

Pinnacle Award for Quality and Patient Safety

Profiles in Quality and Patient Safety





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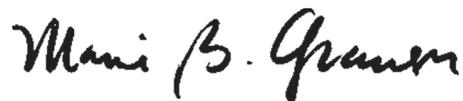


We are pleased to share this annual compendium of the nominations for HANYS' Pinnacle Award for Quality and Patient Safety, which recognizes organizations that are leaders in promoting improvements in healthcare delivery in New York State.

HANYS is pleased to highlight 114 nominees from across the state that are taking bold steps to improve patient care and outcomes. During this time of rapid change and uncertainty, their passion for innovation and ongoing improvement is critical to advancing the health of individuals and communities.

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

Sincerely,



Bea Grause, RN, JD
President



2018 Winners

Post-Acute/ Outpatient Provider



Bassett Healthcare Network

Using Project ECHO to Spread Primary Care-based Buprenorphine Management for Opioid Addiction: Life-Saving System Transformation

Dr. James Anderson, Medical Director for Behavioral Health and Integrated Services, accepted the Pinnacle Award on behalf of Bassett Healthcare Network; pictured here with Nick Henley, HANYS' Vice President of

External Affairs (left); and Dr. Robert Panzer, HANYS' Quality Steering Committee Chairman and Associate Vice President for Patient Care Quality and Safety and Chief Quality Officer, Strong Memorial Hospital (right).

Hospital with Less than 200 Beds



St. Joseph Hospital

The Cultural, Clinical and Operational Benefits of Establishing a Robust Safe Patient Handling Program

Christopher Cells, RN-BC, CPHQ, MSN, Director of Nursing Informatics and Performance Improvement (second from left), and Robert Ehlers, Director of Physical Therapy (second from right), accepted the Pinnacle Award on behalf of St. Joseph Hospital, Bethpage; pictured here with

Nick Henley, HANYS' Vice President of External Relations (left); and Dr. Robert Panzer, HANYS' Quality Steering Committee Chairman and Associate Vice President for Patient Care Quality and Safety and Chief Quality Officer, Strong Memorial Hospital (right).

**Hospital with
200–500 Beds**



Good Samaritan Hospital Medical Center
**Reducing Hospital Contaminated Blood Culture Rate through Organizational
Transparency and Surveillance of Individualized Collector Rates**

Thomas Ockers, Executive Vice President and Chief Administrative Officer (center), accepted the Pinnacle Award on behalf of Good Samaritan Hospital Medical Center; pictured here with Nick Henley, HANYS' Vice President of External Affairs

(left); and Dr. Robert Panzer, HANYS' Quality Steering Committee Chairman and Associate Vice President for Patient Care Quality and Safety and Chief Quality Officer, Strong Memorial Hospital (right).

**System or Hospital
with 500+ Beds**



Northwell Health System
The Path of Least Resistance: An Organization-wide Approach to Antimicrobial Stewardship

Mark Solazzo, Executive Vice President and Chief Operating Officer (center), accepted the Pinnacle Award on behalf of Northwell Health; pictured here with Nick Henley, HANYS' Vice President of External Affairs

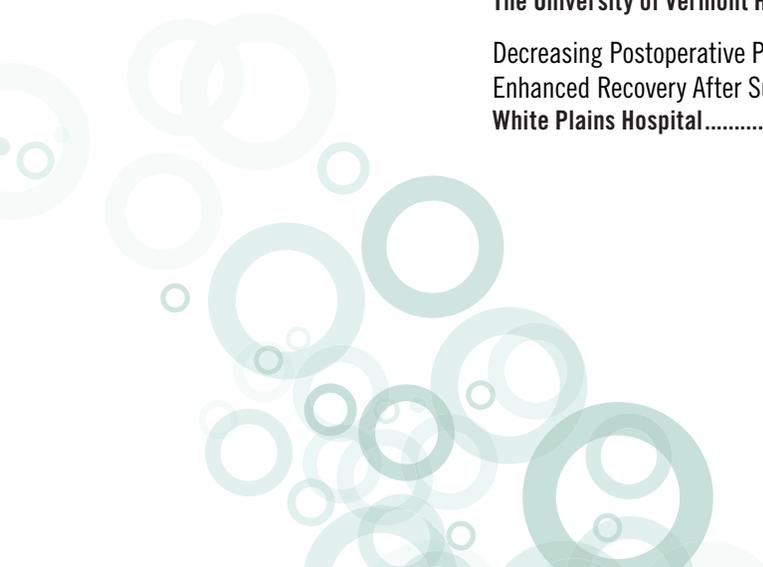
(left), and Dr. Robert Panzer, HANYS' Quality Steering Committee Chairman and Associate Vice President for Patient Care Quality and Safety and Chief Quality Officer, Strong Memorial Hospital (right).

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Chapter 1

Clinical Improvements

Destination Zero Harm: Reducing Overall Quality Composite Score by 50% through High Reliability Techniques

Arnot Ogden Medical Center, Elmira

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The focus of Arnot Ogden Medical Center's high-reliability journey was on improving its quality composite score, which is comprised of five measures: central line-associated blood stream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), falls with injuries (moderate and major), hospital-acquired pressure injuries (HAPIs), *Clostridium difficile* and hand hygiene.

Arnot Ogden Medical Center began by initiating several committees, implementing best practice bundles and including key members to drive change. The committees included engaged physician champions, frontline staff and stakeholders with the ability to achieve change. The role of these groups was to research best practice and evidence-based bundles. Baseline data were collected and compared with national benchmarks. Collaboratively, new work flows and best practice initiatives were implemented to improve patient outcomes and improve safety.

Outcomes Achieved

- Best practice bundles can be challenging to implement across the continuum of care.
- Improved communication and documentation is key in process improvement.
- Breaking down silos and hardwiring standard processes across all clinical areas is challenging. Every department is crucial in process improvement and change, from leadership to frontline staff.

Outcomes Achieved Over Two Years

- Overall quality composite score decreased 50%;
- CLABSIs decreased 45%;
- CAUTIs decreased 60%;
- Falls with injuries (moderate and major) decreased 50%;
- HAPIs (stages III and IV) decreased 50%;
- Hand hygiene compliance increased from 37% to 72%; and
- *Clostridium difficile* rates decreased 24%.

Lessons Learned

- A variety of educational programs with individualized approaches are needed to address existing barriers and ensure the validity of data.

Developing a Culture of Antibiotic Stewardship in Post-acute Care

Coler-Goldwater Specialty Hospital, NYC Health + Hospitals

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Over the past 15 months, Coler-Goldwater Specialty Hospital has focused on enhancing its antimicrobial stewardship program (ASP) to promote the appropriate use of antimicrobials and to improve resident outcomes while minimizing toxicity and antimicrobial resistance. With leadership support, Coler established ASP as an organizational priority in its infection prevention and performance improvement plans. An ASP committee comprised of epidemiology, infection prevention and control, health information technology, medicine, nursing, pharmacy and quality management was charged with developing a program that included the core elements of leadership commitment, accountability, drug expertise, action, tracking, reporting and education.

To that end, Coler implemented a planned, ongoing, systematic and data-driven approach to ASP. Physician, nursing and pharmacy leads for promoting and overseeing antibiotic stewardship activities were identified. Access to pharmacists with training in antibiotic stewardship was secured. An organization-approved antibiotic stewardship protocol was created to improve antibiotic use. Data on the ASP is collected and analyzed and the results routinely shared with relevant stakeholders, senior leaders and the governing body. Actions on identified opportunities for improvement are developed, implemented and monitored for their effectiveness.

Outcomes Achieved

- Coler achieved 100% prescriber compliance with complete documentation for an antibiotic order, and 100% prescriber compliance assigning an infectious condition for a diagnosis for an antibiotic order.
- Fluoroquinolones usage for empiric urinary tract infection (UTI) treatment was reduced by 50%.
- Coler achieved a 60% prescriber compliance rate for facility-specific empiric UTI treatment.
- Eighty-seven percent of UTIs were treated with an effective antibiotic.
- The quarterly total antibiotic expense has been reduced.

Lessons Learned

- Influencing attitudes and behaviors of medical providers is a data-driven process.
- The success of an ASP requires executive leadership support, interdepartmental cooperation and investment of resources.
- Ongoing staff and resident/family education is critical to ensuring compliance with the antibiotic stewardship protocol.

Improving Care for Sepsis Patients: Teamwork and Process Redesign with Enhanced New York State Sepsis Measure Compliance

Brookhaven Memorial Hospital Medical Center, Patchogue

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To assure rapid identification of patients at risk for sepsis and provide timely evidence-based interventions, Brookhaven Memorial Hospital Medical Center conducted the following activities:

- determined baseline sepsis mortality rates, individual patient record reviews for current identification of patients with sepsis, and current resuscitative treatment;
- developed screening materials for sepsis for all patients at the time of triage in the emergency department (ED);
- created ED order sets for sepsis that included all of the required elements;
- developed a response team “Code” (sepsis management alert response team);
- assured additional clinical equipment, including vein finders;
- provided additional education for nurse educators, new ED staff nurses and registered respiratory therapist team members;
- held monthly sepsis meetings to identify barriers and issues; and
- conducted ongoing data collection with concurrent monitoring for sepsis outcome and process improvement.

Outcomes Achieved

- Mortality rates for patients with a primary diagnosis of sepsis/septic shock declined from 33.2% in 2015 to 23.4% (2016 through first quarter 2017), a 29.6% reduction.
- Length of stay declined from 11.59 days to 9.16 days, a reduction of 21%.

Lessons Learned

- Screening for systemic inflammatory response syndrome (SIRS) and sepsis at the point of ED triage allows for an early index of suspicion.
- Based on ED triage screening results, vital sign measurement frequency was increased with specific sepsis teams responding to the bedside.
- Utilization of evidence-based ED order sets allows for immediate appropriate diagnostics and significant compliance with resuscitation bundles.

Orthopedic Nurse Navigator Program Canton-Potsdam Hospital, Potsdam

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With the commitment and support of all key stakeholders, including providers, practice management, nursing, support staff, hospital administration, home care agencies and skilled nursing facilities, Canton-Potsdam Hospital developed its Orthopedic Nurse Navigator Program in January 2017.

Canton-Potsdam appreciates that when a patient and his or her family have made the decision to have a total joint replacement, it can be quite a worrisome experience. They have entrusted the hospital with their care and the care team owes it to them to provide resources that will help to relieve their anxieties, anticipate their questions and needs in advance, optimize outcomes and help them navigate the complexities of the healthcare system. The nurse navigator serves as the sole individual who coordinates all aspects of the surgical process: pre-operative, inpatient and post-discharge. This approach ensures seamless transitions of care and enhances the overall quality of care and patient-family experience.

The nurse navigator program has served as a model that will easily translate to other service lines in 2018.

Outcomes Achieved

- The surgical site infection rate decreased from 1.7 per 1,000 patient days in 2016 to 0.5 in 2017.
- Readmission rates (<31 days) decreased from 8.3% in the first quarter of 2017 to 0% for the remaining three quarters of the year.
- No-show rates in the orthopedic practice decreased from 5.4% in 2016 to 2.5% in 2017.

Lessons Learned

- Active involvement of patients and their families, as well as the support of all key stakeholders, is imperative to the success of the program.
- The nurse navigator must be able to tailor the program to meet the unique needs of the patient. This personalized attention helps to build trusting relationships, which reduce anxiety, increase compliance, improve outcomes and optimize the overall patient experience.
- Implementing the process in one practice provides the opportunity to identify and address opportunities for improvement on a smaller scale. The Plan-Do-Study-Act model of performance improvement needs to continue until the process is well defined, standardized and hardwired.

Emergency Medicine System Approach to Combat Opioid Epidemic

Catholic Health Services of Long Island, Rockville Centre

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The emergency medicine service line at Catholic Health Services (CHS) implemented a program to attack the opioid epidemic at multiple levels. The initiative used an interdisciplinary, collaborative approach involving system, emergency medicine service line, nursing and other ancillary service leadership. Multiple sessions were held to develop targeted initiatives including:

- system-wide emergency medicine opioid prescribing guidelines;
- a Narcan distribution program in collaboration with Suffolk County;
- increasing the availability of emergency department social work/addiction resources;
- requirement to complete continuing medical education on pain management and use of New York State's Internet System for Tracking Over-Prescribing (I-STOP) prescription monitoring program; and
- provider-specific prescribing reports to supply targeted feedback.

Outcomes Achieved

- All six emergency departments (EDs) in the system saw a decline in the rate of controlled substance prescriptions for treat-and-release patients.
- The overall rate of controlled substance prescriptions for treat-and-release patients for the system was reduced from greater than 8% to under 5%.
- A Narcan distribution program was launched with support from Suffolk County to aid at-risk individuals presenting to the ED.
- Social work coverage and resources increased, including the Screening, Brief Intervention and Referral to Treatment (SBIRT) program, to offer more patients appropriate treatment and follow-up resources.
- All providers completed state-mandated continuing medical education on pain management.
- Provider-specific prescribing reports supply targeted feedback to providers who are potential outliers in relation to prescribing practices.

Lessons Learned

- The opioid epidemic is a widespread issue that requires a multifaceted, collaborative system-wide approach.
- Educating both the providers and patients across multiple points of contact and initiatives improves the chance of success when targeting this complex problem.
- Developing provider-specific, data-driven reports requires tremendous effort, review and resources.

Collaboration in Action: Cultivating Superior Blood Culture Rates Cortland Regional Medical Center

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Cortland Regional Medical Center launched an initiative to reduce its blood culture contamination rate. The laboratory medical director and microbiology supervisor are responsible for this improvement initiative and for ongoing departmental partnership and compliance. The lab remains primarily responsible for all blood culture draws between 7 a.m. and 9 p.m., with support from the nursing team, as needed. Contamination rates are reviewed and reported monthly by individual and by department. Results are sent to the appropriate department manager, the medical director of the laboratory and the infection control committee. If an individual is identified as having a contaminated specimen for two months in a row or a pattern of contamination is identified within a month, he or she must repeat the training and validation process.

Outcomes Achieved

- To date, 80 staff members have been trained.
- The average contamination rate for blood cultures from May to December 2016 was reduced from 2.8% to 1.5%.
- The average contamination rate for blood cultures for all of 2016 was 1.9%.
- The average contamination rate for blood cultures for 2017 was further reduced to 1.1%.

Lessons Learned

- Partnership and collaboration between departments has ensured the success of this project; the team has been able to maintain improvement by working together intentionally toward this common goal.
- Hardwiring the process for drawing blood cultures and for real-time monitoring and intervention has kept contamination rates low.
- Even with limited resources, nursing staff are able to successfully replicate blood culture contamination results similar to a phlebotomy team—when the phlebotomy team properly trains and validates the nursing staff's technique.

Improving Quality, Outcomes and Inter-professional Collaboration Using a Surveillance Warning Tool

The University of Vermont Health Network–Champlain Valley
Physicians Hospital, Plattsburgh

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Champlain Valley Physicians Hospital launched a three-month project that integrated a surveillance warning tool application on medical surgical, progressive care, and short stay units. A surveillance warning tool is an application that uses established data sets from nursing assessments, labs and vital signs. The tool's evidence-based scoring system produces a Rothman Index Score to predict impending failure. The Rothman Index Score is then trended on a graph that can depict deterioration. The graph displays within the patient's electronic medical record, in-room computers and kiosk monitors. The kiosks monitors were strategically placed within nursing stations in order for the graphs to serve as visual alerts for clinicians.

Research has shown that patients exhibit physiological changes eight to twelve hours prior to a life-threatening event. If recognized earlier, timely interventions could be initiated and current barriers (responding, interpreting and recognizing) could be addressed. Intellectual competence, expertise and scientific inquiry are not replaced. This is a tool that provides additional analytical considerations to prevent a "failure to rescue." The fundamental goal was to reduce the time between initial physiological signs of deterioration to reduce incidence of cardio-respiratory failure.

Outcomes Achieved

- In 2017, rapid response calls declined by an average of 6.5 calls per quarter, compared to 2016. They declined by 78 calls, or 24%, from 2016 to 2017.
- In 2017, cardio-respiratory failure declined by an average of five calls per quarter compared to 2016. They were reduced by 61 cardio-respiratory failures, or 84%, from 2016 to 2017.
- The hospital developed a sustainability practice model that provided structure and management.
- Inter-professional forums were created for "knowledge building" and case study review.
- Clinical documentation was streamlined and improved.

Lessons Learned

- Improved patient outcomes are achieved when clinical barriers are addressed, timely and accurate documentation occurs and effective interventions are acted upon.
- Organizational adoption of a sustainability practice model provides structure and proactively addresses change in people, process and technology.
- Real-time surveillance warning tools support real-time decision support at the bedside, organizational efficiencies, quality improvement, evidence-based practice and research.

Creation of a Mindful Culture Change in Geropsychiatric Fall Reduction Erie County Medical Center, Buffalo

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Erie County Medical Center's falls reduction improvement program was created as a new approach to lower geropsychiatric fall rates. A multidisciplinary team was created to identify patients at high risk for falls and to be proactive in fall prevention. A geriatric medical team was dedicated to the unit that works closely with the psychiatrist, nursing staff and the rest of the multidisciplinary team. Occupational therapy became involved by having scheduled conditioning groups on the unit. Physical therapy has proactively become involved with fall reduction. A "Fall Patrol" program has been implemented. A direct-care staff member is assigned to three patients who are identified as the highest risk for falls each shift. This staff member acts as the eyes and ears in the milieu for fall prevention.

Assignment to Fall Patrol is rotated among staff members with the goal of creating a culture of mindfulness and a sense of urgency related to fall prevention even when not on Fall Patrol. A fall huddle is conducted at each shift handoff to review patients at risk for falls and to identify the three patients for the Fall Patrol.

Using a proactive multidisciplinary approach and through implementation of the Fall Patrol, a unit culture was established where there is a mindful approach to fall prevention. Even when staff are not on Fall Patrol, they have a heightened awareness of patients at risk for falls. This culture change resulted in reduced falls, which ultimately led to increased patient safety and customer satisfaction.

Outcomes Achieved

- Patient falls were reduced by 56% over a two-year period.
- A sustained culture of mindfulness and a sense of urgency in addressing fall prevention among multidisciplinary team members has been created.

Lessons Learned

- The inclusion of all direct care staff in the fall reduction improvement program contributed to the culture change in which staff became mindful of their role in fall prevention.
- The use of a multidisciplinary approach for early identification of geropsychiatric patients at risk for falls helped facilitate the proactive management of overall patient care.
- The traditional fall risk prevention techniques used, while effective, needed to be supplemented with a change in culture to facilitate the dramatic reduction in falls experienced between 2016 and 2017.

Reducing Hospital Contaminated Blood Culture Rate through Organizational Transparency and Surveillance of Individualized Collector Rates

Good Samaritan Hospital Medical Center, West Islip

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Good Samaritan Hospital Medical Center improved staff adherence to evidence-based protocols for blood culture collection by embracing internal transparency practices and developing an un-blinded individual collector blood culture contamination rate report. The report helps identify those with high contamination rates and helps target education efforts appropriately and efficiently.

Outcomes Achieved

- The facility-wide blood culture contamination rate fell 68% and was below the national benchmark over a two-year period.
- Emergency department collectors achieved a 71% contamination rate reduction.
- The inpatient collector contamination rate was already quite low; these areas achieved a 25% rate reduction.
- The hospital avoided an estimated \$2.14 million in costs associated with contaminated blood cultures over two years, post-intervention.

Lessons Learned

- Evidence based-blood culture collection protocol adherence and ongoing competency assessment are crucial components to minimize blood culture contamination rates.
- Ongoing reporting of unblinded individual collector blood culture contamination rate performance engaged individuals in their performance improvement.
- Setting a stringent standard for individual collectors rather than facility-wide blood culture contamination rates was very effective in reducing facility-wide rates well below the national benchmark.

Saving Lives—A Collaborative, Data-driven Initiative to Reduce Sepsis Mortality Across a Health System

Health Quest, LaGrangeville

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The Health Quest system created multidisciplinary sepsis committees at each hospital, reporting up to the system. The committees included representation from the medical staff, nursing, pharmacy, laboratory, quality, information technology, infection prevention, patient care technicians, and housekeeping with the goal of involving all areas of the hospital in the improvement effort.

The committees began by reviewing common areas of weakness with the sepsis protocol, including timely nursing assessment, early identification barriers, caregiver education needs, electronic medical record (EMR) challenges, and alarm fatigue. They revised the protocol to incorporate the latest evidence-based guidelines and embedded the protocol into the EMR for ease of use. From committee recommendations, the system established annual sepsis education modules for all caregivers, instituted a rapid response code for sepsis patients, and provided education to care partners and community organizations on early recognition of sepsis.

Once the systems were in place to support the improvement initiative, the committee began diving into the data to identify additional opportunities. The data revealed two trends: patients treated for other disease states who develop sepsis as a complication of their treatment, and patients admitted for sepsis who developed complications as a result of their treatment for sepsis. The committees focused efforts to identify patients most at-risk based upon an extensive data review. The committees customized the existing sepsis protocol to address opportunities they found in their reviews. These opportunities were standardized across the system and regular reviews were instituted to review and revise the protocol as needed.

Outcomes Achieved

- The sepsis mortality rate decreased from 20.7% in 2013 to 7.8% in 2017.
- The sepsis mortality ratio decreased 54% from 2013 to 2017.
- A total of 100 lives were saved in 2017 (based on patients' observed versus expected mortality ratio).
- Health Quest outperformed the New York State average by 25% for three-hour sepsis bundle adherence, and outperformed the state average by 70% for composite sepsis bundle adherence.

Lessons Learned

- Form multidisciplinary sepsis committees with representation from all areas of the hospital.
- Expand sepsis analysis to look at preventable complications that lead to sepsis and complications that result from sepsis.
- Conduct concurrent chart reviews for sepsis patients and provide timely feedback to the care team.

Safe Patient Handling: A Move with Care Program Kenmore Mercy Hospital

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Kenmore Mercy Hospital held an initial meeting for project mapping involving key inter-professional stakeholders to develop a plan that would improve how patients are moved in all areas of the hospital.

Each department identified “Master Movers” who received in-depth, hands-on training from clinical consultants to act as an immediate resource to their peers. This included eight hours of education and training, as well as two additional sessions for further hands-on training to ensure the Master Movers were well attuned with the new equipment. The clinical consultants observed the Master Movers teach the proper use of equipment in a hands-on classroom setting to ensure everyone received the correct information on equipment use. This designated team of associates serve as a clinical resource for the patient-handling equipment and perform competency checklists with their peers.

Each associate performing patient handling attended an introductory two-hour, hands-on educational session with the new equipment. The training class included a video of the chief nursing officer voicing the hospital’s commitment to associate and patient safety, which helped generate excitement around the “Move with Care” program. The clinical consultants were onsite for the program initiation to offer support to the staff and to assure the proper use of the new equipment.

Additional education with the vendor is offered; a clinical consultant comes to round with staff to address any questions or concerns. In addition, a monthly class is held to instruct current or new associates. The consultants also act as a resource for unit-specific concerns and further hands-on demonstrations.

Outcomes Achieved

- In addition to safer patient handling, there has been a decrease in associate injuries since project implementation.
- There has been a decrease in lost work days since the initiation of the project.

Lessons Learned

- Ensure that there are multiple Master Movers in each area on different shifts.
- Engage Master Movers in the process and encourage good teaching skills so they share their knowledge.
- Make sure there is a good process for the delivery and storage for single patient use supplies/cleaning process for reusable equipment.

Clinical Decision Algorithm for Suspected Pulmonary Embolism Enhances Patient Safety and Outcomes

Mather Hospital, Northwell Health, Port Jefferson

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In keeping with the tenets of “choosing wisely” (choosing the right test for the right patient at the right time), Mather Hospital implemented a clinical pre-test probability (CPTP) algorithm as a first screen for the evaluation of pulmonary embolism (PE) in emergency department (ED) patients.

Clinical prediction rules, along with laboratory testing, enhance risk assessment and appropriate clinical decisions by practitioners for patients presenting with these clinical symptoms. Prior to implementation of the CPTP algorithm, there was inadequate documentation of the patient’s risk factors or CPTP for PE to warrant angiography and the inherent risks. Safe elimination of unnecessary pulmonary angiography leads to shorter ED length of stay, improved patient management, optimal use of healthcare resources, and improvements in patient safety and comfort.

Combining the CPTP algorithm with a laboratory blood test (D-dimer) adds negative predictive value—which is the ability to confidently rule out PE—and guides the appropriate diagnostic work-up. The reliability of this algorithm can safely eliminate a PE diagnosis in more than 99.9% of cases. The organization leveraged this exclusion strategy using a CPTP algorithm, the Wells score, with a D-dimer as a prerequisite to invasive pulmonary angiography testing. This algorithm was hardwired into the electronic medical record (EMR).

Outcomes Achieved

- Invasive pulmonary angiography was avoided in the low- and moderate-risk patient populations suspected of having PE.
- The total number of invasive pulmonary angiographies performed since the start of the initiative decreased, resulting in a cost savings.
- The knowledge base of practitioners was increased regarding appropriate work-up, and documentation was improved for patients suspected of having PE.

Lessons Learned

- Practitioner education is essential to highlight and understand the gravity of the problem and modify practitioner behavior.
- Chart reviews and hardwiring of the process in the EMR are required to drive and sustain appropriate clinical practice.
- Scorecards for individual ED and other practitioners depicting frequency of appropriate documentation and testing are essential to drive and sustain change.

Safeguarding Hospitalized Diabetic Patients: An Innovative Glycemic Control Initiative

Mather Hospital, Northwell Health, Port Jefferson

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In 2016, a clinical nurse working the night shift in a community teaching hospital identified a patient safety issue with potential for patient harm. Specifically, there was excessive time delay between administration of fast-acting insulin and delivery of breakfast meal trays (food) to patients with diabetes on her surgical telemetry/stepdown unit. The prolonged timeframe placed patients at risk for hypoglycemic episodes.

Subsequently, the nurse was selected by the chief nursing officer to participate in an evidence-based practice (EBP) symposium. The experience provided valuable resources, such as collaboration with food and nutrition department, pharmacy and nursing informatics that helped the nurse identify and apply interventions that greatly diminished the glucose control problem.

Outcomes Achieved

- Time between administration of fast-acting insulin and breakfast meal tray delivery has decreased significantly, from an average of 60 minutes (pre-intervention) to the U.S. Food and Drug Administration-recommended time of less than 15 minutes (post-intervention) on a consistent basis throughout the hospital.
- More importantly, critical laboratory values decreased from 9.17 to 7.27 per 1,000 glucometer results. This represents significant improvement in blood glucose control among diabetic patients as a result of the EBP project.

Lessons Learned

- Nurses working at the bedside, especially those on the night shift, are in key positions to identify and resolve clinical problems seldom addressed by traditional quality improvement methods.
- Clinical nurses on all shifts and clinical areas must be empowered and provided the resources necessary (i.e., education, access to clinical experts/mentors, scheduled investigative time, etc.) to develop and lead meaningful evidence-based projects aimed at improving patient safety.

Sustaining Improved Pain Management Patient Satisfaction Amid the Expanding Escalation of the Opioid Epidemic Mercy Hospital of Buffalo

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Mercy Hospital of Buffalo participated in a National Database of Nursing Quality Indicators (NDNQI) Pain Study in 2011. The successful results from this study prefaced the development of its pain management program and an extension of the hospital-wide interdisciplinary pain team.

Daily pain rounding began January 2012 and was in effect on all medical/surgical units hospital-wide by May 2012. Unit-based pain rounds include the nurse manager, clinical pharmacist and primary registered nurse, in partnership with the physician and mid-level practitioners. Pain rounding consisted of a team-driven patient pain assessment, including pain history, type of pain (acute/chronic), medication reconciliation, pain medication taken prior to admission, currently prescribed analgesics, pre- and post-pain assessments and existing co-morbidities.

Outcomes Achieved

- Pain management patient satisfaction scores, clinical best practices and patient safety all improved.
- Interdisciplinary team collaboration was enhanced with effective implementation of the pain management program.
- Active engagement of physicians and mid-level providers resulting from best practice pain management education and established standards of care as well as development of clear pain medication order sets and picklists. Use of non-opioid medications and approval of a policy authorizing pharmacists to adjust pain medication regimens based on a "Pain Management Pharmacy Adjustment" protocol were also implemented.

Lessons Learned

- The successful implementation of individualized patient/family centered pain management plans were improved when placing the pharmacist at the patient's bedside with real-time interventions.
- Interdisciplinary team members were integral for improved patient outcomes, patient safety and patient satisfaction.
- By keeping the team intact and functioning throughout this process, progressive improvements in pain management have been achieved amidst the opioid crisis, as well provision of pain management and opioid education to staff, patients and families.

Initiative to Reduce Hypoglycemia Events

Nathan Littauer Hospital and Nursing Home, Gloversville

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Nathan Littauer Hospital and Nursing Home assembled a multidisciplinary team that included hospitalists, pharmacists, dietitians, nurses, nurse educators and nurse informaticists, along with strong senior level support, to identify the causes of their number one adverse drug reaction (ADR).

Through the action of the multidisciplinary team, a standardized diabetes management patient-specific order set was created and implemented. A consistent process was established and implemented to ensure all patients received an appropriately balanced snack at bedtime. A hypoglycemic treatment protocol was implemented, including documentation screens that allowed for easy review and audit by the care team. Institution-wide education was performed for all of the nursing staff and hospitalist team members. A review of all hypoglycemic events occurs concurrently, whenever possible, and retrospectively through a multidisciplinary team to review the causes and to identify any possible trends that may be occurring. This committee provides recommendations to the medical and nursing teams and their findings are reported out through multiple committees.

Outcomes Achieved

- Hypoglycemic events decreased 55%.
- A standardized prescriber order set and hypoglycemic treatment protocol were developed and implemented.
- Institution-wide education was implemented related to management and treatment of diabetes.
- Appropriate bedtime snacks are provided consistently.
- Home oral medications were discontinued.

Lessons Learned

- It is critical to provide communication and educational outreach to non-hospitalists/non-medical providers.
- Ensuring that all providers with ordering privileges embraced the changes being made regarding glucose management (or any type of institutional medication management change) was key to success.

An Evidence-based Individualized Fall Prevention Program Northern Westchester Hospital, Mount Kisco

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Northern Westchester Hospital's chief nursing officer commissioned an interprofessional falls prevention team to evaluate the hospital's current fall prevention program. The team identified a clinical practice guideline with seven key practices for effective fall prevention:

- organizational support for a fall prevention program;
- evaluation of the hospitalized patient for risk of falling and injury;
- risk assessments to identify risk factors;
- communication of risk factors;
- risk factor interventions;
- observation and surveillance; and
- auditing, continuous learning and improvement.

The key practices are patient-centered, involving input from the patient directly, incorporating patient caregivers and individualized assessment of risk.

The unique patient-centered program changed hospital culture from "fall prevention" to "universal safety precautions" for all patients, even those not identified as a fall risk (FR). An individualized assessment and intervention protocol evaluates FR and injury risk (i.e., age, anticoagulation therapy) based on the patient's mobility, medications and behaviors. The assessment identifies four FR categories: cognitively intact not impulsive FR, cognitively intact impulsive (IFR), confused not impulsive (CFR) and confused and impulsive (CIFR).

The interventions are focused on addressing specific risk behaviors identified for each of the four categories of FR and build on the universal safety precautions. Interventions include improved visual cues, focused medication review, purposeful hourly rounding, mobility plans that incorporate lift equipment, standardized alarms for IFR and video monitoring and distraction techniques for CFR and CIFR. An algorithm of the interventions serves as a resource to support program implementation.

Outcomes Achieved

- The hospital achieved a 35% reduction in falls, from 2.51 falls per 1,000 patient days for fiscal year 2014 to 1.63 falls per 1,000 patient days in 2017.
- The falls with injury rate decreased 65%, from 0.77 per 1,000 patient days for fiscal year 2014 to 0.27 per 1,000 patient days in 2017.
- Sitter usage was reduced 72%, equating to \$84,000 in annual savings.

Lessons Learned

- All hospital staff must see preventing patient falls as part of their job.
- System processes must be standardized and consistent before evaluating outcomes. Without first evaluating implementation processes to ensure consistency, sustainable outcomes are more difficult to achieve.
- Real-time debriefing establishes a culture of learning and continuous improvement through immediate feedback to the clinical team.

The Path of Least Resistance: An Organization-wide Approach to Antimicrobial Stewardship

Northwell Health, Great Neck

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Northwell Health initiated its antimicrobial stewardship program (ASP) in response to the challenges of antimicrobial misuse and overuse and negative consequences of antibiotic resistance, e.g., *Clostridium difficile* (*C. diff*). The program promotes the appropriate selection, dosing, route and duration of antimicrobial therapy. Goals are to decrease antibiotic utilization, optimize treatment of infections and reduce the harmful effects of antimicrobial resistance across the continuum of care. An ASP subcommittee was convened to oversee the program comprised of a clinical pharmacist from each site, as well as physicians (infectious diseases, medicine), nurses, infection preventionists, licensed independent practitioners, microbiologists, information technology and quality staff. This subcommittee reports directly to the system pharmacy and therapeutics (P&T) committee.

Three workgroups were established to focus on processes, education and metrics, and provided recommendations to the ASP. Metrics are reported to senior and site leadership on an ASP dashboard. Progress reports are provided to the system P&T committee, system performance improvement coordinating group (PICG) and board of trustees.

Outcomes Achieved

- Total antibiotic days (89 antibiotics reported to the National Healthcare Safety Network on medical/surgical wards and intensive care units only) decreased by 9,318 days.
- Facility-wide (includes all facility units) total antibiotic days for the five targeted high-use, high-cost antibiotics decreased by more than 19,231 days.
- Entry of pharmacy interventions in Quantifi, an electronic pharmacy database, increased from 9,914 (first quarter of 2017) to 11,061 (fourth quarter of 2017).
- The *C. diff* standardized infection ratio (SIR) decreased by 18.52%: 0.837 (2016) versus 0.682 (2017) across nine acute care and one children's hospital. The SIR is below the Centers for Medicare and Medicaid Services threshold (0.924).
- The number of *C. diff* infections declined from 695 (2016) to 556 (2017).
- Sepsis raw mortality rate (balancing measure) continued to decline as antimicrobial use decreased.
- Decreased total drug costs/days for vancomycin.

Lessons Learned

- Ongoing review of prescribed antibiotics by pharmacy staff and the care team with communication to prescribers is essential.
- Clinicians need detailed information about aggregate and individual antibiotic utilization patterns to motivate change.
- Executive leadership support is crucial to sustain performance.

Vancomycin Utilization Optimization Project

NYC Health + Hospitals / Bellevue

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In the fall of 2015, the antimicrobial stewardship program (ASP) at NYC Health + Hospitals / Bellevue began using a messaging system incorporated into its Electronic Medical Record (EMR) to communicate stewardship recommendations to primary teams who are responsible for choosing and ordering antibiotics.

The institution uses an audit and feedback mechanism to regulate the use of antimicrobials in the inpatient wards and was particularly interested in optimizing the use of vancomycin for empiric coverage.

To improve utilization of this drug, Bellevue Hospital Center created institution-specific guidelines that outlined appropriate scenarios for empiric coverage of Methicillin-resistant *Staphylococcus aureus* (MRSA) and other Gram-positive organisms. The facility then made the guidelines and dosing protocols easily accessible via the Electronic Medical Record and referenced them directly when contacting the treating providers via electronic messaging.

The electronic messaging system allowed Bellevue to provide feedback in real time, with clear written recommendations on choice of therapy, duration and dosing, and provided the treating teams with the opportunity to easily write back to the ASP member who made the recommendation, for further discussion.

Outcomes Achieved

- Vancomycin use dropped below the goal of 60g/1,000 patient days.
- The rate of MRSA among inpatients decreased since the start of the project.
- A working relationship between primary providers and antimicrobial stewardship team members was established.
- The rate of acceptance of ASP recommendations regarding use of vancomycin grew to nearly 95%.

Lessons Learned

- Use of simple but widely available technologies like email are a key contributor to effective communication between the ASP team and the primary managing teams.
- Institution-specific guidelines that support appropriate de-escalation of therapy help providers feel more comfortable when discontinuing broad-spectrum antibiotics.
- Providers are more likely to accept ASP recommendations when they are made in written form and are addressed to all providers involved in the care of a patient, including consulting services.

Inpatient Hospice Initiative: Success in Improving Patient Care at End of Life

NYU Langone Health, New York City

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Now in its ninth year, NYU Langone Health's inpatient "scatterbed" hospice service is for patients who are expected to die during the index hospital admission, but did not have the option to be discharged home on hospice or transferred to another facility. The goal was two-fold: 1) to increase the percentage of patients who died in hospice care from 7% to 30%; and 2) to increase the utilization of palliative care in patients who died, from 10% to 50%.

In 2008, NYU Langone recognized that both the quality of care delivered to patients at the end of life, as well as their observed-to-expected mortality rate, could be improved. The palliative care service, along with hospital administration, partnered with a local hospice agency to provide scatterbed inpatient hospice to patients with inpatient hospice needs who were expected to die in the hospital. Many patients have been admitted to hospice directly from the emergency department.

Outcomes Achieved

- Forty-five percent of all hospital deaths occur in inpatient hospice.
- Seventy percent of all hospital deaths have been consulted on by the palliative care service.
- The inpatient hospice initiative has been sustained for nine years, has been implemented across the institution and has been replicated at a newly-acquired hospital.
- Observed-to-expected inpatient mortality has been consistently at 0.5 for the past five years.
- Eighty-four percent of the patients who received palliative care gave a top box score of "very satisfied" or "most satisfied" in their palliative care survey.
- Time from admission to referral to palliative care decreased from 10.4 days to 2.2 days.
- Cost of care decreased 77% in patients receiving hospice.

Lessons Learned

- The inpatient hospice initiative is achievable, sustainable (for over nine years so far) and portable across very different institutions.
- The inpatient hospice initiative is anchored in an aligned vision with senior leadership with a focus on patient-centered care.
- The inpatient hospice initiative has made an important impact in hospital metrics, including patient satisfaction, mortality and cost.

Improving Sepsis Care through Team-based Accountability NYU Langone Hospital–Brooklyn

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To combat the significant mortality associated with sepsis, NYU Langone Hospital–Brooklyn developed a process and culture of consistent early sepsis recognition and rapid treatment. Sepsis care that is of highly reliable quality requires a team-based approach where leadership empowers and supports those at the bedside. This hospital transitioned to a culture in which nurses initiate sepsis care and lead the team to achieve timely completion of bundled care in collaboration with providers. To best support this culture, the team engaged all departments involved in the care of sepsis patients and examined their roles on the team, identified and addressed their workflow barriers and refocused the whole team on the patient with a close eye on patient outcome. They streamlined order sets, supported immediate nursing access to antibiotics and implemented workflows that empower nurses to safely practice with speed and accuracy.

Specific interventions implemented to improve sepsis care included:

- use of point-of-care technology to measure lactate at bedside;
- development and utilization of the bedside sepsis checklist;
- primary sepsis chart review by the charge nurse on shift;
- secondary sepsis chart review by department sepsis leadership team and feedback provided to the care team within 72 hours;
- publication of quarterly sepsis care metrics for all departments to see;
- interdisciplinary chart review with critical care, pharmacy and infectious disease; and
- development of a hospital sepsis leadership committee.

Outcomes Achieved

- All sepsis patients receive broad spectrum antibiotics within one hour, which has been maintained since the second quarter of 2017.
- Sepsis mortality has decreased from 44% in the first quarter of 2015 to 25% in the third quarter of 2017.
- Three-hour bundle compliance increased from 57% in the third quarter of 2015 to 100% in the third quarter of 2017.
- Clinical staff are now highly engaged in care for sepsis patients and regularly make recommendations to improve efficiency and reliability.

Lessons Learned

- Empowering nurses to screen, initiate care and lead reporting is key.
- Daily monitoring and immediate feedback is critical to foster change.
- Leadership enthusiasm and unrelenting support are essential.

Improving Communication about Medications

NYU Langone Orthopedic Hospital, New York City

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NYU Langone Orthopedic Hospital recognized that although several of its unit-based teams were already working to improve patient education about medications, each unit operated as though in a silo, isolated from each other.

The interdisciplinary team was prompted to examine the processes in place for medication teaching with the assistance of a Lean management team. The Lean management team conducted a rigorous review and initiated a four-day rapid improvement event (RIE) focusing on the process of communication about medications on an acute care orthopedic unit. The RIE team was comprised of individuals representing medicine, nursing, pharmacy, operations, care management and patient experience.

The interdisciplinary team members believed they could design a solution to improve the medication education process. The aim of the team was to create a partnership with patients in the communication process by engaging them in the conversation. By scripting the interaction and incorporating available medication leaflets and “teach back,” the team’s goal was to improve communication about medicine.

Outcomes Achieved

- There was a 22% increase in the Top Box scores for Communication About Medications in the post-implementation period.
- In November 2016 the Top Box score was 65 and it trended up to a high of 79 in December 2017.

Lessons Learned

- A partnership with patients to communicate instructions about new medications and their side-effects resulted in an overall improvement in the patient experience.
- A RIE with a team of frontline clinicians was effective in providing the insight to design a more efficient and effective standardized process for medication teaching.
- To be impactful, before surgery, patient education about medications must include the pre-hospital setting—whether in the doctor’s office, during the pre-op phone call or in pre-admission testing.

Utilizing ABCDEF Bundle in the ICU Olean General Hospital

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The intensive care unit (ICU) at Olean General Hospital initiated the ABCDEF bundle in September 2016 to help break the cycle of deep sedation and prolonged ventilation, and decrease delirium, which in turn has shown to help decrease restraint usage, reduce length of stay and improve patient outcomes.

The ABCDEF bundle is an evidence-based guide for clinicians to standardize the care needed for improving intensive care unit patient recovery and outcomes. The elements of the ABCDEF bundle refer to assessing, preventing and managing pain.

The B element, both spontaneous awakening trials (SAT) and spontaneous breathing trials (SBT), focuses on setting a time each day to stop sedative medications, orient the patient to time and day, and conduct an SBT in an effort to evaluate the patient for extubation. ICU sedation can help reduce anxiety and agitation for patients, facilitate mechanical ventilation and decrease traumatic memories. But deep sedation has been found to reduce six-month survival and increase hospital mortality, ICU lengths of stay, ventilator duration and physiologic stress.

The C element, choice of analgesia and sedation, focuses on constructing a safe and effective medication regimen for the management of pain and agitation in critically ill adults. This ICU uses the Richmond Agitation Sedation Scale.

The D component of the bundle refers to assessing, preventing and managing delirium. Long-term effects on the patient include increased risk of mortality and long-term cognitive impairment.

The E element stands for exercise and early mobility.

The F element stands for family engagement.

Outcomes Achieved

- Reduced restraint usage: 10% of patients in the ICU were restrained in 2016; this was reduced to 6% in 2017.
- Length of stay was reduced from 3.1 in 2016 to 2.9 in 2017.
- Patient ventilator days were reduced from 931 in 2016 to 632 in 2017.
- Patient returns to the ICU decreased from 19 in 2016 to 16 in 2017.

Lessons Learned

- Constant employee and physician engagement is key to making the ABCDEF bundle work.
- A multidisciplinary approach is necessary to sustain results in all areas.
- Family engagement is necessary to improve quality of care.

Enhancing Recovery, Outcomes and Experience of the Total Joint Replacement Patient Orange Regional Medical Center, Middletown

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To address the significant, increasing number of patients undergoing total joint replacement (TJR), Orange Regional Medical Center developed a program to optimize patient experience, reduce variation in the quality and cost of care, enhance the recovery process and improve overall outcomes.

The initiative, led by bone and joint department staff with oversight by the medical director, was implemented by a multidisciplinary team.

To achieve the objectives of the initiative, nine specific goals were developed:

- increase patient engagement with education prior to surgery;
- reduce use of Foley catheters during surgery;
- increase mobility of patients on day of surgery;
- increase compliance with pain management regimen;
- decrease length of stay;
- decrease infection and transfusion rates;
- increase discharge disposition of patients directly to home;
- decrease readmission rates; and
- improve patient satisfaction scores.

Outcomes Achieved

- Patient participation in education increased from 48% in 2016 to an average of 65% in the fourth quarter of 2017.
- The rate of a Foley catheter placed during surgery decreased from 42% in the fourth quarter of 2016 to 16% in the fourth quarter of 2017.
- Patients out of bed on day of surgery increased from 44% in the fourth quarter of 2016 to 83% in the fourth quarter of 2017.
- Compliance with pain management regimen improved from 68% in the fourth quarter of 2016 to 92% in the fourth quarter of 2017.
- Decreased length of stay: total hip replacements decreased from 3.1 days in 2016 to 2.3 days in 2017, total knee replacements decreased from 3.0 days in 2016 to 2.8 days in 2017.
- The post-operative infection rate decreased from 0.55% in 2016 to 0.39% in 2017.
- The blood transfusion rate decreased from 7.8% in 2015 and 3.8% in 2016 to 1.5% in 2017.
- Patients discharged to home increased from 53.8% in 2016 to a fourth quarter 2017 average of 70.2%.
- Thirty-day readmission rates decreased 22.0% from 4.1% in 2016 to 3.2% in 2017.
- Patient satisfaction scores (Press Ganey) increased; *How well was your pain controlled?* improved from 80.7% in 2016 to 92.0% in 2017 and *Rate Hospital 9 or 10* increased from 65.6% in 2016 to 91.0% in 2017.

Lessons Learned

- Innovative, out-of-the-box thinking is essential.
- Consistent messaging to patients from the surgeon, nursing and therapy staff and case manager is critical.

The Journey of Decreasing Sepsis Mortality

“Sometimes it’s how you get there that actually gets you there”

Southside Hospital, Northwell Health, Bay Shore

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Southside Hospital’s team pondered, “What if our process allowed us to recognize and treat sepsis in the ED timely and efficiently? Would it decrease mortality in the ED population?” Recognizing sepsis quickly in a chaotic ED that sees more than 72,000 patients a year is a remarkable task in itself. Getting timely results of tests and antibiotics and fluids to those patients quickly and efficiently would not be an easy task. The team has made great strides in achieving timely recognition, casting a wide net to assess all potential candidates and changing processes within the department that provide expedited, efficient care to those who need it most.

Outcomes Achieved

- Fluid bolus is consistently started in less than 30 minutes.
- Antibiotics given in less than 180 minutes more than 80% of the time.
- Initial 30cc/kg fluid bolus administration compliance increased from 30% to an average of 62% compliance.
- Mortality declined over time.

Lessons Learned

- What you think you are doing in regard to patient care is not necessarily what you are actually doing.
- Each discipline approaches care differently and all perspectives need to be considered so that true collaboration occurs for the wellbeing and safety of the patient.
- Everyone comes to work and tries to do the right thing. The obstacle is their processes for performing these things, not the individual.

Improving Patient Peripheral Access

Phelps Hospital, Northwell Health, Sleepy Hollow

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In February 2013, the vascular access team at Phelps Hospital introduced the midline catheter. The team met with physicians to introduce them to this form of access and discussed optimal times for its use.

Early recognition of when a midline can be used is essential. This leads to better patient and clinical outcomes, with fewer needle sticks, discomfort, and complications. The use of ultrasound during the insertion allows for easy recognition of veins and a smooth insertion. There will be a minimal use of hospital resources and nurses can deliver better care, with fewer interruptions being caused by faulty PIVC lines.

There is also the cost saving associated with using a midline versus a central line (aside from the cost savings of decreased central line infections). In 2017, 604 midline catheters were placed; the cost to the facility was \$84,560. If the hospital had to insert central lines, the cost would have been \$111,740. Using a midline saved the facility \$27,180. Since the inception of the program in 2013, the use of midlines has saved the institution about \$110,000.

Outcomes Achieved

- CLABSIs have decreased.
- Comfort for the patient has increased through eliminating multiple needle sticks.
- Decreasing the use of central lines resulted in cost savings to the facility.

Lessons Learned

- Education of nursing staff on the uses and benefits of the midline catheter enabled them to make recommendations to the physicians on behalf of patients.
- Early recognition of patients who would benefit from this type of access results in a better patient experience.
- Physicians need a certain comfort level in the new modality before they are willing to place the order for insertion.
- Early recognition of need eliminates the use of central line placement.

The Impact of Restraint Reduction and Unplanned Extubations and Delirium in Critical Care

St. Catherine of Siena Medical Center, Catholic Health Services of Long Island, Smithtown

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In 2013, an intensivist program was started at Catholic Health Services of Long Island (CHSLI). The use of physical restraints was commonplace and thought of as useful and a simple resolution to prevent self-injury. The skepticism of the intensivists and mid-level practitioners (MLPs), despite the evidence to the contrary, was more challenging than the initial resistance by the bedside nursing teams.

In 2015, New York State Partnership for Patients conducted seminars for prevention and treatment of ventilator-associated events and delirium and recommended limiting restraints as part of the ABCDEF bundle. The critical care team (CCT) at St. Catherine of Siena Medical Center added this to daily huddles and rounding. CCT rounds were established after the intensivist program was in full swing. Formalized bi-weekly critical care rounding for achievement and success was instituted in January 2017 with participation of the chief medical officer and directors of critical care, respiratory care, nursing, infection prevention/control and pharmacy.

Outcomes Achieved

- The correlation coefficient comparing the restraint use in critical care to the unplanned extubation rate shows an r-value of -0.29, demonstrating no correlation between the two.
- Patient days and length of stay decreased (2016 3.54 days vs. 2017 3.14 days) in critical care while maintaining low restraint use.
- Delirium has been documented below the national average of 45% to 87%, with low restraint use.
- Reduction in restraints was achieved without increase in one-to-one safety watches.
- The critical care manager was recognized with the Nursing Leadership Award in 2017 for achievements in critical care outcomes.
- CCT learned techniques to help minimize delirium and sub-syndromal delirium and supported the continued restraint reduction practices. The Competency for Confusion Assessment Method for the intensive care unit (CAM-ICU) was completed with all the registered nurse (RN) staff.
- RNs remain closer to the bedside, rather than at the central station, becoming the strongest patient advocates. Prevention of the long-term effects of physical restraint use and delirium, namely post-traumatic stress disorder or post-ICU syndrome was accomplished.

Lessons Learned

- The nursing team became the strongest advocates in restraint reduction/elimination demonstrating a paradigm shift in the unit culture.

“Striving for Zero”—Proactive Rounding to Eliminate Hospital-acquired Infections

St. Catherine of Siena Medical Center, Catholic Health Services of Long Island, Smithtown

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St. Catherine of Siena Medical Center launched its “Striving for Zero” campaign in January 2016 and developed a critical care rounding team. The focus was on measures to reduce catheter-associated bloodstream infections (CLABSI) and catheter-associated urinary tract infections (CAUTI). While evidence-based practice bundles have been employed at the facility for the past decade, there was an apparent need for more formalized standards and interventions, when indicated.

A multidisciplinary team was created for the critical care units. The team rounded twice a week and was composed of physicians, nurses, the unit’s director and manager, a pharmacist and infection preventionists. The team rounding enabled proactive communication about the continued necessity of the devices, be it a central line or a urinary catheter, and their removal if warranted. During these sessions, a direct observation of the patient’s device(s) was performed by the infection prevention registered nurse. Techniques for proper maintenance were re-emphasized. These rounds also provided an opportunity to discuss the patient’s plan of care.

Outcomes Achieved

- There have been zero CLABSIs in critical care since March 2017.
- There have been zero CAUTIs in critical care since March 2017.
- Staff awareness of caring for patients with indwelling catheters is heightened.
- There is increased collaboration among all members of the healthcare team, with improved dialogue about device necessity, maintenance and alternatives.

Lessons Learned

- Empowering frontline staff to exercise a questioning attitude and advocate for the patient is critical to help reduce the unnecessary use of devices and utilize alternatives.
- Teachable moments between infection prevention and frontline staff reinforce evidence-based practice bundles included in the policy and procedure related to the care and maintenance of the central line and urethral catheter.
- Sustainability, as evidenced by commitment of the members of the rounding and healthcare team, must include communication to continue to achieve reductions of CLABSI and CAUTI.

Reducing Sepsis and Septic Shock Mortality through Sepsis Bundle Compliance

Stony Brook Medicine

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Stony Brook Medicine formed a multidisciplinary sepsis quality improvement workgroup to enhance sepsis care. This group included physicians, nurses, pharmacists, information technology, clinical documentation improvement and quality improvement representatives. A gap analysis was conducted of the variance between the current and future state, which provided multiple opportunities for improvement.

The goals set by the workgroup were:

- improve the observed sepsis mortality rate to <20% and the mortality observed/expected to ≤ 0.95 ;
- bundle requirements education for all clinical staff with an overall goal of $\geq 90\%$ bundle implementation compliance;
- develop electronic medical record tools to assist in the identification of “time zero” and provide ordering and documentation guidance;
- develop reporting tools and strategies to provide feedback to clinical staff; and
- sustain improvement.

Outcomes Achieved

- The overall sepsis mortality rate decreased to 19.5% for the third quarter of 2017.
- Identification of time zero improved.
- Sepsis bundle adherence and documentation improved, reaching 80% compliance in October 2017, the hospital’s best result to date.
- Electronic severe sepsis and septic shock alerts were instituted to ensure appropriate ordering and documentation.
- The hospital achieved real-time review of severe sepsis criteria and timely bundle implementation.
- Monthly and daily reports reflect compliance with alerts and bundle implementation.

Lessons Learned

- The executive leadership must actively and continuously hold department head staff accountable to abide by and support sepsis policies and procedures or protocols.
- Physician buy-in is paramount.
- Department heads must take ownership of sepsis mortality rates and bundle compliance in their areas, with resources readily available. There must be daily real-time feedback and accountability.
- Frontline staff must be engaged to help update tools, making them as user-friendly as possible, so staff are invested in a process they helped create. Tools such as electronic alerts and forms (paper and electronic) are only helpful when used by staff who are invested in the process and goals.

Sepsis Improvement Journey

The Brooklyn Hospital Center

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Sepsis and severe sepsis are the tenth leading cause of death and are the most common cause of death among critically-ill patients in non-coronary intensive care units in the United States. Nationally, mortality rates for sepsis cases entering the hospital through the emergency department range from 20% to more than 50%. Therefore, sepsis and severe sepsis are important public health problems. Prevention and early treatment of sepsis are of paramount importance to decrease sepsis-associated mortality. Improved recognition, early organized approaches for the delivery of care, early administration of appropriate antibiotics and supportive care early in the course of an infection can significantly reduce severity and prevent sepsis.

The Brooklyn Hospital Center's sepsis-associated mortality rates were significantly high, compared to the New York State average in early 2015. Timely recognition and appropriate treatment were not consistent for patients with sepsis, severe sepsis and septic shock, resulting in high mortality rates. A multidisciplinary group convened in the fourth quarter of 2015 to implement focused Plan-Do-Check-Act cycles to continuously check the progress in each step of the process. This group included physicians, residents, nursing champions, registration, information technology managers and quality management.

Outcomes Achieved

- Mortality rates decreased from 54.5% in the first quarter of 2015 to 16.7% in the third quarter of 2017.
- Sepsis bundle compliance rates improved.
- Awareness and commitment from the entire healthcare team was enhanced.
- Communication among the team improved.
- Consistency of medical management improved.
- Documentation was enhanced.

Lessons Learned

- Early identification of sepsis patients across the institution (emergency department and inpatient) is imperative.
- A multidisciplinary approach and engaging frontline staff is an important foundational step.
- Moving the sepsis screening process to patient triage for all patients 18 years and older is crucial.
- Clear, consistent and ongoing communication between all members of the team leads to successful outcomes.
- Providing a structured sepsis protocol in the electronic medical record helps to enhance compliance with the evidence and documentation.
- Establishing physician champions and getting their buy-in is important.
- Ongoing staff education is essential.
- Real-time alerts improve sepsis bundle compliance and decrease sepsis-associated mortality.
- Stay focused and celebrate the wins.

Reducing Opiate Use with Robotic-assisted Hernia Repair

Thompson Health, University of Rochester Medicine, Canandaigua

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At Thompson Health, four general surgeons have committed to significantly limiting the number of patients prescribed opioids for post-operative pain control in one of the most commonly performed operations: hernia repair. They employ a unique surgical approach with robotic-assisted hernia repair and developed a novel pre- and post-operative non-opiate-based pain control regimen.

In addition to focusing on patient safety, these four general surgeons have found prescribing post-operative opiates to be administratively burdensome. To enhance their efficiency and improve patient care, these surgeons prescribe an alternative pain control regimen of over-the-counter acetaminophen and ibuprofen.

Outcomes Achieved

- A total of 94.3% of robotic-assisted hernia surgery patients managed their pain without opioids, compared to 77% before robotic hernia repair and novel pre- and post-operative pain control regime.
- Zero complaints or grievances have been received in 2016 or 2017 by the hospital or referring primary care physicians regarding the novel pre- and post-operative pain control regime with robotic-assisted hernia surgery.
- There is a faster return to work than with open hernia repair.
- There have been fewer common post-operative complications.

Lessons Learned

- Although prescription of opioids is routine following inguinal hernia surgery, using this approach 95% of patients can successfully manage their pain without opiates, avoiding the risk of complications of narcotics.
- The team is seeing this approach becoming adopted nationally, as evidenced by the number of national professional organizations that have invited this project's leader to speak at their gatherings.
- Through partnership with surgeons, the organization created significant value for the patients who come to the hospital for a common general surgery procedure.

Improving Outcomes for Patients with Malnutrition: Enhanced Clinical Practices to Promote Decreased Length of Stay and Reduced Readmissions

The University of Vermont Health Network—Champlain Valley Physicians Hospital, Plattsburgh

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A malnutrition steering committee at The University of Vermont Health Network—Champlain Valley Physicians Hospital (CVPH) implemented best practice guidelines through a phased approach focusing on screening for malnutrition characteristics: weight loss, appetite, functional grip strength, fluid accumulation, muscle loss and fat loss. The dietitian is able to document a nutrition diagnosis of severe or non-severe malnutrition in the context of acute, chronic or social/environmental factors. This leads to patient-centered care planning and treatment, as well as a resource for physicians to adequately identify and diagnose malnutrition.

CVPH initially created electronic medical record work flows that utilized fluid accumulation, weight loss and poor appetite. A staged approach has been implemented to introduce further characteristics for screening. The team introduced the use of hand dynamometers to measure grip strength and have educated clinical nutrition and nursing staff on screening standards with improved electronic medical record integration. Physician, nursing and nutrition staff were educated on screening techniques and assessment.

CVPH enlisted the support of their information technology and quality management teams to promote easy data capture. These data can be used to correlate length of stay, readmission rates and the relationship between dietitian and physician documentation.

Outcomes Achieved

- Data were collected over four years, between December 3, 2013 and November 29, 2017.
- Readmissions of medically malnourished patients decreased from 32.6% to 17.7%
- Patients identified with a nutrition diagnosis of malnutrition increased from 109 to 744 and medical diagnosis increased from 21 to 124 after grip strength testing was implemented.
- Length of stay was reduced in physician documented cases from 20.4 to 14.5 days and 12.8 to 9.9 days when outlier patients were removed (those with >30 days length of stay).
- The dietitian capture rate improved from 52.7% to a peak of 82.4%.
- Capture of the acute care malnourished population improved, from 25.4% to 39.3% at admission and from 30.8% to 57.8% during stay.
- Documentation and communication improved between healthcare partners.
- Healthcare utilization, length of stay, and readmissions all decreased.

Lessons Learned

- Identifying stakeholders and forming a multidisciplinary steering committee was essential to create a shared vision and promote collaborative action.
- Share your story early and often, while leveraging data to support evidence-based needs.
- Understand timelines of allied support, while pushing the need for your program to incorporate all evidence-based measures.

Decreasing Postoperative Pneumonia through the Implementation of a Colorectal Enhanced Recovery After Surgery Program

White Plains Hospital

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Enhanced Recovery After Surgery (ERAS) is a multimodal program, well-studied in the literature, that helps improve patient outcomes through the creation of standardized preoperative, intraoperative, and postoperative pathways. These pathways help optimize the patient and ensure implementation of best practices throughout the perioperative period. With significant review of the literature, an ERAS pathway was developed for the colorectal patient population at this hospital. Data from the National Surgical Quality Improvement Program (NSQIP) identified that postoperative pneumonia in colorectal surgery was in the tenth decile. NSQIP data also revealed that colon death and serious morbidity (DSM) was also in the tenth decile.

A multidisciplinary team used literature and evidence-based research to create the ERAS' Healthy Habits & Hand washing, Education, Empowerment & Expectations of pain, Activity & Appetite, Lungs, and Skin care (HEALS) Program for the White Plains Hospital colorectal patient population with an overall focus on reducing postoperative morbidity, including pneumonia.

This program was implemented in November 2015 and data were reviewed for all colorectal cases entered into the NSQIP database.

Outcomes Achieved

- Standardized, evidence-based care was provided to all colorectal patients.
- Post-op pneumonia was improved to the sixth decile in NSQIP report.
- Colon DSM improved to the fifth decile in NSQIP report.
- Communication and teamwork among the multidisciplinary surgical team improved.

Lessons Learned

- A multimodal approach to improvement is crucial to reduced post-operative morbidity.
- Bundled programs provide layered initiatives which assist in eliminating gaps in practice.
- Multidisciplinary teams are essential to implementation of ERAS programs and provide the support required for sustained effectiveness.



Chapter 2

**Enhancing Culture
and Achieving
High Reliability**

Annual Peak of Excellence Award Program

Adirondack Health, Saranac Lake

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Adirondack Health's leadership and quality management staff created the Annual Peak of Excellence Award Program in 2010 to recognize outstanding interdisciplinary and innovative quality improvement projects in a substantial and meaningful way. These projects demonstrate measurable, sustainable outcomes, with an emphasis on improving the quality and safety of patient and resident care.

Adirondack established an awards committee, which approved and adopted formal project submission guidelines based on the Plan, Do, Check, Act model. A submission template, storyboard, official logo, and tiered prize structure were also approved. Three teams submitted projects during that inaugural year. Since that time, the Peak of Excellence Program has evolved, based on best practices for culture change, annual assessments of the program's strengths and weaknesses and input from program participants and others, including invited observers from HANYS.

A criteria-based scoring matrix was introduced in 2013 and a standardized storyboard template was adopted in 2014. The Peak of Excellence Fair debuted in 2015, open to all members of the organization as well as the community, as did the Peoples' Choice Award. In 2017, a record 11 projects were submitted, representing a broad cross-section of care settings and services.

Outcomes Achieved

Through this initiative, Adirondack Health:

- enabled formal, visible, concrete recognition by hospital leadership of the outstanding work of quality and process teams to improve patient safety and satisfaction, and the quality of care;
- increased staff familiarity with basic quality principles in an interesting and enjoyable way;
- educated staff in the fundamentals of data collection, analysis and presentation;
- introduced team leaders to project presentation skills;
- showcased to a wide audience the meaningful and creative work of quality and process improvement teams; and
- instilled a sense of shared culture and belonging across the spectrum of care settings and support services.

Lessons Learned

- Making easily digestible training in basic quality/process improvement principles and data management available to project team members is vital to the success of the team and the project.
- Structured, accessible guidelines, documents, templates and tools are necessary for consistent presentation, scaling and efficiency of resources.
- Fostering a sense of anticipation, energy, enthusiasm, creativity and spirited, but good-natured competition at the staff level makes all the difference.

Transformational Leadership Principles Focused on Employee Engagement and Service Improvement

Bassett Healthcare Network—Aurelia Osborn Fox Memorial Hospital, Oneonta

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Bassett Healthcare Network—Aurelia Osborn Fox Memorial Hospital undertook a multi-pronged approach to impact organizational culture and improve communication in the following ways:

- **Leadership Rounding:** Hospital leadership (nursing, administration, physicians) conduct daily rounds on all newly admitted patients. This gives the team a firsthand assessment of care provided, from the patient's perspective, an opportunity to demonstrate continuity within lines of command to our patients and their families, and interaction with frontline staff. Results of rounding are communicated within the leadership group.
- **Interactive Leadership Conference:** Two interactive conferences are held daily. A small group morning “huddle” at individual sites organizationally updates team members on plans for the day and events from the prior 24 hours. While dissemination of information remains valuable during these sessions, a key goal would be team building and comradery. Morning multidisciplinary conferences review each patient to develop a plan of care.
- **Daily Briefing:** This unit-specific morning huddle was established to set the day for each unit by outlining goals, anticipated events, and personnel announcements.
- **Shift Reports:** Supervisors give senior leadership an appraisal of events throughout the organization on a near real-time basis. Reports include: occurrence of “code blues” or “rapid responses,” quality notifications, shift highlights, staffing, employee health, use of restraints, physician relations (communication), equipment (in-hospital), patient engagement and unit census.

Initiatives:

- The organization established a position for patient engagement.
- The “Daisy Program” was launched for nurse recognition.
- Overall system decision-making transparency was improved.

Outcomes Achieved

- Improved employee engagement: Historical participation in Press Ganey employee satisfaction survey (51%) increased to 86%.
- There was a quarterly increase in RL6 reporting (part of RL Solutions, healthcare incident and risk management software) as an indicator of adoption of “just culture” by staff.
- Patient safety and service quality improved.
- The organization's CMS Star Rating increased from two to three stars.
- Its Leapfrog Hospital Safety Grade improved from C to B.
- Readmissions were reduced.

Lessons Learned

- The unique challenges facing rural health providers are surmountable.
- Resolving challenges is aided by improved communication. Improved communication within senior leadership has several benefits: it develops an environment of transparency and trust, enables all within the organization to achieve better outcomes and ultimately improves patient safety and quality of care.

Engaging Nursing Leadership to Advance Evidence-based Practice, Strategic Goals and Culture Change within Clinical Nursing Long Island Jewish Valley Stream

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Long Island Jewish Valley Stream's goal for this project was to develop transformational nurse leaders in the organization. These leaders would stimulate and inspire clinical nurses to align with the mission and vision of the organization to achieve positive patient outcomes. The chief nursing officer put into place strategic priorities with use of team-building sessions to help the nurse leaders evolve and for innovation to flourish. Workshops were implemented to foster teaching and learning about evidence-based practice (EBP) and the role of the nurse leader.

Instruction on creating a professional portfolio was provided for nurse leaders with the expectation that this will be implemented with their staff. TeamSTEPPS™ strategies reinforced professional practice and mutual respect among leaders and clinical nurses. Evaluation of the success for this initiative is based on ongoing progress including the nurse leader's ability to foster academic progression, support and mentor staff through evidence-based practice, increase clinical nurse committee membership and ultimately advance positive patient outcomes.

Outcomes Achieved

- The number of Baccalaureate of Science in Nursing (BSN) and higher degrees of clinical nurses increased.
- Ninety percent of clinical nurses completed 20 contact hours annually for professional development.
- Professional portfolios were developed for nurse leaders.
- Staff participation in hospital committees increased.
- There were 34 abstract submissions from leadership and clinical nurses.
- A total of 28 local/national/international poster and podium abstract presentations were conducted by leaders and staff in 2017.
- Employee engagement scores improved from 2016 to 2017, to above the national average.
- EBP Workshop: 100% completion for nursing leadership team, 95% clinical nurse completion.
- A staff and nurse leader EBP project was initiated on the medicine unit.

Lessons Learned

- Nursing leaders have a knowledge gap related to evidence-based practice.
- It is the organization's responsibility to ensure that clinical nurses have the resources and tools to provide safe patient care.
- Clinical nurses must be involved in process change and quality improvement.

Daily Safety Huddle

NYC Health + Hospitals / North Central Bronx

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In the spirit of embarking on a journey to become a high-reliability organization, NYC Health + Hospitals / North Central Bronx established a process to increase awareness of other departments' activities and issues. To provide quick issue resolution and a safe patient environment, a daily safety huddle was implemented. Beginning November 2016, executive leadership facilitates a daily safety huddle with department heads and key clinical staff at the same time, every day, usually led by the chief medical officer or a member of the leadership team. Attendance is mandatory for physician leaders, executive leadership, department heads and some frontline staff.

The safety huddle provides executive leadership with awareness of what is happening at the front line and promotes teamwork among the participants. This brief meeting is a safe, confidential arena to discuss potential safety situations. The safety huddle follows a standard roll call; data are tracked on the roll call sheet. The focus is on safety, critical issues and their resolution, current staffing and gaining a real-time understanding of what is happening on the front lines.

The number of days since the last hospital-acquired condition (HAC), use of restraints, employee vaccine rate, number of indwelling devices and device days are reported daily at the safety huddle. Each day there is follow-up on safety issues identified from the previous huddle. Debriefings are performed on every HAC. Placing safety first is instrumental in establishing a culture change within the organization. Using robust performance improvement methodologies and quality tools, data are presented, analyzed and turned into useful, actionable information. This process has helped achieve and sustain quality improvement outcomes.

Outcomes Achieved

- There has been an increase in the number of reported good catches/ near-misses discussed daily at the safety huddle.
- There are fewer HACs.
- Staff are more aware of device days and HACs, which has a positive impact on patient care and safety.
- The hospital increased the number of proactive risks addressed and safety improvement processes.
- More environmental concerns are identified and addressed within 48 hours.

Lessons Learned

- Daily management increases situational awareness of staff.
- Communication in daily management and operations is important.
- Introducing and maintaining a safe zone helps create a just culture of safety.

Leading a Culture Change: A Data-driven Approach to Improving Compassionate Care through a Palliative Medicine Initiative

Northwell Health—Krasnoff Quality Management Institute, New Hyde Park

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Through this project, Krasnoff Quality Management Institute developed an innovative and interactive dashboard for the department of medicine and division of geriatric and palliative medicine. The dashboard helped to identify high-risk patients in a multidisciplinary approach to care.

Quality research analysts and division of geriatric and palliative medicine clinicians collaborated to create a data dashboard to enable the leadership to have timely, accurate and comprehensive information about patient outcomes, appropriate level of care, disposition, pain management, volume of consultations and time from admission to referral.

Most important, this collaboration was designed to promote standardized information so that partnering clinicians would be better educated and realize the value of palliative medicine and supportive care. The information presented by this dashboard was used to guide strategic partnerships between the inpatient palliative medicine consultation team and other teams within the health system and to identify patient populations that would benefit from comprehensive palliative consultation.

The collaboration led to increased consultations from more services, more timely consults, and more efficient use of hospital resources through the identification of patients who were better served by a palliative patient-centered approach (e.g., appropriate use of intensive care unit or other costly services).

Outcomes Achieved

- Leadership has incorporated the dashboard into daily operations, improving the quality of life for patients seen by the palliative care team across the system.
- Overall volume of palliative care consults have increased 17% for the system and 75% at the best performing hospital.
- Average time from admission to palliative consultation has decreased 17% for the system and 41% at the best performing hospital.
- Volume of palliative patients discharged to home has increased 7% for the system and 54% at the best performing hospital.

Lessons Learned

- The success of any new program requires cultural transformation through objective information and education.
- Multipronged and multidisciplinary educational efforts have an impact on practices.
- Databases and analytics support cultural readiness for change.

Enhancing PACU to Acute Unit Patient Flow and Increasing Operational Efficiency as a High Reliability Organization

NYU Langone Orthopedic Hospital, New York City

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NYU Langone Orthopedic Hospital assessed all staff working on the inpatient units and perioperative areas to better understand the current-state culture and identify opportunities for improvement. This assessment included both an electronic survey and interviews, which examined staff perception of safety, leadership, teamwork, learning and burnout. The results were used to identify opportunities for increasing safety and reliability in the hospital. The timeliness of patient transfers from the post-anesthesia care units (PACUs) to acute inpatient units was identified as an area of opportunity. An initiative to improve patient flow was undertaken with a goal of increasing the percentage of patients transferred out of the PACU within 30 minutes of bed assignment to 25%.

To enhance patient flow, an interdisciplinary team consisting of both hospital leadership and frontline staff was convened. Through the high reliability organization (HRO) initiative, this team used interdisciplinary HRO learning huddles in all units, with cross-unit participation, to identify barriers that contribute to delays in PACU transfers, implement tests of change to remove these barriers, and iterate on these changes as feedback was given by staff. The huddles took place around HRO learning whiteboards, allowing for the tracking of changes and improvements.

Outcomes Achieved

- The rate of patients being transferred within 30 minutes of bed assignment increased from 15% in September 2017 to 22% in January 2018.
- The median patient boarding time in the PACU after bed assignment has decreased 17%.
- The frequency of operating room holds decreased 83%.

Lessons Learned

- Frontline staff are best positioned to identify problems and opportunities, with both operating room and acute unit staff having important perspectives when determining barriers to patient flow. Having leadership present on the units to discuss these perspectives is important in demonstrating to staff that their feedback is valued and actionable.
- Engagement and feedback from all hospital staff is critical to the implementation of the cultural changes needed to enhance surgical patient flow.
- The success of the initiative to enhance PACU to acute unit patient flow is reliant on the timeliness of information, requiring close partnership with medical center information technology staff.



Chapter 3

**Improvements
Across the
Care Continuum**

Adapting the System's Error Prevention and Safety Program to the Physician Practice Environment

Catholic Health Services of Long Island, Garden City

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The goal of this project was to develop a system error prevention and safety program to prevent harm in the outpatient setting, and help Catholic Health Services of Long Island understand how often and what kind of patient safety incidents occur, and what impact they have—across all 72 ambulatory practice settings spanning three counties on Long Island.

The challenge was to adapt the hospital-based error prevention program for applicability to the physician practices in a meaningful way. The curriculum was created to retain the framework of the hospital program but augment it with ambulatory-specific examples and scenarios. By pulling in examples of actual events and occurrences, the scenarios were crafted with increased significance for the practice environment.

Outcomes Achieved

- Staff empowerment and engagement increased dramatically:
 - the number of practices participating in the daily safety huddles increased from 43 to 60; and
 - the number of issues that were reported increased from 78 to 103.
- All practices have at least one safety coach who volunteered for the assignment.
- Several physicians volunteered to become safety coaches.
- In the fourth quarter of 2017, more than 150 rounding-to-influence episodes occurred.

Lessons Learned

- Staff must be engaged, empowered and feel respected for the culture of safety to take hold.
- Providing a barrier-free communication path allowed the voice of the frontline staff to be heard.
- The frontline staff identified issues and concerns that had tremendous significance in improving safety in the practices.

Comprehensive Care for Joint Replacement Model in Home Care: Partnering for Better Outcomes

Catholic Home Care, Catholic Health Services of Long Island, Farmingdale

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Catholic Home Care launched a program to optimize care and outcomes for Medicare beneficiaries undergoing total lower joint replacement or hemiarthroplasty surgery. Patients who were identified as a candidate for lower joint replacement or hemiarthroplasty surgical interventions were required to attend a pre-operative educational class. Standardized, evidence-based pre- and post-operative care protocols were also implemented to achieve best practice outcomes.

Post-operative follow up was done concurrently during the immediate post hospitalization period with home healthcare and orthopedic navigators following the patient's discharge from the acute care facility. The Orthopedic Navigator follows the patient for a 90-day post-operative period after home healthcare goals have been met and the patient has transitioned to outpatient rehabilitation.

Last, a best practice alert is triggered in each system hospital's emergency department to identify the respective orthopedic team of these patients upon arrival to the emergency department to allow for prompt evaluation of their status.

Outcomes Achieved

Through its work in the CJR program, Catholic Home Care achieved the following:

- decreased post-operative complications and associated hospital readmissions;
- decreased hospital length of stay;
- improved collaboration between patients/caregivers, hospitals, physicians and post-acute care providers;
- patient/caregiver engagement in progressing toward mutually agreed-upon goals and outcomes;
- enhanced patient safety; and
- increased patient/caregiver satisfaction.

Lessons Learned

- The CJR model is an effective component of patient-centered care for individuals undergoing lower joint replacement or hemiarthroplasty procedures.
- Home visits and case management combined with evidence-based practice allows for early detection of potential changes in clinical status that can affect the recovery process.
- The CJR model supports an expedited hospital discharge, reducing the likelihood of complications often attributed to lengthier hospital stays.

Person-centered Palliative Approach to Care in Long-term Care

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Care management and comprehensive care planning began to transition in 2013 to incorporate palliative care discussions with long-term care residents during their quarterly comprehensive care plan meetings. The focus initially was to enhance utilization of advance directives. As these individualized discussions continued, there was an identified need for enhancement of the program to include additional education and spiritual support. The focus of the program became more interdisciplinary and provided discussion and education regarding the individual resident's prognosis and care options.

A formalized policy and physician order set was developed to focus on the resident's wishes. This was reviewed with the resident and family at each care plan conference to ensure their wishes were reflected and that any changes were incorporated.

Outcomes Achieved

- Resident/family knowledge of the resident's condition and prognosis improved, allowing them to make informed decisions about their care and life progression.
- The facility culture was transformed to incorporate palliative care and support of each individual resident's quality of life.
- There is increased acceptance of advance directives, advanced care planning and palliative management.
- The facility expanded advance directives to 90% and increased palliative care to 40% of the facility population.

Lessons Learned

- It is important to foster communication and relationship development with residents and families regarding the prognosis to assist in a plan that provides comfort as the resident approaches the end of his or her life.
- A person-centered approach to the care and management of each individual resident/patient provides physical, emotional and spiritual support to enhance their quality of life. Extending this person-centered approach through communication and collaboration across the continuum of care improves overall outcomes, patient satisfaction and quality.
- The culture of a facility can be changed and enhanced through communication, collaboration and a leadership that provides educational opportunity and support through the process.

Community-based Palliative Care in Home Health

MJHS Home Care, Brooklyn

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MJHS Home Care developed an innovative model of community-based palliative care (CBPC) that reflects a hybrid delivery model in which home health nurses provide the main care, complemented by an interdisciplinary team (IDT) meeting under the supervision of a palliative care specialist/physician educator. Under this initiative:

- a screening tool for palliative care eligibility was developed for patients who meet home health criteria;
- four practice protocols were developed for symptom management: pain, dyspnea, anxiety and depression;
- the Edmonton Symptom Assessment Scale (ESAS-r) is used to obtain subjective measurement of patient symptoms on each home visit;
- the weekly IDT meeting includes the following core team members: physician educators board certified in palliative care, a chaplain, social workers and nurses; and
- patient disposition at the end of episode of care back to the care of primary care physician, specialized palliative care or hospice referral/admission.

Outcomes Achieved

- Symptom management improved for pain, anxiety, depression and dyspnea.
- Positive patient satisfaction was consistently demonstrated.
- Timeliness of assessments to identify needs for hospice and/or “specialist level” palliative care improved.

Lessons Learned

- Palliative care funding remains an issue nationwide.
- Patients with advanced illness benefit from focus on symptom management and discussion of advance directives while receiving home healthcare.
- Many clinicians are still challenged to initiate “difficult conversations” involving end-of-life discussions with patients and families.

Quitting Tobacco Products: A Plan to Provide Cessation Services in the Inpatient and Ambulatory Care Settings

NYU Langone Health, New York City

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As tobacco use remains the number one cause of preventable death, NYU Langone Health recognized the importance of developing and implementing tobacco cessation interventions to help patients quit smoking and to ensure that identified tobacco users are offered comprehensive cessation services during the hospital stay, at discharge, post-discharge and during outpatient visits.

To accomplish this, the organization established an interdisciplinary team comprised of physicians, nurses, social workers and information technology staff. The team developed an automated process for current tobacco users that alerts the provider and/or nurse to offer the patient cessation services, including comprehensive counseling and ordering of nicotine replacement therapy upon admission and discharge. A comprehensive tobacco cessation registry focuses on areas of improvement and provides feedback to providers.

In conjunction with the New York State Department of Health, NYU Langone Health implemented a Quitline referral system where current tobacco users may consent to be contacted by the New York State Quitline to assist in cessation over an extended period. NYU Langone Health also offers a free weekly tobacco cessation counseling session to all discharged patients that is communicated verbally and documented on the discharge instructions.

Outcomes Achieved

- The health system achieved a 31% improvement in compliance for tobacco use treatment offered during the inpatient hospital stay from 2016 to 2017.
- There was a 25% improvement in compliance for tobacco use treatment offered at discharge from 2016 to 2017.
- As the organization merged with a large community hospital, tobacco cessation counseling and ordering of nicotine replacement therapy upon admission and discharge was integrated into the workflow at the new location. Providers and nurses were educated regarding this change in workflow.
- Ambulatory care patients were screened for tobacco use on 98% of all encounters, and 33% of tobacco users received cessation education.

Lessons Learned

- A standardized process, via the Electronic Medical Record, has led to an increase in the overall rate for both measures.
- For this to be successful, the automated process must interact dynamically with physicians and nurses.
- An interdisciplinary subcommittee has helped to identify opportunities and strategies for improvement.

Reducing Re-hospitalization Rates Across the Continuum of Care Our Lady of Consolation Nursing and Rehabilitative Care Center, West Islip

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Using a Plan-Do-Study-Act (PDSA) format and Lean principles, Our Lady of Consolation's leadership identified issues that were impeding the organization's progress toward reducing readmissions and began to track and trend each readmission and emergency room transfer. Action plans were developed and prioritized beginning with revision of the current medical model, moving from community physicians, who spent only a few hours in the facility, to an employed medical model of physicians and nurse practitioners covering 16 out of 24 hours in the facility to provide more available and focused care to their residents.

Each individual action plan was initiated from 2015 to 2017. The individualized action plans provided incremental progress toward the organization's goal. As each new action plan was added, the combination of initiatives along with weekly reviews of all emergency room transfers and readmissions with medical and nursing staff improved their progress toward goal achievement. It also provided opportunities for education, formulation of care paths and protocols.

Outcomes Achieved

- The facility reduced its readmission rate from 21.4% to 15.6%.
- Communication improved and medical symptoms were identified faster.
- This process became formalized and facilitated commitment to improve outcomes.
- Resident care outcomes improved.
- Resident care improved, due to earlier treatment.

Lessons Learned

- Accurate and detailed communication between the nursing and medical staff was essential in determining the need for transfer. Education was required for the residents, families and the hospital emergency staff as to the capabilities of managing medical care in the long-term care setting.
- A shift in culture was required to reflect a more interdisciplinary approach to the management of medically unstable residents. The Interventions to Reduce Acute Care Transfers (INTERACT) process helped in facilitating success with these goals.
- With the change in resident population to residents with multiple co-morbidities and acute illnesses, the nursing staff were provided with simulation education to enhance their assessment skills and their ability to provide care to more acutely ill residents. Continuing and updated education is an essential component to improve care and communication.

Long-term Care Quality Enrichment Program

Rochester Regional Health

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Rochester Regional Health developed the Long-Term Care (LTC) Quality Enrichment Program to improve skilled nursing facilities' (SNFs) performance on the Centers for Medicare and Medicaid Services (CMS) Five-Star Ratings by providing a deficiency-free roadmap, quality measure data tables and quality assurance process improvement (QAPI) management tools for SNFs.

The deficiency-free roadmap guides SNFs through a process that enhances and prepares their internal systems for annual health surveys by identifying and targeting areas of risk through strategic system assessments.

The quality measure (QM) data tables provide tracking and trending analytics specifically for CMS Five-Star quality measures with the ability to use real-time data to predict future QM rates and points. This allows SNFs to address current Minimum Data Set (MDS) documentation concerns/errors and/or review current practices and make adjustments to align with internal SNF QM goals.

The QAPI management tools assist SNFs with the QAPI program by providing recommended QAPI auditing schedules, QAPI reporting templates, a process improvement program and a problem-solving model that assists in identifying gaps and solutions regarding problems/targeted areas of improvement.

Outcomes Achieved

- Rochester Regional Health's LTC division gained 740 quality measure points, which was an additional 295 above the targeted goal.
- Three out of six division SNFs achieved 100% of the targeted goal of achieving 1,055 quality measure points, which equates to five stars under the CMS Five-Star quality measure rate.
- Health survey deficiencies decreased from 43 in 2015 to 24 in 2017.
- The number of stage II triggered care areas was reduced from 149 to 138.
- The number of health deficiency points decreased from 140 to 100.
- The LTC division established four best practice models.

Lessons Learned

- Conducting routine quality measure data reviews along with analyzing system impacts on quality measure rates is crucial to developing improvement processes and maintaining quality measure goal rates.
- Developing internal teams to investigate, review and develop performance improvement projects that address identified annual survey risk areas is key. Each facility requires two teams: one team to gather/review targeted areas, and one to analyze and investigate specific areas of concern.
- This process enhances internal SNF processes and in most cases streamlines current QAPI processes.

Improving Pressure Ulcer Management and Documentation

St. Catherine of Siena Nursing and Rehabilitation Care Center,
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In collaboration with Long Island Healthcare Network (LIHN), in November 2015, a focused audit was performed of all residents with pressure ulcers who were managed and treated within the facility for the previous year, regardless of origin. The audit focused on pressure ulcer assessment, staging, documentation, plan of care and treatment including interdisciplinary involvement, cost, documentation and communication across the continuum of care.

A new certified wound care specialist reviewed and revised the current wound care program at the facility, including weekly bedside rounding with educational opportunities for unit staff. The hospital, located on the same campus as the nursing facility, is the primary admission transfer for the facility and has a wound care center.

Using the Plan-Do-Study-Act (PDSA) format and the results of the LIHN audit, the interdisciplinary leadership team formulated an action plan to address the inconsistencies identified and improve the quality management (QM) rates related to pressure ulcers, as well as the collaboration between the hospital and the nursing facility. In 2017, the facility participated in a Six Sigma Project regarding wound care with the system acute and chronic care divisions to streamline the processes and communication between the divisions.

Outcomes Achieved

- There has been a progressive reduction of pressure ulcer QM rates from a 10.5% average in 2015 to a current rate of 6.2%. Despite an increase in the overall prevalence rate, the facility maintained an incidence rate below 1.5%, significantly below the benchmark of 5.9% nationally.
- A facility wound care program was created, focusing on interdisciplinary management, assessment accuracy and documentation accountability.
- This initiative has improved communication and collaboration with acute care hospitals.

Lessons Learned

- Communication across the continuum of care improves the quality of care for each individual resident/patient.
- An interdisciplinary approach provides interventions from each healthcare area that collaboratively enhance the healing process and quality of care.
- A wound care program must include assessment and intervention from personnel with wound care expertise and a process that incorporates accountability and a systematic approach to assessment, care, treatment and documentation.

Regional Tick-borne Disease Resource Center

Stony Brook Southampton Hospital

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The Regional Tick-borne Disease Resource Center at Stony Brook Southampton Hospital was conceived in 2013 to respond to the increasing need in the community for help managing the exploding epidemic of Lyme and other tick-borne disease, which are spread by three disease-carrying ticks highly prevalent in the local environment. The Center is tasked with educating the public, promoting collaboration in the medical community and facilitating access to diagnosis and treatment of tick-borne disease.

The Center maintains a registered nurse who operates a dedicated “help line” where both the public and clinicians can call for advice and referral to specialists experienced in treating tick-borne disease. To ensure that the Resource Center adhered to accepted evidence-based medical practices, a medical advisory panel was formed to oversee its operation. This panel is comprised of 16 physicians who specialize in family and internal medicine, infectious disease, allergy, pediatrics, cardiology, rheumatology, emergency medicine and neurology. Additionally, a Scientific Advisory Panel (“the advisors to the advisors”) was convened, which has at its core three highly-respected researchers at leading schools of medicine, as well as an entomologist from the county health department.

Outcomes Achieved

- Thirty-five separate educational forums were held for adults, and 34 for children.
- In 2017 the help line nurse spoke to 900 callers seeking assistance.
- A day-long Medical Symposium for Physicians was held, attended by 120 medical professionals.
- Two thousand tick removal kits were given away at no charge to residents and visitors.

Lessons Learned

- By finding creative avenues to educate children through schools, camps, libraries and museums, the Center reaches not only the most vulnerable members of the community, but also their parents.
- Members of the local community have had the opportunity to participate in research studies conducted by members of the Center’s scientific advisory panel. The feedback helps these physician-researchers direct their efforts in a practical and meaningful way.
- The help line nurse has reported that the incidence of chronic and post-treatment Lyme disease requires further study and analysis.

Bundled Payments for Care Improvement Initiative with Focus on Patients Discharged into a Skilled Nursing Facility Performance Network

United Health Services Hospitals, Inc., Johnson City

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United Health Services Hospitals enrolled in the Bundled Payments for Care Improvement (BPCI) program in April 2015. The organization's strategic goals at that time were to maintain financial stability while transforming business systems, data systems, and analytic processes to be able to fully understand and manage cost on the basis of episodes of care and demonstrate improvement in clinical outcomes and patient experiences.

The main drivers or "levers" for success with BPCI are:

- make the hospital the next site of care decisions by carefully identifying the most appropriate lower level of care that meets the patient's needs;
- manage skilled nursing facility (SNF) length of stay utilizing best practice episodic length of stay guidelines; and
- reduce hospital readmissions.

UHS participated in multiple care redesign projects:

- **Orthopedics:** primarily major joint replacement of the lower extremity with focus on pre-operative medical optimization, and setting patient expectations for post-acute care to improve their experiences.
- **Congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD):** focused on improving identification, transitions of care and post-acute care with the use of nurse navigators to help reduce readmissions and mortality.

- **Urinary tract infection (UTI):** focused on improving accurate diagnosis, coding and treatment.
- **Early mobilization program:** to help reduce need for SNF stays and reduce readmissions related to complications of immobility and exposure to nursing home risks.

A SNF Performance Network was implemented in 2017. A SNF performance scorecard was customized to include process and partnership metrics. These metrics focused on improving collaborations and thus quality of care in the post-acute care 90-day episodic timeframe.

Outcomes Achieved

- The average SNF length of stay was reduced by four days while maintaining a 90-day readmission rate of 26% (7% below the historical average of 33%).
- CMS claims data reveal, on average, 7.1% Medicare savings for the program.

Lessons Learned

- Transparency is the key to trust, improved collaborations and improving patient care and outcomes.
- A fair and consistent data process is critical.
- You can have a successful SNF performance network without purposefully narrowing the network. This supports and ensures patient choice.

Intensive Transitions Team

Upstate University Hospital, Syracuse

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Upstate University Hospital's intensive transitions team (ITT) is a hospital-based, multidisciplinary, relationship-based team designed to facilitate safe, effective and smooth transitions for patients at greatest risk of readmission due to complex clinical and social factors. The team is comprised of two nurse case managers, two social workers and a nurse practitioner who actively follow patients 30 days post-discharge from the acute care setting. The team employs a "whole person" approach to transitional care and ongoing care needs to better identify not only the risk of readmission, but also transitional and ongoing services and supports needed to address diverse, but interrelated needs.

The goal of the program is the reduction of potentially preventable 30-day readmissions, preventable emergency department visits and overall utilization in the acute care setting. ITT connects patients to a variety of community-based services and supports based upon the patient's goals, with an emphasis on:

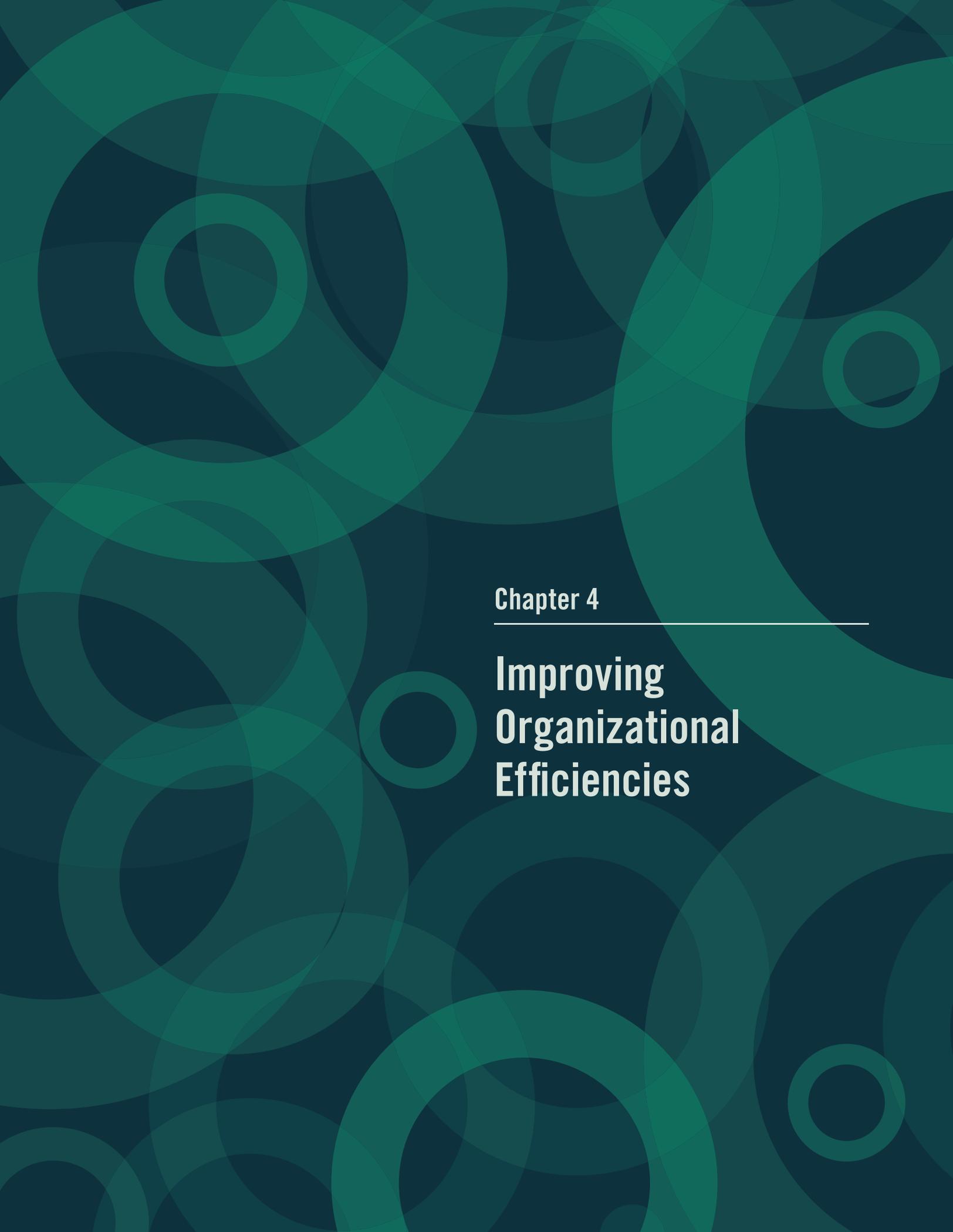
- promoting patient engagement with primary care and other post-acute providers;
- preparing patients to address concerns after discharge;
- supporting communication between patients, families and post-acute providers and services through warm hand-off and a person-centered, cross-setting plan of care;
- identifying and addressing the root causes (drivers) of preventable acute care utilization; and
- connecting and reconnecting patients with post-acute partners for ongoing care delivery.

Outcomes Achieved

- The 30-day readmission rate decreased 74%, six months post-intervention.
- Inpatient discharges decreased 53%, six months post-intervention.
- Emergency department discharges decreased 20%, six months post-intervention.

Lessons Learned

- Patient identification for this intervention is a key factor influencing the success of the program.
- Clinical diagnosis is rarely the sole cause of high acute care utilization—drivers of utilization are often social and behavioral in nature and must be addressed to manage utilization and outcomes.
- Relationship-based care is highly effective. The relationship exists with the patient, formal and informal caregivers as well as post-acute community partners and providers.



Chapter 4

**Improving
Organizational
Efficiencies**

Improving Patient Access to Gastrointestinal Procedures Bassett Healthcare Network, Cooperstown

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In November 2016, 1,900 patients were waiting for a gastrointestinal (GI) procedure at Bassett Healthcare Network's medical center, with an average of 45 new referrals and only 18 procedures completed per day. Using Lean Six Sigma methodology, the GI department identified filling the schedule as its top priority.

The team implemented changes to increase scheduler efficiency, including moving schedulers to quiet areas to focus on patient calls, eliminating non-essential tasks, blocking time dedicated to patient calls and setting daily targets for the number of calls and number of procedures scheduled. To reduce cancellations, the team instituted more reminder calls and created a tool that predicts "no-shows" and identifies patients to fill impending schedule openings. Additionally, the number of procedure appointments available was increased by reducing booking times to match historical data of actual procedure lengths and aligning anesthesia and provider schedules.

Outcomes Achieved

- Bassett increased procedures scheduled by 13% (3.69/27.59).
- The team decreased openings in the next two weeks by 81% (37.4/46.0), accomplishing the goal of filling the schedule.
- Bassett increased procedures completed by 6% (1.13/17.64).
- The number of patients waiting for a procedure decreased 42% (810/1930).

Lessons Learned

- You need to engage frontline staff to understand their daily work, utilize all perspectives and ideas and be willing to let go of old norms and redesign new, more efficient workflows.
- It is important to take time to celebrate successes, especially since every time one thing was fixed, another new limiting factor or issue emerged.
- The Lean management system is effective at sustaining improvements by communicating current performance to frontline employees and engaging them in continuous improvement.

Quality and Safety Align Infection Control Practices to Improve Efficiency, Outcomes and Experience

Bassett Medical Center, Cooperstown

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Using John Kotter's change management model, performance improvement methodologies and a team-based approach, Bassett Medical Center collaborated and led its affiliate hospitals in discontinuing the routine use of isolation and contact precautions for multidrug-resistant organisms (MDROs), unless clinically indicated.

Policy and practice changes were accompanied by the removal of a highlighted color banner on the electronic medical record cover page that carried this designation from one encounter to the next. Communication and notification with internal and external stakeholders regarding project changes supported the transition.

A hand hygiene awareness campaign was implemented, including the deployment of additional hand hygiene dispensers, increased surveillance and education, and patient education and participation to ask staff if they have washed their hands. Environmental cleaning protocols have been reviewed and revised and an antibiotic stewardship program was implemented. Staff re-education, support and alerts on the critical steps during select patient care bundles have been developed and disseminated.

Outcomes Achieved

- There were zero post-implementation hospital transmissions of Methicillin-resistant *Staphylococcus aureus* (MRSA) or Vancomycin-resistant enterococci (VRE).
- The hospital achieved a 72% reduction in the daily cost of cleaning isolation gowns, with expected annual savings of \$150,000.
- There has been a 28% reduction in overall glove usage per month, with an expected \$46,000 annual savings.
- The hospital has essentially eliminated blocked beds for MRSA and VRE.
- Staff and provider satisfaction have improved, with staff reporting an increase in patient contacts.

Lessons Learned

- Allocating time for learning, outreach, sharing and partnership beyond organizational walls supports change.
- Frontline staff, physician-led participation and patient participation and feedback are critical.
- Choosing the right performance improvement methodology for any project is critical to successful execution and outcomes.
- Including education for, and participation of staff, providers and patients improves smooth transition and outcomes.
- Collaborating with affiliate hospitals and external stakeholders early in the process creates standardization and prevents conflict and variations in care.

Implementation of Actionable Dashboards: Improving Population Health with Integrated Dashboards and Team-based Care

Bronx-Lebanon Hospital Center

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Bronx-Lebanon introduced “Population Health Action Lists,” a suite of live, actionable dashboards embedded in the Electronic Medical Record (EMR). On a single screen, users can see the patient’s missing measures and are provided specific decision support for next steps (e.g., order mammogram, add mastectomy code, request outreach). Because all of this is embedded in the EMR, there is no switching programs or integration between systems. This allows providers to efficiently address the standards of care, leaving more time for the complicated components of healthcare delivery.

The entire team has access to the data, the measures are easy to understand and the next steps are clear and accessible. Users can see the impact of their work immediately via real-time data. The hospital also made the important decision to allow all users to give feedback directly to the development team, who were able to rapidly respond with new features, using the Agile development model.

Outcomes Achieved

- The hospital achieved statistically significant improvement in four of the five key Health Plan Employer Data and Information Set (HEDIS) measures, with a correlation between usage and improvement, even when controlling for provider.
- There was rapid uptake of usage across the entire clinic team and the entire clinic network, including usage during more than 50% of primary care provider visits.
- Quality incentive program payments from managed care organizations grew.
- Standardization of metrics and documentation improved across the network.
- Team-centeredness was enhanced due to transparency of data and the shared stake of all team members, regardless of title.

Lessons Learned

- Data have no impact on outcomes unless the right people see it at the right time and can do something with it. Embed dashboards into the workflow and ensure that next steps are clear and, ideally, directly actionable from the tool.
- Start with a small number of key measures that all parties can agree are clinically sound, financially relevant and directly addressable.
- Iterate obsessively and push updates as frequently as possible. The hospital used a bi-weekly cycle, which allowed it to address feedback continuously, driving a high adoption rate.

Improving Patient-centered Care and Patient/Caregiver/Employee Satisfaction by Streamlining EMR Documentation

Good Shepherd Hospice, Catholic Health Services, Farmingdale

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To improve patient-centered care, patient and caregiver experience, staff satisfaction and overall quality of care, this initiative looked to decrease the amount of time it was taking staff to document care in the electronic medical record (EMR).

Although all Good Shepherd employees, including physicians, nurse practitioners, social workers, chaplains and bereavement specialists document care in the EMR, the project focused on nursing documentation due to its comprehensive application.

For this project, Good Shepherd used the Lean methodology to focus on improving:

- patient-centered care by decreasing time spent documenting in the EMR by reducing both mean times and standard deviation for various visit types (evaluation, initial nursing and routine visit types);
- documentation through standardization and simplification of processes within the EMR;
- patient and caregiver experience; and
- staff satisfaction.

Outcomes Achieved

- Evaluation visit turnaround time decreased 61.5%.
- Initial nursing visit turnaround time decreased 67.4%.
- Routine visit turnaround time decreased 25.2%.
- The facility removed 219 boxes from the Initial Nursing Assessment template.
- More time is spent with patients and caregivers.
- The agency's internal employee engagement survey revealed that documentation went from being one of the top three dissatisfactions in the prior year, to not being reported at all as a dissatisfaction.

Lessons Learned

- Areas within the EMR were not being used efficiently.
- There was significant clutter and waste found in the EMR that could be eliminated.
- Due to a cumbersome and cluttered EMR, staff were not consistent in documenting.

Remote Home Monitoring Program

Columbia Memorial Health, Hudson

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Columbia Memorial Health developed a comprehensive Remote Home Monitoring Program to monitor patients from home on a daily basis to prevent unnecessary emergency department visits. The program materials were developed through a unique partnership with a local technology firm, which resulted in a custom solution to meet the needs of the community.

Each patient is given a personal kit that includes a scale, pulse oximeter, blood pressure cuff and smart phone. Each morning, the patients are instructed to answer three simple questions (yes or no) specific to their progress. Patients are also asked if they would like to speak with a case manager. A positive response alerts a case manager by text message to ensure prompt and timely response and intervention. Case managers contact the primary care provider and an action plan is implemented. The overall program implementation is accomplished with support from physicians (including the medical director), registered nurses, information systems staff, community health staff, case managers and data specialists. Team members meet monthly to coordinate and expand the program. Program startup expenses were supported by a private foundation.

The program was developed in direct alignment with the New York State *Prevention Agenda* priority directed at the management/prevention of chronic disease.

Outcomes Achieved

- Quality measures are monitored and patients supported in clinical collaboration with providers within the hospital setting and in the outpatient setting.
- Medications are evaluated post-discharge and improved patient education was implemented.
- A heart failure clinical pathway and pulmonary care pathway were created.
- There is ongoing, active communication between patients and providers.
- Patients are monitored safely in the home setting.
- The system has resulted in improved communication and staff responsiveness, a positive patient experience, cost savings and efficiencies, enhanced medication safety in the home setting and real-time patient assessment.

Lessons Learned

- Remote monitoring provides prompt daily evaluation of patients with chronic disease.
- Quality goals are met with person-centered care delivery.
- Successful outcomes occur when providers, educators and patients coordinate care as a team.

Reducing Delay in Diagnosis of Malignancy with Multi-stage Radiology Recommendation Tracking

F. F. Thompson Hospital, Canandaigua

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Adopting the science of high reliability systems, F.F. Thompson Hospital developed a three-stage follow-up tracking system called Backstop, which serves as a safety net to existing outpatient office tracking systems. The Backstop system tracks all unconditional radiology recommendations, excluding mammography. Radiology recommendations entered into Backstop require a specific imaging modality and due date to be appropriately tracked.

For any recommendations not completed one month after the due date, the clerical navigator handles three sequential interventions. Beginning at one month after the recommendation due date, the clerical navigator will re-send the radiology report with recommendation, along with a cover letter explaining the follow-up program, to the primary care physician (PCP). Two months after the recommendation due date, the clerical navigator calls the PCP office staff, offering to assist with scheduling of the follow-up. Three months after the due date, if the exam still has not been completed, the radiologist calls the PCP directly. Letters are sent to all patients for whom an exam completion or clinical closure event could not be identified, ensuring that all patients are properly cared for or informed of their outstanding recommendation in a timely manner.

Outcomes Achieved

- In total, 1.3% of all diagnostic imaging tests resulted in a recommendation tracked in Backstop.
- There has been a 52% increase in recommended exam completion rate (increased from 46% to 70%).
- There has been a 74% reduction in patients at risk for delay in diagnosis (decreased from 53% to 14%).
- Each stage of sequential intervention is valuable in terms of driving up the closure rate (Stage 1 had a 29% closure rate, Stage 2 had a 52% closure rate and Stage 3 had a 58% closure rate).

Lessons Learned

- All three tracking interventions were successful. No single intervention would have adequately reduced the risk of delayed diagnosis.
- Quality programs can be self-supporting. Additional revenue generated from new exam completions covered the cost of labor many times over.
- Office-based providers appreciate when resources are applied by another department in collaboration with their own efforts to optimize the care of patients.

Can I Help You Get the Care You Want and Need? Lowering Over-utilization Jamaica Hospital Medical Center, Richmond Hill

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With the New York State Department of Health Medicaid Accelerated eXchange (MAX) series as a launching pad, Jamaica Hospital Medical Center developed and implemented key strategies including real-time processes for identification of very high utilizers of hospital care. The medical center began with daily case conferencing led by senior clinical leadership and a post-discharge staff-initiated facilitation process focused on connecting patients with community-based care and support. These strategies are reinforced by leadership-driven culture change, enhanced accountability and an individualized, patient-centered approach.

For the purpose of the MAX intervention, high utilizers are defined as adult patients with four or more inpatient hospitalizations at Jamaica Hospital Medical Center occurring in a 12-month period. In line with the Delivery System Reform Incentive Payment (DSRIP) program focus on the Medicaid population, the qualifying patients have some type of Medicaid payer or are dually eligible for Medicare.

Program outcomes are measured using three metrics: (1) all-cause 30-day pre-readmissions; (2) pre- versus post-utilization; and (3) average length of stay. The hospital created highly visible real-time alerts implemented in the electronic medical record and aggressive case review by a team of senior clinical leaders. When a patient presents to the emergency department for a potential fourth admission, a best practice advisory occurs for all care providers with a unique and easily identifiable logo. It prompts the emergency room attending physician to take an extra step and consult with the inpatient service attending physician before making an admission decision. A team of dedicated patient care facilitators enforce and ensure continuation and adherence to the individualized care plan designed by the medical team.

Outcomes Achieved

- The medical center achieved a 72% reduction in 90-day pre/post hospital utilization.
- The organization improved and sustained communication and culture change.
- A root cause analysis conference is conducted within one business day of a patient's admission. This allows the hospital to be "self-critical" on behalf of the patient.

Lessons Learned

- Underlying social determinants of health are just as important as the medical conditions addressed by the medical team in the prevention of readmissions and high utilization of care.
- Serve as an adjunct and facilitator to the provision of care, not only as the sole provider.
- The daily monitoring of patients by the interdisciplinary team promotes accountability across all departments and fosters ownership of the comprehensive care plans.

Utilizing Decision Support to Prevent Wrong Patient Errors

NewYork-Presbyterian Hospital, New York City

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To prevent wrong patient electronic orders, NewYork-Presbyterian Hospital conducted a quality improvement initiative that uses decision support to improve patient identification.

A team of clinicians, usability experts and informaticians designed a custom patient verification alert that was integrated into the computerized physician order entry (CPOE) system and activated whenever an order-entry session was invoked. The alert displayed the patient's full name, birth date, bed location, chief complaint, recent medication orders and a male or female icon. In addition, a warning message appeared if another patient had the same last name on the unit. To prevent practitioners from immediately closing the patient verification alert, the "continue" button is disabled for two and a half seconds.

To establish the efficacy of this intervention for preventing wrong-patient errors, the hospital used the "wrong-patient retract-and-reorder" measure that was developed and validated by the quality team. This automated measure identifies orders placed on a patient that are retracted within ten minutes and then shortly thereafter placed by the same clinician on a different patient. This measure identifies many more wrong-patient errors than voluntary reporting, and is the first health information technology safety measure endorsed by the National Quality Forum (Measure #2723).

Outcomes Achieved

- Wrong-patient orders were reduced by 30%.
- After two years, the rate of wrong-patient orders remained 24.8% less than before intervention.

Lessons Learned

- A CPOE-based patient verification alert led to a significant reduction in wrong-patient orders that was sustained over time.
- A multidisciplinary quality improvement initiative was an effective approach for addressing a serious patient safety hazard.
- An automated outcome measure, such as the wrong-patient retract-and-reorder measure, simplified the data collection process and made this quality improvement initiative possible.

A Proactive, Interdisciplinary Approach to Secure Hospital Campuses North Shore University Hospital, Manhasset

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North Shore University Hospital implemented an extensive security infrastructure across its 58-acre campus with 6,000+ employees. There was a need for a system to effectively identify all guests upon arrival and thus eliminate unwanted visitors. To accomplish this, the hospital formed an 80-member employee security advisory council with representation from all departments.

The council was responsible for the design and success of the initiative. The phased implementation included the following five elements: lockdown of exterior entrances, a visitor check-in process, a verification process to screen all employees, a separate employee entrance and the installation of optical barriers to monitor entry. With respect to the employee entrance, the council decided that all employees were required to present their respective hospital-issued badges upon entry. Nurse call bell lights were installed above each card reader to verify if an employee is active. Security staff is present to monitor access at the location, 24/7. For safety purposes, all visitors and patients are required to check in immediately upon arrival. Security personnel scan guests' valid photo IDs and/or take a picture of the guest and print a personalized badge; the visitor is instructed to display the ID while on hospital property.

All information is stored on an internal secure database. Passes remain active for 72 hours, after which visitors must check in again for a new ID. Badges are used to release the doors of the optical barriers at each entrance. There has been a significant culture shift in the hospital; if an employee sees an individual without any form of badge, he/she is encouraged to promptly address the visitor and direct him/her to the nearest lobby.

Outcomes Achieved

- In October 2016, performance on the "Safety/Security Felt in the Hospital" measure was at the 75th percentile nationally. For 2017 year-to-date, the hospital is performing at the 87th percentile and as of December 2017, the hospital was performing at the 94th percentile nationally.
- The hospital received ten patient compliment letters directly related to the improved security measures.
- There has been a 6% reduction in workplace violence incidents.
- Employee participation and satisfaction have increased.
- There has been a positive culture shift throughout the hospital.

Lessons Learned

- The initiative was a success due to the deliberately phased approach.
- Transparent, campus-wide communication via open forums, marketing efforts etc. helped spread the goals of the project.
- Collaboration with local law enforcement, the fire marshal and an architectural firm was integral to validate that all elements of the design were sound in case of emergencies.
- Educational sessions for all staff encouraged them to become more involved.

Transforming Emergency Department Care Delivery Using a Hospital-wide Throughput Program Orange Regional Medical Center, Middletown

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Orange Regional Medical Center implemented strategies to decrease emergency department (ED) overcrowding and improve care in the ED. A team led by the chief executive officer was formed. As a Lean organization, the Define, Measure, Analyze, Improve and Control (DMAIC) model is used to approach performance improvement programs.

Inpatient Strategies:

A 12-bed clinical decision area was created to group observation patients and maintain a rapid pace for clinical decision making. Larger single rooms were converted to double rooms. All units had two hallway spaces curtained off and equipped as additional inpatient rooms.

ED Strategies:

The team established goals and created an ED metric dashboard to monitor progress. The triage nurse role was redesigned to a clinical greeter, decreasing time to first nurse contact. The nurse greeter identifies the chief complaint and acuity. Patients are directly roomed to the main ED if they meet emergent clinical criteria. Patients who do not qualify as emergent are directed to the team triage area referred to as the “Rapid Assessment Zone” (RAZ).

The RAZ team, consisting of an attending physician, two registered nurses and an ED tech, work together assessing the patient, initiating care and treatment. Low acuity patients are directly discharged from RAZ. Patients with higher acuity transition to the main ED, where treatment is completed. A “results pending” waiting area is used for those who require minor testing prior to final disposition. This type of split-flow model allows higher acuity patients to flow through the ED differently than lower acuity patients. A subgroup

of the ED throughput workgroup focused on computerized axial tomography (CT) scan turnaround time. Oral contrast was eliminated for routine CT scans and a second CT scanner is used during volume surges.

Outcomes Achieved

- Targeted arrival to provider, arrival to room, and arrival to discharge goals were achieved.
- Ambulance diversion hours were eliminated in 2017.
- Instances of “left without treatment and against medical advice” decreased.
- Patient satisfaction and culture of safety survey results improved.

Lessons Learned

- Executive team support is instrumental to create house-wide buy-in.
- ED staff engagement in design of performance improvement initiatives is crucial.
- Continuous redesign is essential, based on feedback from pilots and daily practice.

Reducing Waiting Times During Transitions of Care

Phelps Hospital, Northwell Health, Sleepy Hollow

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Phelps Hospital determined that it had to reduce waiting time between major transitions and handoffs. To accomplish its goals, Phelps needed active participation and full buy-in from senior administration to caregivers and support staff of many functions. The chief executive officer created an executive team to establish goals and objectives, and to fast-track decisions where different stakeholders might not feel fully authorized to commit to change. Specific goals were established for onboarding as well as discharging patients, and progress toward these goals is communicated to managers and staff routinely. Sub-committees were established to fact-find, propose solutions, implement new approaches and measure success at different points in transitions of care. Metrics were developed with shared accountability across different departments and disciplines. They are reviewed regularly at the senior management and board level. Management reviews patient flow problems and successes at a daily huddle.

Numerous interventions and approaches are being employed throughout the organization to continue and hardwire successful initial results, so that the team is confident in creating a safer, more attuned and efficient patient experience.

Outcomes Achieved

- The time it takes to move patients upstairs to the inpatient service decreased 13% over two years.
- The median door to initial doctor evaluation time was cut in half over three years.
- The average discharge time from inpatient service is 28 minutes earlier, over two years.
- Patient satisfaction with the emergency room is improving.
- The facility instituted real-time patient flow tracking with an automated concurrent “bed-board” monitored by a dedicated clinician.
- Fully implemented telemetry “transition orders” are designed to assist staff with commonly necessary initial interventions once the patient is transferred to a monitored bed.
- Daily discharge rounds and organization-wide huddles are fully implemented to coordinate necessary steps for patients anticipated to be discharged the next day.

Lessons Learned

- Regarding emergency room transfers to the inpatient units, it really matters to have a highly skilled clinician with decision making authority dedicated to efficient, safe patient transfers.
- Live, concurrent patient tracking information is a must.
- Discharge coordination directed toward safe and earlier discharges requires daily focused attention of physician, case management, nursing and other clinicians in an organized, purposeful manner.

Emergency Department “Front-end” Process Improvement Initiative Richmond University Medical Center, Staten Island

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Like many emergency departments across the country, Richmond University Medical Center has experienced overcrowding, wait times and patients dissatisfied with the delays and the overall triage process. In addition to the in-house throughput initiative, the hospital identified its triage system as an operational bottleneck, causing significant delays and negatively impacting turnaround times and patient satisfaction scores. Quality care may be compromised when patients experience long waits to be seen by a clinician. The community expects and deserves timely, quality care.

A front-end team was developed and charged with “pushing” the patients through the process. The patient is greeted by a nurse, medical assistant and registrar and quickly put “on the grid” so that diagnostic treatments and testing begin.

Outcomes Achieved

- Time to registration improved.
- Patient satisfaction improved.
- There was success in reducing the number of patients who leave without being seen during volume surges.

Lessons Learned

- Although minimal, some modifications in the physical space were required to achieve objectives.
- The registration staff are a huge part of this process and need to be on board. Registration’s focus is not necessarily on the throughput piece of the process. All registrations need to be completed on the back end to prevent patients from leaving before being registered. This requires a full evaluation of the registration’s processes and flow.
- Change is hard. There were many false starts, and there were challenges with engaging staff about the process’s potential benefits.

HIMSS Analytics Electronic Medical Record Adoption Model Stage 7 Rochester Regional Health

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The Healthcare Information and Management Systems Society (HIMSS) Analytics Electronic Medical Record Adoption Model (EMRAM) incorporates a methodology and algorithms to automatically score hospitals around the world relative to their electronic medical record (EMR) capabilities. Stage 7, the highest level, is an environment where paper charts are no longer used.

Rochester Regional Health set out to achieve HIMSS Stage 7 designation through leveraging a fully-integrated EMR experience to achieve clinical and service excellence. A goal was to excel in user experience and system resilience so that a fully paperless operation can maximize patient safety and produce measurably excellent outcomes. The team supported a fair governance system and collaborative culture to use informatics best practices in innovative projects and day-to-day operation to achieve safe, clinically sound, user-friendly, compliant and efficient practices.

Outcomes Achieved

- As a result of creation of a falls committee, implementing the Hester Davis Risk Assessment Scale, standardizing interventions (yellow gowns, bed alarms, signage, etc.) and using EMR (visual cues and banner code to one color), the hospital achieved a 20% reduction in patient falls.
- Central line-associated bloodstream infections were reduced by 60% through the creation of a task force and case reviews.
- The long-observation rate decreased from 34% to 10%, and the overall observation rate decreased 8%.
- Downtime preparedness: hardware, back-up medical record and user education.
- Barcode administration improved from very good to excellent for medication, blood and breast milk—reducing the risk of error.
- This initiative is a collaborative and cohesion-building process that spreads best practices across various healthcare disciplines and hospitals.

Lessons Learned

- EMR is a viable tool to optimize utilization review and compliance.
- Reliable, fast access to data is critical, not only in successful change management but also in developing a business case to invest in initiatives.
- EMR is an effective tool to guide the practice of individual clinicians, and also to spread successful programs system-wide.

Standardization of CT Contrast Utilization in the Emergency Department Rome Memorial Hospital

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In a collaborative effort between the medical directors of the emergency department (ED) and the radiology department to improve timeliness of care, Rome Memorial Hospital developed thoughtful protocols based on American College of Rheumatology (ACR) criteria to standardize computed tomography (CT) contrast utilization in the ED. CT contrast utilization was evaluated, demonstrating an opportunity for improved appropriateness of contrast use. By standardizing utilization, contrast would be administered in cases where clear benefit and necessity are demonstrated.

Outcomes Achieved

- During the period of January 2017 to December 2017, CT contrast utilization in the ED decreased 26%, from 21.4% to 15.7%. CT contrast utilization remained below 20% for nine months in 2017.
- Following distribution of the physician education memo in February 2017, CT contrast use decreased 27%, from 21.1% in February 2017 to 15.4% in March 2017.
- The average CT contrast utilization in 2016 was 39%, and the average in 2017 was 16%, a 58.5% decrease.
- Each month in 2017, with the exception of October, CT contrast utilization decreased at least 40% compared with the corresponding month in 2016.
- The hospital saw decreases in the ED length of stay of gastrointestinal patients.

Lessons Learned

- By tracking CT contrast use trends by provider, outliers are now quickly identified and education is provided based on best practice, appropriate utilization and adherence to protocol.
- Through a thoughtful and methodical approach comprised of standardized protocols and provider education, combined with real-time feedback based on objective measures, physicians have proven receptive to the culture change.
- While minimization of contrast utilization is appropriate in the ED setting to facilitate rapid and accurate diagnosis of time-sensitive conditions, exams performed on an emergent basis should not replace full diagnostic CT exams.
- Open communication and team collaboration between departments is a proven best practice for improved patient outcomes: team, plan and attitude.

The Cultural, Clinical and Operational Benefits of Establishing a Robust Safe Patient Handling Program

St. Joseph Hospital, Bethpage

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St. Joseph Hospital established a multidisciplinary team consisting of physical therapists, frontline nurses, nursing education and environmental services staff and hospital administration to address safe patient handling. The team referenced best practices from multiple organizations focused on safe patient handling and used Lean methodology to bring it to practice.

Staff interviews revealed that the two biggest barriers to using safe patient handling equipment appropriately were accessibility to slings (the harnesses that support the patient on the device) and a knowledge deficit as to which circumstances required which equipment. Operational processes regarding the stocking, storing and laundering of slings were analyzed and streamlined. Technological processes were streamlined as well, with an adjustment to the algorithm which drives the nursing staff toward selecting the most appropriate device. Lastly, just-in-time education was affixed to the patient safety devices to serve as a resource to the staff at the point of care.

Outcomes Achieved

Comparing two years pre-implementation to two years post-implementation:

- sling utilization increased 339%;
- safe patient handling-related injuries decreased 36%;
- number of days of lost work decreased 71%;
- safe patient handling-related injuries with lost days of work decreased 67%;
- patient falls where the patient was being assisted by nursing staff decreased 21%; and
- the number of Workers' Compensation claims declined by 50% and the hospital gained eligibility for the 2.5% Workers' Compensation Safe Patient Handling credit.

Lessons Learned

- Having frontline staff as co-chairs in governing committees reduces the power gradient and empowers frontline personnel to suggest clinical and operational improvements.
- To develop an organization that embeds patient safety into its culture, it is imperative to recognize that worker safety translates into patient safety.
- An employee injury resulting in a loss of work days is not only costly to the organization, but it has a negative impact on the care of patients and livelihood of their employees and their families. To be a true high-reliability organization, the organization must value the safety of patients and workers equally.

Reducing Preoperative CAT Scan Utilization in Appendectomy Patients Golisano Children's Hospital, Strong Memorial Hospital, Rochester

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Golisano Children's Hospital participated in an appendectomy pilot that focused on resource utilization in the care of pediatric appendicitis patients. Through this pilot, the hospital was identified as a high utilizer of preoperative computerized tomography (CT) scans. The key stakeholders—radiology, general surgery, pediatric surgery, quality professionals, and the emergency department (ED)—met on multiple occasions, the pilot data were reviewed, a retrospective analysis of appendectomy cases was performed and an appendectomy pathway was developed, which included the Pediatric Appendicitis Score (PAS) and the ultrasound score.

The PAS scoring tool is proven to be effective for evaluating “rule-out” appendicitis patients. The ultrasound scoring tool was developed through the retrospective review of appendectomy patients and is scored based on secondary appendicitis signs visualized on ultrasound. A template for the ultrasound scoring was developed by radiology and implemented into the electronic medical record. This template provided a standardized tool for documentation of ultrasound reads and facilitated the scoring.

Education was provided to ED staff, surgical residents and radiology. This education included in-person presentations and review of the pathway and scoring tool. The appendectomy pathway was then initiated in April 2016. Data were prospectively analyzed and education/feedback was provided to the surgical residents on a monthly basis.

Outcomes Achieved

- Radiation exposure in pediatric appendicitis patients decreased.
- The hospital achieved better resource utilization and less expense for the patient and hospital with a decrease in CT use.
- Patient history and physical documentation improved.

Lessons Learned

- Including all stakeholders is important for successful implementation and monitoring of project compliance and success.
- Standardization of care leads to improved outcomes.
- It is important to develop and implement evidence-based pathways to improve quality of patient care.

Unit-based Physical Therapists Promote Early ICU Mobility and Contribute to Hospital Net Operating Margin

Strong Memorial Hospital, University of Rochester Medical Center

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Strong Memorial Hospital implemented a pilot and conditionally funded two full-time equivalent (FTE), unit-based physical therapists (PTs), who took lead roles in mobilizing patients over two critical care units: the medical intensive care unit (MICU), and surgical intensive care unit (SICU).

Outcomes Achieved

- Mean MICU length of stay (LOS) decreased from 5.64 to 5.19 days, as did the hospital LOS, from 19.08 to 15.27 days. Total MICU cases increased from 590 to 611. This resulted in ICU variable cost savings of \$189,716 and a \$134,400 margin for additional MICU cases (total \$324,116).
- Mean SICU LOS decreased from 4.85 to 4.43 days, and total hospital LOS increased modestly from 17.87 to 18.15 days. Total SICU cases increased from 567 to 644. This resulted in ICU variable cost savings of \$186,631 and a \$492,800 margin for additional SICU cases (total \$679,431).
- Adjusted for the cost of two PTs, the increased hospital net operating margin was \$816,970 for both units.
- The number of patients discharged to home or self-care increased (MICU: 30.9% to 33.2%, SICU: 30.4% to 38.6%).
- The number of patients discharged to inpatient rehabilitation decreased (MICU: 3.19% to 1.58%, SICU: 3.32% to 1.29%).
- The number of patients discharged to skilled nursing facility decreased (MICU: 16.5% to 15.6%, SICU: 12.0% to 10.9%).

Lessons Learned

- Carefully planned trials can demonstrate financial sustainability and add to overall hospital net operating margin.
- Multidisciplinary goal-setting and collaboration can increase the quality of patient care and overall disposition of patients.
- Multidisciplinary partnerships improve staff satisfaction in that all members of the team work to improve outcomes.

Reduction of Medication Errors

Wyoming County Community Health System, Warsaw

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In 2012, Wyoming County Community Health System began by reporting its medication errors to the Quality Board of Managers. Prior to that, the hospital reported internally, but did not “drill down” to identify the faults in the system that were causing errors.

All medication errors are reported as events and investigated. They must be discerned through nursing, providers and pharmacy. The department manager reviews the error with the frontline staff involved, and also reviews it at a monthly department-specific meeting. The event then goes to a specialized committee called “Shed Med” for discussion and brainstorming. Here is where the different disciplines can work together for a common goal of medication accuracy and safety. All medication errors are initially looked at as an educational tool to improve the system, and not be punitive toward staff. The hospital wants to encourage reporting, not make staff afraid to do it.

Outcomes Achieved

- The hospital went from 63 medication errors in 2013 to 16 in 2017.
- Staff have an increased sense of responsibility and accountability.

Lessons Learned

- This is not just a nursing issue. Other disciplines such as pharmacy, respiratory therapy and other providers can be just as responsible for giving or handling medications.
- Involving the patient and/or family has improved patient awareness about what he/she is taking and why.
- Accurate dosing of medications leads to better medical and psychological outcomes. If done correctly, it keeps the patient healthier and out of the hospital.



Chapter 5

**Patient
Experience
of Care**

Increasing Patient Satisfaction for “Quiet Around Room at Night” Scores with the White Noise Machines on a Medical/Surgical Unit Mercy Hospital of Buffalo

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Administration at Mercy Hospital of Buffalo began piloting two white noise machines in June 2016. The unit practice council (UPC) had researched white noise machines and had them installed in two semi-private rooms directly across from the nurse’s station. Qualitative data from those patients of an improved night’s sleep and feeling more rested were validated. This was then implemented on the entire experimental unit within a two-week period in March 2017.

The interdisciplinary team included stakeholders such as all staff registered nurses, the facilities department, administration, nurse managers and a supervisor of hospital experience. The results were compared with a control medical/surgical unit of equal size and similar patient population, whose unit had not had the implementation of white noise machines. In August 2017, the other medical/surgical UPC decided to pilot the machines in patient rooms that were most subject to increased noise levels in August 2017. The white noise machines were then implemented on other medical/surgical units hospital-wide in November 2017.

“Quiet Around Room at Night” patient satisfaction outcome metrics were validated by National Research Corporation (NRC) patient experience results and have correlated positively since the initiation of the study.

Outcomes Achieved

- The hospital saw significant improvement in “Quiet Around Room at Night” patient satisfaction scores, at or above the national average.
- The facility developed a best practice that can positively impact patient outcomes, length of stay and patient safety.
- Overall patient satisfaction increased for “Rate the Hospital,” specific to experimental unit.
- Interdisciplinary team collaboration will continue as implementation of white noise machines is executed as a best practice throughout the hospital.

Lessons Learned

- The implementation of white noise machines improved patient satisfaction and decreased potential sleep disorders on a medical/surgical unit.
- Managing sleep disturbances for patients in hospitals has a positive impact on physical, psychological and emotional outcomes and can result in improved patient outcomes and satisfaction.
- Interdisciplinary collaboration creates full engagement and partnership among staff.

Safe Sleep: A Continuous Quality Improvement Initiative, Ensuring Sleep, Patient Safety and Patient Satisfaction NYU Langone Health, New York City

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New York University Langone's goal in this initiative was to decrease sedatives for sleep without impacting patient satisfaction. With subsequent quality improvement cycles, the hospital's efforts expanded to include decreasing use of other sedatives for sleep, such as benzodiazepines and diphenhydramine, and emphasizing other avenues to facilitate safe sleep, including melatonin and environmental interventions.

Strategies for practice change included education for both providers and nurses focused on the Beers criteria, with emphasis placed on sedative medications and their potential side effects, particularly in the elderly. Evidence-based guidelines for patient engagement in medical decision making and sedative prescriptions were also provided.

Patients were engaged in every decision around safe sleep, and were offered headphones and melatonin. This initiative stressed collaboration and shared decision making among patients, nurses, providers, and pharmacy.

Pharmacy audits through the electronic medical record were performed prior to the intervention and post-intervention. Feedback was regularly provided to providers to highlight near-misses as well as great saves.

Outcomes Achieved

- The use of zolpidem decreased starting from the third quarter in 2016.
- Reassuringly, there was no increase in other medication classes; in fact, benzodiazepine use also declined.
- As expected, the melatonin prescription rate increased. The decreasing use of zolpidem and increasing use of melatonin were consistent with circadian use.
- This occurred without any apparent effect on patient satisfaction (zero patient complaints after discussion) and with shared decision making among the clinical teams, including nurses, physician assistants, attending physicians and patients.

Lessons Learned

- A multidisciplinary team approach, partnering with patients, was able to alter the approach to ensuring sleep, and decrease use of medications with a high side-effect profile.
- Sleep interventions can be performed with minimal impact on patient satisfaction.
- Highlighting near-misses and areas for improvement are equally important in creating and sustaining provider practice change.

Improving the Patient Experience by Creating a Culture of Service and Clinical Excellence

South Nassau Communities Hospital, Oceanside

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A multidisciplinary team at South Nassau Communities Hospital developed strategies to improve the patient experience, safety, communication and service recovery by re-educating staff members.

In an effort to guide the staff in patient care monitoring, the hemodialysis center developed and implemented a program called “ABC.” During rounds, which are conducted at least every 30 minutes, staff members observe and check the A (Access), B (Blood pressure), and C (Comfort) level of patients undergoing dialysis treatments while simultaneously creating time for purposeful engagement. Prior to implementation, patients were notified of the new initiative, which is led by charge nurses who ensured that ABC rounding was completed in a timely and consistent manner.

Each week, a leadership team composed of dietitians, nurses, social workers, educators and technical leaders conducted multidisciplinary rounds on every shift and received immediate feedback from patients about their care and concerns. The rounding provided leaders with the opportunity to engage patients in real-time service recovery, when necessary.

The dialysis center received the IPRO End-Stage Renal Disease Network Quality Award for Highest Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score in New York as a result of the ABC performance initiative and the hard work and dedication of the dialysis team.

Outcomes Achieved

Satisfaction scores (top box scores and percentile ranking):

- Fall 2015: 87.1% and 76th percentile ranking
- Spring 2016: 89.2% and 81st percentile ranking
- Fall 2016: 88.9% and 80th percentile ranking
- Spring 2017: 95.2% and 92nd percentile ranking
- Fall 2017: 100% and 99th percentile ranking

Lessons Learned

- Providing a quality, structured system to assist staff in monitoring patients benefits both patients and staff, and contributes to a culture of safety.
- Effective communication skills improve patient-staff relationships.
- A multidisciplinary leadership presence enhances the patient’s perception of care.



Chapter 6

**Providing Care to
Special Populations**

Using Project ECHO to Spread Primary Care-based Buprenorphine Management for Opioid Addiction: Life-saving System Transformation

Bassett Healthcare Network, Cooperstown

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Opioid addiction is a national crisis. Effective treatment options exist, but are challenging to access, especially for patients who live in remote, rural areas. Bassett Healthcare Network's project brought evidence-based treatment to a population in great need.

By leveraging Delivery System Reform Incentive Payment (DSRIP) program funding and a unique collaboration with the University of Massachusetts (UMass), primary care clinicians obtained Drug Addiction Treatment Act (DATA) waivers, also known as "X" licenses. These waivers allow primary care clinicians to prescribe buprenorphine for treatment of opioid addiction.

The primary care physicians met weekly with UMass for the last year via videoconference, using the Extension of Community Healthcare Outcomes (ECHO) model. This innovative videoconferencing hub-and-spoke model allows specialty knowledge to spread from an expert team (hub), to community primary care clinics (spokes), and for primary care teams to share practical, primary care-focused expertise. Bassett hired an addiction medicine psychiatrist, who has been essential to the program, providing expert care and consultation to support primary care clinicians. DSRIP has facilitated collaboration with community-based providers for wraparound services as part of the model as well.

The primary care physicians have become confident and competent in using their waivers. Through January 18, 2018, they initiated treatment for 176 patients with buprenorphine for opioid addiction.

Outcomes Achieved

- Twenty-seven primary care providers obtained DATA waivers.
- A total of 176 patients with opioid/heroin addiction treated with buprenorphine in 2017.
- Successful collaboration occurred between community-based providers, primary care, emergency department and addiction medicine staff.

Lessons Learned

- To use DATA waivers, many primary care clinicians may need support beyond what they receive in the licensing course.
- When viewed as a chronic health condition, primary care clinicians are more comfortable treating opioid addiction.
- Establishing communication between sub-specialists, the emergency room, primary care clinicians and community agencies allows patients to receive a higher level of care.

Telepsychiatry: Improving Care for the Behavioral Health Patient in Crisis

Catholic Health Services of Long Island, Rockville Centre

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In response to the psychiatrist shortage and delays for psychiatric consults, Catholic Health Services of Long Island embraced technology and leveraged clinical resources to improve access to care for the behavioral health patient in crisis.

The health system earned approval from the Office of Mental Health (OMH) to implement one of only three telepsychiatry pilot programs across New York State. OMH defines “telepsychiatry” as “the use of two way, real-time interactive audio and video equipment to provide and support clinical psychiatric care at a distance.” The pilot began with three of the system’s six hospitals during the peak weekend times from 6 p.m. through 7 a.m. Robust Process Improvement techniques were applied to implement the program. The creative use of technology connects the remote psychiatrist to provide a more expeditious response regardless of shift or location, with coverage spanning two counties.

Outcomes Achieved

- The average turnaround time to complete a psychiatric consult for 341 emergency department (ED) patients was reduced by ten hours, from 12 hours to one hour and 55 minutes.
- The labor-intensive and costly one-to-one ratio supervision of patients was reduced by 3,400 hours.
- A business opportunity was created by improving throughput for the pilot participating EDs to treat and release an additional 750 patients.
- A 97% patient satisfaction rating was maintained since implementation.

Lessons Learned

- When using telepsychiatry, the psychiatrist does not have sense of smell to detect alcohol or other odors related to addiction or bodily function issues. This challenge was addressed collaboratively and the ED staff relays pertinent cues with the telepsychiatrist.
- A patient survey distributed to all patients demonstrates a 97% satisfaction rate with the program (29% response rate).
- Analyzing the emergency psychiatric patient flow revealed areas of opportunities on variables not within the scope of the telepsychiatry project, such as discharge challenges.

The Effects of Positive Supports on Aggression in People with Intellectual Disabilities

Maryhaven Center of Hope, Catholic Health Services of Long Island, Port Jefferson

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Maryhaven Center of Hope provides comprehensive services to children, adolescents and adults, many of whom have histories of severe challenging behaviors that can result in the use of restrictive physical interventions, which can lead to client and staff injuries.

The Center initiated a positive approach to help support people the Center serves by implementing initiatives based on person-centered philosophy, self-empowerment and encouraging people to make their own life choices. These initiatives aided in the decrease of physical and restrictive interventions, benefiting both staff and individuals.

The goal of this project was to develop a sustainable program that addresses the needs of both adults and children receiving services. It includes providing ongoing proactive training and improved data collection and analysis methods to reduce restrictive interventions and injuries.

Outcomes Achieved

- The use of time-outs decreased significantly (60%) in 2017.
- Residential programs conducted client council meetings once a month with all individuals.
- The use of psychotropics prescribed, as needed, in response to challenging behavior decreased 42%.
- Changes to behavioral data collection enabled clearer representation of behavioral and prosocial data, agency-wide.
- The use of restrictive physical interventions decreased 21%.
- The person-centered planning department completed residential reviews from 2016 to 2017 and saw a 20% increase in compliance with regulatory requirements.
- The staffing development department was able to customize and develop a presentation based on regulations to educate staff on the person-centered planning philosophy.

Lessons Learned

- A decrease in availability of restrictive interventions did not result in an increase in aggressive behaviors requiring interventions.
- Data collection methods are essential when trying to understand the function of a behavior and implement the appropriate proactive strategies to teach the appropriate behavior.
- Client council meetings are a stronger platform for individuals to speak their mind and to make their own life choices. However, some sites found it difficult to incorporate individual interests and hobbies into meaningful and new community outings.

Let's BEE Mindful™: Caring for Children with Special Needs

Cohen Children's Medical Center, Northwell Health, Queens

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In collaboration with parents of special needs children, Cohen Children's Medical Center designed this multifaceted BEE Mindful™ program for all providers caring for children with neurobehavioral disorders to create a safe haven focused on individualization of care. The initiative includes an educational module and a pediatric neurobehavioral assessment tool (PNAT). This multi-modal, interactive, e-learning module was designed for all healthcare staff and included visual and auditory depictions of how a child with a neurobehavioral disorder hears and sees the world.

The BEE Mindful™ symbol consists of a heart shape made of honey combs incorporating the idea of a controlled cluster care approach. The symbol is used as signage to identify these vulnerable children in the clinical setting and alert all healthcare team members to be mindful of the individual needs of the child prior to interaction.

Currently, there is no standardized assessment tool for children with special needs to identify their uniqueness with appropriate safe, quality interventions of care. With the development and utilization of the BEE Mindful™ PNAT, children who once were provided the same services as children without special needs are now given the opportunity to have care provided in a manner that is safe and specific to their needs. With the current national absence of a healthcare program to meet the needs of this population, this institution is committed to make a difference with the BEE Mindful™ program, providing a positive experience with high-quality care that all children deserve.

Outcomes Achieved

- The length of hospitalization for this population decreased by two days, bringing it below the national average.
- Use of physical restraints in general pediatric medical/surgical units decreased 63%.
- Annual cost avoidance is \$437,000.
- There has been an average annual addition of 874 days of bed availability within the institution.
- Patient satisfaction scores have improved.

Lessons Learned

- Earlier onboarding of the technical team in the development process helps to ensure the addition of PNAT in the electronic medical record.
- Less time is necessary between educational rollout of the program and the implementation phase.
- Earlier inclusion of the Bee Mindful™ hospital census in the daily safety call enables global oversight.

Providing Support and Education to Frontline Staff Treating Patients with Substance Use Issues

Ellis Medicine, Schenectady

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Ellis Medicine's quality services department convened an interdisciplinary task force to address care of patients and families with substance use disorders. Research shows that society generally views substance use as a personal choice, not an illness, and that some healthcare professionals have negative attitudes toward people with substance use disorders. Personal experiences can also contribute to a negative attitude. Education about the unique needs of this population and firsthand experience has been shown to decrease negativity and foster nurse-patient communication.

The substance abuse taskforce created a five-question needs assessment survey to determine the educational and resource needs of frontline staff who interact with patients. Ellis Medicine also conducted a literature search related to health worker opinions on caring for patients with substance use disorders. An educational session was held for mental health workers on the process of substance use disorders. The clinical practice question driving forward Ellis Medicine's progress was "How prepared are our frontline staff to provide treatment to patients with substance abuse disorder?"

Outcomes Achieved

- Forty-four percent of 144 respondents did not feel comfortable providing care to substance abuse patients and their families.
- Sixteen percent did not completely agree with the statement that substance abuse was a disease.
- Thirty-four percent stated they did not know strategies to reduce stress when they felt they were becoming non-therapeutic with substance abuse patients.

Lessons Learned

- Stigma about substance use disorder is pervasive, even among healthcare workers.
- The survey identified gaps in knowledge regarding substance use disorders and a need for more support of staff treating patients with substance use disorders.
- The more informed and compassionate frontline staff are, the better equipped they will be to treat patients with substance abuse.

Post-discharge Phone Calls Positively Impact the Burn Intensive Care Patient Experience and Support for Burn Patients

Erie County Medical Center Corporation, Buffalo

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The registered nurses in Erie County Medical Center's burn unit identified that the concerns from post-discharge phone calls were often similar. In response, the burn team developed standardized questions to be used during post-discharge phone calls to assess whether patients and their families had educational gaps. These questions also determined whether assistance was needed with wound care services or obtaining supplies. Often, patients simply needed reassurance that care provided at home, either by themselves, families or home healthcare, was meeting the appropriate guidelines.

The burn team used a Plan-Do-Study-Act (PDSA) methodology to measure patient outcomes. Through post-discharge phone calls, reinforcement of discharge instructions is used to improve patient satisfaction and improve self-care measures in burn patients. The team discovered that its newly created questionnaire was beneficial to the patients, families and staff.

Outcomes Achieved

- Patient satisfaction improved.
- The staff's ability to provide assistance and guidance to patients and families was enhanced.
- Gaps in continuity of care and allied supportive resources were discovered and addressed.
- Availability of wound care dressing in urban, suburban and rural areas was increased through education of suppliers and the suppliers' willingness to accommodate specific patient needs.

Lessons Learned

- Some patients experience difficulty finding specific burn supplies and dressings and need further assistance.
- Patients discharged from the burn unit expressed appreciation for the calls from the nursing staff and their assistance in answering questions.
- Post-discharge phone calls provided emotional support and reassurance to patients and families who have suffered a burn injury.
- Post-discharge phone calls provide feedback to the nursing staff in areas for patient educational improvement.

Behavioral Health Management in a Community Hospital— Improving Patient and Caregiver Safety and Engagement Highland Hospital of Rochester

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When a treatment plan is in place for known medical conditions, but patient behavior interferes with the provision of care, it can harm the well-being of other patients and staff's ability to balance the time required to manage behavior with the needs of other patients. Highland Hospital of Rochester established an interdisciplinary behavioral response team that is charged with developing a behavioral plan after review of these cases and input from staff/caregivers. The team includes the associate chief of medicine; primary care providers; representatives of a complex care practice; and nursing, psychiatry, social work and patient relations professionals.

Representatives of the team meet with the patient and/or family to present the plan, which includes behavioral expectations moving forward and implications of non-adherence to the plan. A copy of the plan is maintained in the electronic medical record for reference at future encounters. The plan may be accessed by affiliate hospitals and primary care sites. The plan is expected to be enforced within the continuum of care to facilitate standardized management of behaviors not conducive to providing the best care. In addition to plan development and implementation, interdisciplinary rounds are conducted daily to assure that caregivers are supported, the plan is effective and modifications are made as appropriate. This process is established in hospital policy.

Outcomes Achieved

- Since implementation in 2017, 17 behavioral plans have been established.
- The registered nurse turnover rate has decreased from 28.4% (2016) to 4.31% (2017); the patient care technician turnover rate decreased from 39.25% (2016) to 30.38% (2017); and other staff turnover (including companion sitters) decreased from 42.86% (2016) to 16.4% (2017).
- Employee engagement survey results relative to safety have shown an improvement on the pilot unit.

Lessons Learned

- Staff retention and burnout is highly impacted by the inappropriate behaviors of a select and difficult group of patients. A consistent care team approach has yielded a sense of organizational support among staff.
- The program lends equal value to providers and staff, although it was initiated through nursing concerns for safety and compliance with treatment plans.
- Working collaboratively with patients to define an acceptable plan can foster a more positive care environment for patients and their caregivers.

The Center for Transgender Medicine and Surgery

Mount Sinai Beth Israel, New York City

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Mount Sinai Beth Israel brought together a multidisciplinary team of professionals to provide comprehensive care to the health system's transgender patient population. The care given includes primary/preventive care, hormonal therapy, behavioral healthcare, surgical services and post-transition care.

The team includes plastic and reconstructive surgeons, urologists, psychiatrists, endocrinologists and a nurse practitioner specializing in the care of transgender and gender diverse individuals.

Outcomes Achieved

- Surgery increased from 130 cases in 2016, the first full year of services, to 282 cases in 2017.
- A total of 412 surgeries were performed from January 1, 2016 to December 31, 2017. Of these, 283 were male to female procedures, and 129 were female to male.
- Increased requests for surgery led to expansion of operating room "block time" for CTMS Ambulatory and Inpatient procedures.
- A total of 1,300 CTMS patients were seen at the outpatient clinic since March 1, 2016.

Lessons Learned

- Staff education requires ongoing in-service sessions.
- To fully serve patients, additional staff were needed to assist in pre-, intra- and post-operative counseling, as well as coordinating medical and psychological assessments.
- Implementation of a surgical service with limited practitioners has challenges in obtaining independent peer review.
- In a marginalized population, extensive support services are required to ensure quality surgical outcomes.
- Increased patient volume for surgery required additional psychiatry services.

Decrease of Primary Cesarean Sections

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

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Mount St. Mary's Hospital and Health Center focused on reducing first cesarean sections, especially in the population classified as nulliparous, term >37 weeks, single, vertex (NTSV). The hospital created a culture of a supportive team that shared the same approach and used evidence-based guidelines to benefit their patients. Patient education was a key driver in patient satisfaction and the demand for induction. The ability of providers to relate the importance of spontaneous labor for non-medical patients was important.

Nursing reclaimed the craft of laboring patients in non-pharmacological techniques. Collaborative practice with patient and care providers included the willingness to discuss differences and to negotiate options. All of these actions brought the outcomes of improved patient satisfaction, lowered primary cesarean rate and improved staff satisfaction.

Outcomes Achieved

- After implementation, primary c-sections decreased 3% from May 2017 despite a spike in one month from increased fetal distress cases (no pattern noted).
- The initiative improved patient and care provider satisfaction.
- There is now a higher level of transparency for providers and nursing staff.
- Fewer inductions resulted in better outcomes, fewer interventions, and better financial margins.
- Quality scores improved.
- This initiative offers greater chances of physiologic birth.
- The organization's evidence-based culture improved.

Lessons Learned

- You must tackle the initiative as a multidisciplinary team to change the culture of the maternity unit.
- Patient education is key to reducing inductions, which has a direct effect on the cesarean rate.
- One month can ruin a great curve. The month of November had a spike in primary c-sections.

Use of a Sensory Modulation Room in an Inpatient Adolescent Unit

NYC Health + Hospitals / Metropolitan

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The project included painting walls with soothing color and furnishing equipment that assists in easing tension through stimulation of the senses of smell, touch, sight and hearing. Examples of such equipment are the giant bean bag that provides soothing music when a patient is lying down, several multi-colored soft punching bags that provide sound when punched, relaxation music, stress balls, weighted blanket, some aromatherapy items such as lavender and cinnamon and ordinary bubble wrap that patients use to keep focused on certain tasks.

Staff who have been trained in the use of the sensory room introduce this modality on admission and incorporate reports and observations about the patient's individual crisis plan. A patient or the significant other informs the staff of any warning signs of agitation and includes the triggers that make him/her upset. The use of the sensory room or any items/equipment is offered to the staff members, who are available to assist the patient during crisis situations.

The clinical team discusses with the patient the effectiveness of the modality in reducing agitated states. Patients are observed in a continuous, uninterrupted manner during the whole process and then the benefits are included in the patient's treatment plan.

Outcomes Achieved

- The use of restraints has been reduced.
- The number of assaults (patient to patient and patient to staff) has decreased.
- An evidence-based, patient-centered care clinical practice was implemented.
- A “No Harm” culture has been hardwired, benefiting patients and staff.
- Relationships among interdisciplinary staff have been strengthened.

Lessons Learned

- Patient empowerment with regard to treatment choices is key to treatment adherence.
- Discovering the patient's fears and supporting the patient counts more than offering medication.
- Patient participation provides opportunities to know them more and remove boundaries between staff and patients.
- Proactive approaches are important to identify de-escalation strategies.
- Small costs can make significant changes.
- Data are key to support changes.
- Senior leadership buy-in is critical.
- Active patient and family engagement is important to ensure safety.

Behavioral Emergency Response Team: Improving Safety in the Prevention and Management of Disruptive Behaviors in Non-psychiatric Inpatient Settings

NYU Langone Health, New York City

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NYU Langone Health created a taskforce to review reports of disruptive incidents, identify opportunities for improvement and make recommendations to improve their management, especially in cases of violence and/or injury. The taskforce recommended the creation of a behavioral emergency response team (BERT), recognizing that these episodes could be managed most effectively by a dedicated team of clinicians with expertise in behavioral management and de-escalation.

The BERT operates using a model of crisis management developed on the inpatient psychiatric unit called the “crisis team leader” that relies on a clinical nurse to function as the team leader who organizes and directs the multidisciplinary team, including a psychiatrist and security staff, in the management of a disruptive patient from the beginning of the episode to the resolution. The team approach was designed to be similar to that of the hospital’s medical rapid response team, with emergency management as well as rapid diagnostic assessment.

One of many objectives of the BERT service is to proactively manage behavioral crises with patients who are or may become disruptive to the environment of care. BERT also serves to prevent staff assaults and injuries on inpatient adult units throughout the hospital. An additional goal was to decrease the rate of registered nurse lost work days due to assault by patients on units served by the BERT. The lost work days reflect the incident as well as the severity of the injury.

Outcomes Achieved

- Patient-on-nurse assaults with injury resulting in lost workdays were decreased.
- The share of security calls in five out of six units decreased compared to the previous year.
- Earlier involvement of psychiatrists in consultation helps with clinical management following crisis response.

Lessons Learned

- Written treatment plans promote teamwork and supports improved outcomes.
- Structured proactive rounding improves identification of patients at risk for behavioral disruption. The BERT registered nurse conducts rounds with direct questions about substance withdrawal, behavioral flags, security calls and any patients of concern.
- Interdisciplinary safety huddles on identified high-risk patients improve team communication and execution of a daily safety plan.

Cesarean Surgical Site Infection Prevention Process Improvement Project NYU Langone Health, New York City

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NYU Langone Health created an overarching charter with the goal to reduce the cesarean section infection rate by 25% within six months after implementation of a surgical site infection prevention bundle.

NYU Langone Health performed a comprehensive evaluation of its current perioperative processes and identified opportunities for improvement to align with best practices and to meet all regulatory requirements in the form of a bundle.

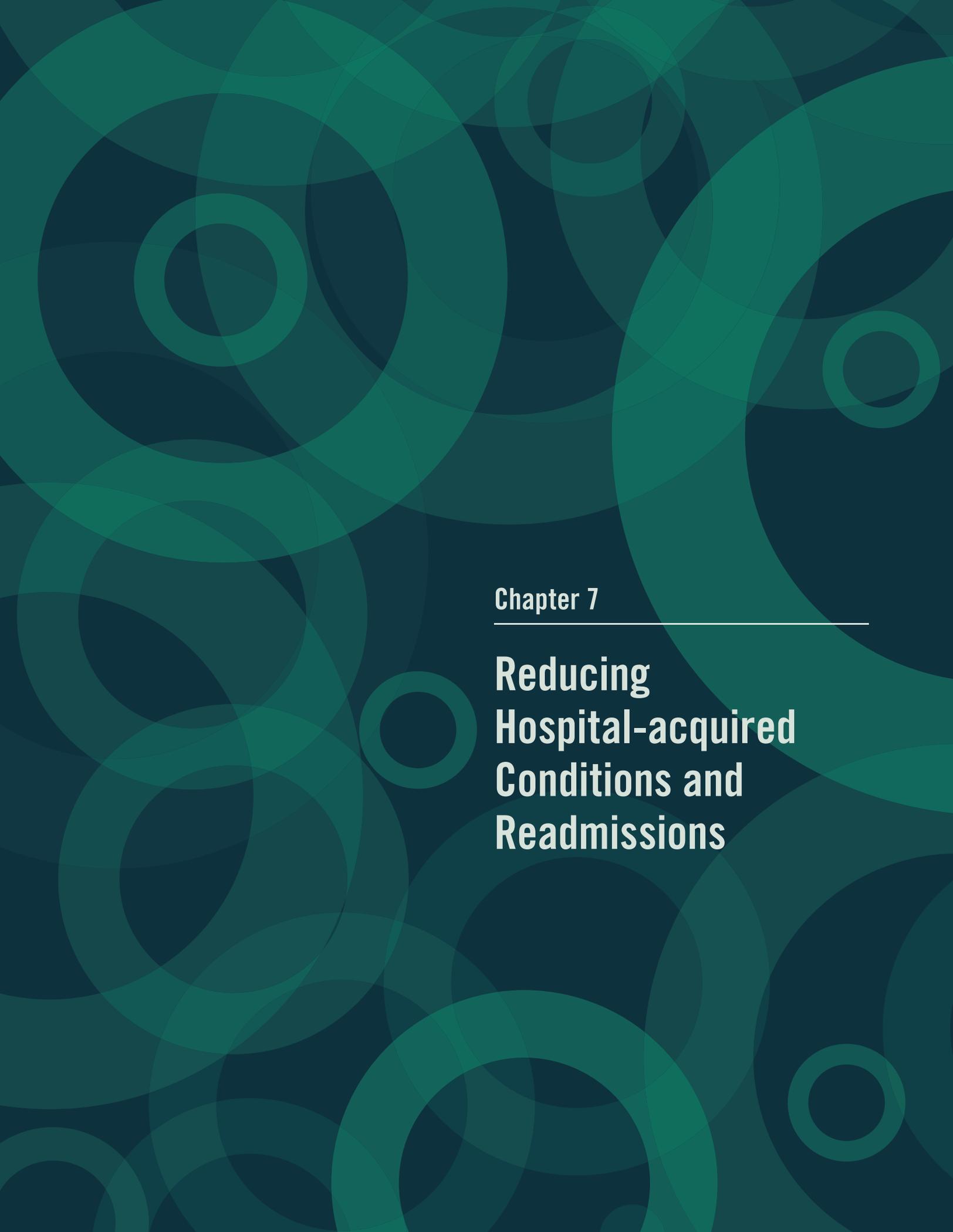
Team leaders included experts from building services, compliance/infection prevention and control, central sterile processing, operating room maintenance, anesthesiology, nursing, obstetrics and neonatology. Team leaders partnered with their counterparts on the main campus to ensure best practices were in place and Lessons Learned were shared.

Outcomes Achieved

- The c-section wound infection rate decreased 42%.
- Obstetrical perioperative care has been aligned with national best practice standards.
- Consistency has been established between the perioperative standards in the main operating rooms and the labor and delivery operating rooms.
- Collaboration and teamwork have been enhanced within the department, between departments and between campuses.
- Patient satisfaction and quality of care have improved.

Lessons Learned

- The “why” for the vision of any improvement project must be clearly understood by the team, otherwise consistent persistent effort, needed for change, will be lacking.
- Implementing change is only as valuable as one’s ability to maximize adherence to the improved process.
- Everyone needs to be given a voice in the process improvement to increase ownership and embrace the change.



Chapter 7

**Reducing
Hospital-acquired
Conditions and
Readmissions**

Hemodialysis Catheter Reduction Quality Project

Albany Medical Center, Dialysis Clinic, Inc.

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A proactive team approach is crucial to reduce hemodialysis catheter use and subsequent catheter-associated complications and costs. Albany Medical Center implemented a three-pronged approach to achieve this goal: a) a dedicated outpatient vascular access coordinator, b) collaboration between all hemodialysis care providers (including the surgical team) and c) emphasis on chronic kidney disease clinic education and patient awareness of optimal hemodialysis access, i.e., arteriovenous fistula (AVF).

Outcomes Achieved

- The monthly (average) catheter rate declined from 34% to 23.9% between the first and fourth quarter of 2017 after implementation of the catheter reduction initiative, while the monthly AVF rate increased from 54.4% to 64.6%, with an estimated cost saving of \$2,162 per patient, per year, with change in hemodialysis (HD) access from HD catheter to arteriovenous access.
- Cumulative catheter days per month for all patients decreased from 880 to 592 days.
- The monthly (average) number of hospitalizations was reduced from 29% to 20% from the first to last quarter 2017, while the percentage of patients hospitalized decreased from 23.8% to 18.4%.

- Quarterly parathyroid hormone (PTH) values greater than 600 pg/ml decreased from 24.6% to 21%.
- Anemia (Hb <10 gm/dl) reduced from 22.9% in January 2017 to 16.3% in December 2017. There were also decreases in per-HD treatment requirement of Erythropoietin units, Aranesp use, and IV Ferrlecit use.
- Nutritional status improved: monthly albumin >4 g/dl increased from 49% to 54%.

Lessons Learned

- Patient education about the benefits and advantage of AVF, compared to problematic HD catheters is key to make patients lead their care.
- A team approach among hospital staff, including nephrologists, vascular access coordinator, dialysis care providers and surgical teams is essential to understanding the patients' best interest.
- HD catheter is a very costly HD dialysis access type. It is associated with increased hospitalizations, morbidity and mortality and dialysis-associated medications doses.

Reduction of Hospital-acquired *Clostridium Difficile* in an Academic Medical Center

Albany Medical Center

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Albany Medical Center formed an organization-wide workgroup team to implement coordinated interventions, facility-wide, that would improve *Clostridium difficile* (*C. diff*) patient management and assessment, laboratory testing and treatment, and reduce the burden of contamination within the hospital environment. The workgroup included representatives from senior leadership, epidemiology, environmental services, microbiology, medicine, infectious diseases, pharmacy, information services and nursing.

The *C. diff* order was revised to include guidelines for testing with the approval of the executive committee for the medical staff. At the same time, the laboratory refined specimen submission guidelines so that inappropriate specimens would not be tested. Treatment guidelines were updated in collaboration with infectious diseases and pharmacy, and additional strategies for *C. diff* testing are still under investigation.

In partnership with nursing and environmental services, the hospital focused on strategies to prevent the transmission of *C. diff* in the hospital environment. This included use of transmission-based precautions, the assessment of room and equipment cleaning techniques, evaluation of new disinfectants active against *C. diff* and whole-room decontamination with ultraviolet light.

Outcomes Achieved

- The standardized infection ratio (SIR) fell from a value (1.22) significantly higher than the CMS benchmark in 2015 to a value (0.67) significantly lower than the CMS benchmark in 2017.
- Had the rates remained at 2015 levels, the institution would have seen an additional 162 patients treated unnecessarily for *C. diff* infection.
- The number of non-resulted (i.e., rejected) laboratory specimens increased from 308 (2015) to 528 (2017), reinforcing that fewer patients were being tested and treated for *C. diff* infections inappropriately.

Lessons Learned

- It is important to review all facets of *C. diff* prevention with multidisciplinary involvement from patient assessment and testing, to management and finally environmental decontamination to make a significant impact in hospital-acquired infection rates.
- Staff education remains a challenge and affecting changes in practice is difficult to achieve with education alone.
- Commitment of senior leadership is critical.

Infection Control and Prevention in the Operating Room

Aurelia Osborn Fox Memorial Hospital, Oneonta

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Aurelia Osborn Fox Memorial Hospital created a surgical services environment bundle that includes attire, hand hygiene, environment of care (storage/supplies, equipment, environmental services practices and physical plant) and traffic flow. An audit tool was created focusing on compliance with metrics relating to the bundle. Actions taken as a result of the audit findings include:

- A new hand hygiene education program shows pictures of cultures taken from bracelets, rings, fingers, pagers and name badges.
- An ultraviolet (UV) light was purchased and is used to systematically disinfect all operating rooms.
- The attire policy was updated to meet Association of Peri-Operative Registered Nurses guidelines.
- New mattresses were purchased for the stretchers.
- The operating room transitioned to using only disposable linens.
- Dedicated environmental services (EVS) staff were assigned to the operating room area. In addition, EVS changed the disinfectant, used disposable mops for each new patient, re-educated staff on cleaning of surgical rooms, created a schedule and assignment of responsibility for cleaning equipment in the hallways and storage areas and implemented EVS rounds on the evening shift.
- Regular infection control rounds are performed to evaluate adherence with the bundle components.

- The heating, ventilation and air conditioning system was updated to allow monitoring of temperature and humidity for each operating room.
- A new surgical hand scrub was introduced; the scrub procedure revised to allow use of waterless scrub after the first scrub of the day.
- The use of the peri-operative 2% chlorhexidine gluconate for preoperative cleansing has been expanded from orthopedics to all applicable services.

Outcomes Achieved

- Overall surgical site infection rates decreased from 0.87% (16 cases) in 2015 to 0.21% (1 case) in 2016; and a predicted rate in 2017 of 0% (zero cases).
- An internal study proved a 14% reduction in bioburden when the UV light is used for disinfecting.

Lessons Learned

- Never lose sight of the basics!
- Plan-Do-Study-Act is an effective method for improving processes and outcomes.
- A good relationship between infection control and surgical services is critical.

Journey to Zero HAPI, Leaders Enhancing Sustainable Outcomes in the Prevention of Hospital-acquired Pressure Injury

Brookdale University Hospital Medical Center, Brooklyn

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The A-3 method was completed to identify the challenges the Brookdale University Hospital Medical Center nursing staff face in preventing and managing pressure injury. The Plan-Do-Study-Act methodology was used in determining pre-data, interventions and post-data evaluation. The assessment of the issue concerning increased hospital-acquired pressure injury (HAPI) rate identified numerous challenges in the assessment, treatment and management of pressure injury. These included a knowledge gap in skin assessment, staging skills, inaccurate documentation and treatment protocols.

The skin care products and dressings varied without protocol assistance. With this knowledge, and the present illness (PI) rate identified, a plan to decrease the pressure injury rate was established with a timeline.

Outcomes Achieved

- The PI rate increased as a result of improved competency among nurses.
- Ongoing staging education has been maintained.
- There is daily monitoring of turning and positioning, documentation and HAPI rates.
- The skin care cart and process for restocking the supplies for HAPI prevention have been standardized.
- There is ongoing recruitment of, and, an increased number of skin champions, and ancillary nursing staff support the unit's skin champions.
- Electronic medical records are used to ensure compliance with nursing/physician documentation to reflect accurate assessment, treatment protocol, uploading of PI picture and generating reports.
- In 2017, occurrence and incidence rates demonstrated a downward trend in improvement from month to month (January to September) compared to 2016.

Lessons Learned

- Ownership by the direct care providers is the most effective way to eliminate operational failures.
- Direct communication between providers is essential for accurate data and a thorough assessment within the documentation and care management.
- Education and competency is key for success; eliminate all assumptions that staff know how to assess, manage and document the operational failure.
- Management's role is to ensure staff have the competency and tools to do their job.

Reduce the Rate and Spread of *Clostridium Difficile* through a Multidisciplinary Approach

Cayuga Medical Center at Ithaca

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Recognizing the importance of a robust antimicrobial stewardship program, Cayuga Medical Center appointed a pharmacy leader to the antimicrobial stewardship team, and appointed dedicated staff to meet with the infectious disease physician to conduct antibiotic reviews twice a week and contact any physicians for any needed antibiotic changes.

Medical and nursing staff received education regarding the use of laxatives versus the true symptoms of *Clostridium difficile* (*C. diff*) that would require testing.

The hospital also reviewed its processes for disinfection of patient care equipment, such as the Hemacue machine. The manufacturer's instructions for disinfecting this equipment was to use alcohol; however, this would not disinfect the equipment for *C. diff*. To disinfect the Hemacue machine between patient uses, the hospital provided each nursing unit with ultraviolet boxes that have a 99.9% kill rate for all organisms (including *C. diff*).

Outcomes Achieved

- The hospital reduced the number of hospital-acquired *C. diff* cases from 15 in 2015, to 12 in 2016, to 1 (false positive) in 2017.
- The hospital reduced the number of false positives for *C. diff* and therefore unnecessary antibiotics.

Lessons Learned

- Collaborative weekly antibiotic reviews between pharmacists and infectious disease helped to decrease the *C. diff* rates.
- Standardization of products and reducing choice resulted in less confusion for staff and improved compliance.

The Use of COPD Education Folders to Reduce 30-day Readmissions

Ellis Medicine, Schenectady

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Ellis Medicine conducted a literature review of best practices in patient education for chronic obstructive pulmonary disease (COPD). The respiratory therapy unit developed a bright yellow educational folder for patients to place all education provided by the nursing staff. A COPD zone card was developed to aid patients in managing symptoms at home. This card provides direction on when to call their primary care provider as opposed to a visit to the emergency department—marked as green, yellow or red. Respiratory therapy has been working with educating staff nurses and patients to improve inhaler use technique.

Outcomes Achieved

- Results are very positive, with a decrease in readmissions after the COPD initiative began.
- The initiative started in July of 2015 with readmissions to COPD of five of 36 discharges.
- In January 2016, four of 53 discharges were due to COPD. From then until June of 2017, there have been no readmissions due to COPD.

Lessons Learned

- Educators must regularly appraise the patients' and families' understanding of the teaching material provided.
- Education materials should be designed with the patients' and families' level of understanding in mind.
- There must be an understanding where gaps in learning are occurring.

Reducing Healthcare-acquired *Clostridium Difficile* Rates by Reducing Unnecessary Testing and Treatment

Geneva General Hospital

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Geneva General Hospital's journey began with an established process goal to hardwire evidence-based practices aimed at the prevention of hospital-acquired conditions (HACs) and hospital-acquired infections (HAIs).

The hospital's infection prevention coordinator, in collaboration with the chief medical officer, began to conduct a retrospective review of cases. The review revealed that many patients were being tested and treated for *Clostridium difficile* (*C. diff*), lacking appropriate risk factors, signs or symptoms of the diagnosis. For the duration of the fourth quarter in 2016, the organization provided extensive education to all providers, clinical staff and microbiology staff, in regard to appropriate identification, testing and treatment of *C. diff*.

Outcomes Achieved

- Geneva General Hospital achieved decreases in:
 - hospital-acquired *C. diff* cases;
 - antibiotic usage and expenses;
 - *C. diff* tests ordered;
 - lab resources used;
 - nursing resources used;
 - unnecessary use of personal protective equipment; and
 - unnecessary placement of patients in isolation.
- The hospital implemented a “necessity” review process of any *C. diff* tests not collected within 24 hours of the order being placed.
- The hospital also saw an increase in patient/caregiver interaction.

Lessons Learned

- Providers were often ordering *C. diff* tests based on the presence of diarrhea alone and were not always taking into consideration the presence (or lack) of risk factors, signs or symptoms.
- Several *C. diff* tests were ordered on patients having loose stools that were more likely related to existing conditions or treatments, such as enteral tube feedings, ileostomies or use of laxatives.
- Patients were subjected to unnecessary antibiotics.

Reduction of Catheter-associated Urinary Tract Infections Related to Insertion

Good Samaritan Hospital Medical Center, West Islip

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Good Samaritan Hospital Medical Center engaged nursing leadership to implement the practice of having two licensed professionals present at Foley insertion to ensure aseptic technique is maintained during insertion. Using this “buddy” system for Foley catheter insertion, one nurse would be the inserter and one would be the observer. The observer would ensure aseptic technique was maintained throughout the procedure.

The next steps involved sharing this new process with all nursing staff. From March 2015 through November 2015, the team assisted the nurse managers during daily huddles, one-to-one education, just-in-time education and during orientation of new staff. In December 2015, the urethral catheterization policy was approved and all interventions were fully implemented by the end of December 2015.

Outcomes Achieved

- Catheter-associated urinary tract infection rates related to insertion practices were significantly reduced with this change in practice.
- The hospital was able to bring about a hospital-wide culture change of patient safety by the initiation of two licensed providers cross-checking each other during a procedure.

Lessons Learned

- Commitment to a new type of process is more readily accepted once a policy has been developed and approved by leadership.
- It is possible to apply evidence-based practice for one type of procedure to a similar type of procedure and attain successful outcomes.
- Staff should feel free to think outside the box and adapt process and procedures from other clinical areas, including areas unrelated to the problem they are trying to correct.

Taking the Pressure Out of Wound Care—A Hospital-wide Approach to Reduce the Number of Hospital-acquired Pressure Injuries

Long Island Jewish Valley Stream

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To reduce hospital-acquired pressure injuries, Long Island Jewish Valley Stream developed an interdisciplinary planning team consisting of nursing, physical therapy, nutritional services and medical staff. The team developed a diversified educational program utilizing resources in the facility and within the Northwell Health system.

All registered nurses (RNs) attended a four-hour wound class conducted by members of the physical therapy department who are wound care-certified (WCC). Eight-hour educational workshops were provided for the RNs by wound, ostomy and continence nursing (WCON) certified nurses from a sister hospital. Education on assessment and treatment was made available for staff to do at their leisure. Resource binders were developed for each unit, providing a quick and easy guide for assessment and treatment of pressure injuries. Staff helped to develop a traveling education board on staging pressure injuries and treatment.

Education was offered to all registered nurses; however, a core group of nurses started the process to become skin champions. A competency test based on best practices was developed for the nurses who chose to become skin champions. The facility also participates in a system-wide pressure ulcer task force, which promotes evidence-based protocols and treatment. Through the committee, the nurses were made aware of the products available and how they can be used. Material management staff ensured that the products were available to staff. The main goal was to have the staff actively involved in this initiative and be the leaders in decreasing the pressure injuries.

Outcomes Achieved

- Hospital-acquired pressure injuries decreased 63% in the past four years (2014 vs. 2017).
- The total number of hospital-acquired pressure injuries decreased: 46 (2014), 26 (2015), 26 (2016) and 17 (2017).

Lessons Learned

- Commitment to a patient-centered care model fostered by senior administration is essential.
- An interdisciplinary team of frontline staff is critical. This includes all disciplines, both licensed and not licensed.
- Providing tools and resources is necessary to improve patient outcomes.
- Patients and significant others must be actively involved in care, prevention and education.
- Partnership with physical therapy staff is key in prevention. Mobilizing patients decreases the opportunities for pressure injuries.

Preventing Hospital-acquired *Clostridium Difficile* Infections: It Takes a Team

Long Island Jewish Forest Hills, Northwell Health

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Long Island Jewish Forest Hills created a *Clostridium difficile* (*C. diff*) task force that includes every department in the organization. Monthly meetings help foster a team approach and the feeling that “we were all in this together.” The energy at the monthly meetings allowed the commitment and dedication for this initiative to grow. Everyone’s ideas were listened to because everyone’s actions made an impact on the lives of their patients.

From these meetings, information was disseminated on educating patients and employees about personal protective equipment (PPE), hand hygiene and reinfection. Healthcare personnel at all levels were involved, including:

- environmental services—improving cleanliness of often-touched surfaces;
- emergency department—testing patients promptly;
- laboratory—canceling specimens not meeting criteria;
- nurses—escalating concerns;
- pharmacy—promoting antimicrobial stewardship; and
- infection prevention—informing long-term care facilities of events to ensure continued prevention strategies.

The team placed the patient and families at the forefront of this initiative, educating them on PPE, hand hygiene and what to do in their home to prevent reinfection and the spread in the community. The hospital’s ongoing goal is to continue to decrease hospital-onset cases of *C. diff*.

Outcomes Achieved

- The number of hospital-acquired *C. diff* events decreased each year after initiation of the taskforce at the end of 2015.
- The improved standardized infection ratio (SIR) in 2016 and 2017 was statistically significant.
- There was a decline in antibiotic usage, length of stay, morbidity and mortality.
- The hospital experienced financial savings from appropriate testing, decrease in antibiotic usage, etc.
- The Hospital Consumer Assessment of Healthcare Providers and Systems scores for hospital environment cleanliness increased from the ninth percentile in 2015 to the 21st percentile ranking in 2016.

Lessons Learned

- A team approach is needed to decrease transmission of *C. diff* in the healthcare setting and in the community.
- Re-education is needed on an ongoing basis to ensure sustainability of results.
- A culture change that ensures accountability of team players can only occur when team members think outside of the box and do things that have not been done before.

Striking Out *Clostridium Difficile*

Mercy Medical Center, Rockville Centre

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Mercy Medical Center implemented an antimicrobial stewardship (AMS) committee as a vital step in the reduction of *Clostridium difficile* (*C. diff*) infections. The organization found that there was an overall lack of knowledge related to preventing transmission, patient risk factors and the importance of early identification and isolation as key components for patient health and safety. A multidisciplinary team was formed to review the data and identify the primary focus areas for improvement. Work flow processes were evaluated to identify gaps. Findings were shared with the chief medical officer, infection prevention (IP) committee, director of laboratory services and nursing leadership.

Outcomes Achieved

- Process improvements led to a notable decrease (60.2%) in the rate of hospital onset *C. diff* cases, from 11.8% in 2016 to 4.7% in 2017.
- The intensive care unit (ICU) had the highest hospital onset rate in 2016, having 14 cases for 3,280 patient days, resulting in a rate of 42.7%. In 2017, the ICU's hospital onset cases decreased to three for 3,380 patient days, resulting in a rate of 8.9% (79.2% decrease).
- In 2016 there were 47 hospital-onset *C. diff* cases (rate of 11.8% per 10,000 patient days), and in 2017 there were 21 hospital-onset *C. diff* cases (rate of 4.7% per 10,000 patient days).

Lessons Learned

- The electronic medical record tools save time and ensures early isolation placement and decreased transmission risk.
- Having senior leadership and frontline staff actively engaged effectively supports the ongoing process.

Reduction of Blood Culture Contamination in the Emergency Department Mercy Medical Center, Rockville Centre

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Mercy Medical Center implemented a multifaceted approach to help achieve the goal of reducing blood culture contamination rates. A multidisciplinary team was established to review data and identify the primary focus areas for improvement. Workflow processes were also evaluated. Findings were shared with the chief medical officer, infection prevention (IP) committee, director of laboratory services and nursing leadership. Interventions included education, redesigned blood culture draw process and individual staff performance tracking.

Outcomes Achieved

- The blood contamination rate decreased 34% from the baseline.
- The contamination rate was reduced from 4.6% in October 2016 to 2.1% in October 2017.
- Projected savings: \$232,405 over 12 months.

Lessons Learned

- Engaging stakeholders is imperative to instigate and maintain a successful change.
- Ongoing feedback regarding individual performance is key.
- A multidisciplinary approach is vital.

Central Line-associated Blood Stream Infection Reduction Plan

Mohawk Valley Health System—St. Luke's Campus, Utica

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The action plan for this initiative included all team members on the general oncology unit, who contributed to the awareness of patient safety regarding central line-associated blood stream infections (CLABSIs) and prevention strategies.

- The unit charge nurses completed daily rounds on all patients with central lines. The main focus and priority of the charge nurse rounds was to assure the identified evidence-based practice and prevention bundles were in place.
- The night time charge nurses ensure the correct amount of preventive bathing wipes are placed in the appropriate warmer to be ready for the next day's patient bathing needs.
- The unit care attendants were educated on the need for providing daily bathing wipes and assisting patients with bathing.
- The unit secretaries maintain a tracking log for patients who are direct admits for chemotherapy who will be having newly placed central lines.
- The registered nurses (RNs) assigned to the patients ensure that the bathing is completed and that the care attendant's documentation accurately reflects this.

The infection prevention manager and nursing administration ensured the team is recognized and rewarded for initiatives and comes to the unit with enthusiasm to present data. The excitement in the data presentation has elicited comments from team RNs such as, "I am so inspired as an RN to go further and do more with my skills."

Outcomes Achieved

- The initiative resulted in a significant reduction in CLABSIs.
- There has been a significant reduction in catheter-associated urinary tract infections (CAUTIs).
- Hospital-acquired *Clostridium difficile* infections have decreased.

Lessons Learned

- Team awareness and education about rationales is valued and creates a vision.
- Focused efforts with consistency and structure make a difference and change reality.
- Evidence-based medicine drives quality results.

Decrease Outcome Disparities and Improving Resource Use in an Underinsured and Uninsured Population Undergoing Hip and Knee Replacement

NYC Health + Hospitals / Elmhurst

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A multidisciplinary team at NYC Health + Hospitals / Elmhurst, which serves primarily (80%) underinsured and uninsured patients, established a Hip and Knee Center to provide care of the highest standard by attaining The Joint Commission's (TJC) Disease Specific Advanced Certification for Total Hip and Total Knee Replacement, while addressing utilization of resources.

The care team implemented initiatives to improve efficiency and outcomes, including the use of standardized, validated, measurable tools appropriate for this clinical population; pre-operative medical optimization; an interdisciplinary preoperative "Joint Camp" that emphasizes patient education, identifies a patient coach and incorporates risk mitigation assessments and instructions in preparation for upcoming surgery, including review of the projected post-surgery care plan.

Additionally, enhancements in the electronic medical record were created to expedite referrals, collect functional assessments and track arthroplasty outcome performance. An innovative, interactive encrypted smartphone app is used to encourage and monitor compliance with post-discharge recommended home exercise programs, complete patient reported outcomes and maintain open communication among patients and clinicians throughout their recovery.

Outcomes Achieved

- Length of stay for total knee replacement and total hip replacement decreased from 5.3 to 4.2 days in last quarter.
- Eighty percent of patients were discharged home in 2017, compared to 55% of patients in 2016.
- There were no reported 90-day complications or unplanned readmissions compared to the national average of 4.6% for readmission.
- Eighty-five percent of patients were highly satisfied with the program.
- The initiative achieved same-day mobilization post-operatively for all patients in the past seven months.

Lessons Learned

- Aiming high for TJC Advanced Certification provided standards needed to identify opportunities for improvement, close gaps in current performance and validate sustainment.
- Patient education and developing an extensive preoperative optimization and risk assessment were essential.
- Building the workflows and protocols into the electronic medical record enables a more efficient and standardized process, maintains quality of care and minimizes variation and user error.

Developing and Implementing Tools for the Reduction of Catheter-associated Urinary Tract Infections

Mohawk Valley Health System, Utica

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By educating nurses and providers, and providing them with assessment tools, Mohawk Valley Health System familiarized staff with the Centers for Disease Control and Prevention (CDC) indications for urinary catheter utilization, enabling them to incorporate the CDC recommendations into their practice. Next, they granted nurses the autonomy to determine whether a patient still requires a urinary catheter. By assessing the patient daily and taking advantage of other markers of improving health status (moving to a lower level of care, ambulating, pending discharge, etc.) nurses were able to proactively remove urinary catheters via their nurse-driven removal protocol.

Inappropriate specimen collection and urine culture practices were also identified as an issue. The hospital's laboratory received a high number of contaminated specimens, as well as specimens that were collected on asymptomatic patients. Both of these circumstances were identified as contributors to the initiation of unnecessary antimicrobial therapy, which placed patients at risk for other potential complications.

Outcomes Achieved

- The catheter-associated urinary tract infection (CAUTI) rate decreased from 1.67 (per 1,000 catheter days) in 2014 to 1.08 in 2017.
- Indwelling urinary catheter device utilization decreased from 21% in 2014 to 17% in 2017.
- The number of positive inpatient urine cultures decreased 15% from 2016 to 2017.

Lessons Learned

- Culture change is by far the most difficult aspect of decreasing indwelling urinary catheter use.
- Changing long-established medical practices requires ongoing education, consistent application of policy and procedures and rigorous encouragement to be successful.
- By implementing several interventions over time, rather than all together, the team was able to change practice gradually. This allowed the staff to acclimate to each successive improvement a little more easily.

Using a Bundled Approach to Reduce Colon Surgical Site Infection: Implementation of the Advanced Colon Surgery Bundle

NYC Health + Hospitals / Metropolitan

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NYC Health + Hospitals / Metropolitan put in place an interdisciplinary patient quality and safety initiative. Building on existing Surgical Care Improvement Project initiatives, the team partnered with the New York State Partnership for Patients (NYSPFP) to look at the systems across the continuum of care. Using the tracer methodology and Plan-Do-Study-Act cycles, opportunities for improvement were identified, which included the implementation of the elements of the advanced colon bundle. The project rolled out with a multidisciplinary grand rounds attended by senior leadership.

Activities include:

- Ensure normothermia is maintained during the perioperative period with blanket warmers and continue in the post-anesthesia care unit, where temperature is checked upon intake and every 30 minutes until discharged from the recovery area.
- Patients are educated on preoperative skin prep using a standardized instruction form on the use of Chlorhexidine 2% skin wipes applied the night before (at home) and the morning of surgery applied by ambulatory surgery staff. A checklist was used to ensure compliance.
- Antimicrobial prophylaxis was provided, with weight-based dosing and re-dosing, as appropriate.
- The protocol (laminated cards) was placed in all anesthesia boxes as reminders.

- The skin prep in the operating room was standardized using iodine antiseptic and alcohol preparation.
- Changing of gowns, gloves and surgical instruments for abdominal wound closure and the use of separate closure tray were all mandated. A laparotomy pack drape is used over the operative field. Standardized patient and caregiver education is given on optimal post-discharge wound care.
- Compliance checklists are used to ensure and monitor compliance with bundle elements.

Outcomes Achieved

- Colon surgical site infections were reduced from 30% in 2014 to 4.5% in the third quarter of 2017.

Lessons Learned

- Consistent support of senior leadership and chiefs of services is critical.
- Standardization of products, processes, and protocols helps drive consistent care.
- Checklists are effective tools to ensure compliance with all bundle elements.
- Engagement of patient and caregivers leads to better outcomes.

A Multidisciplinary Approach to Reducing Hospital Onset *Clostridium Difficile* Infection

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To reduce hospital onset *Clostridium difficile* (*C. diff*) infection, NYU Winthrop Hospital used a multi-pronged approach through identification of key drivers and execution of associated improvement tactics.

The team included representatives from hospitality services, infection prevention, infectious diseases, microbiology, nursing, pharmacy and quality. The team focused on risk factors associated with the environment, utilization of antibiotics and proton pump inhibitors, testing, hand hygiene and adherence to contact precautions. Specific tactics were developed for each key driver as well as mechanisms for monitoring adherence and evaluating effectiveness.

Key drivers included:

- hand hygiene;
- cleaning and disinfection;
- antibiotic stewardship;
- proton pump inhibitor use;
- timely, appropriate testing; and
- strict adherence to contact precautions including engaging family members in use of personal protective equipment (PPE).

Outcomes Achieved

- The incidence of hospital-onset *C. diff* infection (CDI) decreased from 8.1 per 10,000 patient days during the 12-month period pre-intervention to 5.90, a decrease of 27% from baseline, outperforming the 2016 state benchmark of 7.4.
- The hospital-onset CDI rate decreased 47.4% from 2014 to 2017.
- The Standardized Infection Ratio (SIR) improved from 1.19 in 2015 to 0.78 in 2017. The national SIR benchmark is 0.895.
- Variation in the hospital-onset CDI rate was reduced post-intervention, with all rates within the control range of two standard deviations.
- The linear trend model revealed a significant decrease in the CDI rate (slope -0.049, p=0.014) through August 2017.

Lessons Learned

- It is important to identify all factors that contribute to a given outcome and assess the current state of practice and reliability of each factor.
- Communicating the imperative to all stakeholders is key.
- You must audit adherence to best practices and provide feedback and coaching.

C. Differently—A Proactive Approach to Tackling *Clostridium Difficile* **Olean General Hospital**

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Olean General Hospital's infection prevention, environmental services, information systems, nursing and pharmacy departments collaborated to adopt a proactive approach to reducing the number of hospital-onset *Clostridium difficile* (*C. diff*) infections in 2017.

A Plan-Do-Study-Act quality improvement process was used to establish guidelines for early risk detection, rapid identification and diagnosis and enhanced environmental controls, and cleaning. Patients at risk for *C. diff.* or with an active *C. diff.* infection became a top priority. National Healthcare Safety Network surveillance definitions were used for determining hospital onset *C. diff.*

Outcomes Achieved

- From January 1, 2017 through December 31, 2017 there was a 37% reduction in the number of hospital onset *C. diff.* infections. The hospital's overall 2017 standardized infection ratio was 0.78, which was below the national benchmark of 1.0.
- Communication and collaboration has been enhanced across disciplines related to *C. diff.*, including infection prevention, nursing, pharmacy, dietary and environmental services.
- Increased awareness of nursing staff to isolate and test early to prevent the spread of infection.
- Enhance awareness of the environment and committed attention to cleanliness from their environmental services staff related to transmission of *C. diff.*

Lessons Learned

- It takes staff engagement and multidisciplinary teams from all levels to drive improvement.
- Frontline staff commitment and leadership support promote a culture that allows innovation and allotment of resources to implement improvements.
- A proactive and collaborative approach to driving improvement can result in achievable and sustainable outcomes.

STOP Central Line Bloodstream Infections Oneida Healthcare

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Oneida Healthcare created a task force to evaluate its processes related to central lines, including insertion practices, site care, line maintenance, medication administration and flushes. Members of the task force included the medical director; general surgeon; chief nursing officer; a vascular access nurse; clinical staff educator; medical/surgical staff nurses; and materials management, intensive care unit, infection prevention, quality management and emergency department staff. They reviewed the literature for current evidence-based practices and best practice guidelines, and conducted a complete review of all patients with reported central line-associated bloodstream infections (CLABSIs), and reviewed all vascular access policies, procedures, practices and equipment.

A vascular access audit tool was created and the infection prevention nurse, nurse educator and vascular access nurse initiated regular rounds on all patients with vascular access devices. They observed practices, corrected deficiencies immediately and problem-solved at the bedside with nurses. This kept the bedside staff engaged in the process.

The task force met every other month to review audits and evaluate policies related to evidence-based practices. The task force then reviewed and collated the information obtained from unit-based rounds and created a cause-and-effect document. Working through this document, the team was able to identify short-term and long-term goals with respect to reaching a target of zero.

The team developed a succinct tool as a reference for nursing staff related to the care and management of all vascular access devices. This tool was paired with education to charge nurses and staff to make them aware of this resource.

Outcomes Achieved

- Hand sanitizers were strategically placed.
- The organization switched to hospital gowns with snaps.
- A central line insertion kit and standardized antiseptic were instituted for all intravenous therapy.
- The intensive care unit has been without a CLABSI since 2008; the medical/surgical unit has been without CLABSI since 2012.

Lessons Learned

- “Buy-in” is needed from frontline staff and surgeons (who typically inserted central lines).
- Standardization and bundle approach makes it easy for staff to comply.
- Using Just Culture ensured compliance.

The Patient Engagement Factor: Successful Strategies for Heart Failure Readmission Reduction

Saratoga Hospital

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Saratoga Hospital has hardwired the following program practices into its operations, resulting in a dramatic drop in heart failure (HF) readmission rates.

First, those patients at high risk for HF readmission are identified using technology to conduct a risk-for-readmission screening using a best practice assessment tool—such as length of stay, acuity, comorbidities and emergency department (LACE) visits within six months—and customized auto-generated reports. This high readmission risk status is populated on the emergency department (ED) tracker and broadcast on SMARTBOARDS® in the ED and on inpatient units so that a multidisciplinary team can engage in the plan of care and discharge planning.

Patient and caregiver engagement starts on day one of each hospitalization with the introduction of the Heart Failure Toolkit, including the HF Zone Tool. The toolkit maps out learning objectives for the patient and caregiver(s) to accomplish each day and includes scripted teach-back methodology for learner engagement. Detailed discharge planning evaluations allow care managers to identify needed support systems and community resources. Coordinated discharge appointments with a patient's primary care provider (PCP) and cardiology specialist occurs within five to seven days of discharge, or earlier as needed.

Outcomes Achieved

- The hospital achieved a 6.6% decline in Medicare HF 30-day readmissions.
- There was a downward trend currently at 16.7% in Medicare HF 30-day readmission rates.
- The facility outperformed Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Patient Satisfaction in domains of discharge information and care transitions for the third quarter of 2016 through the second quarter of 2017.

Lessons Learned

- Identify HF patients at high risk for readmission and leverage technology by alerting and garnering multidisciplinary resources to immediately respond to high-risk patients at any point of entry.
- Engage HF patients and caregivers as the highest priority in both inpatient and outpatient settings.
- Provide four weeks of registered nurse callbacks to foster strong relationships with HF patients and caregivers post-discharge to achieve engagement and success in 30-day readmission avoidance.

C the Difference One Hospital Can Make in Reducing Healthcare-associated Infections

St. Charles Hospital, Port Jefferson

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With patient safety and quality the top organizational priorities in the delivery of patient care, St. Charles Hospital identified the reduction of healthcare-associated *Clostridium difficile* (*C. diff*) infection (CDI) as an opportunity for improvement. The initiative began with house-wide education on criteria for CDI testing, appropriate antibiotic, proton pump inhibitor and probiotic use, and reinforcing simple infection prevention practices.

Outcomes Achieved

- St. Charles achieved a 35% decrease in healthcare-associated CDIs from 2016 to 2017, and saw significant financial savings.
- The hospital created a reporting tool generated through the electronic medical record that identifies orders for *C. diff* testing
- *C. diff* testing methodology changes resulted in fewer false positive results.
- Proton pump inhibitor (PPI) use decreased 46%.
- Probiotic use in conjunction with initiation of antibiotic therapy increased 19%.
- The hospital decreased use of broad spectrum antibiotics.
- The hospital improved processes and increased efforts in cleanliness for environmental decontamination of patient care areas.
- Through interdisciplinary collaboration, there was an increase in staff awareness and compliance with infection prevention practices.

Lessons Learned

- Medical staff lack of knowledge regarding the association between PPI use and the increased risk of developing a nosocomial *C. diff* infection.
- Administration of probiotics within 48 hours of initiation of antibiotic therapy in conjunction with PPI restriction resulted in a decrease in healthcare-associated CDIs.
- Objective measurement of patient outcomes with timely staff feedback reinforced education and sustained the positive impact on patient care.

Catheter-associated Urinary Tract Infection Reduction Initiative

St. Elizabeth Medical Center, Mohawk Valley Health System, Utica

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In early 2015, a deep dive into the number of positive catheter-associated urinary tract infections (CAUTIs) led St. Elizabeth Medical Center to implement a process that would decrease this number and be sustainable and easily replicated. The initial concept was to decrease the number of indwelling urinary catheters, which would then result in fewer CAUTIs.

A team comprised of nurses, including infection prevention nurses, set out to decrease utilization by monitoring the number of patients who had an indwelling urinary catheter. They reviewed the need and then called providers to discuss possible catheter removal. This process showed early success in reducing the number of CAUTIs and catheter utilization. However, the team felt that more could be done and the current process was time-consuming and reactive.

Outcomes Achieved

Achievements in the intensive care unit:

- The CAUTI rate decreased: 2015 (2.73 per 1,000 catheter days), 2016 (1.56) and 2017 (1.05)
- Utilization in 2015 was 274 catheter days per month and in 2017 down to 239 on average.

Achievements hospital-wide:

- The CAUTI rate decreased: 2015 (2.303), 2016 (2.003) and in 2017 (1.059).
- The utilization rate was down from an average of 800 catheter days per month, or 21%, in 2014 to an average of 600 catheter days per month, or 17%, in 2017.

Achievements hospital-wide, plus affiliate hospital:

- The CAUTI rate decreased: 2015 (1.67), 2016 (1.29) and in 2017 (1.08).
- Utilization rate decrease: 2015 (20%), 2016 (19%), 2017 (18%) and in 2018.

Lessons Learned

- A new process needs to be monitored and changed, as appropriate.
- Constant vigilance is needed for timely removal. The implementation of multidisciplinary bedside rounds helped; however, changing the culture in regard to indwelling urinary catheter utilization is not an easy task.
- Having nursing and physician champions to carry the message is critical. It is important to maintain clear communication with providers to understand the process and goal of the project.

Reducing *Clostridium Difficile* with the Department of Environmental Services St. Francis Hospital–The Heart Center, Roslyn

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An in-depth analysis was conducted that resulted in several practice and policy changes throughout the hospital. With the support from leadership, a hospital-wide multidisciplinary initiative was endorsed including members from infection control and prevention, mid-level practitioners, physicians, nursing, pharmacy and environmental services. The environmental services staff improved their understanding of how to thoroughly clean areas that may have *Clostridium difficile* (*C. diff*) spores through workshops, concurrent training and data tracking.

A streamlined process for optimal room cleaning was developed and practiced within a pilot unit for one quarter. This unit exhibited immediate improvement.

In addition, staff education and training were provided on the appropriate techniques of steam and bleach cleaning of rooms occupied by patients with a (*C. diff*) infection. Staff immediately noted the importance of their role in the hospital.

Outcomes Achieved

- Collaboration improved between the infection control department and environmental services staff with regard to monitoring proper disinfection and cleaning techniques.
- *C. diff* occurrences declined 22% from 2015 to 2016 and sustained improvement with a 73% decline from 2015 to 2017.
- The rate of hospital-acquired *C. diff* (per 10,000 patient days) declined: 2014: 11.23, 2015: 10.13, 2016: 7.83, 2017: 2.77.

Lessons Learned

- Representation from various disciplines is required to achieve and sustain goals.
- It is important to educate staff on the significance of their role, even when they are not in direct patient contact.
- Up-to-date data collection and concurrent reports are necessary to monitor processes and success.

Impact of Implementing an Antimicrobial Stewardship Program on Bacterial Resistance, *Clostridium Difficile* Incidence and Antibiotic Expenditures

St. Joseph Hospital, Bethpage

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Increasing antimicrobial resistance is a looming public health threat that has claimed tens of thousands of lives and costs the U.S. healthcare system billions of dollars per year. Appropriate antibiotic use through implementation of interdisciplinary stewardship programs is recommended by the Centers for Disease Control's Core Elements and numerous other published guidelines. This project was designed to assess the impact of the implementation of a diverse set of antimicrobial stewardship interventions on antibiotic expenditures, bacterial resistance and incidence at St. Joseph Hospital, a 200-bed community hospital in suburban Long Island.

The hospital's goal was to use a Plan-Do-Study-Act methodology to design and implement a robust antimicrobial program that will help reduce bacterial resistance, decrease *Clostridium difficile* (*C. diff*) incidence and reduce antibiotic expenditures.

Outcomes Achieved

- Between 2012 and 2017, *C. diff* rates decreased 75%, from 18.12 to 4.36 cases per 10,000 patients.
- Between 2016 and 2017 alone, *C. diff* rates decreased 42%.
- From January 2015 to December 2017, total antibiotic expenditures per 1,000 patient days decreased 37.5%, with \$270,000 in savings between 2015 and 2017.
- Total Carbapenem expenses and usage decreased 74.7% over the three-year period.
- Tigecycline expenses decreased 44%, Daptomycin expenses decreased 47.3% and linezolid expenses were reduced by 62%.
- Acinetobacter resistance has decreased for all drug classes by as much as 40%.
- Resistance to piperacillin-tazobactam remained relatively unchanged during the study period.

Lessons Learned

- Good communication, an interdisciplinary team and having everyone's input allowed the creation of a more robust and efficient antimicrobial stewardship program.
- Leadership support is needed to execute an effective interdisciplinary team and antimicrobial stewardship program.
- Even though information technology has been critical in allowing efficient and timely identification of patients, generating meaningful reports and extracting data in an end-user friendly format from the reports was essential for successful implementation.

Implementing a Comprehensive Strategy Decreased Central Line Utilization and Central Line-associated Bloodstream Infection

St. Joseph's Hospital Health Center, Syracuse

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St. Joseph's Health developed a comprehensive, interdisciplinary program to identify root causes and initiate best practices to reduce central line-associated bloodstream infections (CLABSIs). Chlorhexidine bathing and line care were identified as best practices and initiated. For one of the interventions, the vascular access team (VAT) would assess the vascular access device (VAD) needs of the patient and be responsible for inserting and maintaining standard peripherally-inserted central catheters (PICCs), midline catheters and ultrasound (US)-guided peripheral intravenous lines (PIVs). Interventional radiology (IR) would place PICCs in renal patients.

A scoring algorithm (IV-therapy.net) assisted in the selection of the appropriate VAD and evaluated a patient's needs on four parameters: vascular status, infusion duration, intravenous (IV) solutions and medications and infusion settings expected. This algorithm was integrated into the Electronic Medical Record VAT consult note. Central line necessity was also assessed by daily nursing review with a rounding tool in collaboration with infection prevention specialists. Central line utilization and CLABSIs were tracked with a dashboard that included National Healthcare Safety Network (NHSN) benchmarks by unit and product line to identify focus areas and to provide feedback to nursing units and providers.

Outcomes Achieved

- The hospital developed a centralized, inclusive line strategy, administered by a credentialed VAT with IR support for select patients.
- Central line catheter utilization decreased 23.0% from a utilization rate of 28.7% in 2015 to 22.1% in 2017; the NHSN observed: expected ratio decreased from 1.33 in 2015 to 1.02 in 2017.
- PICC utilization decreased 41%, from 17.1% in 2015 to 10.1% in 2017.
- IV "disabled" (no PIV access) labeled patients decreased from 3.8% in 2015 to 1.2% in 2017, and midline catheter utilization increased from 0.3% to 1.6%.
- CLABSI infections decreased from 50 in 2015 to 10 in 2017.
- The hospital realized \$2,918,791 in estimated savings from the line strategy and decreased CLABSIs in 2017.

Lessons Learned

- VAT members became facile in US-guided line placement and began to use US-guidance to insert difficult PIVs resulting in fewer patients being labeled IV "disabled."
- CLABSI infections decreased from a combination of decreased CL utilization, centralized maintenance and Chlorhexidine bathing and line care.

STEP-PUP to Safety

St. Luke's Cornwall Hospital, Newburgh

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The creation of STEP-PUP Rounds has been integral to creating a culture of nursing safety at St. Luke's Cornwall Hospital in Newburgh. The acronym stands for:

- S** Safety: ensuring best practices for falls, catheter-associated urinary tract infection (CAUTI), hospital-acquired pressure ulcer (HAPU) prevention, and *Clostridium difficile*
- T** Teamwork
- E** Engage employees in best practices and education
- P** Patient experience
- PUP** Pressure ulcer prevention

These daily rounds are conducted by nursing leadership and an assigned registered nurse. The focus is on mentoring all nursing staff to ensure consistent application of clinical best practices as a part of the everyday workflow and inclusion of the patient/family in the plan of care.

Outcomes Achieved

From 2016 to 2017:

- The number of inpatient falls decreased from 101 to 82 (19%).
- The number of inpatient falls with moderate/severe injury decreased from eight to three (63%).
- The number of CAUTIs decreased from six to two (67%).
- The HAPU rate remained flat.
- The number of hospital-acquired *Clostridium difficile* infections decreased from 33 to 30 (9%).

Lessons Learned

- Identification of all elements of best practices, providing education of all elements and streamlining multiple processes into one comprehensive program allows for integration into everyday nursing workflow.
- Combining multiple leader rounding initiatives into one comprehensive round (patient, staff and safety rounds) creates efficiency.
- Nursing staff engagement is integral to hardwiring processes.

Reduction of All-cause Readmissions of Patients with a Diagnosis of Congestive Heart Failure

St. Mary's Healthcare, Amsterdam

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There is a great need to work together across the continuum among diverse populations to provide safe, highly reliable care to congestive heart failure (CHF) patients. St. Mary's Healthcare realizes there are opportunities to implement a personalized care model by activating and optimizing the overall care of CHF patients prior to discharge, by implementing effective transitions of care and post-hospital support. Providing this highly reliable personal care results in improved patient, family and care provider satisfaction as well as improving outcomes and reducing overall cost of care.

St. Mary's Healthcare team for this initiative included the chief medical officer, chief executive officer, pastoral care, physicians, pharmacy, physical therapy, respiratory therapy, nursing, case management, quality, nursing education, population health, nutritional services, physician advisor, outpatient cardiac rehabilitation, palliative care, primary care office managers, nursing homes and outpatient dialysis treatment centers.

Outcomes Achieved

- The organization achieved a 30.1% decrease from baseline 2017 fourth quarter for 30-day readmissions.
- There was a 19.7% decrease from the baseline for the 30-day readmission observed/expected ratio.

Lessons Learned

- All disciplines needed clear expectations, resulting in accountability.
- Patient and care providers are key: provide education on their level of understanding using the "teach back" method.
- Activation of patient and care providers. Need to engage patients and providers to identify barriers including: financial, transportation, nutrition, medication, personal care, language and living situation.
- Transitions of care are a key driver to successfully prevent readmissions.
- Clear and accurate communication among all hospital disciplines (hospitalist, primary care, cardiologist, home care, nursing homes, population health, etc.) is critical.

Maximal Reduction of Catheter-related Infections

St. Barnabas Health System, Bronx

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This institution-wide effort began with the formation of an interdisciplinary group that included representatives from the following departments: medicine including infectious diseases, intensivists and the hospitalist service, pediatrics, surgery, infection control, nursing, quality, microbiology and information technology. Others, such as urology and the emergency department, were invited on an as-needed basis.

Biweekly committee meetings have accomplished the following:

- evaluation and update of policies and procedures;
- daily documentation for the need for each catheter in the electronic medical record;
- upgraded all central line kits;
- intensive education for all clinical providers who insert central lines and urinary catheters together with the introduction of a required checklist and a second physician or nurse as direct observer for each central line insertion;
- continued education on urinary catheter insertion and optimal maintenance for both central lines and urinary catheters;
- rapid cycle root cause analysis (RCA) for each central line-associated bloodstream infection (CLABSI) and catheter-associated urinary tract infection (CAUTI) identified; and
- development of a widely-disseminated daily work list indicating the location and date of insertion of each central line and urinary catheter.

Additional important interventions included complete elimination of femoral “central” lines; specifying clear indications for peripherally-inserted central catheter (PICC) lines (e.g., total parenteral nutrition and midline catheters); use of Chlorhexidine baths and mupirocin nasal decolonization for patients receiving a hemodialysis catheter; and use of bladder sonograms for intermittent straight catheterization as alternative for urinary catheters. Daily committee rounding on patients with central lines and urinary catheters was performed to discuss their necessity and possible alternatives.

Outcomes Achieved

- CAUTIs decreased 73% from 15 in 2015 to four in 2017.
- Urinary catheter days decreased 43%.
- CLABSIs decreased 91%, from 12 in 2015 to one in 2017.
- Central line days decreased 39%.

Lessons Learned

- Use a team approach for success: engagement of all stakeholders, full hospital administration commitment, high priority emphasis and financial support.
- Vigilance, vigilance, vigilance: Apply immediate CAUTI/CLABSI root cause analysis followed by corrective/constructive efforts to correct identified issue(s) and prevent further catheter-related infections.
- Innovation and education: urinary retention and bladder scan protocol is effective.

The Road to Reducing Catheter-associated Urinary Tract Infections Stony Brook University Hospital

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Stony Brook University Hospital organized a multidisciplinary team that conducted a gap analysis to determine next steps to address catheter-associated urinary tract infections (CAUTIs). Areas of focus included the operating room, surgical units and procedural areas, as well as inpatient units. In addition to raising awareness, tools were implemented to ensure compliance with protocols, and individuals who “touch” a urinary catheter received education, including clinical assistants, transporters and technicians.

A culture change was necessary to impact staff perceptions about urinary catheter management and the potential patient harm they can cause. Using the Plan-Do-Study-Act (PDSA) process, staff were empowered to assess catheter need daily, a nurse-driven protocol was developed for removal and guidelines for reinsertion were developed and disseminated. To accomplish this, the hospital included its information technology department as part of the team to leverage the electronic medical record (EMR) to include the nurse-driven protocols, drive the catheter removal/reinsertion process and standardize documentation related to urinary catheters.

New products were tested and purchased. Institution-wide education was conducted for physicians, nurses, clinical assistants and technicians. A “Patient Safety First” team conducts weekly surveys to assess and re-enforce staff knowledge and audits are conducted on compliance with insertion and maintenance protocols. Each process implemented has helped reduce the incidence and move the organization closer to its goal of zero CAUTIs.

Outcomes Achieved

- CAUTIs decreased.
- Overall catheter utilization decreased.

Lessons Learned

- Behavior and culture are extremely difficult to change.
- Building support for the process into the EMR assists in standardizing practice.
- Disseminating information and communicating progress to stakeholders at all levels sets expectations and supports accountability.

Prevention of Hospital-acquired Pressure Injuries in a 268-bed Acute Care Facility

Unity Hospital, Rochester Regional Health

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Unity Hospital, Rochester Regional Health began an initiative aimed at preventing hospital-acquired pressure injuries.

Targeted interventions included:

- extensive education to nursing staff on all shifts, including a three-hour skin care module;
- focused prevention meetings on units with high hospital-acquired pressure injury rates in 2016;
- weekly wound, ostomy and continence nursing rounding;
- monthly skin care committee meetings include monthly skin care outcomes, monthly education and sharing of best practices;
- two nurses thoroughly examine patient skin to document pre-existing skin issues and to ensure appropriate interventions are in place at the time of admission;
- algorithms and decision trees were instituted for decision making regarding product usage, specialty mattress selection, rental equipment and pressure injury identification and treatment;
- alternating air mattresses were purchased;
- all hip fracture patients are placed on low air-loss mattresses;
- patients with a body mass index of greater than or equal to 34 in the intensive care unit (ICU) use a low air-loss mattress;
- all hospice patients receive low air-loss mattresses while hospitalized;
- there is a current product trial of positioning wedges in the ICU;
- follow up e-mails are sent to unit staff after the identification of acquired pressure injury;
- World Pressure Injury Prevention Day is

celebrated; and

- previous interventions included off-loading heel boots, pressure redistribution mattresses, waffle chair cushion, Ultrasorb pads, prevention silicone border dressings to the sacrum, daily Braden scoring, registered nurse initiated skin care consult and multidisciplinary team involvement.

Outcomes Achieved

- The hospital achieved a 7% reduction in pressure injuries—all stages.
- There has been improvement in assessment, identification, early intervention and documentation.
- Pressure injury prevention has become a multidisciplinary effort led by the certified wound ostomy continence nurse team.
- Leadership prioritizes the allocation of financial resources for product purchases.

Lessons Learned

- It is important to purchase appropriate products and continually evaluate their effectiveness.
- Education is focused to highlight co-morbidities, ensuring that nursing initiates and implements intervention upon admission.
- Ongoing education ensures that nurses are aware of current evidence-based best practices.
- Provide data about unit practices and outcomes, and engage the staff nurse in prevalence surveys, education and committee participation.

A Mindful Approach to Preventing Catheter-associated Urinary Tract Infections

White Plains Hospital

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White Plains Hospital developed an evidence-based catheter-associated urinary tract infections (CAUTI) prevention plan. A multidisciplinary CAUTI task force was developed to review the gaps in the current protocols and practices. Based on the findings, the task force initiated a prevention plan focusing on process measures, products/equipment and education/training.

New criteria for ordering and renewing Foleys were established and implemented in the physician order entry system, and a Foley insertion time-out form was developed and implemented. Criteria included: Foley necessity, alternative options and hand hygiene. The time-out process is monitored for compliance. Proper pericare prior to Foley insertion was reinforced. Daily Foley necessity assessment and renewal is required, if indicated. A new Foley kit was created with all necessary components to facilitate the process such as hand hygiene, pre-cleaning products, a securement device, and an urimeter to prevent break in the system was implemented.

Given that 50% of the CAUTIs were in males, a new external male urinary device was explored, evaluated and implemented. The urine specimen ordering process was reviewed and criteria were established for the ordering of urine cultures. The new reflex system orders cultures on positive urinalyses only. Also, a physician alert was implemented to discontinue the Foley as indicated prior to specimen collection. Proper Foley irrigation practices were reinforced. Extensive staff and physician education was done on the new processes, which included didactic and hands-on learning with return demonstration.

This was also extended to new staff and is now a permanent part of the onboarding process. In addition, in the event of a CAUTI, a thorough root cause analysis is conducted by the inter-professional team to identify gaps and institute measures for improvement.

Outcomes Achieved

- There was a 38% decrease in CAUTIs in 2015 and a 39% decrease in 2016.
- Reduction in indwelling catheter days over the last three years: 14,602, 13,447, and 12,601, respectively.
- The hospital achieved a sustained decrease in CAUTIs over the three-year surveillance period.
- There was \$38,000 in cost savings over the three-year timeframe.
- Morbidity and mortality decreased.

Lessons Learned

- Engaging the clinical frontline staff in the implementation process and decision making process is key.
- It is important to implement multi-modal, evidence-based interventions.
- Clinical education and ongoing monitoring and reinforcement are needed.



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