with hospital policies. SHEA recommends performing daily mouth care using an antiseptic. Key factors include purchasing a staff-friendly product, providing continuous education, and performing unexpected clinical practice audits with real-time education. Teaching staff about the VAP team goals and expectations quickly encouraged them to achieve a high compliance rate.

OUTCOMES

- A zero house-wide nosocomial VAP rate has been maintained since November 2008.
- Staff have embraced mouth care as a tool to provide a high standard of care for their patients.

LESSONS LEARNED

- Using unexpected clinical practice assessment audits gives accurate compliance data.
- Real-time education and/or addressing compliance issues are important to busy nurses/care partners and improve compliance.
- Thanking staff for their hard work and showing their success by using graphs allows them to see that their compliance and best practice efforts have been achieved and appreciated.

CONTACT

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Rapid Response Team—Measurable and Sustained Success

Highland Hospital of Rochester

Rochester

PROJECT DESCRIPTION

Highland Hospital established its Rapid Response Team (RRT) in late 2006 to provide a quick, multidisciplinary medical team approach to assess and treat a patient whose condition is deteriorating, and to provide support and education to staff, as needed. Goals include stabilization of patients to prevent further deterioration and prevention of cardiac arrest.

The team of initial responders includes a critical care nurse and respiratory therapist. Advanced cardiovascular life support certification/competency in the care of critically ill patients is required for nursing team members. Respiratory therapist competencies include airway management and care of critically ill patients. Second-line response includes an intensive care unit (ICU) provider or other covering provider. The response team evaluates patients and assists the bedside nurse in assessment and discussion with the covering provider. Recommendations are made regarding transfer to ICU or ongoing management. Guidelines assist staff with criteria for RRT initiation.

Immediately after implementation, the organization experienced a downward trend in non-ICU codes, with an upward trend in RRT calls. These trends have continued and the RRT process is a sustained organizational success. Highland Hospital implemented a similar approach to visitor/non-clinical unit emergencies (Medical Emergency Response Team) and uses the RRT to conduct early evaluation of inpatients who develop stroke symptoms.

OUTCOMES

- The number of RRT calls per 1,000 discharges increased from 6.58 in 2006 to 14.22 in 2010.
- Total codes per 1,000 discharges decreased from 8.26 in 2006 to 5.61 in 2010.
- Non-ICU codes per 1,000 discharges decreased from 5.25 in 2006 to 3.41 in 2010.

LESSONS LEARNED

- A culture must be created and sustained to support and encourage staff to use the RRT process.
- Support and resources must be allocated to allow a successful RRT program.
- The RRT model can be applied to non-patient emergencies and is useful in early stroke response.

CONTACT

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The Value of an Organized Fracture Program for the Elderly: Improved Outcomes and Reduced Cost

Highland Hospital of Rochester

Rochester

PROJECT DESCRIPTION

Highland Hospital's Geriatric Fracture Center (GFC) has achieved improved clinical outcomes (complications, length of stay, mortality, and readmission rates) and lower costs using a model of co-managed care. The patient population includes those age 60 and older with fragility fractures, who are medically/surgically complex. The model is based on patient-centered, evidence-based care delivered by a collaborative interdisciplinary care team. A standardized approach is taken from admission to discharge, using standard order sets, a goal of early surgery, and consistent post-operative management.

Data collection is performed per patient for quality improvement purposes. This program is co-directed by an orthopedic surgeon and a geriatrician, permitting close management and enabling the immediate resolution of conflicts that may arise in day-to-day operations.

GFC has become an internationally-known model of best practice, having been presented in forums throughout the United States, Europe, and Asia.

OUTCOMES

Outcomes achieved compare GFC to usual care models:

- Length of stay: GFC, 4.6 days (confidence interval: ± 3.3); usual care, 8.3 (± 6.3).

- In-hospital mortality: GFC, 1.6%; usual care, 2.5%.
- 30-day readmissions: GFC, 9.8%; usual care, 13.2%.
- Time to surgery: GFC, 24.1 hours (± 17); usual care, 37.4 (± 63.8)

LESSONS LEARNED

Key factors in the success of the program include:

- outreach/education to emergency medical service providers regarding geriatric fracture care in the field;
- discharge planning beginning on admission; and
- continuous communication between caregivers, consultants, and patients/families.

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Stop the Bleeding! Using a Nurse Practitioner to Impact Compliance in an Inpatient Anticoagulant Program

Lutheran Medical Center

Brooklyn

PROJECT DESCRIPTION

Since The Joint Commission implemented the National Patient Safety Goal, “Reduction of the Likelihood of Patient Harm Associated with the Use of Anticoagulant Therapy” in 2008, Lutheran Medical Center has used a multidisciplinary approach to manage its anticoagulation program. The facility addressed each safety goal element, implemented evidence-based anticoagulant guidelines, and trained prescribers in the use of the guidelines. Monitoring indicated that “the time to therapeutic goal” exceeded acceptable standards and the hospital’s internal goal. In October 2010, the pharmacy hired a nurse practitioner to oversee the anticoagulation program. This brought the pharmacy and nursing staff even closer together through this unique reporting structure, and the facility successfully achieved its goals and developed new initiatives under this model.

OUTCOMES

Under the leadership of the nurse practitioner, Lutheran Medical Center was able to:

- establish a weight-based heparin nomogram;
- develop an anticoagulation proficiency exam;
- establish consistent laboratory specimen collection times to coincide with heparin dosing;
- develop an anticoagulant reference book;
- establish interdisciplinary bedside rounds; and

- improve overall compliance with established “targets” for getting patients to their goal.

LESSONS LEARNED

- The nurse practitioner has the ability to prescribe, assess, and monitor the effectiveness of the therapies.
- Appointment of effective stakeholders is vital to the development, sustainability, and growth of the project.
- The Plan, Do, Check, Act cycle works!

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Medical/Surgical Multidisciplinary Rounding

Olean General Hospital/Upper Allegheny Health System

Olean

PROJECT DESCRIPTION

Multidisciplinary rounding (MDR) is a model of care in which multiple members of the care delivery team come together at a patient's bedside to discuss goals of care and progress in real time. MDR at Olean General Hospital has proven to be a valuable tool in improving the quality, safety, and patient experience of care.

Originating in the intensive care unit (ICU), multidisciplinary rounding has now been fully implemented on all medical and surgical care units. The rounding team visits every patient on day two and day five of his or her hospitalization. The team consists of a hospitalist, the bedside nurse, a clinical pharmacist, a respiratory therapist, a physical therapist, a dietician, and a discharge planner.

Multidisciplinary rounds have become a powerful vehicle for coordinating care among disciplines, facilitating communication, reviewing current patient status, clarifying goals and desired outcomes, and creating a comprehensive plan of care.

OUTCOMES

- Compliance with rounding for medical and surgical patients is 94%, and 100% in the ICU.
- One hundred and sixty-four patients with potential obstructive sleep apnea were identified and tested.
- More than 100 medication reconciliation opportunities were identified and corrected.

- Length of stay decreased by one-half of a day.
- The patient satisfaction mean score for including patients in decision making increased from 78.6 to 84.4.

LESSONS LEARNED

- Rounding on multiple units simultaneously creates a burden for staff in smaller departments and can adversely impact attendance.
- It is imperative to have systems in place to monitor that standards are being followed.
- Rounds must be treated the same as any other critical patient care process.

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A Successful Joint Academy Program—A Multidisciplinary Team Achieves Faster Healing

Our Lady of Lourdes Memorial Hospital
Binghamton

PROJECT DESCRIPTION

The Joint Academy is a multidisciplinary team approach that begins in the community with orthopedic surgeons giving lectures on *Joint Pain* and *Hip and Knee Wellness*. When a patient decides to have surgery, he or she is encouraged to find a personal “coach” who will attend pre-admission testing and pre-operative classes, assist with pre-operative exercises, attend a post-surgery exercise class, and stay with the patient at home for approximately one week after discharge. The staff assists the patient and coach with any continuing care needs as the patient transitions from hospital to home. When ready for discharge, patients are considered Joint Academy graduates.

The discharge plan includes: body change adjustment, incision care, hand washing, blood clot prevention, discomfort management, exercise, and joint protection. The multidisciplinary team collaborates with patients and coaches through pre-surgical, surgical, and recovery phases, as patients gain mobility and the ability to care for themselves.

OUTCOMES

- The organization achieved fourth quarter 2010 patient satisfaction scores of 93.4 overall out of a possible score of 100, 93.1 for nurse sensitivity, and 86.3 for pain control.
- Low rates of hip and knee infections were achieved: 0.47% for total hip surgery; 0.53% for total knee surgery; and 0.51% for overall hip and knee surgery.

LESSONS LEARNED

- To succeed, pain management must be strengthened.
- Teamwork is essential—routine Joint Academy team-building events were key.
- Celebrate success!

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Appropriate Sedation of Ventilator Patients

Rome Memorial Hospital

Rome

PROJECT DESCRIPTION

Rome Memorial Hospital began this project as a prelude to developing a progressive mobility program. The critical care literature of the past decade emphasized the importance of lighter sedation for ventilator patients. Rome Memorial Hospital was using the Ramsey sedation scale and received numerous comments from the medical staff that the patients seemed over-sedated during morning rounds. The predominant method of sedation of ventilator patients in the intensive care unit (ICU) is continuous propofol infusion.

In an effort to align practice with current evidence, a team of ICU registered nurses researched the literature and determined that the facility needed to change its sedation scale to the more precise Richmond Agitation and Sedation Scale (RASS). In addition, the hospital revised its ventilator pre-printed order set to reflect an initial sedation level of RASS 0 to -1. The hospital added a second daily arousal. This was presented to the medical staff for approval and adopted in August 2009. After three months of education, the new system went into effect January 1, 2010 and was monitored in daily ICU multidisciplinary rounds.

OUTCOMES

- There was a one full day (19.6%) reduction in ventilator days per patient in 2010, compared to 2008 and 2009.
- The progressive mobility project has now been started.

LESSONS LEARNED

- Emphasize the importance of staff education and participation by the registered nurses to change the paradigm of critical care nurses and their views on sedation.
- Confirm the importance of lighter sedation of ventilator patients.

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“Knot So Fast”—Sustainable Restraint Reduction in Critical Care

South Nassau Communities Hospital

Oceanside

PROJECT DESCRIPTION

South Nassau Communities Hospital initiated the “Knot So Fast” project to promote a safe and efficient restraint-reduced environment in critical care and to identify registered nurses’ attitudes, knowledge, and practice issues toward the use of physical restraints. Forty-two nurses from critical care were involved in the project.

Using a modified version of the *Perception of Restraint Use Questionnaire* (PRUQ), variables were measured prior to and two weeks after the restraint reduction initiative. After initially completing the survey, education was provided to the nurses that included risks and benefits of restraint use, correction of misperceptions, sensitizing staff to the experience of being restrained, legal and ethical implications, and alternatives to restraints. Monthly intensive care unit (ICU) and cardiac care unit (CCU) prevalence rates for restraints were calculated and compared before and after implementation of restraint education.

OUTCOMES

- The ICU reduced the restraint rate from 45.05 per 1,000 patient days to 26.76 per 1,000 patient days, a 40.6% reduction.
- The CCU reduced the restraint rate from 59.65 per 1,000 patient days to 35.54 per 1,000 patient days, a 40.4% reduction.
- The post-restraint PRUQ results showed that nurses’ knowledge, perception, and attitude toward restraint use significantly improved.

LESSONS LEARNED

- Within a well defined restraint reduction environment, there is an overall decrease in the importance placed on the use of restraints to control unsafe or undesirable patient behavior.
- Data confirm while nurses have been supportive of restraint reduction, they are concerned about patient safety.
- Responses that reflected the largest change in attitudes pertain to the use of restraints to prevent the patient from pulling out an endotracheal tube.

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Real-Time Feedback to Caregivers Can Improve Core Measure Outcomes

Stony Brook University Medical Center

Stony Brook

PROJECT DESCRIPTION

Until recently, Stony Brook University Medical Center's approach to core measure data consisted of retrospective chart reviews by the decision support department after final coding. This approach did not allow the facility to know outcomes until they were reviewed and finalized, which, on average, was more than 90 days. The lack of concurrent data was making it difficult to provide the feedback frontline employees needed to correct issues or be aware of opportunities in a timely fashion. Stony Brook's process redesign focused on providing real-time feedback for one of the lowest scoring performance measures: community-acquired pneumonia. The following changes were implemented and were recently expanded to other core measures and hospital quality initiatives:

- **Increase information sharing:** Real-time chart audits are performed by a team of emergency department nurses and clinical quality improvement staff. Practitioners of non-compliant cases are sent a letter.
- **Real-time data distribution:** Daily unit reports are generated and sent automatically to nurse leaders. The reports provide feedback on patients who have not yet met the requirement for screening or vaccination.
- **Feedback at the time of care:** A column was created in the electronic patient census to inform the nurse of patients' vaccination screening status.

OUTCOMES

Through this initiative, Stony Brook University Medical Center achieved:

- one hundred percent compliance with pneumococcal screening and vaccination of core measure patients for the third quarter of 2010;
- one hundred percent compliance with antibiotic selection for this group of patients for the third quarter of 2010; and
- a 7% increase in compliance for the obtaining of blood culture prior to antibiotic administration for the third quarter of 2010.

LESSONS LEARNED

- It is important to provide feedback to practitioners who are providing care.
- Manual feedback that is sent out for review and response is difficult to track. More automation is required.
- Changes that can be hardwired into computer functions are successful in changing behavior.

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Evolution of a Rapid Response Team: Using Outcomes Data to Further Reduce Medical Emergencies

The Brooklyn Hospital Center

Brooklyn

PROJECT DESCRIPTION

The Brooklyn Hospital Center formed a multidisciplinary rapid response team (RRT) in 2009 to respond to emergent patient care situations within the non-critical care areas of the hospital. This performance improvement initiative also helped to satisfy The Joint Commission's related National Patient Safety Goal, and was consistent with the Institute for Healthcare Improvement's *Five Million Lives Campaign*. While RRTs should reduce hospital-wide cardiac arrest rates and mortality, a study published in the December 2008 *Journal of the American Medical Association* was unable to substantiate such reductions. The most common reason for RRT activation was difficulty breathing, followed by hypoglycemia, and seizures. As hypoglycemia may be a preventable event, further investigation into these cases was warranted as a performance improvement initiative, using the Find, Organize, Clarify, Understand, Select, Plan, Do, Check, Act (FOCUS-PDCA) methodology.

OUTCOMES

Two years of data collection demonstrated:

- a 44.6% reduction in cardiac arrests;
- resuscitation rates improved from 29.5% to 49.7%;
- the survival-to-discharge rate improved from 6.5% to 14.4%;
- a 23% reduction in asystolic cardiac arrests; and
- ten percent of RRT activations required code blue activation.

LESSONS LEARNED

- Multidisciplinary RRTs are an effective means to reduce morbidity and mortality in a community teaching hospital.
- RRTs can be appropriately utilized to address a change in a patient's clinical condition.
- Hypoglycemia is often the reason for a change in a patient's clinical condition.

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Improving Compliance with Surgical Care Improvement Project Indicators

The Brooklyn Hospital Center

Brooklyn

PROJECT DESCRIPTION

At the end of the second quarter of 2010, The Brooklyn Hospital Center identified that only four out of the nine measures in the Surgical Care Improvement Project (SCIP) measure set had met the established goals for at least five quarters. Administration of prophylactic antibiotic within one hour prior to incision, discontinuation of antibiotics within 24 hours of anesthesia end time, and venous thromboembolism (VTE) prophylaxis order and administration were below target for eight quarters.

A multidisciplinary team of surgeons, anesthesiologists, surgical residents, pharmacists, and nurses was formed to improve compliance to at least the national averages for all nine indicators.

Using the Find, Organize, Clarify, Understand, Select, Plan, Do, Check, Act (FOCUS-PDCA) improvement method, the team:

- identified outliers and areas of deficiencies;
- identified process owners for surgical procedures;
- developed a year-round education plan for all relevant clinical staff;
- conducted ongoing concurrent review and audit;
- revised the antibiotic order form to include appropriate antibiotics;
- developed a SCIP order set in the electronic medical record (EMR), with a stop order of antibiotics after two doses of prophylactic antibiotics and order sets for VTE included in the EMR;
- developed a process for review of outliers before data submission;

- improved documentation of why antibiotics are continued when still ordered; and
- improved documentation of patient contraindications to VTE.

OUTCOMES

Between the third and fourth quarters of 2010:

- the organization went from having six SCIP measures meet or exceed the national averages to having all nine SCIP measures meet or exceed national averages;
- the antibiotic prophylaxis prior to incision rate went up from 91% to 96%;
- the discontinuation of antibiotics rate increased from 78% to 96.2%;
- the VTE prophylaxis ordered and received rate increased from 86% to 98.3%; and
- the urinary catheter removal rate increased from 76% to 97%.

LESSONS LEARNED

- Leadership focus, sponsorship, and support provide critical momentum to a project.
- Engaging physicians, specifically the medical residents, and obtaining their “buy-in” is key to improving clinical performance.
- Decisions supported by data helped to achieve these goals.

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Pulmonary Disease Management Program

Thompson Health

Canandaigua

PROJECT DESCRIPTION

After starting a support group for chronic pulmonary disease patients, Thompson Health found the demand for resources in this high-risk, high-volume population was greater than first imagined.

Thompson's Pulmonary Disease Management Program (PDMP) was the solution to meet the needs of pulmonary patients. The majority of the participants suffer from chronic obstructive pulmonary disease (COPD), which is the fourth leading cause of death in the United States and the only cause of death with increasing mortality rates.

PDMP has responded to the patient needs by embracing a new model of care, following standards of practice, and engaging in quality initiatives to provide an encompassing approach to pulmonary disease management. PDMP meets two days per week in an outpatient fitness center. Participants spend up to two hours doing physical exercise. Education begins with a series of 16 hour-long classes and continues with one-on-one sessions. Participants decide on a minimum of three goals they would like to accomplish in the program.

OUTCOMES

PDMP's success is evident in its outcomes. Participants dramatically increased quality of life scores and in the initial one-year pilot program, and the admission rate of active participants was reduced to zero. PDMP participants report:

- improved quality of life;
- decreased shortness of breath;
- increased activity;
- increased disease awareness knowledge; and
- none of the active participants have had a hospital admission for a pulmonary infection.

LESSONS LEARNED

- Organizations committed to the care of all populations can find creative and inexpensive methods to meet the needs of their communities.
- Start small and incorporate the expertise of other professionals.
- Let your passion sustain you through roadblocks.

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Maintaining Glycemic Control Within a Medical/Surgical Intensive Care Unit to Enhance Patient Outcomes

Unity Hospital of Rochester

Rochester

PROJECT DESCRIPTION

A multidisciplinary team comprised of intensive care unit (ICU) nurses, ICU physicians, a pharmacist, and an endocrinologist met to review glycemic control protocols in the ICU. They addressed protocol selection, targets for control, ease of use, monitoring requirements, the risks of hypoglycemia, and applicability in different patient care areas in the hospital. Order sets and protocols were developed to standardize monitoring of blood glucose and intravenous insulin delivery. Input on the ease of use of the protocols and the risk of hypoglycemia were discussed at periodic meetings. The Georgia Hospital Association protocol was selected, based on current evidence-based literature supporting target blood glucose of 90 to 140 mg/dl and analysis of blood glucose results using RALS®-TGCM software.

All ICU nurses were educated in the use of the glycemic control protocol, staff used a standardized hypoglycemia treatment protocol, and a method was developed to facilitate timely transition from intravenous to subcutaneous insulin. Work sheets were added to order sets to assist medical residents in calculating total daily insulin requirements. Ensuring patient safety and the efficacy of the project has been paramount throughout this process.

OUTCOMES

- Unity achieved an 80% sustained reduction in the incidence of hypoglycemia, with median blood glucose of 124 mg/dl.

- There was a 47% reduction in finger sticks and associated nursing interventions required to maintain the same level of blood glucose control, thereby enhancing patient and staff satisfaction.
- A transition protocol for conversion from intravenous to subcutaneous insulin use was implemented.

LESSONS LEARNED

- Involvement of staff in research and implementation of protocols, and timely feedback are key to success.
- Ongoing education, periodic checks to ensure minimal protocol variation, and data sharing relieves fears of increased incidence of hypoglycemia.
- Maintenance of glycemic control requires diligent attention to monitoring.

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Using Data to Drive the “Golden Hour” Processes for Presumed Stroke Patients at a Designated Stroke Center

Unity Hospital of Rochester

Rochester

PROJECT DESCRIPTION

In 2009, Unity Hospital of Rochester formed a multidisciplinary team to optimize stroke/transient ischemic attack (TIA) patient care and outcomes and to meet state and national recommended timeframes for care of acute stroke patients in the emergency center.

The team met and developed a scripted care packet containing care protocol, pre-printed orders, timeframes, the National Institutes of Health (NIH) scale, and tissue plasminogen activator (tPA) exclusion criteria. An education plan was developed for all physicians, nurses, and support staff involved in stroke care. Emergency medical services (EMS) staff were encouraged to call ahead for any presumed stroke/TIA patient. Emergency department (ED) triage was provided with a list of stroke-specific symptoms to trigger a dedicated stroke page alerting on-call members of the stroke team. The neurologist is required to call the ED within five minutes of the initial page. If that does not occur, a backup page process is in place.

Data showed that use of the pager correlated with faster evaluation and treatment. Therefore, ED providers were instructed to use the stroke pager to rule out, not rule in, stroke. Scripted screening evaluations also facilitated quicker patient movement through the process. Discussions with patients and families were begun early. Each shift had an identified nurse champion to facilitate the “push” processes in

achieving optimal timeframes. The leadership and education provided by a neuro hospitalist enhanced the overall success of this initiative.

OUTCOMES

2010 (minutes)	Baseline	Current	Target
Door to physician	26	9	10
Door to computerized tomography scan	73	28	25
Door to treatment decision	96	46	45

LESSONS LEARNED

- The addition of a neuro hospitalist produced a behavioral change among the emergency physicians.
- Consistent use of the stroke pager facilitated reaching established metrics.
- Immediate and ongoing feedback of performance and expectations facilitated improvement.

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Hardwiring Dysphagia and Stroke Education Quality Improvements Using an Interdisciplinary Stroke Steering Team

Upstate University Hospital

Syracuse

PROJECT DESCRIPTION

Upstate University Hospital was designated as a New York State stroke center in 2006 and certified as a Det Norske Veritas (DNV) Stroke Center in 2010. The program follows American Heart Association “Get with the Guidelines” best practice standards. The hospital is a comprehensive stroke center for a 17-county New York region with 46 beds dedicated to neuroscience (neuro-intensive care unit, neurology step-down, and neurology medical/surgical), dedicated stroke service, neuro-critical care service, 24-7 neurosurgery, 24-7 neuro-endovascular services, and stroke telemedicine.

Since the program’s inception, stroke patient volumes doubled, with continual process refinement focusing on quality outcomes. Dysphagia screening (safe ability to swallow prior to oral intake) and stroke education (information provided to stroke patients/families prior to hospital discharge) outcomes had been a challenge. Process hardwiring and regular outlier/data review led to substantial enhancements in dysphagia and stroke education. Dysphagia improvements include dysphagia screening tool development, screening tool incorporation into emergency department stroke record, auto-printing of the dysphagia tool on stroke admissions, and ongoing staff education/reinforcement. Stroke education improvements include a uniform stroke packet, electronic documentation of stroke education provided to patient, automatic generation of a

stroke education sheet, concurrent chart review, and stroke coordinator rounds on all stroke admissions.

OUTCOMES

- Dysphagia screening outcomes improved from 29.9% in 2008 to 79.3% in 2010.
- Stroke education improved from 29.5% in 2008 to 91.4% in 2010.
- The ten-measure “Get with the Guidelines” composite consensus measures improved from 64.6% in 2007 to 94.7% in 2010; the seven-measure composite consensus improved from 93.7% (2008) to 97.9% (2009), and 98.9% (2010).

LESSONS LEARNED

- Stroke patient early identification, hardwiring practice processes, and involving bedside caregivers are key in improving and sustaining quality improvement.
- Interdisciplinary involvement and regular review of outliers/outcomes are essential to reach and sustain improvement.
- The electronic medical record facilitates concurrent outcome review.

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Implementing a Safe and Effective Insulin Regimen to Manage Post-Cardiac Surgery Glycemic Control

Winthrop-University Hospital

Mineola

PROJECT DESCRIPTION

The Joint Commission and the Centers for Medicare and Medicaid Services jointly established core measurements for glycemic control in post-cardiac surgery patients. The Surgical Care Improvement Project (SCIP) defines controlled 6 a.m. post-operative blood glucose as glucose levels at or below 200 mg/dL on post-operative days one and two in open heart surgery patients. The compliance rate for this core measurement at Winthrop-University Hospital (85%) was substantially below the national (93%) and state (94%) averages for many years.

Examination of Winthrop-University Hospital's methods revealed ineffectiveness of both intravenous (IV) and subcutaneous (SQ) insulin regimens, so the facility designed, implemented, and verified safe and effective IV and SQ insulin regimens to control blood glucose in post-cardiac surgery patients. The new insulin protocol was used for more than 99% of patients receiving open heart surgery. By following this new protocol, the surgical team achieved a compliance rate of 96% with the post-operative blood glucose measure during its first 12 months, which was above the national and state averages. Through a team effort, the hospital was able to introduce and maintain this new protocol that improved patient care and decreased use of hospital resources.

OUTCOMES

Through this initiative, Winthrop-University Hospital:

- implemented a safe and effective insulin regimen to manage post-cardiac surgery glucose levels;
- increased SCIP core measurement compliance from 85% to 96%;
- significantly reduced endocrine consultation to help manage post-operative glucose levels;
- added the new insulin protocol to the computerized provider order entry system; and
- provided diabetes and glucose management education to physician assistants and nurse practitioners who provide care to cardiac surgery patients.

LESSONS LEARNED

- Optimal patient care requires a medical team that is knowledgeable, caring, and enthusiastic about patients' well being.
- The successful implementation of a new protocol requires a concerted effort from multiple members of the hospital team.
- Education and teamwork play a key role in patient care and implementation of new protocols.

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CLINICAL CARE — PREVENTING PRESSURE ULCERS

Using Digital Imaging to Reduce Errors in the Identification, Assessment, and Treatment of Pressure Ulcers

Coney Island Hospital

Brooklyn

PROJECT DESCRIPTION

Appropriate treatment for pressure ulcers requires accurate initial evaluation and the ability to track ulcer status. Adhering to the philosophy of transparency and promotion of patient well-being, the nursing staff at Coney Island Hospital incorporated information technology and digital imaging into the standard of treatment. Every patient with a pressure ulcer has a digital image taken and full evaluation performed with recommendation for treatment by a skilled wound care nurse within 24 hours of admission. Special software that interacts with the electronic medical record (EMR) allows for standardized evaluation and tracking. Interdisciplinary team members review the images and evaluations. This reduces unnecessary disturbance of the dressing, which can interfere with the healing process and result in increased risk of infection and unnecessary pain for the patient.

Estimated treatment costs range from \$4,000 to \$120,000, depending on the stage and the associated complications. The emotional cost to the patient and their loved ones is incalculable.

OUTCOMES

- A mechanism was created to provide accurate baseline objective measurements that facilitate treatment and reduce variation in the assessment process.

- Accuracy of documentation of pressure ulcers in the EMR increased from 59% to 100%.
- There was a sustained reduction in nosocomial pressure ulcers—a 49% reduction in 2009, and a 32% reduction in 2010.

LESSONS LEARNED

- Chronological digital imaging (standardized electronic measurement) incorporated into a standard treatment protocol in the EMR is an efficient and accurate assessment tool.
- Accurate assessments are the foundation of appropriate treatment.
- Technology and education are transferable to nursing homes and long-term care facilities and promote continuity of care for mutual patients.

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Preventing Hospital-Acquired Pressure Ulcers in a Medical/Surgical Intensive Care Unit

Unity Hospital of Rochester

Rochester

PROJECT DESCRIPTION

The rate of intensive care unit (ICU)-acquired pressure ulcers at Unity Hospital of Rochester increased 38% from 2008 to 2009. This was the highest rate of pressure ulcers of any unit within the hospital. To address this problem, a multidimensional clinical excellence initiative was launched with the support of a multidisciplinary oversight team including administration, physician champions, certified wound ostomy continence nurses (CWOCNs), nursing staff, nutrition services, equipment coordinators, and nurse educators.

Targeted interventions included:

- early mobilization program to get hemodynamically stable patients up to a chair;
- sedation assessment to assure patients were awake enough to safely participate in early mobilization;
- redesign care assistants and secretarial roles allowing care assistants time to assist with turning and mobilization;
- extensive education initiated at orientation by CWOCNs to nursing and care assistants;
- collaboration with the MedLine Pressure Ulcer Prevention Program (PUPP);
- standardized turning and positioning schedule and process;
- bi-monthly pressure ulcer prevalence surveys with the clinical nurse leader and staff; and
- preventive products such as Ultrasorb pads and pressure redistribution surfaces.

OUTCOMES

Unity Hospital achieved the following positive outcomes through this initiative:

- a 56% reduction in the rate of ICU-acquired pressure ulcers (all stages);
- improvement in assessment, identification, early intervention, and documentation of pressure ulcers;
- pressure ulcer prevention has become a multidisciplinary team effort;
- all nurses and care assistants completed MedLine PUPP training; and
- all nurses completed the National Database of Nursing Quality Indicators pressure ulcer tutorial.

LESSONS LEARNED

- Hemodynamic instability and endotracheal intubation are no longer perceived as barriers to turning and positioning.
- Purchasing appropriate products protects patients and saves money through decreased complications and length of stay.
- Providing data about the unit's practices and outcomes promotes ownership and accountability.

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CLINICAL CARE — REDUCING READMISSIONS

Reducing Readmissions by Leveraging a Comprehensive Care Transitions Approach

Bassett Medical Center
Cooperstown

PROJECT DESCRIPTION

A Medicare Payment Advisory Commission (MedPAC) report to Congress highlighted the financial enormity of the readmission crisis in health care. In anticipation of potential readmission penalties, the organization developed a multidisciplinary improvement initiative to reduce avoidable readmissions and improve transitions in care. Following a comprehensive review of patient management challenges and several years' readmission experience, several care coordination strategies were implemented:

- A readmission risk tool is used at admission to identify patients at high risk for subsequent readmission. Risk factors include depression, lack of family support, poor health literacy, and poor compliance. The tool drives multidisciplinary understanding of risk and implementation of risk-reduction strategies.
- A patient services coordinator contacts high-risk patients within 24 hours of discharge. Questions are asked regarding prescriptions, barriers to keeping upcoming appointments, and if the patient has concerns or questions. If so, the coordinator intervenes or routes these questions to the appropriate person, who will reach out and assist the patient.
- High-risk patients now leave the hospital with their post-discharge appointment in hand and with an appointment scheduled within five days.
- An “800” number is available for patients to call any time prior to their first discharge appointment, should they have questions or concerns.

- Primary care providers receive automatic e-mail notification when their patients are admitted and discharged.

OUTCOMES

- The 30-day readmission rate for high-risk patient diagnoses was reduced 70%.
- Overall readmissions were reduced 25%, from a baseline of 17.4% to 12.9%.
- The percentage of patients discharged with post-discharge appointment date/time “in hand” increased from a baseline of 60% to more than 90%.
- Hospital Consumer Assessment of Healthcare Providers and Systems ratings around discharge planning are now at the national top decile (98th percentile).

LESSONS LEARNED

- The degree of patient satisfaction associated with the post-discharge call was underestimated. Patients report feeling like “someone cares” and see it as a value-added extension of the care received during their hospitalization.
- Approval to “open up schedules” for post-discharge appointments was more easily obtained than anticipated thanks to a project physician leader with persuasive skills.

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A Team-Based, Multidisciplinary Approach to Reducing Readmissions

Ellis Medicine

Schenectady

PROJECT DESCRIPTION

Ellis Medicine started this project in April 2010 to reduce readmissions, as readmissions are clinically undesirable, changes in reimbursement methodologies are making them financially undesirable, and low readmission rates may serve as a measure of quality. After reviewing successful programs in other hospitals, a team approach was selected, based on the Project BOOST (Better Outcomes for Older Adults through Safe Transitions) team concept developed by the Society of Hospital Medicine.

The team initially started meeting bi-weekly with a highly-structured agenda and supported by quality data researched on demand by student interns. Upon evaluating components of the inpatient care process, the team concluded that virtually all variability relating to readmissions occurred at the front (initial admission) and back (initial discharge) ends of the process. The team then broke into two workgroups focused on front end (medication reconciliation) and back end (transition to home) issues. One workgroup completed its work, developing a structured medication reconciliation process; the other keeps uncovering issues within issues, leading to further creation of sub-workgroups with a focus on heart failure.

OUTCOMES

- Between the start of the project in April 2010 and February 2011, the all-patient readmissions rate dropped from 11.1% to 8%.

- Since the project started, readmission rates measured on Hospital Compare (acute myocardial infarction, heart failure, and pneumonia) have remained below national averages.
- As a result of the hospital's new confidence in its ability to reduce readmissions, it entered into a cardiac surgery warranty program with two insurers.

LESSONS LEARNED

- A highly-inclusive team will quickly uncover process and communications failures.
- When tightly structured and led, even a large team can remain focused and results-oriented.
- Once specific issues are identified, they are best resolved by small workgroups consisting of direct stakeholders.

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Improving Medication Management Following Hospital Discharge Through Patient-Centered Education and In-Home Monitoring

South Nassau Communities Hospital

Oceanside

PROJECT DESCRIPTION

The goal of this performance improvement initiative was to improve patient safety and control health care system costs by improving the patient's post-discharge medication management. The objectives were to improve patients' and caregivers' knowledge and understanding of the safe use of prescribed medications through patient-centered education during the hospital stay, improve in-home medication monitoring and compliance through home care services for patients meeting specified criteria, and prevent adverse drug events and hospital readmissions due to problems arising from medication usage in the home.

Primary activities included:

- creation of culturally- and linguistically-appropriate patient medication education materials;
- provision of patient-centered medication education for hospital inpatients and their caregivers, with nurses as primary teachers;
- providing in-home medication education and monitoring via home care services for patients identified as needing additional support for safe medication use following hospital discharge; and
- training hospital clinical staff regarding new protocols for patient medication education, and selected supervisory and field staff of the home care department in geriatric medication management to improve clinical outcomes for older home care patients.

OUTCOMES

- Readmissions of heart failure patients within 30 days of discharge were reduced from 27.8% to 14%, a 49.64% reduction.
- The overall hospital readmission rate within 30 days of discharge was reduced from 10.69% to 9.65%, a 9.73% reduction.
- Management of oral medications by home care patients improved by 9.76%
- The percentage of home care patients who experienced a re-hospitalization within 30 days of discharge, in which there is a medication component to the readmission, decreased from 20% to zero.

LESSONS LEARNED

- Successful medication education programs during the hospital stay lead to improved medication adherence.
- The combination of medication information with pharmaceutical counseling, competent nurse teaching, and medication reminder materials led to a significant increase in patient adherence and decrease in hospital readmissions.
- The initiative demonstrated the importance of targeting medication education programming to the patient's health literacy level.

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Reducing Hospital Readmissions Due to Heart Failure
**Stern Family Center for Extended Care and Rehabilitation/
North Shore-Long Island Jewish Health System**
Manhasset

PROJECT DESCRIPTION

Stern Family Center for Extended Care and Rehabilitation tracked hospital readmissions and found that more than 25% of the readmissions were for heart failure (HF). These findings were presented and discussed at its monthly Performance Improvement Coordinating Group (PICG) meeting. A task force was formed and, based on its findings, a facility-wide approach to reduce HF readmissions to the hospital was initiated, including:

- review and revision of policies and procedures;
- staff education lesson plan and patient education tools;
- interdisciplinary around-the-clock education for all clinical staff, with competencies completed annually;
- patient education packets provided on admission;
- heart-healthy diet changes made in the preparation of food and menus;
- heart failure zones are used for early recognition, identification, and reporting the signs and symptoms of HF; and
- HF protocol based on patient acuity developed and implemented.

OUTCOMES

This initiative achieved the following:

- quality of care and safety of patients improved;
- increased patient satisfaction;
- the HF readmission rate decreased from 25% to 6%;

- savings to Medicare were realized;
- length of stay and cost of treatment and medical supplies decreased;
- the efficiency of nursing staff increased;
- collaboration with tertiary care for HF patient's transition; and
- findings were shared with the system affiliate group (more than 3,000 beds).

LESSONS LEARNED

- Observance of the standard of practice yields optimum outcomes.
- HF readmissions can be reduced through education, adherence to policies and procedures, and close monitoring.
- Length of stay and Medicare costs are reduced by decreasing hospitalizations, laboratory diagnostics, and medication usage.

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Patient-Centered Pharmacy Services at the Time of Hospital Discharge **Strong Memorial Hospital, University of Rochester Medical Center**

Rochester

PROJECT DESCRIPTION

Failure or delays in filling prescriptions at the time of hospital discharge contributes to poor outcomes and readmissions to the hospital within 30 days. In addition, errors in discharge prescriptions are common and difficult to resolve or identify at a remote community pharmacy, and may contribute to medication errors, adverse events, and poor patient outcomes. Strong Memorial Hospital, University of Rochester Medical Center established a discharge pharmacy program to bring outpatient pharmacy services to the bedside at the time of discharge.

A dedicated team of pharmacists and pharmacy technicians meet with the patient/family in their room and return filled prescriptions to the bedside before discharge. The discharge medications are reconciled with current and home medications, and any errors or concerns are addressed with the primary team. In addition, the pharmacist provides education and training to the patient and family as indicated prior to discharge.

By incorporating social work and prescription assistance programs, and accepting Medicaid-pending patients, the discharge program also ensures access to critical medications for patients with a limited or no ability to pay. These patients are at high risk of readmission due to failure to take their medications.

OUTCOMES

- The majority (more than 50%) of eligible patients leave the hospital with discharge prescriptions in hand (excluding patients being discharged to another institutional setting), compared to 20% who used the outpatient pharmacy prior to the program.
- Prescription errors are routinely detected and corrected before discharge.
- Patient and family education is provided daily.
- Patients with a limited ability to pay have access to critical medications.

LESSONS LEARNED

- Pharmacy services at the bedside increase convenience to the patient and family and significantly increase the number of patients leaving the hospital with discharge prescriptions filled.
- The program is self-funded by the revenue it generates.
- There are a number of reasons why patients will elect not to use the discharge service, so 100% capture is not a reasonable goal.

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Building a Culture of Patient Safety: The Reduction of Order Entry Discrepancy in the Radiology Department

Brooks Memorial Hospital

Dunkirk

PROJECT DESCRIPTION

Brooks Memorial Hospital's radiology department identified a need to improve the transcription of radiology test orders by patient care unit staff into the computerized hospital information system. The primary objective is to assure patient safety by promoting accuracy, accountability, and efficiency in the processing of physician orders.

The quality improvement coordinator organized a multidisciplinary team to employ a detailed root cause analysis process to identify the genesis of incorrect radiology tests performed that were inconsistent with physician orders. This analysis identified that in order to accurately transcribe radiology orders, patient care unit staff needed additional education about the different names a physician may use to order a test. The ultimate safeguard for patient safety is the technologist performing the test, who verifies the original physician order and takes accountability by co-signing the original order.

The medical record now accompanies the patient for all radiology procedures so that the technologist can check the order. A feedback loop was created so that any identified discrepancies are communicated back to quality and nursing staff. The value of this process is recognized by other hospital departments and it has been expanded to include the physical therapy department and the cardiopulmonary department.

OUTCOMES

- Radiology and nursing staff demonstrate mutual respect, accountability, and appreciation for their positive impact in improving patient safety.
- Patient satisfaction has improved.
- In December 2009, there were two incidents of incorrect patient or incorrect radiology tests. In the 42,084 radiology procedures performed in 2010, there were no incidents of incorrect patient or incorrect test performed.

LESSONS LEARNED

- Improved communication between hospital departments contributes to patient safety.
- Consistent accountability and ownership of a process ensures positive outcomes.
- Establishing goals and expectations drives success.

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Effective Resource Utilization in the Business of Caring: Tearing Down Walls and Barriers

Claxton-Hepburn Medical Center

Ogdensburg

PROJECT DESCRIPTION

With unique culture trends and stringent regulatory obligations, patient care units are often challenged to remain viable: developing and growing new services is not generally a goal of inpatient units in countering this threat. Claxton-Hepburn Medical Center successfully matched a need—available beds to provide care for non-intensive care unit (ICU) patients—with a resource, the ICU staff.

Unpredictable shifts in census and acuity were noted within the hospital's ten-bed medical-surgical ICU. Factors contributing to this phenomenon include loss of specialty services through retirement and/or relocation of providers, with a concurrent improvement in health care access and primary prevention noted through the utilization of hospitalists and other paid providers. Conversely, the ICU has remained well-staffed, with no lasting staff vacancies. The staff achieved clinical proficiency in multiple, concurrent initiatives. Similar to other rural hospital emergency departments, Claxton-Hepburn Medical Center is not designed or staffed to care for extended-stay patients. An increase in observation status patients in the medical/surgical unit contributed to delays in flow and appreciable changes in patient satisfaction noted throughout the organization.

The appropriate use of empty ICU beds (identified as “universal beds”) for observation status patients has demonstrated efficacy in several regards, and more importantly, has not demonstrated any detriment.

OUTCOMES

Claxton-Hepburn Medical Center achieved the following positive outcomes:

- appropriate use of empty-but-staffed ICU beds;
- ability to meet the needs of changing acuity/census in regard to ICU admissions;
- no unnecessary delays in bed assignment from the emergency department; and
- no adverse effects to medical/surgical revenue or staffing.

LESSONS LEARNED

- Consistency in bed assignment remains the single most important critical success factor in monitoring this practice.
- Formalized information services systems are not intuitive in regard to innovative care models: internal information services support is vital to “telling the story” of the data.
- ICU registered nurses are ideally suited to assess, monitor, and meet the needs of diverse patient populations within a multi-disciplinary framework.

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Pay for Performance—P4P

Continuum Health Partners

New York City

PROJECT DESCRIPTION

Continuum Health Partners' pay-for-performance program (P4P) is designed to partner with physicians to help the organization improve quality and safety, and reduce inpatient resource utilization by eliminating medically unnecessary services. Goals are to implement more efficient practice patterns, improve admission and discharge planning, and improve quality measures resulting in lower costs, lower lengths of stay, and fewer readmissions. Hospital cost savings are shared with physicians that provide quality care efficiently.

The framework is as follows:

- Physician participation is voluntary. There are no risks or penalties to physicians for participation.
- Incentives are based on individual performance.
- No changes are made to current billing or payment processes.
- Physicians must meet or exceed hospital-defined quality thresholds to maintain eligibility in the program and receive incentive payments.
- Physicians are compared to best practice standards set by their peers in the organization.
- Physician performance is measured utilizing a methodology that adjusts for severity of illness.
- Best practice norms are determined utilizing minimum case volume standards.
- Evaluation is based on overall performance, not on any individual case.

- If a savings is not generated, no incentives will be paid.

OUTCOMES

Continuum Health Partners achieved the following through the P4P program:

- a consistent decrease in length of stay;
- total cumulative savings greater than \$80 million over last three years;
- improvement in quality core measures;
- significant improvement in completion of medical records;
- alignment of hospital and medical staff goals and objectives; and
- increased engagement of medical staff in hospital process improvement projects.

LESSONS LEARNED

- Data must be easily interpreted by physicians.
- Medical staff must be engaged on both an organizational and individual basis.
- Hospitals must incorporate physician feedback into process improvement.

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Root Cause Analysis Across a Hospital System

Health Quest

Poughkeepsie

PROJECT DESCRIPTION

Health Quest uses and benefits from a system-wide root cause analysis (RCA) policy to address adverse and near-miss events. The expressed purpose is to learn from each other, share what is learned, and help prevent similar occurrences in all of the system's hospitals. This policy is a powerful educational tool that fosters transparency and a non-punitive culture.

Before its implementation, no information was shared between hospitals. Lessons learned about an adverse event or near-miss adverse event that led to an RCA remained isolated to that facility. Now all RCAs are shared throughout a system-wide quality improvement/clinical integration (QI/CI) committee. Members of this committee include hospital administration and management leadership from all hospitals and those representing laboratory, pharmacy, and others as needed.

The sequence includes:

- presentation by the index hospital of the adverse event and completed RCA to the system-wide QI/CI, followed by discussion;
- each hospital quality team takes responsibility for follow-up of the adverse event and subsequent improvement plan to their hospital; and
- a document is created and remains open until each hospital has entered its investigation and plan of action—this document is regularly presented at each QI/CI meeting to monitor progress.

The minutes of the QI/CI, including the joint RCA document, are shared with each hospital board quality committee and the system board quality committee. The report then flows to the full boards of each hospital and the system board.

OUTCOMES

- Risk management is now proactive.
- A single strategy enables the system to become one hospital with multiple campuses.
- Best practices are more easily shared.
- Variation in care has been reduced throughout the system.
- Quality, transparency, and non-punitive culture begins at the board.

LESSONS LEARNED

- Transparency in a non-punitive culture leads to open discussions throughout the system.
- Risk management can be proactive.
- Standardization of care and reduction in variation of care in a system can reduce risk of adverse events.

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Patient Safety in Imaging: A Multidimensional Approach for Computerized Tomography Scans

Jacobi Medical Center/New York City Health and Hospitals Corporation

Bronx

PROJECT DESCRIPTION

The Jacobi Medical Center Department of Radiology analyzed the 15.3% rise in annual computerized tomography (CT) requests from 2007 to 2009 to identify opportunities to prevent overutilization and resulting patient harm from radiation exposure. The interdepartmental nature and multidisciplinary processes for CT requests led to the use of “Lean/Breakthrough” methods of improvement to address decision-making and ultimately improve patient safety.

A week-long “rapid improvement event” with clinicians, technicians, risk managers, and administrators identified:

- overutilization: a baseline of 62% inpatient and 41% emergency department discharges with one or more CT studies;
- request problems: duplicate or inappropriate CT requests;
- increased CT wait time and length of stay;
- inadequate communication between requesting providers and radiologists; and
- alternative imaging not available during off hours.

The following improvement strategies were implemented:

- Ultrasonography was made available in the evenings.
- Providers are made aware of radiation exposure, including prior scan dates, and the radiation dose are placed in computerized physician order entry screen.

- Radiology consult rounds are held for decision support.
- The department chair reviews CT requests for appropriateness and feedback.

OUTCOMES

- While projected national use of CT scans continues to rise, Jacobi Medical Center had a 14% decrease in the gross number of CT scans from February 2010 to February 2011.
- There was an overall reduction in emergency department and inpatient CT studies and avoidable radiation.
- Thirty-seven CT scans were avoided as a result of evening availability of ultrasonography during a three-month review; four patients were pregnant.

LESSONS LEARNED

- Focused, multi-dimensional strategies are effective.
- Provider decision support embedded in the electronic medical record and improved radiology consultation are effective.
- Availability of alternate diagnostic tests is needed.

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Using Process Redesign and the Electronic Health Record to Improve Timely Notification and Documentation of Critical Laboratory Values

Kings County Hospital Center/New York City Health and Hospitals Corporation

Brooklyn

PROJECT DESCRIPTION

Timely notification of critical laboratory values ensures prompt clinical intervention for potential life-threatening conditions and is a requirement of regulatory and accreditation agencies including The Joint Commission and the College of American Pathologists.

Kings County Hospital Center, a 650-bed academic tertiary care center with 26,000 inpatient discharges, 130,000 emergency department (ED) visits, and more than 600,000 outpatient visits annually, had an inefficient and fragmented process that resulted in delayed communication of critical values to physicians. Even though the hospital had implemented and adopted a comprehensive electronic health record (EHR), the process of critical values notification was mostly manually written in “log books,” which made auditing timeliness difficult. The multidisciplinary project team combined staff ingenuity with the technical strengths of its EHR to develop a critical values notification module—equipped with automated flagging, time stamps, and “read-back” verification notes—and an enhanced, institution-wide framework for documenting and reporting critical values.

OUTCOMES

- The percentage of critical values reported within the hospital-established turnaround time increased from 25% to more than 95%.

- The turnaround time threshold was reduced from 120 minutes in March 2009, to 90 minutes in October 2009, to 75 minutes in May 2010.
- The percentage of critical values being reported directly to the “actionable provider” increased from 19% to more than 67% and was sustained over 15 months.

LESSONS LEARNED

- A multidisciplinary approach to designing a new process allowed for quicker dissemination and buy-in from the staff members needed to make the project a success.
- Weekly analysis of failures enabled quick amelioration.
- Sharing the project’s progress and accomplishment at facility-wide meetings allowed for rapid adaptation to other departments.

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Developing a Fast Track Lung Cancer System to Improve Patient Safety by Expediting Diagnosis, Follow-Up, and Treatment

**Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation
Bronx**

PROJECT DESCRIPTION

Missed or delayed cancer diagnoses are a frequent cause of patient harm and malpractice lawsuits in the ambulatory setting. Several domains have been identified that contribute to preventable delays in diagnosis, ranging from system factors (such as delays in obtaining appointments) to physician and patient factors. A study of closed malpractice claims revealed that 59% of cases involved diagnostic errors that harmed patients. The most common breakdowns in the diagnostic process were failure to order an appropriate diagnostic test, failure to create a proper follow-up plan, failure to obtain an adequate history or perform an adequate physical examination, and incorrect interpretation of diagnostic tests. The leading factors that contributed to errors were failures in judgment; lack of vigilance, memory, or knowledge; patient-related factors; and hand-offs. By providing timely care along the continuum of lung cancer care, providers may limit the disease progression and improve clinical outcomes. Lincoln Medical and Mental Health Center created the Fast Track Intervention System to expedite time from suspicious imaging to diagnosis, diagnosis to treatment, and overall cycle time. It also streamlines and facilitates patient follow-up, and improves communication, handoffs, and teamwork.

OUTCOMES

- The median time from suspicious imaging to diagnosis decreased from five weeks in 2007 to three weeks in 2009 (40% reduction).

- Mean time from diagnosis to treatment decreased from seven weeks in 2007 to four weeks in 2009 (43% reduction).
- The entire cycle time from suspicious imaging to treatment decreased from 12 weeks in 2007 to seven weeks in 2009 (42% reduction).

LESSONS LEARNED

- An aggressive multidisciplinary approach can significantly decrease the overall time from suspicious imaging to diagnosis to treatment in patients with suspected lung cancer.
- Interdisciplinary provider communication and patient outreach systems are of paramount importance to ensure timely diagnosis and treatment of potentially fatal diseases.

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Improving Patient Safety by Reducing Radiation Exposure From Computerized Tomography Imaging

**Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation
Bronx**

PROJECT DESCRIPTION

The advent of computerized tomography (CT) has revolutionized diagnostic radiology. The use of CT for diagnostic studies throughout the nation increased more than 300% from 1993 to 2007, and at Lincoln Medical and Mental Health Center the increase was 40% from 2005 to 2010. By its nature, CT involves larger radiation doses than the more common, conventional x-rays. Health care workers at risk for repeated radiation exposure are typically monitored and restricted to specific radiation exposure in any given year. In contrast, radiation exposure in patients who undergo medical imaging procedures is not typically monitored.

As a result of these concerns, Lincoln Medical and Mental Health Center decided to begin a project to reduce potential harm from radiation exposure by decreasing the radiation dose due to CT imaging, without compromising the diagnostic quality of the studies in pediatric and adult patients. The facility implemented a series of multidisciplinary interventions to reduce CT radiation doses by up to 70%, depending on the body area that was scanned and patient's age group.

OUTCOMES

This program resulted in the following mean CT dose reduction:

- Pediatric head: 67%
- Pediatric abdomen: 30%
- Pediatric chest: 72%

- Adult head: 23%
- Adult abdomen: 42%
- Adult chest: 52%

LESSONS LEARNED

- Standardization of protocols, imaging techniques, and ongoing monitoring of dose exposure are critical for success and sustainability of dose reduction efforts.
- To ensure success, participation of all staff members who are directly or indirectly involved with imaging is necessary.
- Dose reduction must be done in incremental, step-wise fashion because of the direct relationship between image quality and radiation dose.

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Implementation of TeamSTEPPS® to Improve Communication, Patient Outcomes, and Reduce Clinical Errors

**Lincoln Medical and Mental Health Center/New York City Health and Hospitals Corporation
Bronx**

PROJECT DESCRIPTION

Effective teamwork and communication techniques can improve quality and safety, decrease patient harm, and promote cross-professional collaboration. The TeamSTEPPS® program developed by the Agency for Healthcare Research and Quality (AHRQ) and the U.S. Department of Defense is an evidence-based and comprehensive teamwork and communication toolkit and training program that can be modified based on staff- and unit-based needs.

The implementation process at Lincoln Medical and Mental Health Center consisted of the following steps:

- leadership engagement;
- training the trainers;
- engaging and training leaders;
- interdisciplinary sessions;
- customizing the curriculum based on need and relevance;
- integration of concepts with simulation activities;
- integration with ongoing education, cross-over training with quality management and risk management, utilization review, and social worker teams;
- identifying opportunities to apply concepts and programs;
- developing measurement tools; and
- celebrating success and recognizing staff.

OUTCOMES

Improvements were measured using the annual AHRQ staff patient safety culture survey post-implementation:

- feedback and communication about error improved from 72% to 82%;
- hand-off and transitions improved from 56% to 69%;
- teamwork and communication improved from 67% to 79%;
- overall perception of safety improved from 72% to 80%;
- outcomes based on Surgical Care Improvement Project (SCIP) indicators in the operating room improved significantly—observed compliance with the process improved from 88% to 100%; percent of un-reconciled medications decreased from 7.3% to between 2% and 3%; the number of un-reconciled medications decreased from 50 to 15; and
- comfort level in escalating patient issues and activation of rapid response team, using CUS (“I am concerned, uncomfortable, this is a safety issue”), two challenge rule, and situation monitoring improved from 2.7 to 3.8 on a scale of 4.

LESSONS LEARNED

- Leadership buy-in and commitment are important for effective implementation.
- Careful selection of initial champions and training an effective and influential initial group of master trainers creates a foundation for effective implementation.
- Different areas and disciplines have different needs.

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Enhancing Patient Safety: Decreasing the Incidence of Flash Sterilization in Perioperative Services

Maimonides Medical Center

Brooklyn

PROJECT DESCRIPTION

Flash sterilization—the rapid sterilization of items using steam—occurs in many operating rooms in the event that surgical instrumentation requiring immediate use becomes contaminated. However, the process is over-utilized, increasing the risk of infection in surgical patients. In the interest of patient safety, The Joint Commission (TJC) refocused its survey efforts on all of the critical processes included in sterilization. In June 2009, Maimonides Medical Center began a process improvement initiative to decrease and monitor flash sterilization practices. Baseline data were analyzed and opportunities for improvement identified.

Using a “Plan, Do, Check, Act” model, an interdisciplinary team consisting of physicians, nurses, administrators, infection control practitioners, sterile processing technicians, and performance improvement leaders examined frequently “flashed” items, case scheduling, tray handling, loaner instrumentation, sterile tray location, system changes, and responsibility issues. A plan for process improvement was implemented consisting of staff education, improving the process of packing the trays, reviewing operating room schedules, and minimizing the handling of sterile items. Data were tracked from July 2009 to August 2010; all flash cycles were monitored for documentation compliance, items being flashed, and factors influencing practice.

OUTCOMES

- The total number of flash sterilization cycles showed an average reduction of 55.4% over 14 months.
- The staff average compliance with TJC documentation requirements for flash sterilization was at 90% or greater.

LESSONS LEARNED

- Continuous enforcement of sterilization guidelines is necessary to assure that surgical instrumentation is safe for use.
- Monitoring of sterilization records increased compliance with TJC requirements.
- Involvement of frontline staff was critical to identify improvement opportunities.
- Leadership support is essential for success.

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Mock Code and Rapid Response Training Initiative

New York Medical College at Westchester Medical Center

Valhalla

PROJECT DESCRIPTION

Over 18 months, New York Medical College at Westchester Medical Center implemented several interventions to reduce inpatient morbidity and mortality related to cardiopulmonary arrests. In November 2009, a rapid response system went into full operation. Leading up to the “go live” date, the hospital convened a steering committee composed of members of the major clinical and academic services patient safety experts. The group determined operational parameters, established policies and guidelines, and identified barriers to implementation, while arranging an educational program prior to rollout. At the same time, the Department of Medicine developed and implemented a mock code and rapid response simulation training curriculum.

Two weeks prior to their rotation in the intensive care unit (ICU), house officers receive up to eight hours of intensive training from a certified simulation instructor. The house officers are evaluated by three faculty members, and they complete self-assessments before and at the close of the course. Surveys of house staff show immediate post-course improvements in self-perceived ability to effectively lead resuscitative teams.

OUTCOMES

- This program achieved significant improvements in house officers’ self-perceived ability to effectively lead cardiopulmonary arrest and rapid response teams.

- Preliminary results of faculty directly observed code/rapid response performance are positive.
- There are favorable trends in overall inpatient mortality (decreased), total cardiopulmonary arrests (decreased), and the number of rapid response events called (increased).

LESSONS LEARNED

- Multidisciplinary collaboration through joint patient safety and quality improvement initiatives promotes better patient care and improves staff morale.
- House officers benefit from mock code and rapid response simulation training that takes place just prior to those periods during which the house officer must perform as team leader.
- Providing outcomes results is an effective means by which to encourage and promote staff participation in and enthusiasm for patient safety initiatives.

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Physician Reporting of Clinically Significant Events Via a Computerized Patient Sign-Out System

New York Medical College at Westchester Medical Center

Valhalla

PROJECT DESCRIPTION

Although electronic reporting systems for near misses and adverse events have been implemented nationwide (and recently at New York Medical College at Westchester Medical Center), physician participation in such systems has typically been limited. Previous efforts to improve such rates have met with some success, but have been costly and time consuming. To improve event reporting rates, in the fall of 2009 New York Medical College at Westchester Medical Center incorporated a physician reporting module into the computer software that house officers were already using for their daily sign-out routine. House officers were asked to report a set of 13 predefined “clinically significant events” such as cardiopulmonary arrests and unexpected transfers to the intensive care unit (ICU). They have since been encouraged to also make entries in the MIDAS™ events reporting system.

Entries are maintained in an administrative data collection module and are reviewed daily by the residency program director and chief residents. From January 1, 2009 to June 30, 2009, house staff reported approximately 12 incidents per month. A survey of the intern class (the heaviest users of system) showed that the principal barriers to physician reporting were related to ease of use, time pressure, and fear of disciplinary action. Information gleaned from house officer reports has been useful in modifying patient care processes and early experience suggests that if a facility made it easy for physicians to report events during routine work duties, physicians would become willing participants in the process.

To further improve usability, the facility developed a handheld version of the reporting software that functions within a mobile patient hand-off platform (i-touch/i-phone). The handheld version will be interfaced with the MIDAS system for real-time provider events reporting at the bedside.

OUTCOMES

This initiative has resulted in:

- robust physician reporting of clinically significant events;
- systems change in response to events reports; and
- a safety mindset among physicians.

LESSONS LEARNED

- Physicians will contribute significantly to near miss and adverse events reporting where their efforts are supported by the institution and where reporting is incorporated into routine work flow.
- Improving information technologies such as mobile platforms permits real-time processing of near miss/adverse events information.

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Optimizing Patient Handoffs

New York Medical College at Westchester Medical Center

Valhalla

PROJECT DESCRIPTION

For the past three years, New York Medical College at Westchester Medical Center has been developing handoff best practices, making use of both conventional methods (face-to-face sign-outs where interruptions are minimized and standardized computer sign-out forms), as well as more novel methods such as faculty oversight of house staff sign-out and utilization of a handheld application—the Patient Documentation Transfer System (PDTs), which generates prioritized patient lists and “to-do” sets. In addition, a physician events reporting module built into the handoff software encourages house officers to report near miss and adverse events while on call to permit rapid systems changes.

A description of the organization’s use of faculty oversight to improve the quality of handoff information and to reduce handoff-related errors was published in the April 2010 issue of the *American Journal of Medicine* and resulted in a best research award at the 2010 Spring Association of Program Directors in Internal Medicine meeting. The facility is currently implementing a next generation version of the software, which permits provider-patient specific instant messaging. New features of the handoff system, such as prioritized patient and “to-do” lists, promise further reductions in handoff-related medical errors.

OUTCOMES

- Of 1,225 handoffs reviewed by general internal medicine faculty in a representative month, 6% were corrected.

- All faculty believe that PDTs “improved the information available ... regarding patient” transfers of care.
- Of corrected sign-outs, faculty believed that 7% of the total “represents a serious matter related to patient safety or quality of care.”
- Faculty estimated that on up to two occasions per month their oversight of PDTs sign-out information prevented the occurrence of a serious medical error or adverse event.

LESSONS LEARNED

- Conventional “best” handoff methods, when combined with new technologies, offer the potential to reduce medical errors and adverse events related to communication lapses during hospitalization.
- Physician near miss and adverse events reporting can be promoted and encouraged by using the patient sign-out platform for both handoff communication and events reporting.
- Sign-out software that features instant messaging capability offers the potential to link all hospital employees into a versatile communication network that may permit more accurate and efficient in-hospital communication.

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Decreasing Incidence of Mislabeled Specimens in the Emergency Department by Integrating Daily Safe Practices for Proper Labeling

Newark-Wayne Community Hospital

Newark

PROJECT DESCRIPTION

In the winter of 2010, Newark-Wayne Community Hospital initiated its first Comprehensive Unit-Based Safety Program (CUSP) in its emergency department (ED). CUSP, designed to improve patient safety and culture, integrates safety practices into a unit's daily work. It encourages frontline team members to tackle the challenge of cultural change within their unit/department. It is intended to engage each team member in the department with patient safety and quality priorities identified by the team.

One of the first issues the ED team identified for improvement was the process of specimen collection, labeling, and transport. Data for the fall of 2009 showed a spike in specimens that were either not labeled or were mislabeled. In the ED, 15%, or two to three specimens per month between October 2009 and February 2010, were mislabeled or not labeled.

The CUSP team engaged in improving the specimen labeling process, using flowcharting and fishbone analyses to determine the reasons for poor performance. Policies and procedures such as patient identification and specimen labeling were reviewed and refresher education was conducted.

OUTCOMES

- Improvements were implemented in February 2010, and mislabeled and non-labeled specimens were practically

eliminated. From March through December 2010, the ED had only two mislabeled or non-labeled specimens.

- The rate of mislabeled or non-labeled specimens decreased by 86% from October 2009 to December 2010.

LESSONS LEARNED

- Patient safety, quality, and performance improvements are effective when frontline team members drive the process.
- Engaging frontline staff in performance improvement enables them to “own” the solutions and take pride in their accomplishments.
- Performance data must be transparent and consistently shared with team members for improvement opportunities to be identified and owned by the team.

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The Amazing Race—Delivering Greater Value Through a Collaborative Patient Throughput Program

North Shore University Hospital

Manhasset

PROJECT DESCRIPTION

The “Amazing Race” was a structured approach to reduce patient length of stay and excess patient days which, in turn, created additional patient bed capacity. Other objectives included streamlining patient throughput, promoting the use of evidence-based practice protocols, and minimizing variability in patient care processes. This initiative achieved an organizational culture change related to patient length of stay.

To start, North Shore University Hospital compared baseline length of stay and excess day data to national benchmarks to identify Diagnosis Related Groups (DRGs) with the greatest opportunity for excess day reduction. Ten interdisciplinary teams, each led by a physician and a nurse, were assigned to address specific DRGs. Realistic targets were set to stimulate a competitive spirit among all team members. Each team was empowered to identify opportunities to reduce excess days, identify best practices, and operationalize effective change processes. Data supplied by quality management staff supported effective decision making. Monthly meetings with senior leaders created an opportunity to share best practices, break down barriers, and measure progress. In keeping with the competitive spirit, the executive director held quarterly luncheons with those teams that achieved a reduction in excess days above the established targets.

Communication throughout the organization was critical. Each team presented its work in organizational excellence meetings,

performance improvement groups, and medical leadership meetings.

OUTCOMES

January 2009 through December 2010:

- The average length of stay for the targeted DRGs was reduced from 8.22 days to 8.08.
- Hospital excess days during the same time period were reduced by 14,037 days, resulting in 39 beds being available for new patients.
- From January 2010 through December 2010, mortality in the targeted DRG bundles was reduced by 16% (10.7% to 9.0%), and readmissions were reduced by 4% (15.3% to 14.7%).

LESSONS LEARNED

- Engaging local interdisciplinary clinical leaders fosters collaboration and accountability.
- Establishing clear goals and measuring progress on a scheduled basis is imperative.
- Recognizing and rewarding success of the teams establishes friendly competition and can energize staff.

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Developing a Medical/Surgical Unit Environmental Readiness Process to Improve Patient Satisfaction and Support Clinical Staff

Northern Westchester Hospital

Mount Kisco

PROJECT DESCRIPTION

As part of a larger process redesign focused on Northern Westchester Hospital's inpatient medical and surgical units, this initiative had a specific goal of creating an efficient, effective, and patient-centered support services process that would improve patient satisfaction and provide support to the clinical team. A multidisciplinary team including administrators, physicians, nurses, case managers, patient care associates, environmental services, and transportation staff met weekly to analyze the current system and redesign and implement a completely new process.

The new structure included a new service associate role on the medical/surgical units and an operations management team to oversee the performance of the service associates and the environmental readiness process. While sanitation and infection control standards remain the responsibility of environmental services, the service associate is responsible for maintaining a tidy, clutter-free, and organized environment on the unit and in each patient room. This is accomplished through a standard process of "room sweeps" four times daily. The service associate is also part of a "pit team," which includes an environmental services staff member and a patient care associate. This team is immediately notified when a patient is discharged and arrives to clean, disinfect, and restock, so that the room is ready within 40 minutes for the next patient.

OUTCOMES

Medical/Surgical Units	Percentile Rank	
	Pre-Redesign (2009)	Post-Redesign (4/10-12/10)
Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS) Overall Rating	66	87
HCAHPS Willingness to Recommend	82	90
Press Ganey Overall Score	87	95
HCAHPS Room Cleanliness	27	80
Press Ganey Cleanliness	60	90

LESSONS LEARNED

- There is no quick fix. This was an 18-month redesign with an organizational commitment to 80+ staff available weekly.
- Do not underestimate training. Synchronized work takes practice and adjustment to new roles.
- Establish clear performance metrics. Manage these metrics to prevent staff from reverting back to previous processes.

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Center of Excellence for Wound Healing and Hyperbaric Medicine

Olean General Hospital/Upper Allegheny Health System

Olean

PROJECT DESCRIPTION

Olean General Hospital is one of only a few community hospitals in the nation to offer a center of excellence in hyperbaric oxygen services and state-of-the-art wound care therapies and treatments. This is accomplished through a partnership with a company specializing in wound care and hyperbaric care. The physicians and clinical staff at the hospital are trained in leading-edge therapeutic methods. Working with the most sophisticated medical equipment, physicians treat patients with a dedicated support staff including registered nurse case managers to provide safe, comprehensive, quality care.

The wound center and hyperbaric outpatient services have been successful in treating a number of conditions including wounds and ulcers; skin, bone, and tissue conditions (necrotizing infection, failed skin grafts, and skin flap); post-radiation damage; and injuries and accidents.

OUTCOMES

- In 2010, the Center's successful healing rate was 94.3%, which exceeds the industry standard of 85%.
- In 2010, the complication rate from hyperbaric oxygen was 1.42%, which is considerably better than the industry benchmark of 3%.

LESSONS LEARNED

- A community hospital with a thin operating margin can still provide excellent, state-of-the-art care if the leadership is committed to quality and patient safety.
- There is a clear return on investment for the program, as evidenced by the successful patient care outcomes and low complication rates.
- Project management is the key to successful implementation.

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Excellence in Critical Care: The Intensivist Program in a Community Hospital

Olean General Hospital/Upper Allegheny Health System

Olean

PROJECT DESCRIPTION

Traditionally, primary care physicians maintain chief responsibility for treating their critically ill patients. They often bring in specialists as needed. There are clear drawbacks to this approach. For example, primary care doctors often have little experience treating critically ill patients, and they have time constraints because they must care for other hospitalized and office patients. This can result in poorly coordinated care with outcomes often less than optimal. An intensivist is a medical doctor who possesses special training and experience in treating critically ill patients. Less than 20% of hospitals in the United States have intensivist coverage. About 160,000 lives could be saved each year if critical care was delivered by intensivist-directed, multi-professional teams, according to the Society of Critical Care Medicine. The mortality rate for intensive care units (ICUs) with intensivist staffing is 6%, compared to 14.4% where attending physicians provide ICU care.

At Olean General Hospital, multidisciplinary rounds are conducted daily on each patient under the leadership of the same intensivist who is in charge for a week at a time. Strict adherence to detailed, evidence-based protocols is a must, including ventilator weaning protocols, anticoagulation monitoring, venous thromboembolism prophylaxis, and glucose management.

OUTCOMES

Olean General Hospital's intensivist program for critical care has yielded the following results:

- Risk-adjusted mortality decreased 15%.
- The mortality rate is 5%.
- ICU transfers elsewhere decreased 50%.
- Transfers elsewhere from the emergency department decreased 10%.
- Full compliance has been achieved with the sepsis bundle and central line bundle protocols.
- The ICU average length of stay decreased from 3.85 days to 3 days.
- The ICU readmission rate is 1%.
- Transfers to the ICU from other community hospitals increased.

LESSONS LEARNED

- A rural, community hospital can provide state-of-the art care if leadership is committed to quality and patient safety.
- There is a return on investment, as evidenced by a marked decrease in mortality, readmissions, and length of stay.
- Project management is key to successful implementation.

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Decreasing Orthopedic Elective Length of Stay Using Six Sigma Methodology

Plainview Hospital/North Shore-Long Island Jewish Health System

Plainview

PROJECT DESCRIPTION

The average length of stay (LOS) for patients undergoing single elective total joint replacement surgery at Plainview Hospital was excessive at 5.50 days. Patients were inconsistently attending the total joint replacement pre-operative class. Inefficiencies in team communication led to increased LOS and decreased quality of patient care. This initiative's goals were to increase patients' participation in their care, enhance patient education, provide the highest quality of care, and improve LOS for orthopedics, while focusing on the hospital's strategic goals.

Administrative leaders collaborated with the service line to identify innovative strategies for improvement. The Six Sigma methodology was used to assess the current situation, identify effective and creative strategies for improvement, and develop a plan for accountability and sustainability. Patient education classes were redesigned to set expectations for patient LOS and post-hospital care. Patients are now able to choose their rehabilitation preferences before admission to ensure informed decision-making and to increase their role in their care.

The interdisciplinary team created a step-by-step discharge planning algorithm, assigning tasks to staff to prepare the patient and family for a safe discharge. If patients do not meet goals, staff utilize a TeamSTEPPS® debrief process to determine what can be done differently to improve performance. The debrief data are reviewed for trends and patterns for further improvement.

OUTCOMES

- LOS decreased from a 2008 value of 5.5 days, as follows: July-December 2009, 4.15 days; January-June 2010, 4.27 days; and July-December 2010, 3.82 days.
- Post-operative discharge day three discharges increased from 12% to 60%.
- Pre-operative education increased from 35% to 98% of all patients.
- Ninety percent of patients are admitted with their own developed discharge plan.

LESSONS LEARNED

- Multidisciplinary communication improvements intertwine the staff's scope of practices to enhance patient care.
- Increasing patient involvement in care can set expectations early and often with the patient and meet the hospital's strategic quality, finance, and patient satisfaction goals.
- Debriefing on cases that do not meet goals enables the team to always search for best practices and ways to improve.

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A Nursing Strategic Plan Built Upon a Foundation of Patient Safety

Southampton Hospital

Southampton

PROJECT DESCRIPTION

In 2006, Southampton Hospital's department of nursing conducted a needs assessment focusing on the quality of patient outcomes, staff recruitment and retention, and patient safety. Part of the assessment included distribution of the Agency for Healthcare Research and Quality (AHRQ) Hospital Safety Survey to staff. Respondents rated "Overall Perception of Safety" at 44%, "Communication Openness" at 49%, and "Patient Handoff" safety at 28%.

The hospital decided to create a strategic nursing plan focused on leadership and patient safety. The organization implemented numerous processes to promote transparency with key stakeholders, including chief executive officer/ chief nursing officer patient rounds, real-time coaching, and emphasis on the nursing code of ethics and accountability. A recruitment and retention plan was developed, quality measures and benchmarks were established, and communication was enhanced through a redesign of the rapid response team debriefing, improvements in shift-to-shift reports, and including patients in the daily plan of care.

OUTCOMES

- Ratings for "overall perception of safety" increased 40%.
- Ratings for "open communication" improved 24%.
- Ratings for "patient handoff" safety increased 32%.
- Registered nurse vacancies decreased from 15.2 in 2007 to 5.1 in 2009.

- The average monthly turnover rate decreased from 2.92 to 1.0.
- Hours per patient day increased from 4.8 to 6.2.

LESSONS LEARNED

- Embrace negative outcomes, as they are drivers for change.
- Quality and patient safety must be intentional and planned.
- While each individual is accountable for providing patients with safe care, the system or process provides the framework.

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Ancillary Utilization Process Management

St. Elizabeth Medical Center

Utica

PROJECT DESCRIPTION

For more than ten years, St. Elizabeth Medical Center has focused on length of stay and resource utilization, and while the facility is mindful of ancillary utilization, there was never a formal process to support or promote it. In 2010, the facility, under the leadership of the director of performance improvement, formed an ancillary utilization committee consisting of disciplines including quality management, pharmacy, medical staff, radiology, laboratory, respiratory, non-invasive cardiology, nursing, pathology, emergency room department, and the family practice residency program.

The committee not only focuses on waste reduction, but appropriate use, which sometimes means increased use. Once an opportunity is identified, the committee takes action to effect change through system process reform, evidence-based medicine, education, contract management, research, and information technology. Statistical analysis allows the organization to develop opportunities for improvement.

OUTCOMES

Through this initiative, St. Elizabeth Medical Center:

- reduced waste;
- reduced costs;
- improved patient flow;
- improved the quality of services; and
- ensured the standard of care.

LESSONS LEARNED

- There is a great opportunity to obtain cost savings and ensure quality care by managing ancillary utilization.
- Physicians became very engaged in the process, identified opportunities, and were excited to be part of the change.
- Health care facilities everywhere can cut costs by becoming active in ancillary utilization review.

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Patient Safety is NOT a Bowl of Cherries!

St. Francis Hospital

Poughkeepsie

PROJECT DESCRIPTION

This journey began when St. Francis Hospital gave fruit cocktail to a patient with a severe allergy to cherries—noted in one part of her medical record, but not in any other. The patient knew not to eat this. A true sentinel event was prevented, but the root cause analysis (RCA) team convened and discovered that while the hospital had reviewed other events involving allergies to medication, food, latex, etc., the corrective actions had been too narrow, related to each event discretely, instead of system-wide. A baseline study found that the facility's medical records had six to 18 different places for documentation of allergies. Not one record reviewed had consistent information.

Using the Failure Mode Effects and Analysis format, the facility mapped all ways allergies could be in a record, identified failure modes, and identified modes most at risk for patient harm. Using The Joint Commission's medication reconciliation model, St. Francis Hospital created an "allergy reconciliation" process and a form for all allergies to be noted in one central place: an electronic form generated upon admission and all readmissions. All departmental forms were revised to direct staff to the centralized tool, not the departmental one. Education across the organization was extensive. Some physicians were reluctant to change. With a collaborative approach, the facility successfully engaged them in the redesign.

OUTCOMES

- For more than 24 months, 100% of records reviewed have accurate, consistent allergy documentation.
- There have been no incidents of patient exposure to any substance to which s/he is allergic.
- Continuity of care is enhanced through electronic regeneration of the form upon readmission.
- The process saves time, improves care, and everyone buys in.

LESSONS LEARNED

- With persistence, hard work, and humor, a small group can make a big difference.
- Other methodologies (i.e., The Joint Commission's medication reconciliation) can be adapted to a new challenge.
- Push-back is best addressed by "pushing with." If you build it well, and engage around core values, they will come.

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Safe Handling of Compressed Oxygen Cylinders

St. Francis Hospital—The Heart Center

Roslyn

PROJECT DESCRIPTION

This project was initiated by David Lyons, R.R.T., Director of Respiratory Therapy at St. Francis Hospital and implemented with the assistance of the performance improvement specialist, who identified an opportunity for improvement in hospital-wide oxygen cylinder safety and regulatory compliance processes.

The goals of the project were:

- heightened multidisciplinary staff understanding of and commitment to oxygen cylinder safety;
- improved patient and staff safety;
- improved adherence to regulatory and safety practice; and
- reduced potential for regulatory deficiency.

A re-examination was conducted of facility-wide processes and practices related to oxygen cylinder acquisition, storage, transport, and use. Methods included system flow analysis, review and determination of standards, stakeholder leadership engagement, providing educational support tools, conversion of oxygen cylinders to lightweight “E” size cylinders with integral regulators (“Grab ‘n Go” Vantage™ system), improved oxygen cart storage and exchange, and improved oxygen transport.

OUTCOMES

Baseline measurements for three new performance improvement indicators for oxygen cylinder safety were obtained in 2010. Ninety-nine locations were observed and 83 opportunities for improvement were identified (i.e., appropriate number of cylinders, storage, and labeling).

These indicators are reported at the hospital performance improvement support services and the environment of care committees. Through tracer rounds, improvements in staff understanding of the safety regulations involved are evident. Monitoring of performance improvement is ongoing.

LESSONS LEARNED

- A project addressing a multidisciplinary process must engage all stakeholders early and reinforce engagement periodically.
- Careful, comprehensive process analysis must offer clear and achievable standards and goals ,and solutions to all identified barriers.
- Performance improvement staff and other hospital leaders are instrumental to promote standards and reinforce/maintain desired change.
- Education and measurement metrics are essential to share standards, goals, and effectiveness of actions.

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Reducing Preventable Adverse Events Through TeamSTEPPS®

St. Mary's Healthcare

Amsterdam

PROJECT DESCRIPTION

St. Mary's Healthcare has an obligation to protect patients from harm, and preventing adverse effects of care from reaching the patient is the primary focus of its patient safety efforts. The TeamSTEPPS® program was implemented to aid in this effort.

Developed in collaboration with the U.S. Department of Defense and the Agency for Healthcare Research and Quality, TeamSTEPPS provides the tools necessary to launch an organization-wide team training initiative. The tool set consists of the four teachable skills for the patient care team: leadership, situational awareness, mutual support, and communication. TeamSTEPPS was initiated at St. Mary's Healthcare with in-house TeamSTEPPS Master Trainers; *Fundamentals* is a four to six-hour course designed for clinical associates; *Essentials* is a one-hour course designed for the non-clinical associates.

The goal was an annual 10% reduction in the Serious Safety Event Rate (SSER) per 10,000 adjusted patient days.

OUTCOMES

This initiative achieved an overall 55% reduction in the SSE rate, as follows:

- June 2008: SSER = 0.44
- February 2009: TeamSTEPPS education initiated
- June 2009: SSER = 0.33; 25% reduction year one

- June 2010: SSER = 0.20; 39% reduction year two
- December 2010: SSER = 0.20

LESSONS LEARNED

- Effective change requires leadership involvement.
- Reducing harm occurs first at the department level and progresses to the organizational level.
- To sustain any changes, department leadership plus more than 50% of staff must be initially trained.

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Using Simulation to Prepare Nurses for Barcode Medication Administration **Strong Memorial Hospital, University of Rochester Medical Center**

Rochester

PROJECT DESCRIPTION

Strong Memorial Hospital adopted barcode medication administration (BCMA) technology to reduce the incidence of medication administration errors. To prepare staff for a safe and seamless transition from traditional medication administration to the use of BCMA technology, the hospital:

- convened a multidisciplinary task force to plan, implement, and test workflow changes;
- built a fully outfitted skills lab that closely resembled an inpatient unit, including computer workstations on wheels and BCMA scanners;
- created service-specific scenarios based on patient population to provide simulated BCMA experiences;
- provided more than 375 nurses representing all inpatient units (approximately 10% of the nursing staff) with the opportunity to practice/test the BCMA application in the simulated clinical setting; and
- developed “frequently asked questions” guidelines, based on feedback from the participants, to assist in bridging practice in the learning environment to the actual care delivery situation.

OUTCOMES

- On day one of using BCMA, the hospital achieved 85.72% compliance with patient scanning and 66.89% compliance with medication scanning.

- By day 11, the hospital achieved 92.60% compliance with patient scanning and 84.71% compliance with medication scanning.

LESSONS LEARNED

- A multidisciplinary effort involving nursing, pharmacy, and information technology was critical for success.
- The simulation environment allowed for the adaptation of workflow before clinical implementation.
- Hands-on practice by nurses from across the hospital ensured that there was a group of “super-users” available to assist their colleagues.

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Improving Correct Patient Selection Before Order Entry Within an Electronic System Using a Patient Verification Screen

Winthrop-University Hospital

Mineola

PROJECT DESCRIPTION

Clinical information systems improve many of the safety challenges identified within the paper process, but also create new challenges and patient safety concerns. Winthrop-University Hospital implemented computerized provider order entry (CPOE) in July 2006; during system development, a risk point was revealed regarding compliance with the facility's patient identification policy: the system lacked a built-in patient verification process. In response, the hospital customized the system adding a patient verification screen and an acknowledgement button that the provider selects to proceed.

However, the hospital continued to have reports of wrong patient selection. Investigations revealed the ease with which a provider can unintentionally select the wrong patient due to distraction or "point and click" and keystroke errors. The verification screen was not enough; providers became "immune" to the screen and went to the "OK" button and did not take the time to verify the information. Development of a verification screen that mandated an active process from the provider was created using visual cues (i.e., colors) and active entry of information. This forced the provider to pause and think before proceeding. The active input portion of the screen is moved to different areas approximately every six months to promote visual stimulation and prevent task-oriented behavior. The results of this change were dramatic.

OUTCOMES

- In 2009, 37 instances (out of 1.3 million order sessions) of wrong patient selection were reported.
- In 2010, after verification screen changes, only three instances (out of 1.5 million order sessions) of wrong patient selection were reported.
- All wrong selections reported in 2009 involved wrong order entry of blood products or medication. In 2010, the reported cases were medication errors. (Zero reached the patient—CPOE increased awareness and transparency of errors.)

LESSONS LEARNED

- Most electronic clinical systems DO NOT have a patient verification screen—the system must be customized to achieve safety.
- Passive acknowledgement of patient verification information became "just another screen" for the user to get through, creating a risk point for wrong patient selection.
- Adding active participation forces the user to stop and think before proceeding, reducing the "automaton" effect of point and click technology.

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Creating an Organization-Wide Cultural Commitment to Quality Care: The Right Care, Right Time, Every Time

Oswego Hospital

Oswego

PROJECT DESCRIPTION

Performing well with the core measures has become increasingly important and challenging for health care organizations. Oswego Hospital needed to engage staff in a meaningful and innovative way to improve its performance. Launched in March 2010, “The Right Care, Right Time, Every Time” focuses on improving the organization’s core measure scores for pneumonia, heart failure (HF), Surgical Care Improvement Project (SCIP), and acute myocardial infarction (AMI).

In rolling out the improvement efforts on the four core measures, the quality team brought their excitement, educational tools, flowers, balloons, and gifts directly to each department. Each launch had its own unique theme and color. Oswego Hospital’s own version of the famous “Blues Brothers” even made an appearance when the color blue, which was associated with SCIP, was rolled out to staff. Red is associated with AMI, green with pneumonia, and yellow with HF.

One of the keys to any successful initiative is to gain support and ownership from the various stakeholders and to create a sense of excitement, passion, and commitment for quality that permeates the entire organization. Tools were provided, such as in-house designed pocket reference cards with bulleted measures and pharmaceutical references, check-off stickers for patient charts, as well as posters in the designated colors.

OUTCOMES

- Overall percentage increases totaled 19.25% for all measures from 2009 to 2010.
- There was a 21% gain of meeting or exceeding state averages. Data support relative sustainability over recent period post-launches.
- The hospital developed and distributed tools such as stickers, pocket tools, recommended antibiotic tables for surgeries, venous thromboembolism charts, checklists, and posters.
- Education and awareness of the specific details of core measures were delivered to frontline staff and physicians, together with improved communication strategies.

LESSONS LEARNED

- It is important to inform care providers why they are being asked to do something, and to break down complex information into reasonable, organized segments.
- Never underestimate the value of invoking humor and fun, as it makes learning and retention more effective.
- It is crucial to gain buy-in from physicians, nurses, and others working as a team toward a common goal.

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Utilizing TeamSTEPPS® and Just Culture to Improve Patient Safety

New York City Health and Hospitals Corporation

New York City

PROJECT DESCRIPTION

In 2006, New York City Health and Hospitals Corporation (HHC) declared a bold vision for patient safety—to be acknowledged as one of the safest health care systems in the nation by the end of the decade. Implementation of TeamSTEPPS® and the “Just Culture” aligned with HHC’s goals of improving patient outcomes, improving staff and patient satisfaction, and reducing clinical errors.

Effective communication has been identified as the number one contributor to sentinel events (The Joint Commission). Although it is critically necessary to the provision of safe and effective patient care, evidence shows that communication remains the primary source of medical errors and near misses. HHC understood that all members of the health care team—administrators, clinicians, and others—share responsibility for effectively communicating patient care information to produce good patient outcomes. HHC’s efforts to address poor communication, inadequate hand-offs, and reporting of errors led to this initiative. The Just Culture, as promulgated by David Marx, J.D., emphasizes four principles that support staff making safe behavioral choices to prevent harm: creating a learning culture; creating an open and fair culture; design of safe systems; and management of behavioral choices.

OUTCOMES

- Near miss reporting increased more than 1,000% in three years.

- Patient outcomes improved through communication, teamwork, and reporting of errors contributed to reduction of infections (central line, ventilator-associated pneumonia) and mortality.
- Through this initiative, 567 TeamSTEPPS Master Trainers and 5,987 clinical staff; teams trained 17,675 staff on the Just Culture.

LESSONS LEARNED

- Clinical and administrative staff buy-in and commitment are critical to culture change.
- A multidisciplinary team approach and participation from key stakeholders (physicians, nurses, support staff, etc.) drives improvement and sustainment of efforts.
- Establishment of a shared vision and mission supports success.

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Design and Implementation of an Institute for Patient Safety and Clinical Excellence

Rochester General Health System

Rochester

PROJECT DESCRIPTION

In November 2009, a group of 12 representatives from various areas within Rochester General Health System embarked on a journey to improve patient outcomes and change the culture of the entire system. The group completed “science of safety” training and developed a plan to involve all team members of the system in improving the safety and quality of care of patients and residents.

The team set the quality improvement priorities to align with the system’s strategic plan. Recognizing the importance of changing the system culture, the chief executive made patient safety a number one priority throughout the system and all senior executives developed goals centered on patient safety.

Once the executive leaders were on board, the next step was to bring this level of commitment to the bedside caregivers. A safety summit was held in January 2010 with a standing room-only crowd of more than 400 team members. Guest speakers provided examples of best practices in patient safety, and team members formed workgroups to identify patient safety issues that would be addressed. After the meeting, the system began implementation of the Comprehensive Unit Based Safety Program—a national best practice originally started by Peter Pronovost, M.D., Ph.D., an internationally acclaimed leader in patient safety.

OUTCOMES

- Patient mortality index rates system-wide decreased from 0.93 to 0.82. Each affiliate in the system developed goals that would affect mortality in the acute care facilities.
- Hand hygiene compliance increased throughout the system.
- Staff participation in the Safety Attitudes Questionnaire increased, with 91% of the staff participating system-wide—exceeded the 70% goal.

LESSONS LEARNED

- Changing a system to a culture where safety is recognized as the number one priority can only happen when the direct caregivers drive the process and know they have the support of the executive leadership and board of directors.
- Data need to be shared among the affiliates in a transparent manner so that team members can feel ownership and satisfaction with their success.
- Working together as a system can change the culture and clinical outcomes for patients and residents.

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PATIENT SAFETY — PREVENTING FALLS

Continuous Monitoring and Real-Time Data Review of Falls Intervention Program

Bassett Healthcare Network/O’Connor Hospital
Delhi

PROJECT DESCRIPTION

In 2009, O’Connor Hospital began collecting data to evaluate each patient fall, including classifying and examining the outcome of falls.

The Fall Intervention Program identified areas needing improvement including a lack of multi-disciplinary attention and the need for better identification of patients at risk. At the time, green wrist bands were the only means of identification. A newly created education program included a “STOP” sign at the patient doorway and over the bed. Staff, families, and visitors were educated, and the Fall Intervention Program was highlighted on individual patient wipe boards. Documentation of the fall risk assessment took place every 12 hours.

Daily benchmarking is visible in the hallway as each day without a fall accumulates. Everyone is involved in the daily fall tracking. If a fall occurs, the fall team is notified and completes a review within 24 hours.

Members of the fall team conduct monthly audits to evaluate knowledge of signage, review bed alarms, and identify patient fall risks. The audits are discussed at the meeting that identifies gaps in staff and community education.

OUTCOMES

- At this writing, there were no falls with injury in the last 14 months.
- Elimination of all falls was achieved for 128 days.
- This initiative improved staff assessment and identification of all high-risk patients.

LESSONS LEARNED

- It is possible to achieve realistic expectations based on data.
- Benchmarking with prior days without a fall allowed staff to see success.
- Fall assessments increased from 24 to 12 hours, allowing staff to implement changes.

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Reducing the Risk of Patient Harm Resulting From Falls

Champlain Valley Physicians Hospital Medical Center

Plattsburgh

PROJECT DESCRIPTION

In response to an increase in fall-related injuries in its skilled nursing facility (SNF), Champlain Valley Physicians Hospital Medical Center conducted a “Kaizen” process, based on the Lean Six Sigma methodology, to identify the root causes of the falls. Results from the Kaizen were then taken to the multidisciplinary, hospital-based fall prevention team for consideration. The team began by revising the hospital and SNF fall prevention protocol and created an after-action fall report (a huddle that takes place at the time of the fall to conduct a real-time, mini, root cause analysis).

Revising the fall prevention protocol involved a retrospective review of fall data, a current literature review for best practices, and input from frontline staff.

The fall prevention team employed multiple strategies, such as engaging frontline staff, adopting the Lean Six Sigma methodology, using technology, and incorporating the changes into the work flow in a way that was intuitive to staff.

OUTCOMES

Measure	2009	2010
Acute falls per 1,000 patient days	5.9	4.8
Acute falls with fracture per 1,000 patient days	1.34	0.04
SNF falls per 1,000 patient days	9.7	7.9
SNF falls with fracture per 1,000 patient days	0.28	0.12

LESSONS LEARNED

- Success comes from involving and engaging frontline staff in assessing root causes, developing strategies, and leading implementation by modeling behavior for their peers.
- Multidisciplinary collaboration is required to ensure continuity of care.
- Communication is imperative in implementing change.
- Leadership support and commitment is necessary to facilitate change and improve patient outcomes.
- A standardized process eliminates variables

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Conversion to Hendrich II Fall Assessment to Decrease Falls in the Medical/Surgical Areas and Intensive Care Unit

Thompson Health

Canandaigua

PROJECT DESCRIPTION

Falls increased in Thompson Health's inpatient areas in 2009 and 2010, and the number of falls was higher than the benchmark National Database of Nursing Quality Indicators (NDNQI) data comparisons of same-size and Magnet-designated facilities. Eighty-seven percent of patients who fell on the 3-West unit in 2010 were age 65 or older, and 3-West treated more patients in this age group than any other unit. This group also accounted for 64.5% of Thompson's inpatient population in 2010. If a patient in this high-risk, high-volume group falls, he or she may suffer devastating results, such as fractures.

The nursing quality improvement team on 3-West reviewed the falls and questioned the assessment process for determining fall risk. They requested that the research council review evidence-based research to determine if there might be a better fall assessment available. The research council recommended the Hendrich II fall assessment tool. The definition for falls was more inclusive to match NDNQI and included all unplanned descents to the floor. All nursing staff on the medical/surgical units and in the intensive care unit (ICU) were educated on this new tool in September 2010. The tool was used for all medical/surgical inpatients. A fall huddle was initiated to discuss causes of each fall and any new interventions to prevent future falls.

OUTCOMES

- Falls decreased overall for medical/surgical floors and critical care. Thompson exceeded its target of achieving a score of less than 4.0 (based on the Hendrich II assessment) on all units.

LESSONS LEARNED

- Utilization of the Hendrich II assessment tool improved patient care and decreased falls.
- A team approach to quality improvement is very successful.
- Nursing staff were less resistant to change when the change was initiated by fellow nurses.

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Implementing Strategies to Reduce Central Line-Associated Blood Stream Infections in the Neonatal Intensive Care Unit

Albany Medical Center

Albany

PROJECT DESCRIPTION

In 2008, Albany Medical Center (AMC) was one of 18 regional referral neonatal intensive care units (NICUs) to adopt central line insertion and maintenance bundles, and in 2009 agreed to use checklists to monitor maintenance-bundle adherence. Its NICU's central line-associated blood stream infection (CLABSI) rate prior to starting this initiative in 2008 was 9.4 infections per 1,000 central line days—not the worst in New York State, but not the best either. AMC's NICU achieved a dramatic reduction in CLABSIs in 2009 and a sustained reduction in 2010.

OUTCOMES

- Education of NICU nursing staff included evidence as a basis for change in practice and in establishing the techniques required for sterile tubing changes and a closed medication system.
- There was a significant reduction in the CLABSI rate in 2009: 1.4 infections per 1,000 central line days.
- There was a sustained reduction in CLABSI in 2010: 0.7 infections per 1,000 central line days.

LESSONS LEARNED

- Unit leaders needed to recognize that there was a problem not totally explained by the characteristics of the population served (immuno-compromised premature

newborns with poor skin integrity and nutrition); before review of other hospital's data, unit leaders did not believe that “zero” was possible given the patient population and acuity.

- Daily maintenance checklists are a cognitive tool used by leadership staff to review standardized tubing setup, dressing integrity, and ongoing need for a central catheter.
- The ability to establish a network of multi-disciplinary providers (nursing, medicine, epidemiologists) across the state with ongoing dialogue through conference calls, periodic surveys, and biannual statewide workshops was essential in providing updated performance data and sharing stories about checklist and bundle successes and barriers to implementation.

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Increasing Compliance with Pneumonia and Flu Vaccine Screening

Albany Medical Center

Albany

PROJECT DESCRIPTION

By introducing key process changes, nurses and physicians at Albany Medical Center were able to achieve 100% compliance with screening and administration of pneumonia and flu vaccines for patients meeting the criteria during the fourth quarter of 2010. This was a significant improvement over rates from earlier in the year, which generally ranged between 70% and 80%.

Two major changes were implemented: the institution's Medical Executive Committee approved a standing, blanket order for both vaccines, enabling nurses to administer the vaccines to patients meeting the criteria without having to seek separate physician orders for each patient; and screening was made part of the initial admissions process rather than at time of discharge.

These changes put the institution in full compliance with a 2006 state law that mandated certain patients be offered flu and pneumonia vaccines to reduce patient morbidity and mortality.

OUTCOMES

- Full compliance was achieved during the fourth quarter of 2010.
- For the entire year, 93% of patients were screened.
- By making pneumonia vaccine historical information electronically accessible as part of the patient profile, it became available across the enterprise, increasing the likelihood of ongoing compliance.

LESSONS LEARNED

- Screening patients at time of discharge leads to delays and patient refusals.
- Standardization of the process is a key to success.
- Rapid availability of vaccine improves compliance.

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Prevention of Hospital-Associated C. difficile Infections

Beth Israel Medical Center

New York City

PROJECT DESCRIPTION

Beth Israel Medical Center implemented a multi-faceted intervention to interrupt transmission and prevent hospital-onset *C. difficile* infections (CDI). This successful program involved senior leadership, interdisciplinary teams, use of evidence-based practices, checklists, and timely feedback of data.

To prevent transmission, patients were placed on contact precautions at the onset of symptoms in a single room or cohorted with another CDI patient. Gowns and gloves were made readily available, hand hygiene with soap and water performed, and rectal thermometers eliminated. Environmental cleaning practices using a hypochlorite-based disinfectant were standardized and included 48 elements categorized into high-touch surfaces, the bathroom, elements unique to terminal cleaning, and tasks to be performed upon completion of cleaning.

Innovative use of a fluorescent marking tool that simulated germs was introduced to assess the quality of cleanliness. Checklists to assess compliance were used and monitored by direct observation. The Centers for Disease Control and Prevention's National Healthcare Safety Network surveillance methodology was used to define hospital-onset CDI.

OUTCOMES

- The number of hospital-onset CDI cases decreased by 40% and the rate decreased from 15.4 to 7.2 to 4.5 per 10,000 patient days over the past three years.

- Compliance with CDI infection prevention practices increased from 60% to 98%.
- Compliance with environmental cleaning practices increased from 65% to 93%.

LESSONS LEARNED

- An interdisciplinary collaborative effort supported by hospital leadership successfully reduced hospital-associated CDI.
- Involvement of staff to develop checklists and monitor outcomes with timely feedback of data allowed staff to “own” the program.
- This was accomplished without the addition of extensive new resources and separate from efforts evaluating antimicrobial prescribing practices.

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Double Whammy: Reducing HAIs on Two Critical Fronts

Canton-Potsdam Hospital

Potsdam

PROJECT DESCRIPTION

To reduce the incidence and spread of hospital-acquired infections (HAIs) in two critical operational nodes of patient contact, Canton-Potsdam Hospital formed multidisciplinary task forces with oversight from a central “Safety and Service Excellence” coordinating office.

The task forces assessed the current state and, using observations, baseline and benchmarking data, and process analysis, they determined the areas to be targeted for interventions. These interventions included investments in infection monitoring technology, organization-wide training, revised policies and signage, and heightened awareness achieved through training and communication activities, including the use of patient stories.

Within one year from implementation of solutions, the task forces cut hospital-acquired *C. difficile* incidence by 50% (from 18 occurrences at the close of 2008 to nine in 2010), and surgical site infection rates by 63% (from 24 in 2009 to nine in 2010).

The hospital used an outside consultant for its work on surgical site infections; data-gathering took place in 2009, and in 2010 the team implemented solutions: the consultant remarked in her final report, “I am amazed that all of this was accomplished in a year’s time.”

OUTCOMES

- Hospital-acquired *C. difficile* was reduced by 43%.
- Surgical site infections were reduced by 63%.

LESSONS LEARNED

- Communicate the human cost (patient stories have more impact than policy changes).
- Involve non-patient-care employees/areas as well as clinical areas.
- Place safety reporting in a direct line to the chief executive officer.

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Culture of Safety Initiative to Eliminate Health Care-Acquired Infections

Ellis Medicine

Schenectady

PROJECT DESCRIPTION

Motivated by two years of high central line-associated blood stream infection (CLABSI) rates in the intensive care unit (ICU), Ellis Medicine undertook a reduction initiative. The successful strategies are now being applied toward a goal of eliminating health care-acquired infections, and to inculcate a hospital-wide “culture of safety.”

A multidisciplinary task force was established to identify root causes for central line infections. The task force’s work led to a multitude of procedural and supply improvements, including “best practices bundles” and changes in the type of catheters, new catheter stabilization devices, and new dressings.

Physician leaders addressed best practices, leading to a process in which physician champions obtained practitioner “buy-in” while the intensive care unit (ICU) medical director and the chief medical officer undertook peer review of deviations from best practices. The extensive physician involvement led to procedural standardization and practitioner “buy-in” throughout the hospital. Review of infection rates is now routine at all levels of medical staff meetings. Nursing education also played an important role, employing a team approach which included one-on-one education in the ICU and nursing units. Specific infection control competencies are the focus of nursing competency fairs, computer screensavers emphasize infection prevention, and a zero-tolerance hand-washing policy is enforced.

OUTCOMES

- There have been zero central line infections in the ICU since January 3, 2010, a total of 439 consecutive days as of the submission of this narrative.
- CLABSI rates in the ICU declined from 2.1 per 1,000 central line days in 2009 to 0.2 in 2010, to zero year-to-date 2011.
- In 2010, the ICU went 4,542 consecutive central line days with zero central line infections, placing it in the best 1% nation-wide.

LESSONS LEARNED

- In spite of the complexity of CLABSI, an institutional mandate to reduce infections can be effective.
- Solutions came from institutional ownership of the problem, rather than attributing blame or success to a particular person or event.
- A multidisciplinary approach to solving a specific problem can lead to more general problem-solving throughout the hospital.

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Catheter-Associated Urinary Tract Infection Reduction in a Medium-Size Community Hospital

Glens Falls Hospital

Glens Falls

PROJECT DESCRIPTION

Catheter-associated urinary tract infection (CAUTI) remains the most common health care-acquired infection. To address this, Glens Falls Hospital created an interdisciplinary committee to reduce the CAUTI rate. The hospital focused on removing the Foley catheter as soon as clinically possible, and managing the catheter properly, based on guidelines from the Society of Healthcare Epidemiology of America/ Infectious Disease Society of America. A committee worked with the information technology (IT) department to implement catheter removal orders in joint procedure pathways.

The hospital is currently working with the medical staff and IT department to implement a nurse-driven Foley catheter removal protocol. However, the hospital needed to ensure that the Foley catheters were being maintained properly, in real time, at the patient level. This is accomplished by rounding on patient care units to assess compliance with three measures: position of catheter with respect to the patient's bladder, how was catheter secured, and presence of a patient-specific collection container. Deviations from the protocol are brought to the nurse's attention immediately, and the deficiency is resolved. Unit-specific and hospital-wide process measure and outcome data are collected and shared.

The hospital also worked with its engineering department to invent a height-adjustable clamp that fastens to intravenous poles, on

which a Foley bag can hang. When the patient is ambulating, the Foley bag remains below the level of the bladder, and off the floor.

OUTCOMES

- Multiple CAUTI-reduction interventions were implemented.
- The hospital decreased the number of Foley catheter days and decreased CAUTI rates.
- As a result, morbidity and mortality decreased.

LESSONS LEARNED

- Daily Foley rounds increased compliance with CAUTI reduction interventions and made these interventions sustainable.
- Daily reminders to remove Foley catheters increased physician awareness about CAUTI prevention.
- Daily Foley rounds facilitated CAUTI reduction collaborative, and empowered nurses to make Foley catheter decisions.

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Reduction of Hospital-Acquired Infections in Critical Care Units

John T. Mather Memorial Hospital

Port Jefferson

PROJECT DESCRIPTION

Ventilator-associated pneumonia (VAP) and central line-associated infections data for the third quarter of 2008 showed inconsistent compliance with practice standards. A leadership team was developed to hard-wire effective communication, continuity of care, and ongoing staff and patient education. On twice daily interdisciplinary rounds, the team reviews evidence-based practices to plan collaborative and multidisciplinary goals for the day, ensuring that clear communication is translated between caregivers to the bedside.

Practice concerns identified on rounds initiated an educational conference with the individual practitioner. Physician and nursing leaders provided staff and physicians on-unit clinical practice updates on treatment modalities for the critically ill patient. Data collection, begun in June 2009 for catheter-associated urinary tract infections (CAUTIs), showed that performance was well above the national benchmark. It was determined that the practice of replacing the standard Foley bag with a Uro-meter opened the system to bacteria. Standard Foley items in the emergency department and in the operating room were replaced with Uro-meters, eliminating the need for the nurse to break open the sealed system.

OUTCOMES

- While severity of illness and risk of mortality have risen, lengths of stay and ventilator days have been reduced.

- In 2008, there were nine VAP cases; in 2009, there were two; and in 2010, there were none.
- In 2008, the hospital had seven central line infections; in 2009, six; and in 2010, there were five, which is below the National Healthcare Safety Network benchmark.
- The hospital decreased CAUTIs by 75%, comparing January to June data with July to December 2010 post-intervention data.

LESSONS LEARNED

- The hospital leadership must be accountable to the staff and patients by being visible, accessible, and above all, communicating effectively.
- Staff must be accountable to their patients through their bedside practice and leadership at the unit level.
- An interdisciplinary approach is crucial to preserve communication and the standard of care necessary for great outcomes.

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Reduction of Catheter-Associated Urinary Tract Infections in Medical/Surgical Patients

Lutheran Medical Center

Brooklyn

PROJECT DESCRIPTION

In the fourth quarter of 2009, Lutheran Medical Center conducted a pilot study on three medical/surgical units and determined that its baseline rate for catheter-associated urinary tract infections (CAUTIs) was 14.1 per 1,000 catheter days. The national benchmark for medical/surgical units is 4.9.

The goal for 2010 was to achieve zero infections. An interdisciplinary team developed appropriate indications and documentation standards for indwelling catheters based on the Centers for Disease Control and Prevention's (CDC) guidelines. Direct care providers were educated regarding techniques for catheter insertion, maintenance, and removal; complications; and alternatives for urinary catheterization. Patient transporters were educated regarding proper placement of the drainage bag. All policies and procedures were updated. Documentation was standardized. The continued need for urinary catheters was addressed every day at interdisciplinary team rounds.

Five units took part in the project, three at a time. Education was provided to all nursing staff on each unit prior to starting surveillance. Each unit participated until the goal of zero infections was sustained for three consecutive months, at which time they were "replaced" with a new unit.

OUTCOMES

- The monthly CAUTI rate decreased from 5.7% in January to 0% in December. The rate was below the benchmark of 4.9 for ten of the 12 months.
- All of the participating units demonstrated a significant improvement in CAUTI rates.
- Three of the five units achieved a notable decrease in catheter days after three months.
- Standardized practices were used consistently, resulting in a culture change and adoption of best practices.

LESSONS LEARNED

- Interdisciplinary participation on the team fosters a spirit of competition and accountability at the unit level.
- Daily assessment of catheter use is a necessity.
- It is necessary to go "back to basics" to educate staff in urinary catheter management.

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Doctors, Nurses, and Administrators Working Together to Reduce Central Line Utilization

Lutheran Medical Center

Brooklyn

PROJECT DESCRIPTION

Since 2002, hospitals have adopted interventions to reduce central line-associated blood stream infection (CLABSI) using bundles and checklists. Lutheran Medical Center has been very successful in reducing CLABSI but has not achieved the goal of zero, especially outside the intensive care unit (ICU) where central line (CL) utilization continues to be high.

In late 2009, a steering committee met to determine next steps to reduce CLABSI to the organizational goal. After reviewing the charts of 68 patients with CL and interviewing their caregivers, the steering committee concluded that efforts to remove CL at the earliest possible time and convert to either a peripheral intravenous or a peripherally-inserted central catheter (PICC) line would be the top priority in 2010.

The steering committee introduced the following initiatives:

- physician note regarding indication for continued use of CL at transfer from an ICU;
- physician and nurse re-education about the bundles and proper technique for obtaining blood cultures to reduce contamination;
- type and site of all CLs are entered daily into a database and e-mailed to clinical stakeholders;
- the chief medical officer makes a daily query regarding any patient with a femoral CL or any CL over 14 days; and
- enhanced effort to convert CL to peripheral or PICC line as soon as possible.

OUTCOMES

Through this initiative, Lutheran Medical Center achieved the following:

- decrease in mean duration of CL (from 8.2 days to 5.7 days);
- decrease in patients transferred out of ICUs with CL (from 47% to 20%);
- increase in CL to PICC conversion (9% to 23%);
- reduction in femoral line use;
- increased documentation of CL necessity; and
- reduced blood culture contamination.

LESSONS LEARNED

- Once adherence to bundles and checklists is achieved, reduced CL utilization is essential to reducing CLABSI.
- Senior administration must be at the table with clinical staff to encourage motivation and reduce barriers.
- Buy-in and adherence to interventions by unit level staff, including attending physicians, residents, and nurses is critical to the success of this clinical initiative.

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CLABSI Bundle Implementation: From the Top Down and Multidisciplinary **Mount St. Mary's Hospital and Healthcare Center**

Lewiston

PROJECT DESCRIPTION

In 2005, Mount St. Mary's Hospital and Healthcare Center's leadership directed implementation of the central line-associated blood stream infection (CLABSI) bundle as part of a strategic effort to decrease mortality, prevent avoidable harm, and increase patient safety. The directors of the intensive care unit (ICU) and infection control led the multidisciplinary team consisting of physicians, nursing, interventional radiology, coding, central service, and information technology.

The processes put in place led to the ability to pinpoint who, what, where, when, and why bundle non-compliance occurred for targeted re-education, as CLABSI bundle implementation rolled out from ICU to the patient care floors, peri-operative services, and finally interventional radiology. The director of infection control worked closely with central services to develop a bundle kit containing all required components.

The processes put in place by information technology and coding led to sustained 100% compliance with the bundle and continue to be used today. Successes were celebrated across the organization, with a decrease in CLABSI, a significant and sustained cost reduction, decreased length of stay, and decreased overall mortality.

OUTCOMES

- Bundle compliance reached and sustained 100% from a low point of 48%.
- The CLABSI rate decreased from 5.7 per 1,000 line days, to zero.

LESSONS LEARNED

- Physician and frontline staff input into the development of processes is a key to success.
- All elements of the bundle insertion kit, including the checklist itself, must be made readily available.
- A tracking mechanism must be designed to pinpoint areas for targeted re-education.

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HPOD: Hospital Point of Dispensing
Mount St. Mary's Hospital and Health Care Center
Lewiston

PROJECT DESCRIPTION

Mount St. Mary's Hospital and Healthcare Center created the Hospital Point of Dispensing (HPOD) to mass-vaccinate staff to protect patients during influenza season. All staff are strongly encouraged to get vaccinated at one of the HPODs, which takes about seven minutes per staff member, on average.

On the front end, a unidirectional flow is established through the hospital lobby of registration, education, inoculation, and, if necessary, observation. This requires a great deal of collaboration with patient access and registration, nursing, and pharmacy staff. On the back end, it requires the collaboration of patient accounting staff to process and bill insurances for administration; environmental services to ensure all tables, chairs, and barriers are in place; and facilities staff and security to maintain patient flow.

With everyone working together, the facility has inoculated more than 100 people per hour, with 60% of staff receiving the vaccine. In addition, this ability is highlighted in the organization's emergency preparedness plan to mass vaccinate or medicate the general public in the event of a widespread public health emergency.

OUTCOMES

This initiative:

- protected hospital patients by immunizing staff;
- generated approximately \$21,000 in revenue;

- protected 60% of all hospital staff from the flu;
- enhanced emergency preparedness for a real public health emergency; and
- included a review of the entire process to make future improvements.

LESSONS LEARNED

- The greater the number of staff immunized, the lower the rate of flu in the hospital.
- Physical set-up—where everything is located—is less important than flow through the HPOD.
- Done properly and efficiently, revenue can be generated for the hospital without charging for the vaccine.

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Eliminating Central Line-Associated Blood Stream Infections in a Surgical Intensive Care Unit

New York Hospital Queens

Queens

PROJECT DESCRIPTION

The Institute for Healthcare Improvement (IHI) estimates that 48% of intensive care unit (ICU) patients have central venous lines. Attributable mortality from line-associated blood stream infections is between 4% and 20%, or between 800 and 4,000 deaths each year. Central line-associated blood stream infections (CLABSIs) are a preventable problem.

New York Hospital Queens determined that a decrease in CLABSIs in its surgical intensive care unit (SICU) could be achieved by implementing a minimal-resource, yet comprehensive program. Adding to a baseline set of interventions developed in collaboration with other hospitals, New York Hospital Queens implemented additional strategies with the goal to further decrease the incidence of CLABSIs in the SICU.

A multidisciplinary team developed a documentation checklist to be used during line placement and daily line assessment. Criteria for appropriate line placement, clinical indicators for line removal, and strategies to ensure sterility during line placement were implemented. Prepackaged kits containing all supplies necessary for sterile line placement were developed and utilized. Education programs were conducted. Monthly feedback was provided to SICU staff.

OUTCOMES

During a 33-month period before implementation of the interventions identified above, the rate of CLABSIs in the SICU was 1.8/1,000 catheter days. Over the course of 33 months following the implementation of the intervention, there have been no CLABSIs in the SICU. This was achieved through a multidisciplinary approach, requiring minimal institutional resources.

LESSONS LEARNED

- Involvement of an interdisciplinary team is essential.
- Consistent documentation of practice facilitates compliance with this type of program and helps in identifying where strategies may have broken down.
- Development and use of pre-packaged procedure kits facilitated correct procedures.

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Sustaining Success in Preventing Health Care-Associated Infections

North Shore University Hospital

Manhasset

PROJECT DESCRIPTION

In 2005, North Shore University Hospital's president and chief executive officer made a commitment to develop a standardized approach to control the incidence of hospital-acquired infections (HAIs) and improve infection control practices across the entire organization. A zero-tolerance for infection goal was established, with a priority focus on the 28 adult, pediatric, and neonatal intensive care units (ICUs) that house more than 400 ICU beds.

A multidisciplinary, system-wide infection prevention task force representing each of the acute care hospitals and long-term care facilities worked to standardize infection control practices, develop explicit policies and procedures, select and purchase patient care equipment associated with a lower risk of infection, and develop education on the importance of infection control protocols.

A uniform "table of measures" with consistent definitions for ICU central line-associated bloodstream infection (CLABSI) and ICU ventilator-associated pneumonia (VAP) was developed for uniform data entry and reporting across all facilities in the organization. To maintain momentum and sustain progress, ICU staff were surveyed to determine the interventions that they believe are most instrumental in reducing a CLABSI and VAP.

OUTCOMES

- The CLABSI index decreased by 70.68% from 3.25 (2004) to 0.95 (2010).
- The VAP index steadily decreased by 70.92% from 5.64 (2004) to 1.64 (2010).
- Forty-six percent of the ICUs have gone more than six months without a CLABSI. Two ICUs have not had a CLABSI in three years, two ICUs have not had a CLABSI in two years, and five ICUs have not had a CLABSI in more than one year.

LESSONS LEARNED

The greatest challenges for reducing CLABSI include:

- emergent line placement (femoral vein);
- extended central line use;
- lines placed outside the ICU; and
- line maintenance.

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Developing a Low-Cost Solution to a High-Risk Problem: Reducing Central Line-Associated Blood Stream Infections

NuHealth—Nassau University Medical Center

East Meadow

PROJECT DESCRIPTION

NuHealth—Nassau University Medical Center identified central line-associated blood stream infection (CLABSI) as a focus for corporate process improvement. Senior leaders reallocated existing resources for a robust performance improvement effort. Leadership worked collaboratively to identify improved procedures for insertion and maintenance of central lines and improved monitoring of patient safety risks. A dedicated team, the “Division of Transformation” (DOT), was charged with the development, implementation, and monitoring of an initiative to transform the process of care to reduce central line infections. DOT served as the communication hub regarding central line safety, linking information among key caregivers.

Five components of central line care were determined to be critical: staff competency, appropriateness of central venous catheter (CVC) site, duration of CVC line, access for blood draws, and line maintenance. The DOT team assessed compliance with 29 pre-determined criteria, communicating this information to the bedside practitioners, medical director, and senior vice president of nursing. Information was provided real-time to ensure evidence-based guidelines were followed. Nursing was empowered at the bedside to ensure maintenance of sterility during the insertion procedure. Accountability was shared through improved education, communication, and leadership involvement.

OUTCOMES

- There were zero blood stream infections in the medical intensive care unit (ICU), surgical ICU, and cardiac care unit from May through October 2010.
- A house-wide decrease of 84% was noted for the same time period in 2008, and a 71% decrease for the same time period in 2009.

LESSONS LEARNED

- Creative solutions to patient safety issues using existing resources can have dramatic results.
- By establishing appropriate metrics for a surveillance tool, caregivers are able to optimize the real-time information provided.
- Using a multidisciplinary approach to enhance real-time communication led to empowerment at the bedside and shared accountability.

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Successful Reduction of Central Line-Associated Blood Stream Infections Outside the ICU: A Multi-Hospital Collaborative

Rochester Consortium (F. F. Thompson Hospital, Highland Hospital, Lakeside Health System, Rochester General Hospital, Strong Memorial Hospital, and Unity Hospital)

Rochester

PROJECT DESCRIPTION

Outside the intensive care unit (ICU), catheters remain in place for a longer duration; therefore, it is important to ensure the use of appropriate line maintenance practices by nursing staff.

Starting in 2008, six hospitals in the Rochester area joined together to initiate surveillance and to reduce central line-associated blood stream infections (CLABSIs) on 37 units outside the ICU. Activities included:

- To simplify the collection of the central line denominator data, a validation of a sampling method (collection of data once a week) to estimate monthly line days was adopted.
- Quarterly feedback of comparative CLABSI rates was provided to nursing leaders and unit managers to increase overall knowledge and encourage continued surveillance and compliance.
- A line care maintenance protocol (LCMP) was created using evidence-based literature.
- Nurses' knowledge and practice were surveyed pre- and post-education.
- Practices for dressing change and accessing central lines were audited regularly.

OUTCOMES

- The collaborative model was effective in establishing surveillance and significantly reduced the overall CLABSI rate by 43% from a pre-intervention rate of 2.88 to 1.47 per 1,000 line days post-intervention.

Facilities and units with the highest pre-intervention rates had up to a 60% reduction in their CLABSI rate.

- Validation and use of a simple sampling method to estimate the CLABSI denominator reduced the burden of data collection.

LESSONS LEARNED

- Educating nurses on proper maintenance of central lines, auditing their practices, and providing timely feedback are important measures for reducing CLABSI rates in units outside the ICU.
- Nursing champions took ownership of implementing the project and changing the culture that contributed to CLABSI reduction on their units.
- Engaging stakeholders early in the process is key for success.

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Reducing Horizontal Transmission of Drug-Resistant Organisms in Patients with Complex Medical Problems

Rochester General Hospital

Rochester

PROJECT DESCRIPTION

This project addresses the needs of patients at high risk for *C. difficile* on a complex medical unit that consists of 37 acute medical beds. The goal set forth by the multidisciplinary team members was to decrease the rate of hospital-acquired *C. difficile* by 15%. The baseline rate was 1.6 per 1,000 patient days; a rate of 1.36 per 1,000 patient days was set as the goal rate.

Actions taken included:

- educate all team members, including physicians, clinical, environmental, and dietary staff;
- reinforce the protocol at all staff meetings;
- add a visual aid yellow line on the floor at the doorway of patient rooms;
- bleach cleaning of all rooms;
- individual thermometers for all patients;
- individual blood pressure cuffs and stethoscopes in all patient rooms;
- remove linen curtains in patient rooms with privacy ensured by closing doors;
- increase supply of isolation gowns to ensure it is adequate for all caregivers;
- invite the infection liaison to meetings to educate and reinforce successes; and
- invite the physician liaison to units to encourage all team members.

Additional actions taken as of October 2010 were:

- the environmental supervisor is notified of discharge and terminal cleaning implemented for a *C. difficile* isolation room;

- the room is visually inspected to verify optimal cleaning of the room before the next patient is admitted; and
- wins are celebrated with all team members.

OUTCOMES

- The unit went five months without an incidence of health care-acquired *C. difficile*.
- The rate of nosocomial *C. difficile* was reduced by 15%: from 1.9 per 1,000 patient days in 2009 to 1.3 per 1,000 patient days in 2010.
- Involving all team members in this prevention project helped raise team morale and excite the team about identifying other patient safety initiatives to work on in their unit.

LESSONS LEARNED

- Appropriate team education and high participation expectations are essential to project success.
- Researching best practices and getting feedback from all team members brings innovative, successful ideas to implement.
- Bringing the team together around a specific patient safety issue helped the team to focus and achieve success.

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Tackling MRSA: An Orthopedic Infection Prevention Bundle

Rochester General Hospital

Rochester

PROJECT DESCRIPTION

Rochester General Hospital formed a multidisciplinary team to develop and implement actions that would improve orthopedic patient outcomes. After analyzing data from previous years including cost and readmissions, the hospital created an action plan to address prevention of methicillin-resistant *Staphylococcus aureus* (MRSA) and surgical site infection (SSI) in the orthopedic population.

Before implementing evidence-based bundles, the hospital provided extensive education to the surgeons, and mid-level, bedside, pre-operative, peri-operative, and post-operative staff.

The infection prevention bundle consists of:

- preparation of the skin with chlorhexidine-impregnated cloths the night before and morning of surgery;
- performing pre-operative MRSA screening on orthopedic surgical patients;
- adding the administration of intravenous vancomycin to the standard antibiotic prophylaxis protocol for identified carriers;
- using *chlora-prep* surgical skin preparation; and
- administering intranasal mupirocin ointment to all patients, regardless of colonization status for five days, beginning the day before surgery.

In addition, several environmental factors were instituted, such as disinfectant wipes in all rooms and patient-dedicated equipment. After

discharge, post-operative surveillance continued for 30 days, and one full year for any patient with an implantable device.

OUTCOMES

- The hospital achieved 350 days with no MRSA orthopedic SSIs.
- The overall surgical site infection rate decreased by 70%.

LESSONS LEARNED

- Every staff member learned how to “connect the dots,” identifying the role they personally played in the prevention of infection.
- Zero defects are achievable.
- Although the decrease in infection is statistically significant, the real innovation is the change in culture.

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Targeting Zero: Sustained Rate of Zero Central Line-Associated Blood Stream Infections in a Surgical Intensive Care Unit

Rochester General Hospital

Rochester

PROJECT DESCRIPTION

Rochester General Hospital's infection prevention team partnered with the surgical intensive care unit staff and leadership in response to increased central line-associated blood stream infection (CLABSI) rates. After evaluating current practice, the team developed a comprehensive approach to central line insertion, line care, maintenance, and daily evaluation, engaging frontline staff.

Standardization and ownership of practice, protocols, and policies were keys to drive improvement. Standardized equipment, creation of insertion and line care protocols, multi-disciplinary weekly meetings, daily rounding, immediate feedback, critical event analysis, and staff accountability for patient outcomes were incorporated into this plan. To showcase progress and motivate staff, rates and results were evaluated weekly and prominently displayed in highly visible areas.

OUTCOMES

- The hospital achieved a reduction of the CLABSI rate to zero.
- Rates fell from a baseline rate of 4.7 in 2007 (13 infections in 2,791 line days) to zero per 1,000 line days (zero infections in 1,912 line days).
- The hospital has had 19 months without an infection and counting, resulting in more lives saved.

LESSONS LEARNED

- Standardization of applicable processes, increased transparency, public reporting, and frontline staff engagement were responsible for a sustained reduction in CLABSI rates.

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Reducing Sepsis Mortality Through Early Identification of Systemic Inflammatory Response Syndrome and Implementation of “Change Bundles”

South Nassau Communities Hospital

Oceanside

PROJECT DESCRIPTION

South Nassau Communities Hospital’s goal for this initiative was to ensure rapid identification of patients at risk for sepsis and provide timely evidence-based interventions. The objectives were to:

- decrease hospital sepsis mortality rates by 10% in one year;
- decrease hospital sepsis mortality rates by 25% over the next five years;
- improve compliance to the Institute for Healthcare Improvement (IHI) sepsis resuscitation measures; and
- improve staff knowledge and understanding of the clinical parameters of early system inflammatory response syndrome (SIRS) and sepsis, and the current best practice associated with resuscitation management.

Major activities included:

- determining baseline sepsis mortality rates, conducting individual patient record reviews to identify those with SIRS and current resuscitative treatment;
- developing a three-part educational series for practitioners and nurses that covered identification of SIRS and sepsis, bundles, supportive care including cardiovascular support, renal replacement therapy, and glucose control;
- developing screening materials for SIRS for all patients at the time of triage in the emergency department (ED);
- creating ED order sets for SIRS and sepsis that included all of the elements from the IHI bundles;

- monthly sepsis meetings to identify barriers and issues; and
- ongoing data collection for sepsis outcome and process improvement.

OUTCOMES

- The mortality rate for patients with a primary diagnosis of sepsis declined from 23.71% to 18.9%, a reduction of 20%.
- The mortality rate for patients with a primary diagnosis of sepsis who survived the first 48 hours from admission declined from 16.9% to 11.3%, a reduction of 33%.
- Overall mortality declined from 3.4% to 1.9%, a reduction of 44%.

LESSONS LEARNED

- Screening for SIRS at the point of ED triage allows for an early index of suspicion.
- Based upon ED triage screening results, vital sign measurement frequency is increased, and specific SIRS reporting is given to attending ED physicians.
- Using evidence-based ED order sets allows for immediate appropriate diagnostics and significant compliance to resuscitation bundles.

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An Ounce of Prevention

St. Charles Hospital

Port Jefferson

PROJECT DESCRIPTION

Pertussis is a highly contagious respiratory disease caused by the bacterium *Bordetella pertussis*. It is spread from person to person by coughing or sneezing. More than 80% of infants who contract pertussis are infected by parents or caregivers. Pertussis can cause serious complications in infants, as they are not fully vaccinated. According to the U.S. Centers for Disease Control and Prevention (CDC), more than half of infants less than one year of age who become infected with pertussis must be hospitalized. Of those infants who are hospitalized, approximately 20% develop pneumonia, 50% exhibit apnea, and 1% die.

Recognizing the importance of adult immunization to protect infants, St. Charles Hospital developed a multidisciplinary team to institute a tetanus, diphtheria, and acellular pertussis (Tdap) patient screening tool to be completed by the registered nurse on the mother-baby unit for all maternity patients. The screening tool includes contraindications to vaccination as well as a non-patient specific standing order, approved by the medical board, to administer a single dose of Tdap vaccine on the date of discharge. If a postpartum patient met the inclusion criteria, she was provided with the most recent CDC vaccine information sheet, consent for vaccine was obtained, and the vaccine was administered. All postpartum women were offered the vaccine, including those who have a history of pertussis.

OUTCOMES

- The hospital initiated a screening tool to identify women who were eligible for pertussis vaccination.
- A vaccination program for women in the immediate postpartum period was implemented that resulted in an increase in the vaccination rate from 1% to 58% over 12 months.

LESSONS LEARNED

- A multidisciplinary approach to a problem allows for varied input and ultimate success of a program.
- Targeted and specific education is essential to success of a new program.
- It is possible to institute an effective immunization program based on an existing successful model.

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Infection Prevention Month in an Intensive Care Unit

St. Elizabeth Medical Center

Utica

PROJECT DESCRIPTION

Preventing health care-associated infections (HAIs) is a critical step in reducing morbidity and mortality in intensive care units (ICUs). To increase awareness of prevention strategies, in August 2010, St. Elizabeth Medical Center established an Infection Prevention Awareness Month for the ICU. Buttons were created for the staff that stated “Infection Prevention—Because One is Too Many!”

The areas of focus were: urinary tract infection (UTI), ventilator-associated pneumonia (VAP), central line-associated blood stream infection (CLABSI), multi drug-resistant organisms (MDROs), and hand-washing. Activities included:

- Storyboards with short post-tests, and “bug bytes” — small informational tips placed around the unit — were used to disseminate information.
- Contests with drawings for prizes were held weekly and at the end of the month.
- Pictures were taken throughout the month of the staff practicing appropriate infection prevention techniques, which were posted on a bulletin board in the ICU.
- The ICU nurse manager and clinical educator participated in a radio interview discussing infection prevention to increase community awareness.

OUTCOMES

- There were zero UTIs after educational initiative for the remainder of the year.
- There were zero CLABSIs after educational initiative year-to-date.

- There were zero MDROs after educational initiative year-to-date.
- There were zero VAPs after educational initiative year-to-date.

LESSONS LEARNED

Staff involvement in quality and safety initiatives can lead to:

- increased awareness of infection prevention techniques with an associated reduction of HAIs;
- improved patient safety; and
- overall improved patient outcomes in this vulnerable patient population.

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Prevention of “Naughty CAUTIs”

St. James Mercy Hospital

Hornell

PROJECT DESCRIPTION

In 2009, St. James Mercy Hospital implemented a new quality and patient safety initiative, Achieving Clinical Transformation (ACT). This initiative focused on five hospital-acquired clinical conditions: catheter-associated urinary tract infection (CAUTI), ventilator-associated pneumonia (VAP), pressure ulcers, falls with injuries, and central-line infections. The hospital created teams for each indicator.

The CAUTI team named their team “naughty CAUTIs” with the goal of keeping staff aware of the seriousness of urinary tract infections. They reviewed the hospital’s infection rate and device utilization for CAUTIs and realized the rate was above the National Health Safety Network (NHSN) average.

A multidisciplinary team was created to assess the hospital’s policies, procedures, and protocols related to the management of urinary catheters. Strategies were identified to reduce and improve rates, including:

- medical staff and staff education;
- implement Institute for Healthcare Improvement bladder bundle;
- monitor catheter days and CAUTI incidence;
- develop a documentation tool;
- indications and daily review of necessity for indwelling catheter;
- purchase of bladder scanner; and
- computer screen savers.

OUTCOMES

- There were no CAUTIs for 18 months.
- The utilization of catheters decreased by 44%.
- There was a significant increase in compliance with catheter protocols.
- The hospital achieved 100% compliance with the Surgical Care Improvement Project (SCIP) measure, “catheter removed by post-op day 2.”
- Length of stay decreased in 2010 to 4.04 days.

LESSONS LEARNED

- Prevention strategies related to catheter utilization resulted in better patient outcomes and patient satisfaction.
- A multidisciplinary team is necessary to achieve facility-wide improvements.
- A successful process requires multiple tools.

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Antimicrobial Stewardship Committee—“The Bugs & Drugs” Committee
St. Joseph’s Hospital of Elmira
Elmira

PROJECT DESCRIPTION

St. Joseph’s Hospital of Elmira implemented a comprehensive antibiotic usage program beginning March 2010 to enhance patient safety and improve patient outcomes. A multi-disciplinary team, also known as the “Bugs & Drugs Committee,” completed a gap analysis and formulated an action plan. This plan included an electronic report of all active patients on antibiotics and associated cultures and sensitivities. This report, along with patient chart review and weekly rounds with the infectious disease physician, enables the clinical pharmacist to understand the efficacy of antibiotic regimens.

Members of the team meet biweekly to evaluate antibiotic therapies. The cultures and sensitivities are matched to antibiotics for appropriateness. Diagnostic indicators and laboratory values are reviewed for the right drug and right dose. Patients on parenteral antibiotics are reviewed for a potential switch to oral preparations to reduce infections associated with intravenous delivery and increase cost savings. Team members act on the data in collaboration with physicians for adjustment of drug regimens or additional testing.

OUTCOMES

- Unnecessary antibiotics were discontinued.
- Dose changes were made based on renal status.

- Excessive use of antibiotics was discouraged; antibiotics were discontinued after extended periods.
- Untreated patients with positive cultures were identified.
- Antibiotic costs decreased from \$5.44 per adjusted patient day in 2009 to \$5.15 in 2010 as a result of team interventions.
- The estimated drug cost savings was \$15,500 from March 31, 2010 to December 31, 2010.

LESSONS LEARNED

- This process improved patient safety and medication efficacy by evaluating for clinical accuracy; eliminating inappropriate antibiotics; and ensuring the accurate drug, dosage, and route.
- A positive and confident working relationship can develop between team members with a common goal, with an end result of enhanced patient care.
- Cost-savings is second to “doing the right thing right.”

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A Hospital-Wide, Multidisciplinary Approach to Prevent Central-Line Infections

Stony Brook University Medical Center

Stony Brook

PROJECT DESCRIPTION

Stony Brook University Medical Center joined the Institute for Healthcare Improvement Critical Care Collaborative in 2004 that incorporated application of central line and ventilator bundles, multidisciplinary rounding, and daily goal sheets to improve patient outcomes. The surgical intensive care unit (ICU) was the first to form a performance improvement team to plan and deploy clinical practice recommendations. Over a two-year period, the initiative spread to the medical, pediatric, cardiac, and neonatal ICUs.

Although initial success was achieved, the goal of eliminating central line infections was not. Stony Brook University Medical Center developed a standardized central line insertion credentialing program for its medical residents. All residents are expected to review an educational module, achieve a passing grade of 80%, and demonstrate competency in central line insertion on a simulator and at the bedside prior to credentialing.

After further review of central line infection data, it became apparent that many of the lines became infected after day seven of insertion. Evaluation of the line maintenance process revealed staff were not accessing lines using the same level of sterile technique used during insertion. As a result, a central line maintenance protocol was developed and deployed. Due to these cumulative efforts, the hospital-wide central line-associated blood stream infection (CLABSI) rates decreased by 59% over a five-year period.

OUTCOMES

- The hospital's adult ICUs achieved an 83.4% decrease in CLABSI in 2010 from the baseline period (2007).
- The pediatric ICUs achieved a 72% decrease in CLABSI in 2010 from the baseline period (2007).
- The post-implementation period (2008-2010) demonstrated a 59% decrease in CLABSI, resulting in a decrease of 1,144 patient days, leading to an estimated \$7.6 million savings.

LESSONS LEARNED

- Interdisciplinary team collaboration positively impacts patient outcomes while decreasing length of stay and health care costs.
- Standardization is essential to ensure consistent application of best practices in the insertion and maintenance of central lines.
- Changing the culture and practice of medical and nursing staff takes time and perseverance.

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Hand Hygiene Initiative

Syosset Hospital

Syosset

PROJECT DESCRIPTION

With hand hygiene compliance at 37.3%, Syosset Hospital implemented a comprehensive approach to increase compliance:

- “Secret shoppers” were trained to observe hand-washing practice.
- Hand-washing signage was posted prominently throughout the facility.
- Computer screensavers with hand hygiene messages were installed.
- The “Wash In—Wash Out” campaign was introduced hospital-wide.
- “Just-in-time coaches” provided on-the-spot education when staff were observed not following the policy.
- “Infection prevention coaches” were chosen from unit staff and empowered to approach staff and provide education and foster continued compliance with hand hygiene.
- Alcohol-based hand gel dispensers were installed throughout the hospital.
- The “Red Check” program was initiated: All staff are given small cards with large red checks as a silent communication tool for those staff observed not practicing hand hygiene.
- Monthly unit-based hand hygiene monitoring was done and validated by the epidemiology/infection control manager.
- Physician non-compliance is referred to the director of medicine.

OUTCOMES

- Overall compliance with hand hygiene increased to 71.2% after first three months.

- Unit-specific hand hygiene averaged 94.8% for 2010. Infection control validation of the hand hygiene monitoring was 93.4% for 2010.
- In the intensive care unit, nosocomial methicillin-resistant *Staphylococcus aureus* infections decreased 21%.
- Hospital-wide, a 14.2% decrease was realized for nosocomial *Clostridium difficile*.

LESSONS LEARNED

- Once the identities of the “secret shoppers” were discovered, this approach was not as effective.
- The “red check” program is useful, as some staff members were uncomfortable with confronting other members of the health care team.
- Peer-to-peer interactions (including between physicians) were better received.

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Reducing Urinary Tract Infections Through a Systematic, Multidisciplinary Approach

Upstate University Hospital

Syracuse

PROJECT DESCRIPTION

Upstate University Hospital used a systematic, multidisciplinary approach to reduce urinary tract infections (UTIs). Beginning in October 2009, a risk assessment was completed using laboratory data and positive Foley culture test results to develop a baseline for catheter usage in the adult intensive care unit (ICU) population. A post-risk assessment determined a need to implement a new monthly report to identify positive culture results. To obtain this, a new computerized physician order entry (CPOE) order set was developed to create a trigger to only do cultures on positive urinalysis screening tests.

Dissemination of data was critical to this project. Infection control software was implemented, with cultures reported concurrently to nursing units and medical staff. A monthly report was distributed to all medical staff. Urinary tract infection rates were also published monthly on nursing unit specific dashboards, medical service quality grids, and to leadership committees.

A pilot nursing unit was selected for testing the interventions. Substantial revisions to hospital policies were made and unit staff completed a comprehensive education plan. Based on feedback from the pilot unit and after modifications, a house-wide rollout was completed.

OUTCOMES

- The organization achieved a significant house-wide reduction in urinary tract

infections, from 2.13% in January 2010 to 0.19% in December 2010.

- A standardized policy was created for insertion and care of Foley catheters.
- Standardized computerized provider order entry order sets improved removal of Foley catheters and documentation.
- Nurses have increased autonomy and accountability to remove or replace Foley catheters.
- Changing laboratory specimen processing standards improved the accuracy of culture results.

LESSONS LEARNED

- “Think twice before placing a Foley catheter” – staff gained heightened respect for a commonly used device.
- Ensure each measurement is accurate and avoid “false-positives.”
- Collaboration among all levels of staff and across disciplines is needed—it takes a team to implement a comprehensive approach to systems improvement.

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Using Crew Resource Management to Maintain Zero Central Line-Associated Bacteremia in Intensive Care

Vassar Brothers Medical Center

Poughkeepsie

PROJECT DESCRIPTION

Vassar Brothers Medical Center enhanced its implementation of the Institute for Healthcare Improvement's central line bundle by applying crew resource management (CRM) principles to maintain a central line-associated blood stream infection (CLABSI) rate of zero for the intensive care unit (ICU) for 48 months.

In 2008, 100% of ICU and cardiac care unit (CCU) clinical and medical staff participated in CRM training. The training included leadership development and course work in recognizing adverse situations, communicating concerns, human factors, decision making, briefing, and debriefing. Hospital leadership set the expectation that staff would be supported in their efforts to raise concerns when the possibility for error existed and "stop the line" to prevent error from reaching the patient.

CRM implementation included the development of checklist-based, hard-wired safety tools with an expectation that these would be adhered to at all times under all circumstances. This training empowered nurses and technicians assisting with the insertion and care of central lines to intervene if they observed any non-standardized practice.

OUTCOMES

- 2007: CLABIs rate of 0.49 per 1,000 catheter days.
- 2008: CRM training.
- 2008: CLABIs rate of 0.0 per 1,000 catheter days.

- 2009: CLABIs rate of 0.0 per 1,000 catheter days.
- 2010: CLABIs rate of 0.0 per 1,000 catheter days.

LESSONS LEARNED

- Team rounding resulted in early discontinuance of central lines, reducing exposure to CLABSI.
- Empowering staff to recognize error and speak up to prevent harm has ensured compliance with the central line bundle.
- A checklist-based, hard-wired safety tool eliminated individual practitioner variability.

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PATIENT SAFETY — MEDICATIONS

Complacency as a Root Cause of Medication Errors

Clifton Springs Hospital and Clinic

Clifton Springs

PROJECT DESCRIPTION

A temporary reduction in pharmacy hours at Clifton Springs Hospital and Clinic contributed to medication error rates in 2010 that were the highest in three years. The hospital leadership thought it had “human-proofed” its process by requiring a double-check for overrides and medication administration record (MAR) transcription and had a pharmacist remotely enter medications into the patient’s profile. However, two categories of errors became apparent: overrides from the automated dispensing cabinets (ADC) and discrepancies between the one or two handwritten MARs a patient may have before the electronic MAR is produced.

A failure mode and effects analysis (FMEA) study helped identify that complacency with the safety checks was the root cause of many of the errors. Staff indicated that they “forgot” or that “it takes too long” or that they “trusted their co-worker or the accuracy of the ADC.” Literature review helped the hospital enhance its action plan, which included:

- regular open discussion about errors and the impact of complacency;
- publications about errors in the “Stall Street Journal”;
- revision of the hospital’s leadership safety rounding questions;
- “error proofing,” requiring two-person fingerprint identification for access to the ADC;

- increased accountability for medication administration procedures;
- testing new formats for handwritten MARs to reduce the need for copying/recopying;
- more “root cause” questions in investigation of errors; and
- regular feedback on error rates.

OUTCOMES

- ADC override error rates were below the organization’s three-year mean for the past five months.
- Overall medication error rates were below the three-year mean for the past five months.
- An ADC upgrade was implemented, with more safety features.
- Medication preparation areas were renovated.

LESSONS LEARNED

- Behaviors and outcomes are the product of a culture; do not incorrectly assume that error-proofing is sufficient.
- FMEAs take time but enhance safety and teamwork.
- Do not reinvent the wheel—the literature abounds with solutions.

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Successful Implementation of a Comprehensive Anticoagulation Safety Program

Continuum Health Partners

New York City

PROJECT DESCRIPTION

Anticoagulants have been identified as one of the top five medication classes associated with patient safety incidents in the United States. Continuum Health Partners' Anticoagulation Safety Taskforce established a comprehensive anticoagulation safety program with the goal of reducing harm surrounding the use of the three most commonly used anticoagulants (heparin, warfarin, and enoxaparin) at the health system's five hospital sites.

Close collaboration and teamwork among nursing and medical leadership, pharmacy, quality improvement, administration, laboratory, and information technology allowed Continuum to:

- standardize policies;
- create evidence-based protocols;
- build clinical decision-making tools;
- create and implement electronic order sets that reflect best practices;
- create staff educational tools, including a self-learning, computer-based module and a pocket card for easy access to clinical guidelines; and
- determine outcome measures.

Over three years, these changes impacted more than 8,000 patients in five hospital sites.

OUTCOMES

- Alert values for warfarin decreased by 50% from 2008 to 2010.
- Compliance for a complete warfarin order increased to more than 90%.

- Accurate dosing of enoxaparin in pulmonary embolism/deep vein thrombosis (DVT) increased to more than 90%.
- Alert values for heparin decreased by 50% from 2008 to 2010.
- Compliance with Surgical Care Improvement Project (SCIP) DVT prophylaxis improved from 88% in 2007 to 95% in 2010.

LESSONS LEARNED

- Communication and teamwork among disciplines is critical to the success of a safety initiative.
- Streamlining safe patient care delivery requires easily accessible evidence-based information.
- Through the standardization of protocols, outcomes can be measured, thereby determining best practices.

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Enhancing Patient Safety Using Smart Pump Technology

Staten Island University Hospital

Staten Island

PROJECT DESCRIPTION

Smart infusion pump technology improves patient safety by providing decision support for nursing at the bedside. This includes a medication library program, and limits for medication delivery that prevent delivery of too little or too much medication. However, there may be opportunities to bypass these “safety nets,” increasing the risk of error. A multidisciplinary team identified the following critical issues:

- the existing medication library did not always meet the needs of the staff;
- staff failed to consistently use the library; and
- lack of staff awareness of “near misses” that were caught by the upper hard limits of the library.

Staten Island University Hospital developed a plan using reports generated through smart pump software, which included unit-specific compliance with the drug library and “near misses”—episodes when the pump drug limits prevented an inappropriate amount of medication to be delivered. Unit managers were charged with presenting these reports to staff and working with the staff to increase pump library use.

OUTCOMES

Compliance with using the pump drug library:

- May/June 2010 compliance: 38.5%
- August/September 2010 compliance: 49%
- October/ November 2010 compliance: 56%
- January/February 2011 compliance: 61%

Upper hard limit edits (prevention of potential adverse events/near misses):

- May/June 2010: 167
- August/September 2010: 226
- October/November 2010: 223
- January/February 2011: 277

LESSONS LEARNED

- Staff input is vital for library creation and limit-setting to facilitate use of the library.
- Ease of access to drugs in the library results in improved use (i.e., grouping all antibiotics together, etc).
- Technology alone is not sufficient to guarantee results. Feedback must be provided to staff and an expectation of compliance must be established.

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“Code Grey” Crisis Prevention Team Calms Agitated Patients in Psychiatric Units

Coney Island Hospital

Coney Island

PROJECT DESCRIPTION

Coney Island Hospital developed a crisis prevention, early intervention, and response team known as “Code Grey” to calm agitated patients in its psychiatric inpatient unit through the safest and least restrictive means possible. Key components include an activation system initiated by a team leader, use of a standardized communication system to quickly inform arriving team members of the situation, an emphasis on resolving incidents through non-physical means, post-incident debriefings, and monthly meetings and data sharing.

OUTCOMES

This initiative resulted in:

- less reliance on restraint, seclusion, and “over objection” intramuscular injection;
- increased use of either voluntary oral medications or no medications due to verbal interventions resolving issues during Code Grey activations;
- fewer injuries to patients and staff;
- the patient’s dignity and right to choose treatment through skilled de-escalation is preserved; and
- increased staff satisfaction and feelings of safety.

LESSONS LEARNED

- Team intervention reduces the incidence of restraint and seclusion.
- Maintaining focus on de-escalation, crisis prevention, and elimination of restraint and seclusion decreases violent episodes and injuries on psychiatric inpatient units.
- Code Grey usage with a focus on less invasive interventions promotes positive culture change.

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Decreasing Readmissions by Improving the Discharge Process in a Psychiatric Hospital

St. Vincent's Hospital Westchester, Division of Saint Joseph's Medical Center

Harrison

PROJECT DESCRIPTION

St. Vincent's Hospital Westchester, Division of Saint Joseph's Medical Center began this initiative to address unacceptably high adult 15-day readmission rates to this 3,000-discharges-per-year psychiatric hospital. A multidisciplinary team was convened with the initial (and narrow) charter to identify ways to decrease readmissions. However, it soon became clear to the team that readmission rates were actually an outcome of much larger processes and that, to effect real change, these larger processes needed to be examined and improved. Based on discussion, review of data, and literature review, the team decided that readmission rates could best be impacted by improving the quality of the various elements (or steps) related to the patient discharge process.

The new (and much broader) charter of the newly-named Discharge Process Improvement Team was to identify the elements within the discharge process that required improvement, recommend strategies to improve these elements, and then implement them. The team identified and implemented ten steps to improve the discharge process. The 15-day adult readmission rate, along with patient satisfaction scores relative to discharge, and the aftercare "show rate" became simply outcome measures of the implementation of the ten steps.

OUTCOMES

- The quarterly adult readmission rate decreased by 29.5% since inception of the initiative.
- The patient satisfaction percentile ranking relative to patients feeling prepared for

discharge increased from a pre-project baseline percentile of 7 to the 65th percentile through 2009.

- The percentage of patients filling prescriptions at the hospital pharmacy increased from 32% in 2007 to 65% by the end of 2009.
- For patients discharged from the hospital's inpatient psychiatric units, the percentage of patients showing for their first aftercare appointment improved to 85% from rates in the low 70s.
- The facility has been able to sustain these results through 2010.

LESSONS LEARNED

- A high-quality discharge process is an extremely important element of patient care.
- A significant decrease in readmission rates can be achieved by improving the discharge process.
- Patient satisfaction increases along with improvements in the discharge process.

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Recovery-Oriented Inpatient Mental Health Treatment: Yielding Decreased Mechanical Restraint Usage and Increased Safety

WCA Hospital

Jamestown

PROJECT DESCRIPTION

WCA Hospital is committed to maintaining a safe environment for patients, visitors, and staff. The adolescent and adult inpatient mental health units focus on implementing proactive interventions with patients in crisis. Following the lead of federal and state law regarding restraints, unit leaders reviewed best practices and evidence-based treatments to reduce the use of physical interventions. Early in the project, it was recognized that focusing on a recovery-oriented approach toward treatment would result in a decrease in restraints and an increase in unit safety.

Several simultaneous interventions were initiated:

- administrative and psychiatry department commitment;
- comfort room developed on the adult unit;
- brief training updates on the unit for staff;
- safety planning/crisis survival planning with patients, focusing on helping a patient identify how others can assist if the patient is unable to successfully use coping skills;
- a multidisciplinary treatment team focuses on identifying violence/self-harm risks and behavioral changes that could increase risk—the team discusses ways to work with patients to better cope with intense emotions and thoughts;
- during episodes of patient escalation, staff are taught to slow down the process—when this can be done safely—and carefully review the least restrictive methods of intervention;

- direct care staff are encouraged to interpret patient acting-out behaviors as probable trauma reactions; and
- the unit direction changing from “managing patients” to helping patients “manage themselves.”

OUTCOMES

In 2010, no mechanical restraints were used in the inpatient mental health units, a 68% decline from the previous year.

LESSONS LEARNED

- Becoming restraint-free is not the goal; creating an environment of recovery is the goal.
- Talk, talk, talk (during hiring, after near-misses, during incidents, at treatment teams).
- Focus on identifying triggers and preventing escalation, not just de-escalation.

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SPECIALTY CARE — EMERGENCY DEPARTMENT

System Patient Flow Team Reduction in “Left Before Medical Screening Exam” in Emergency Departments

Bon Secours Charity Health System

Port Jarvis

PROJECT DESCRIPTION

Improving patient flow throughout the Bon Secours Charity Health System is critical to patient safety, employee and patient satisfaction, and financial well being. Bon Secours is committed to clinical transformation and improving clinical and financial measures in performance improvement projects. Bon Secours’ System Wide Flow Committee has been working on processes to improve many flow indicators including decreasing the percentage of patients who are triaged in the emergency departments but leave before a medical screening exam (LBMSE) is performed.

The team instituted many new processes to improve flow times and decrease LBMSE. The clinical staff hold huddles twice daily to discuss anticipated discharges and flow issues throughout the organizations. The hospitals are focused on having patients discharged by 11 a.m. to help move patients through the ED more efficiently. Patients who require testing on the day of discharge are given priority. Additional transport equipment was acquired to help with patient flow. A 30-minute door-to-provider guarantee initiative was started to improve flow through the emergency department and decrease LBMSE.

OUTCOMES

- The LBMSE rate throughout the system was less than 2% in 2009 and less than 1% in 2010.
- Financial savings from decreased LBMSE from September 2010 through December 2010 totaled \$119,050.
- Financial savings totaled \$2,174,464 from increased emergency department visits throughout the system from January 2010 through December 2010.

LESSONS LEARNED

- Improve communication using daily huddles between nursing units and emergency departments to improve flow.
- Communicate with patients regarding wait times in the emergency department.
- Maintain processes and evaluate them on an ongoing basis to determine effectiveness.

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30-Minute Arrival to Provider

HealthAlliance of the Hudson Valley

Kingston

PROJECT DESCRIPTION

The goal of this initiative was to improve patient flow, outcomes, and experience, as well as community confidence. This project originated with a review of patient experiences following the consolidation of emergency centers (ECs) between Kingston Hospital and Benedictine Hospital.

Steps taken include:

- consolidation of the EC staff to one campus;
- made provisions for patients arriving at the hospital with the deactivated EC for those seeking emergency care;
- introduced a new emergency physician group;
- integrated the physicians and nursing staff into one electronic health record (EHR), as they were previously operating in three disparate environments;
- using data from the EHR to provide baseline metrics;
- identified areas of opportunity by metric analysis;
- presented data metrics to the staff and solicited staff input for solutions;
- standardized policies, protocols, and operations;
- education on new equipment, EHR, and processes;
- analyzed workflow with shared governance participation to maximize efficiency for overall flow;
- formed community advisory group to share experiences and propose solutions for improvements;

- conducted meetings with emergency medical services personnel to discuss their perceptions of flow and quality;
- incorporated Six Sigma processes to analyze and implement change to maximize efficiency;
- used the Situation Background Assessment Recommendation (SBAR) method to enhance safe handling and flow; and
- expanded patient flow meetings from clinical managers to a multidisciplinary team.

OUTCOMES

- Patient satisfaction was enhanced, as evidenced by survey results.
- Physician and staff satisfaction and pride increased.
- The system regained community confidence and market share.

LESSONS LEARNED

- Use of data and metrics to effectively support change is a meaningful tool for improvement.
- Integration of the whole team (inpatient, operations, support services, and EC) truly makes the difference.
- Timely, efficient care yields superlative patient outcomes and experience.

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Improving Hospital Access and Efficiency of Care for Our Community

Mercy Hospital of Buffalo/Catholic Health System

Buffalo

PROJECT DESCRIPTION

Overcrowding and bottlenecks with patient flow plague hospitals and emergency rooms across the country. Reasons are many, but outcomes are the same: long waits and limited access to care. Ongoing evaluation of patient flow and key indicator data—including volume, length of stay, and resource utilization—resulted in a transformational change in how Mercy Hospital of Buffalo cares for patients needing emergency, observation, and/or inpatient care. Using Lean methods and the Plan, Do, Study, Act model, the hospital implemented two strategies.

The first strategy was creation of a Comprehensive Admission Reception Expert (CARE) unit. This unit pulls selected patients from the emergency center for observation, preparation for admission, discharge, and/or transition to an alternate level of care. This unit is also used as a throughput outlet when the procedural areas become congested.

The second strategy was the development of a Patient Access Center (PAC) staffed by a registered nurse (RN) “24/7” who coordinates all bed activity, including transfer requests and direct admissions from physicians’ offices. Using a one-call process, the patient access RN ensures timely and safe transfer/admission of patients to the hospital while making the process efficient. Collaboration between the CARE unit and PAC ensures that the facility is always able to accommodate an outlying community hospital or physician’s office, thereby directing a patient to a bed instead of an already overtaxed emergency center, allowing continued efficient care for the patients.

OUTCOMES

- The facility enhanced its ability to provide tertiary care to the community, demonstrated by the capacity to accept a 177% increase in patient transfers, from 239 in 2009 to 663 in 2010.
- Direct admissions increased from a negligible number to 376 in 2010.
- Emergency center crowding and holds decreased, as demonstrated by 92% fewer diversion hours in 2010 compared to 2008.
- Emergency patient visits increased 12.3%.

LESSONS LEARNED

- “Tweaking” the process will not work. To achieve success, the hospital needed to change to a “pull” versus a “push” modality.
- Teamwork and cross-functional communication is critical and must be timely.
- Dedicated, direct connect telephony proved vital.

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Improving Appropriate Antibiotic Use for Emergency Department Community-Acquired Pneumonia

Montefiore Medical Center

Bronx

PROJECT DESCRIPTION

The Centers for Medicare and Medicaid Services' inpatient quality reporting program includes appropriate antibiotic use among community-acquired pneumonia (CAP) patients in the emergency department (ED) as a performance measure. Montefiore Medical Center convened a multidisciplinary team to define opportunities for improvement and implement and evaluate a solution to ensure appropriate antibiotic use among CAP patients. The team consisted of clinical and administrative personnel from ED, infectious disease, pharmacy, and performance improvement groups. Analysis of baseline data showed that the most common cause for failure on the performance measure was omission of macrolide antibiotics from the initial treatment regimen.

Key components of the intervention were:

- an algorithm for ED physicians including appropriate antibiotic choices;
- development of a "CAP-kit," including a "bundle" of appropriate antibiotics and specimen culture materials;
- pre-loading an automated ED medication dispensing system, with all bundle materials;
- selection of "CAP" on the dispensing system released necessary diagnostic and medication materials; and
- interdisciplinary staff education and performance feedback sessions.

A Plan, Do, Check, Act methodology was used to pilot the intervention at one ED campus and guide rollout at a second ED campus.

OUTCOMES

- In the pilot ED, appropriate antibiotic prescription improved from 57.7% before the intervention to 85.3% after the intervention.
- In the second ED, appropriate antibiotic prescription improved from 62.2% before the intervention to 88.4% after the intervention.
- The improvement across both EDs combined was from 60.4% to 86.0%.

LESSONS LEARNED

- Automated medication dispensing systems can be a powerful adjunct in quality improvement efforts.
- The combination of interdisciplinary teamwork, education, and information technology produced replicable and sustained improvements.

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Redesign of the Patient Care Model Across the Continuum to Improve Patient Flow

Southampton Hospital

Southampton

PROJECT DESCRIPTION

In 2008, a project was underway to renovate Southampton Hospital's emergency department (upgrading from 14 beds to 21 beds) and centralize all emergency department care. While renovations were in progress, the organization concentrated on the patient outcome. The chief executive officer convened an interdisciplinary team to improve the patient experience in the emergency department whether the patient was treated, released, or admitted.

The team members were selected based upon their impact on patient flow (environmental, imaging, laboratory, information, registration, community outreach, nursing, physician, quality, administration, and staff) and were charged with reviewing their processes and how they interlink with other departments.

The team collected and examined data with regard to national benchmarks and best practices. Analysis of the data identified barriers to throughput on both the front end of the process (walk-outs, registration process, and triage) and the back end of the process (time from admission to the time the patient arrives on the nursing unit). The team's objective was to improve the patient experience by meeting or exceeding best practices within one year, ensuring the implementation of the redesign before opening of the new emergency department.

OUTCOMES

- The door-to-doctor time decreased by more than 50%.

- The number of patients left without being seen decreased 98%.
- Computerized documentation and immediate bedding with bedside triage and registration were implemented.
- The environmental process was streamlined and communication between environmental and nursing units increased.
- The admission communication processes improved between the emergency department and the nursing units; clinical to clinical, and clerical to clerical, enhancing patient safety.

LESSONS LEARNED

- Patients placed on stretchers are less likely to leave.
- Visibility and technology made the process transparent, fostering accountability and capturing reliable data.
- It is not about the emergency or any other department, it is about the patient's experience and the ability of an organization's staff to function as one.

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Working Across Professions to Improve the Delivery of Emergency Care to Patients Throughout the Organization

Southampton Hospital

Southampton

PROJECT DESCRIPTION

In 2010, Southampton Hospital discovered that its process for checking and maintaining equipment/supplies on emergency code carts needed improvement. A workgroup was formed using the resources of the resuscitation committee and adding professionals across the organization who are involved in the process.

The goal was to design a process that was as efficient and effective as it was seamless and simple. The team examined each step of the process, how long it took an individual to complete it, and whether each step added value to the process.

- A hospital-wide needs assessment for the placement of code carts was conducted, resulting in the addition and/or elimination of carts.
- The American Heart Association's advanced cardiovascular life support (ACLS) standards and inventory for restocking the carts were used to adjust medication par levels.
- Resuscitation equipment was evaluated, standardized, and made available for the patient population served.
- Par levels of supplies were evaluated, standardized, and adjusted; eliminating waste due to expired materials.
- The process for the replacement of expired supplies was evaluated and changed in an effort to capture the supplies prior to expiration and circulate into the organization for use.

- All documentation relating to daily/monthly cart checks as well as the code form were reviewed with significant changes, including incorporating a debriefing section.

OUTCOMES

- The process was simplified by converting loose supplies to an exchange tray, with an inventory and expiration date list displayed.
- Nursing time for checking the cart was reduced by 30 minutes.
- Eliminating waste of expired supplies generated a savings of \$5,000 per year.
- The new process made the right equipment and supplies available to staff at all times, thereby decreasing the risk of harm to the patient.

LESSONS LEARNED

- Ways to eliminate waste can be found in everyday processes.
- Doing something because it is always done that way is a clue for improvement opportunities.
- Making a process simple and direct increases compliance, makes it easier to identify a problem, and reduces the risk of harm to the patient.

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SPECIALTY CARE — HOME CARE

Congestive Heart Failure Program

First to Care Home Care (joint venture of Metropolitan Jewish Health System and Maimonides Medical Center)

Brooklyn

PROJECT DESCRIPTION

A large, integrated, post-acute health system and a large metropolitan hospital observed an increase in patients suffering from congestive heart failure (CHF) and that these patients had more rehospitalizations than patients with any other disease. One of the health system's home care agencies, a joint venture between the hospital and the health system, received The Joint Commission certification in heart failure and an evidence-based heart failure program was created to provide assessments and interventions specific to the disease. The program aims to prevent rehospitalization by:

- controlling CHF symptoms;
- providing patients and family members with a clear understanding of heart failure, the potential impact on lifestyle, and health status of CHF; and
- providing education to members to enable patients and families to identify signs and symptoms of decompensation early.

The program's foundation is self-management. The heart failure program team consists of a registered nurse case manager, nurse team leader, physical and occupational therapists, medical social worker, telemedicine professionals, palliative care team, psychiatric and diabetes specialists, physicians, nurse practitioners, and health coaches. The heart failure team provides evidence-based care, emphasizes a strong patient-clinician relationship, and performs collaborative goal setting. The team focuses on educating patients so that they are informed, activated, and confident about how to manage their disease and ensure

that patients have the appropriate skills for disease management.

OUTCOMES

For program participants with heart failure as a primary diagnosis from 2009 to 2010, there was a:

- seven percent decrease in rehospitalizations (a three-percentage point decrease);
- thirty-five percent improvement in medication management (a 12-percentage point increase);
- ten percent increase in discharges to the community (a six-percentage point increase); this metric is evidence of the program's success in transitioning patients to self-management.

LESSONS LEARNED

- A specialized heart failure program has a positive impact on patients with heart failure as a primary and secondary diagnosis.
- It is important to educate patients and family members so that they understand heart failure and its impact and can identify signs and symptoms early and address them.
- Medication adherence, self-care, medical follow-up, and compliance with a doctor's instructions have a positive impact on clinical results.

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SPECIALTY CARE — LONG-TERM CARE

Creating TIME (The Intimate Meal Experience)

Mountainside Residential Care Center

Margaretville

PROJECT DESCRIPTION

At Mountainside Residential Care Center's resident council, residents requested an improved dining atmosphere because noise and frequent distractions caused heightened anxiety and agitation. Residents, family, and staff were actively involved in every step of the program design.

The Creating TIME program has three goals: to improve resident, family, and staff satisfaction; reduce challenging resident behaviors during meals; and improve overall oral intake. These goals are aimed at improving quality of life and minimizing adverse events for this elderly population. Since the program's inception in July 2010, there has been a 14% reduction in resident behavior incidents during meal time, which has enhanced the intimate meal experience resident satisfaction.

To improve food intake for challenging residents, the facility analyzed resident weight loss data using the nutrition at-risk list. Intake improvement is measured by reducing resident weight loss. Significant weight loss is described as a 5% weight loss in one month, a 7.5% weight loss in three months, and a 10% weight loss in six months. The facility saw positive resident quality-of-life benefits with the enhancement of the dining experience.

OUTCOMES

This initiative resulted in:

- a 14% reduction in resident behavior incidents during meal times;
- a 20% reduction in weight loss in one month (5% in a month is considered significant);
- a 17% reduction in weight loss in three months (7.5% in three months);
- a 26.5% reduction in weight loss in six months (10% in six months); and
- meal time satisfaction improved from 90.9% pre-program to 100% post-program.

LESSONS LEARNED

- Ongoing communication with all involved individuals before, during, and after implementation prevents frustration.
- A thorough logistical analysis is necessary to ensure the smooth transition of an initiative of this kind.

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Medication Optimization Rounding in Long-Term Care

Sea View Hospital Rehabilitation Center and Home

Staten Island

PROJECT DESCRIPTION

Medication, in addition to other treatment options, is an integral part of the care provided to long-term care residents. Sea View Hospital Rehabilitation Center and Home recently began a medication management optimization initiative to promote resident safety. Quality indicators are discussed during monthly meetings. Issues that generated significant discussion included the facility rate of nine or more medications and use of hypnotics. A specialized interdisciplinary team was formed to develop processes to be used in assessment, interventions, and evaluation of resident-specific medication management. The team convenes weekly to discuss residents who have triggered on the Minimum Data Set-based quality report. Each resident's medical history, current medical status, and medications are reviewed and evaluated, along with prescribed drug therapies, including effectiveness, dosage, and possible reduction with the goal of possible discontinuation.

The team may recommend non-pharmacological intervention in addition to or in lieu of medication. If various approaches are needed to modify or change the resident's treatment plan, the team may consult with other disciplines. The frontline caregivers are queried in regard to the status of the resident, and their suggestions are often incorporated in the resident's plan of care. These interdisciplinary rounds are another step toward fostering resident-specific care, producing extraordinary outcomes.

OUTCOMES

- The number of residents using nine or more medications is considerably less than national and state average.
- Anti-psychotic and hypnotic drug usage decreased.
- Falls and restraints decreased.
- There has been an increase in activities of daily living, and in the range of motion and mobility.
- The number of residents with pain, pressure ulcers, and tube feeding decreased.

LESSONS LEARNED

- Meeting weekly to share successes and struggles has strengthened the bonds between disciplines.
- Each team member has his or her own ideas on problem solving that can be used to identify effective interventions. A team approach is more effective than "I."
- Growing pains—with continuous support and recognition of successes, mindsets were changed and rounds are now a positive force.

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Distinguishing Symptomatic Urinary Tract Infection from Asymptomatic Bacteriuria in Long-Term Care Residents

Wilkinson Residential Health Care Facility

Amsterdam

PROJECT DESCRIPTION

Although urinary tract infection (UTI) is considered the most common infection among elderly nursing home residents, a significant proportion of these residents actually have asymptomatic bacteriuria. Nursing home residents with culture-proven bacteria in their urine but without specific symptoms from the UTI have asymptomatic bacteriuria and do not benefit from treatment with antibiotics. Distinguishing asymptomatic bacteriuria from true UTI is important since the presence of asymptomatic bacteriuria does not increase morbidity and mortality, but frequently results in unnecessary antibiotic prescriptions, which contribute to increasing drug resistance and may cause adverse drug reactions and drug-drug interactions. Unnecessary antimicrobial therapy also contributes to the risk of re-infection with resistant organisms, developing a *Clostridium difficile* infection, reduction in normal beneficial flora, and increased cost of care.

The Centers for Medicare and Medicaid Services-endorsed McGreer UTI criterion was used to develop this evidence-based protocol, directing nursing to complete a three-day, comprehensive assessment for residents presenting with one to two symptoms or change in condition. The multidisciplinary UTI/asymptomatic bacteriuria care plan cues the team to other potential causes of these symptoms that should be investigated. Upon completion, all collected data are reviewed and a determination is made on how to proceed.

The primary care physician is notified should the condition progress at any time during the three-day observation period.

OUTCOMES

- Within the first month of implementation, a more than 50% reduction in unsubstantiated UTI diagnoses was realized.
- Before the protocol was implemented, residents with UTI averaged 14.3 over the state and national average per 1,000 patient days; after the protocol, the number of residents with UTI averaged 0.1 below the state and national average.
- The frequency of specimen collection and testing was reduced.
- Antibiotic use declined.

LESSONS LEARNED

- When no symptoms clearly present from the urinary tract, other sources should be considered for the change in clinical status to avoid missed diagnosis and delay of appropriate treatment.
- The success of this program depends on the understanding and support from nursing leaders.

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SPECIALTY CARE — OBSTETRICS

KISS (Keep Infants Sleeping Safe)

Good Samaritan Hospital Medical Center
West Islip

PROJECT DESCRIPTION

An unprecedented cluster of infant falls from post-cesarean section mothers' arms sparked the maternal child nurses at Good Samaritan Hospital Medical Center to examine their infant safety strategies. These events represented a call to action related to co-sleeping, and a task force was created to plan an infant fall prevention program.

A rigorous search of the literature found virtually nothing published, as infant falls do not appear to be routinely tracked and reported. The task force compiled a list of hypothetical risks for infant falls, which included the preconceived notion that mothers were more apt to drop their infants during the immediate post-operative/delivery period and that narcotic administration would be a contributing factor. All five incidents happened between post-operative day 2 and 3, and there was no link to narcotic administration. What was discovered after a comprehensive review of the medical records was the highest risk for infant falls appeared to be the mother's body mass index (BMI) greater than 30.

The staff devised an easy way to identify that babies were in the mother's rooms, established a process to identify those mothers at greatest risk, and immediately initiated patient education. Modifying an existing "Falling Star" adult fall prevention strategy, the staff placed a colored star outside any room that housed a baby. The stars triggered more frequent staff rounding. Should a mother be found sleeping with

her baby in her bed, the star was changed to gold to identify this increased risk without stigmatizing the mom. All hospital staff are empowered to intervene if they see a mother sleeping with a baby. The staff celebrate these "saves" and the decrease in infant falls as measurements of success.

OUTCOMES

- There were no infant falls in 2010.
- There were 150 infant "saves" in 2010. A "save" occurs when a mother is observed holding an infant while sleeping or drowsy and is gently awakened by a staff member. Since holding an infant in this state increases the risk of the infant falling, providing this intervention can actually "save" the infant from falling.

LESSONS LEARNED

- Infant falls represent a grossly under-reported patient safety issue; it is imperative that all infants be considered at risk for falls.
- Culture change and comprehensive public education on the dangers of co-sleeping is necessary among staff and patients.
- Excellent communication is key to engaging everyone in the process.

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Reducing Adverse Outcomes on Labor and Delivery

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

Bronx

PROJECT DESCRIPTION

North Bronx Healthcare Network devised a process to analyze its departmental risk management data in a systematic and organized fashion to devise a consistent and safe way to administer the high alert medication, oxytocin; to reduce the incidence of shoulder dystocia, Erb's palsy, and severe Erb's palsy; and, most importantly, to improve perinatal outcomes.

Key activities in the approach included oxytocin bundle implementation and TeamSTEPPS® training.

OUTCOMES

- Deliveries complicated by shoulder dystocia were reduced from 4% in 2008 to 1.4% in 2010.
- The number of severe Erb's palsy was reduced from 0.4% in 2008 to 0.08% in 2010.
- Adverse patient occurrences (APOs) decreased from 80 per month in January 2009 to about 35 per month in July 2010. Examples of APOs are hemorrhages, hematomas, third and fourth degree lacerations, Erb's palsy, etc.

LESSONS LEARNED

- Multiple problems existed; therefore more than one solution was needed.
- A team approach improved staff communication.

- North Bronx Healthcare Network was able to change its culture from: "We cannot prevent adverse outcomes from occurring," to "We must do everything possible to effect a safe delivery for mother and baby."

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Perinatal Mood Disorders: Implementation of a Hospital-Based Screening Program

Winthrop-University Hospital

Mineola

PROJECT DESCRIPTION

Approximately 800,000 to one million new mothers and their families are affected by postpartum depression annually. Most do not have a previous history of emotional or psychiatric illness. The challenge in the acute care setting during postpartum hospitalization is to initiate a “realistic” screening process to identify women at risk for perinatal mood disorders and support services that can be offered. The following strategies were developed:

- Patient-specific standards of care and a postpartum screening assessment were developed.
- Patients identified upon admission with a personal or family history of psychiatric illness are referred directly to the home care department by the primary nurse through an automated referral system.
- A bright yellow “At Risk for Postpartum Mood Disorder” sticker is placed in the medical record to alert the pediatrician and other health care providers.
- A home care nurse assesses the patient in the hospital and discusses the follow-up program.
- The assessment triggers contact with the physician to obtain an order for a home care visit. The initial registered visit occurs within 24 hours, followed by the social worker two to three days later.
- A telephone psychosocial assessment is made by the home care social worker four to five weeks postpartum.
- Education regarding postpartum mood disorders is provided to all patients in conjunction with discharge materials and community resource telephone numbers.

OUTCOMES

- From March through December 2008, there were 3,782 deliveries, 372 home care referrals, 147 telephone follow-up calls, and 54 home visits; in 2009, there were 4,487 deliveries, 564 referrals, 377 telephone follow-up calls, and 80 home visits; in 2010, there were 4,541 deliveries, 645 referrals, 490 telephone calls, and 48 home visits.
- This initiative increased patient/family and staff education and awareness, improved bonding with babies, and improved communication with community physicians for post-hospital follow-up.

LESSONS LEARNED

- Screening with three simple questions is realistic and has identified many women at risk who may not have otherwise been identified.
- Alerting the pediatrician regarding the mother’s risk factors is essential and provides an additional safety net in the community.

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SPECIALTY CARE — OUTPATIENT PROGRAMS

Use of Evidence-Based Practice in a Rural Community for Diabetes Care

Claxton-Hepburn Medical Center

Ogdensburg

PROJECT DESCRIPTION

Evidence-based practice is an essential requirement of professional health care providers. Rural health care organizations must maintain financial viability and regulatory compliance; it is imperative that they not only identify and meet the needs of the communities they serve, but evaluate efficacy of those actions as well. Diabetes prevalence was identified as a “priority health focus” in the rural area served by Claxton-Hepburn Medical Center. Reimbursement for diabetes self-management education (DSME) has decreased by 22%, yet costs of providing this service have increased 26%.

Claxton-Hepburn Medical Center developed and initiated a comprehensive program to meet the identified needs of its rural community in regard to diabetes management based upon multiple strategies.

Diabetes care is a primary focus area of *Healthy People 2010*, launched in 2000 by the U.S. Department of Health and Human Services. Expanded to *Healthy People 2010-2020*, this focus will continue. The cost to treat a Medicare beneficiary who has participated in DSME is 14% lower than that of a beneficiary who did not participate. Health care costs for a person with diabetes are five times greater than those without diabetes. Hospitalization rates of patients who have at least one teaching session are up to 34% lower than those who do not.

OUTCOMES

- The program has earned American Diabetes Association (ADA) recognition since 2000 and remains the only ADA-recognized program within a 100-mile radius.
- This program demonstrated reduction in HgbA1C measurements pre- and post-DSME program.
- There has been a measured and appreciable patient-reported increase in “achievement of meal planning goals.”

LESSONS LEARNED

- Health care organizations must apply evidence-based practice to clinical practice as well as address the needs of their communities.
- Health care viability is contingent on the successful balance of economic, practice, and regulatory compliance.
- “*Just because you can’t count it, doesn’t mean it doesn’t count.*”—Ben Cohen and Jerry Greenfield, Founders and Creators of Ben and Jerry’s.

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Improving the Primary Care Centers' Medication Sample Program

Delaware Valley Hospital/United Health Services

Walton

PROJECT DESCRIPTION

As the new operations manager of Delaware Valley Hospital's primary care centers began her assessment of current processes, she identified the following problems in the medication sampling program:

- compliance with current processes was poor;
- there was no consistency in accepting samples;
- signing samples in and out was done randomly;
- sample cabinets were haphazardly kept;
- expired samples remained in the cabinet;
- providers removed samples from stock and dispensed to patients without signing them out; and
- there was no labeling of samples prior to distribution.

At the onset of this quality performance initiative, baseline data showed 54% of samples were correctly signed in and only 2% of samples were correctly signed out. The vice president and operations manager of the primary care centers worked with the quality management department to develop a new process that included redesign of the process, form revision to simplify and provide easy use, and reorganizing the sample cabinet by medication class and expiration dates. The entire staff was educated, and re-education was provided as needed. This new process is included in the new staff orientation. Mandatory monthly inventory reconciliation was implemented to monitor effectiveness.

OUTCOMES

- By October 2009, both off-campus sites showed four consecutive months of meeting 100% compliance.
- In 2010, 82% of samples were correctly signed in and correctly signed out.
- The year-end compliance rate for December 2010 was 88%.

LESSONS LEARNED

- Ongoing reinforcement and education is imperative to obtain and maintain compliance.
- Involving a multidisciplinary team encourages participation and improves compliance.
- Tools and processes must be continually evaluated, revised, and monitored to ensure adherence.

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Targeted Approach Using the Chronic Care Model Improves Glycemic Control Among Registry Patients

North Central Bronx Hospital/New York City Health and Hospitals Corporation

Bronx

PROJECT DESCRIPTION

In 2009, North Central Bronx Hospital analyzed data from its diabetes registry to identify opportunities for improving glycemic control. Of the 2,000 patients, only 22% had achieved glycemic control of glycated hemoglobin (A1c) of less than 7%. The hospital also found 25% had A1c between 7% and 7.9%, and another 10% achieved the A1c goal but had not been tested within 180 days. In a random chart review of 100 patients with A1c between 7% and 7.9%, 10% were not prescribed any medications and 40% were on monotherapy. These groups, comprising about 35% of the registry patients, were the focus of multifactorial interventions using the chronic care model.

Comprehensive strategies included expanding the role of the patient care associate (PCA); improved access to care; focused visits; pharmacist-run medication adherence and insulin titration sessions; provider clinical decision support through protocols, guidelines, and rapid A1c testing; patient self-management training; community referrals; and aggressive outreach.

Improvement in glycemic control is a slow and continuous process. The hospital's performance scores did not begin to improve until the last six months of monitoring. The baseline data (June 2009) compared with the most current data (Jan 2011) showed remarkable improvement in the percent of patients with A1c of less than 7% tested in the past 180 days.

OUTCOMES

- The percentage of patients with an A1c level less than 7% increased from 22% in June 2009 to 40% in January 2011.
- The percentage of patients with an A1c level greater than 9% decreased from 27% in June 2009 to 17% in January 2011.

LESSONS LEARNED

- Multidisciplinary and multi-interventional approaches are effective in improving glycemic control.
- Providers' buy-in, a key element in effecting change, occurred because of improved perception regarding the integrity of the registry, a spirit of competition, and by providing a variety of support/resources to implement clinical guidelines.

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Patient-Centered Medical Home: An Initiative to Improve Care Coordination and Access to Health Care

The Brooklyn Hospital Center

Brooklyn

PROJECT DESCRIPTION

The Brooklyn Hospital Center Family Medicine Department made a commitment to improve the quality of health care services provided to patients by implementing patient-centered medical home principles. The goals of the project were to improve:

- patient access to health care services and providers;
- care coordination for the patient; and
- health care outcomes by implementing evidence-based guidelines.

A Plan, Do, Check, Act strategy was used to meet National Committee for Quality Assurance (NCQA) standards. The first step was to conduct a self-assessment to identify gaps in the current system. After identifying the gaps, a multidisciplinary team was established to address the issues identified.

- Policies were developed and executed to set clear expectations regarding access, communication, and care coordination.
- A patient satisfaction survey was designed and conducted.
- Manpower allocations were changed to improve follow-up and coordination of diagnostic tests and referrals. Logs and processes were set up to monitor and track care coordination elements.
- Nationally recognized evidence-based care guidelines, best practice bundles, and measures of success were used to create flow sheets and reminder tools for the physicians to improve management of clinically important chronic conditions.

OUTCOMES

- Patient satisfaction improved (survey scores increased from 2.93 to 3.38 on a scale of 1 to 4).
- Care coordination tracking of radiology and critical referrals improved from 10% to 100%.
- Chronic disease care management improved, as evidenced by improvement in medical record review results (based on NCQA standards).
- The facility achieved NCQA Level 3 Patient-Centered Medical Home recognition for two ambulatory centers and is awaiting results for two off-site ambulatory practice sites.

LESSONS LEARNED

- Creating a culture of safety, quality, and service excellence requires staff education, awareness, and involvement in the process of change.
- A multidisciplinary approach is essential for the development of a comprehensive health care program and its success.
- Simple tracking tools, documentation tools, and checklists can be very effective in improving care management.

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*Pediatric Protocol—Safety First***Alice Hyde Medical Center**

Malone

PROJECT DESCRIPTION

Alice Hyde Medical Center's new program is designed to ensure safe medication administration in the inpatient, outpatient, emergency, and surgical settings. The fine line between therapeutic and toxic pediatric doses presents potential risk. The hospital uses an evidence-based protocol based on scaled weights and dosing verification by pharmacy and nursing. Two licensed staff are required to check and co-sign all pediatric medications. The Broselow packs now house plastic boxes containing pediatric-specific emergency medications, and staff use laminated, colored sheets that correlate information for medications and supplies with the corresponding weight categories (colors) of the Broselow system. Upon admission, the appropriate card is posted in the child's room or on the surgical chart.

In collaboration with its pharmacy department, a computer program was developed for all pediatric emergency drugs—dosages automatically change when the child's weight is entered—this too is posted in the room or on the chart. Alice Hyde Medical Center also uses burettes for all intravenous solutions that will hang for two or more hours. To limit errors, the pharmacy department stocks more pediatric medications versus using smaller amounts of adult dosed medications. Oral syringes are now the device of choice for administering liquid medications to children.

OUTCOMES

- Response time has improved in pediatric emergencies.
- Pediatric emergency supplies and medications are bundled.
- A triple-check is conducted for all pediatric ordered doses.
- The initiative has relieved stress for nursing staff and provided ongoing reassurance for parents and guardians.

LESSONS LEARNED

- Easing staff stress is an important patient safety consideration.
- With well trained staff, response time decreases for pediatric emergencies and for selection of medication doses and supplies.
- A multidisciplinary project produces holistic results that truly embrace patient safety.

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Simulation at its Hottest: Development of a Fire Safety Training Program in a Pediatric Post-Acute Care Setting

St. Mary's Hospital for Children

Bayside

PROJECT DESCRIPTION

In March 2009, after assessing staff's knowledge about fire prevention and safety, St. Mary's Hospital for Children held workshops with the staff to review policies and procedures for fire safety and evacuation. The staff received hands-on opportunities to respond to fire-related case studies and practice with fire extinguishers. Frequent fire drills revealed staff varied in their response to fire alarms and evacuation procedures even after knowledge on fire prevention and safety was validated. In 2010, the hospital established a committee to focus on setting up high fidelity fire simulations for staff response. The initial pilot scenarios confirmed staff needed coaching and reinforcement during response to alarms. Additionally, the scenarios reinforced that the leadership role and teamwork behaviors on the individual patient units required practice to ensure a proper and timely response. Debriefings of the scenarios engaged the staff and led to their development of detailed plans and checklists to improve the units' response. The effectiveness of the fire simulations was measured and remediation has included one-on-one coaching and repeat, alternative simulation scenarios.

OUTCOMES

- Staff developed unit-based fire safety plans that enhance the facility's overall fire safety plan.
- Fire response times improved from eight minutes to 1.5 minutes.

- Significant improvement was achieved in a consistent response to fire simulations and drills.
- There is improved leadership and teamwork during fire simulations.

LESSONS LEARNED

- Conducting fire drills alone did not provide staff with the appropriate tools to respond to a fire emergency.
- Using simulations created an environment for staff to practice skills they learned.
- Teamwork in developing individual unit-based safety plans helped improve compliance with the facility's safety plan.

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Under Pressure to Reduce Pressure

Burke Rehabilitation Hospital

White Plains

PROJECT DESCRIPTION

Over the past eight years, an interdisciplinary team at Burke Rehabilitation Hospital prioritized efforts to decrease the occurrence of pressure ulcers. This has been a significant undertaking, considering the institution's population of older adults, debility, spinal cord injury, and other comorbidities. The initiative had several phases, beginning with:

- upgrading beds to include pressure relief mattresses;
- using digital photography to enhance computerized documentation and interdisciplinary communication;
- implementing the National Pressure Ulcer Advisory Panel (NPUAP) guidelines, and modifying documentation to include the NPUAP guidelines;
- house-wide interdisciplinary education;
- weekly wound/pressure ulcer rounds;
- skin reassessment completed on day two of admission;
- more frequent skin care and skin assessments using tools such as flashlights and mirrors for heels, for better visualization of skin breakdown and accurate staging;
- using protective shoes and boots when necessary;
- careful evaluation and selection of wound care products; and
- benchmarking with the National Database of Nursing Quality Indicators and the Exchanged Quality Data for Rehabilitation database.

OUTCOMES

This initiative:

- improved patient outcomes;

- decrease in acquired/worsened pressure ulcers;
- increase in healed/improved pressure ulcers;
- improved patient/family participation through education;
- improved assessment of all pressure ulcers;
- better understanding of variables involved in treating pressure ulcers (laboratory, nutrition, position changes, pressure relief);
- improved registered nurse dialogue through weekly pressure ulcer rounds and shift reports; and
- better utilization of nursing care hours based on a decrease in the need for frequent dressing changes.

LESSONS LEARNED

- Staging can be subjective; however, a picture is worth a thousand words.
- Pressure ulcer information presented consistently and in multiple arenas improved nurse knowledge and practice.
- Holding staff accountable for accurate documentation and active participation with pressure ulcer rounds increased nurse investment in the initiative and improved patient outcomes.

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