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*HANYS PINNACLE AWARD*
*FOR QUALITY AND PATIENT SAFETY*

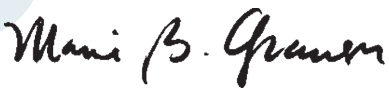
# *PROFILES IN QUALITY AND PATIENT SAFETY 2019*

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

The 115 nominee healthcare organizations from across the state 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

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# CONGRATULATIONS TO OUR 2019 WINNERS

# *2019 WINNER OF HANYS PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY*

## *Post-acute/outpatient provider*

ROCHESTER REGIONAL HEALTH SYSTEM

### High Five: Achieving Continuous Quality Measure Improvements Across Six Skilled Nursing Facilities

Photo (from left): Nicholas Henley, vice president, external affairs, HANYS; Richard Sweet-Keech, MAOL, BBA, LSSGB, performance improvement coordinator; Robert Panzer, MD, chief quality officer, University of Rochester Medical Center and Strong Memorial Hospital, and chair, HANYS Quality Steering Committee.

# *2019 WINNER OF HANYS PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY*

## *Hospital with less than 200 beds*

SARATOGA HOSPITAL

### Achieving Universal Sepsis Excellence through a Patient- and Staff-centered Culture along with Alignment of Purpose, People and Processes

Photo (from left): Nicholas Henley, vice president, external affairs, HANYS; Anna Gaeta, RN, BSN, MS, CPHQ, CPPS, associate vice president, quality, Saratoga Hospital; Robert Panzer, MD, chief quality officer, University of Rochester Medical Center and Strong Memorial Hospital, and chair, HANYS Quality Steering Committee.

 

# *2019 WINNER OF HANYS PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY*

## *Hospital with 200 to 500 beds*

FAXTON ST. LUKE'S HEALTHCARE – ST. LUKE'S CAMPUS

**CDIFFerently: A Bundled Approach to Sustained *C. difficile* Infection Prevention**

Photo (from left): Nicholas Henley, vice president, external affairs, HANYS; Sarah M. Deming, BSN, RN, CIC, infection preventionist, Faxton St. Luke's Healthcare; Robert Panzer, MD, chief quality officer, University of Rochester Medical Center and Strong Memorial Hospital, and chair, HANYS Quality Steering Committee.

# *2019 WINNER OF HANYS PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY*

## *System or hospital with 500+ beds*

NYC HEALTH + HOSPITALS/BELLEVUE

**Ventilator-associated Pneumonia in Adult Trauma Patients**

Photo (from left): Nicholas Henley, vice president, external affairs, HANYS; Margaret Ewen, MS, PA-C, trauma performance improvement coordinator, NYC Health + Hospitals/Bellevue; Robert Panzer, MD, chief quality officer, University of Rochester Medical Center and Strong Memorial Hospital, and chair, HANYS Quality Steering Committee.

 

# *2019 WINNER OF HANYS PINNACLE AWARD FOR QUALITY AND PATIENT SAFETY*

## *System or hospital with 500+ beds*

STONY BROOK UNIVERSITY HOSPITAL

**Quality Diabetes Care: Creating a Culture of Excellence through Innovation**

Photo (from left): Nicholas Henley, vice president, external affairs, HANYS; Carol A. Gomes, MS, FACHE, CPHQ, interim chief executive officer, chief operating officer, Stony Brook University Hospital; Robert Panzer, MD, chief quality officer, University of Rochester Medical Center and Strong Memorial Hospital, and chair, HANYS Quality Steering Committee.

# CHAPTER ONE:
# CULTURE AND LEADERSHIP

# High five: Achieving continuous quality improvement

## Rochester Regional Health System

### EXECUTIVE SUMMARY

Rochester Regional Health System's long-term care division developed a comprehensive quality improvement program that has improved quality across six skilled nursing facilities. This program monitors, analyzes, manages and supports quality measures data improvement projects in real time with the unique ability to predict quality scores six months in advance of public Centers for Medicare and Medicaid Services data. The program supports nursing through the use of a performance improvement coordinator who presents the data in an actionable way for the clinical teams to improve quality of care for residents/patients.

### OUTCOMES ACHIEVED

- The facility achieved 13 consecutive quarters of CMS quality measure improvement across the six SNFs.
- Five out of six SNFs achieved four out of five stars under CMS' Five-Star quality rating system.
- The division achieved 89 total stars out of a possible 120, resulting in 19 stars gained between October 2016 and January 2019, which is reflected in CMS Five-Star rating system reporting.

### LESSONS LEARNED

- To maintain quality improvement, SNFs require a sound quality measure management program, ongoing education/staff development and ongoing performance improvement coordinator/data analytic support.
- Enhanced Minimum Data Set staff and nurse manager education is required for expanding baseline MDS knowledge and improving the connection between MDS data and quality measure outcomes.
- Improving patient care and performance outcomes requires bridging the gap between MDS staff and nursing through stronger quality measure management systems; i.e., best practices, communication systems, training, education and patient-driven care practices.

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# Leadership rounds — CLIMBing to the top

St. Charles Hospital, Port Jefferson

## EXECUTIVE SUMMARY

St. Charles Hospital established a weekly leadership rounding program in 2017 to become a "zero harm" hospital and create a better patient experience by more efficiently managing care coordination and patient throughput.

The aim of leadership rounding is to review key patient safety initiatives with frontline staff and coach them through Plan-Do-Study-Act processes, improving on a measurable goal. Leadership teams act as a forum for staff to identify any potential barriers in process efficiency for staff, patients and visitors. Rounding involves the entire facility, including clinical and non-clinical departments, to ensure consistency of processes, enhance communication and sustain a shared vision for the future. Targeted objectives were to reduce overall length of stay, increase the number of occurrences reported, identify barriers staff bring forward and increase patient safety (specifically, fall reduction).

## OUTCOMES ACHIEVED

- St. Charles achieved clear length-of-stay decreases since inception of the leadership rounding program (4.70 days in the fourth quarter of 2017 to 4.25 in the third quarter of 2018).
- Falls decreased, including a distinct reduction in falls on the inpatient rehabilitation unit, even achieving zero falls during some months.
- There was a drastic reduction in the time from "Decision to Admit to ED Departure" (272 minutes in December 2017 to 214 minutes in September 2018).

## LESSONS LEARNED

- Length-of-stay reduction is driven by many factors; however, the clean and concise identification of barriers in the patient's progression toward discharge aided in focusing on specific barriers to be addressed.
- Increased reporting of occurrences throughout the hospital aided in identification of opportunities for improvement.
- There has been a steady increase in the number of items identified during leadership rounding.

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# Implementing a daily management system and Gemba boards

## Long Island Jewish Medical Center, Queens

### EXECUTIVE SUMMARY

With lofty quality improvement goals, Long Island Jewish Medical Center needed to reinvent how it did continuous improvement. To accomplish this, the organization held a three-day workshop to train departments on Lean methodology, structured problem solving and how to implement a daily management system and Gemba board. Staff are trained to be able to identify opportunities for improvement and use the Gemba board to track key performance indicators on a daily basis, as well as bring new ideas to upper management. This system helps achieve the hospital's vision of providing ideal patient care, developing people with a passion to improve and enabling every staff member to be capable, empowered and expected to make improvements every day.

### OUTCOMES ACHIEVED

- Heart failure readmissions decreased from 22.4% in 2017 to 17.1% in 2018 (a 23.7% reduction).
- Catheter-associated urinary tract infections decreased from 36 in 2017 to 20 in 2018 (a 43% reduction).
- The patient experience top box score for communication about medication side effects increased from 48.1% in 2017 to 53.5% in 2018 (an 11.2% increase).

### LESSONS LEARNED

- Leadership engagement in cultural change is paramount.
- A systematic, daily, structured approach helps engage frontline staff and leadership to achieve a hospital's strategic goals.
- The complexity of departments within the hospital created a challenge for designing a system that would be transferable across the entire hospital. The Gemba board solved that challenge.

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# PATIENT SAFETY

# Zero Harm: Aligning behavior and decision making

## Little Falls Hospital

### EXECUTIVE SUMMARY

Developing and maintaining a culture of safety is imperative in healthcare to prevent or reduce errors and improve overall healthcare quality and move toward high reliability. Little Falls Hospital's goal was to decrease errors and increase reporting of near misses through the introduction and reinforcement of Just Culture and high reliability concepts. All staff, including leadership, were trained. Rounds to discern and discuss safety issues were established, and safety culture was integrated into daily interactions.

### OUTCOMES ACHIEVED

- Near miss reporting increased 416%.
- Overall incident reporting increased 100%.
- The facility saw an increase of staff reporting that "safety is a priority on my unit" as measured by an employee engagement survey.

### LESSONS LEARNED

- Cultural change can occur over time. Change must be slowly introduced and reinforced over time and in multiple settings, weaving safety into every interaction.
- Frontline staff on all levels and settings are the eyes and ears of safety in the organization. By empowering and acknowledging their importance, you create the key ingredients to a robust safety culture.
- Staff must trust you before they will report; you have to go the extra mile every time during the cultural shift.

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# ESTER: Enhancing safety through engagement and reporting

Mount Sinai Beth Israel, New York City

## EXECUTIVE SUMMARY

A robust and utilized reporting system is an essential part of the foundation of a high reliability organization. Mount Sinai Beth Israel developed and implemented an agile, electronic, web-based reporting system (ESTER-Enhancing Safety Through Engagement and Reporting) to facilitate real-time reporting, including leadership notification, data collection and reporter feedback of events and near misses. The system provides the ability for an anonymous reporter, as well as an identified reporter, to review the feedback and progress of their report(s). The team also promoted a reporting culture (Just Culture) through focus groups with residents, nurses and all staff; medical grand round presentations; house staff council meetings; and operations leadership presentations, making certain that all hospital and medical staff know the leadership's commitment to this safety culture. This led to an increase in the comfort level/empowerment of reporting of all team members.

## OUTCOMES ACHIEVED

The organization achieved:

- widespread staff, institution and health system acceptance of a new tool for reporting events;
- significant improvement in the qualitative and quantitative reporting of events/near misses; and
- self-reporting and self-identification of staff reporting their own errors.

## LESSONS LEARNED

- Hospital and medical staff will accept, utilize and embrace new processes through leadership's commitment to the process and staff education.
- A platform for honest and transparent reporting can foster better communication and trust between all levels of leadership and hospital/medical staff.
- An in-house, customizable electronic portal for event/near-miss reporting can successfully evolve into a comprehensive reporting and data collection system.

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# Optimizing EMR alerts: Improving the safety of medication administration to enhance patient care

Rochester Regional Health System

## EXECUTIVE SUMMARY

Potassium (K) administration for patients with high K levels can have serious clinical consequences, ranging from needing increased monitoring to death. Rochester Regional Health System formed a multidisciplinary team to identify opportunities to design system-level policies and develop electronic medical record-supported workflows to reduce the rate of K administration in patients with either elevated K levels or without recent lab results.

The team used the Plan-Do-Check-Act methodology to define the problem and operational metrics, implement EMR changes, track and measure the outcomes and repeat the process until achieving an optimized clinician-friendly and safe workflow.

This eliminated patient safety events and significantly reduced the overall risk of iatrogenic hyperkalemia.

## OUTCOMES ACHIEVED

- Rochester Regional Health System defined and deployed a system-wide K administration policy with monitoring safety guidelines. The system aligned EMR clinical decision support tools with this clinical policy and with CDC best practices that assure user-centered design for clinician-friendly and effective safety tools.
- K administration-related patient safety events were eliminated. High-risk K administration for patients with K levels greater than 5.5 mEq/L was also eliminated. The facility reduced the occurrence of low-risk K administration by 80% in patients with K levels of 4.6 to 5.5 mEq/L.
- The organization achieved and sustained statistically and clinically highly significant improvement throughout 2018.

## LESSONS LEARNED

- Safety culture and consistent, system-level safety practices drive the identification, analysis and resolution of even very rare situations that pose potentially catastrophic risk to patient safety.
- Consistently applying high reliability principles and change management tools is critical to achieving relevant and sustainable results on a large scale.
- Achieving reliable, high-quality and safe care is beyond the reach of education and training alone: consistently applying medical informatics best practices to the optimization of EMR functionality leads to controllable, sustainable and scalable safety outcomes.

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# Reducing the risk of medication errors using barcode technology

Montefiore Nyack Hospital

## EXECUTIVE SUMMARY

Medication administration is one of the most error-prone processes in a hospital and can result in serious injury and financial loss. Studies have noted that more than 30% of medication errors occur during administration, but only 34.5% of hospitals in 2017 used barcode scanning technology to its fullest extent as a way to prevent them. Montefiore Nyack Hospital identified various causes for suboptimal use of barcode and associated decision support technology and compared changes in scanning and medication errors rates with each process enhancement.

## OUTCOMES ACHIEVED

- The risk of medication administration errors decreased by more than 85%.
- The facility reduced medication administration risk down to one in every 1,400 doses.
- Barcode scanning rates prior to administering a medication improved significantly, surpassed national benchmarks and have been sustained for more than a year.

## LESSONS LEARNED

- Reducing the risk of medication administration errors requires a coordinated effort between various disciplines including nursing, pharmacy and information technology.
- Common reasons for not scanning a barcode include:
  - workflow-related issues for patients with numerous medications that are due at the same time;
  - medication dosage and strength options that have not been standardized in the formulary;
  - containers for multi-dose topical agents;
  - changes in procurement patterns due to medication shortages; and
  - network connectivity issues.
- Real-time follow-up to identify and correct issues as they occur requires consistent data reporting and assessment with ongoing support from department and nursing unit leadership.

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# Resident physician-run patient safety council: Impact in achieving patient safety goals

Richmond University Medical Center, Staten Island

## EXECUTIVE SUMMARY

Richmond University Medical Center established a hospital-wide, resident-run patient safety council in 2012 to empower resident physicians, the largest part of the organization's workforce, to become future leaders in quality improvement. The council's goal was to enhance understanding of patient safety and develop leadership skills through QI by cooperation, transformation and leadership at the resident level. Resident-led QI projects, using the Plan-Do-Study-Act methodology, led to restructuring of many inpatient processes to achieve better outcomes, thereby achieving Richmond University Medical Center's patient safety goals.

## OUTCOMES ACHIEVED

- The patient safety council positively impacted resident physicians by improving their leadership skills and their understanding of safety and quality issues. This change is evident in an increase in the number of QI projects taken up by residents over the last three years.
- The facility developed a patient safety and QI symposium to have residents showcase their QI projects and engage with the hospital community to share ideas to further improve quality and patient safety.
- There were multiple, positive project outcomes related to blood stream infections, urinary catheter infections, blood culture contamination reduction and viral vaccination improvements.

## LESSONS LEARNED

- Leadership of resident physicians in the patient safety council proved to be a practical and useful tool to help achieve important patient safety goals.
- A successful QI program involves an interdisciplinary approach and consistent participation from resident physician leaders.
- Developing a process with a focus on organizational goals and input from members of the healthcare team results in patient safety improvement.

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# Huddle your way to high reliability: How 15 minutes per day can change your organization

Adirondack Health, Saranac Lake

## EXECUTIVE SUMMARY

Effective inter-professional communication is one very important component to achieving high reliability. One step toward achieving high reliability is embedding and sustaining a structured, 15-minute daily meeting of key stakeholders on the organizational culture. Adirondack Health hardwired this 15-minute inter-professional collaborative huddle, and has realized sustained benefits. The key stakeholders in the organization include staff from pharmacy, housekeeping, quality/risk/patient safety, infection control, patient advocacy, case management, staffing coordination, all nursing department directors/supervisors from acute and long-term care, the organization's chief nursing officer and other c-suite members.

## OUTCOMES ACHIEVED

- Relationships and team building improved across disciplines.
- Organizational alignment and resource utilization were enhanced.
- Hospital-acquired conditions and infections decreased.

## LESSONS LEARNED

- Development of a huddle report instrument in the early stages will assist with hardwiring the process and ensure consistency of the huddle discussion among team leaders.
- Although one might already be achieving positive outcomes, it is important to always look for ways to improve using structure and best practice implementation.
- Assuring that all disciplines present have an opportunity to contribute their issues and concerns daily is key to a successful huddle.

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# Patient/family engagement as a strategy to enhance patient safety utilizing a multidisciplinary oral anticoagulant therapy program

NYC Health + Hospitals/Queens, Jamaica

## EXECUTIVE SUMMARY

NYC Health + Hospitals/Queens created a standardized multidisciplinary anticoagulation educational program for patients/families focusing on the importance of monitoring throughout the continuum of care, medication adherence, food-drug interactions, potential adverse drug events and drug-drug interactions. This program aims to enhance patient safety through education and by providing self-management tools fostering increased engagement of patients and families in their care. Patients were assessed for health literacy, barriers to adherence and knowledge of their anticoagulant therapy. They received standardized educational handouts and an adherence tool (pillbox). Comprehension was assessed by the teach-back method. Family members, caregivers and interpreters were used as needed. Monitoring included tracking adverse drug events and hospital readmissions related to bleeding or clot formation.

## OUTCOMES ACHIEVED

- The health literacy assessment showed that 24% of patients were unaware of the indication for anticoagulant therapy prior to receiving structured education.
- Ninety-percent of these patients were able to demonstrate appropriate knowledge of their anticoagulant therapy after structured education.
- Eighteen percent of patients required engagement of families and caregivers in the education process.

## LESSONS LEARNED

- Establishing consistent, standardized education is an effective patient safety strategy.
- Focusing on active patient/family/caregiver engagement is an effective patient safety strategy for high-alert medications.
- Year-to-year consistency of data supports the effectiveness of this program.

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# PATIENT EXPERIENCE

# Innovating rounding

White Plains Hospital

## EXECUTIVE SUMMARY

Patients who are rounded on by the nurse leader throughout their hospitalization rate their experiences higher on patient experience surveys. White Plains Hospital needed a way to hold managers accountable for rounding and for capturing service recovery items in a way that would help provide superior service in the moment. An e-rounding solution was implemented to help capture real-time data on patients and service issues. Managers are equipped with iPads to conduct their rounds and record responses. The facility is then able to correlate these data with patient survey results, which in turn increases scores.

## OUTCOMES ACHIEVED

- Patient experience scores improved.
- Service recovery now has a faster turnaround time.
- More patients are seen by a nurse leader.

## LESSONS LEARNED

- This new transparency brought to light leaders who were not rounding as effectively as expected.
- Nurse leader rounding impacted other clinical areas including physician and care management.
- This initiative validated that hourly rounding and communication needed to be improved.
- Plans need to be in place on days when managers are unavailable.

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# Quantifying patient satisfaction with process metrics using a weighted bundle approach

Northwell Health, Lake Success

## EXECUTIVE SUMMARY

Northwell Health built this initiative on the identification of common elements of care that impact patient satisfaction and a detailed mathematical analysis of the relationship between these factors. Interdisciplinary teams used Six Sigma methodology to categorize and analyze drivers of dissatisfaction, which led to the development of the four components in the patient experience bundle: communication, environment, basic needs/comfort and logistics. Combining the clinical and non-clinical/administrative expertise with robust data-driven analytics provided a platform to develop a method to measure and evaluate all patients' experiences while they are within the care episode and link it to processes with the organization.

## OUTCOMES ACHIEVED

- After implementing process improvements focused on issues identified by the patient experience bundle, compliance improved from an average of 51% to an average of 82.5%.
- Press Ganey "likelihood to recommend" scores improved from an average of 64.7% to an average of 74.6%
- The data demonstrated that the trends in improving the patient experience bundle are followed by meaningful changes in likelihood to recommend scores.

## LESSONS LEARNED

- Although it is routine to measure individual processes to improve the patient experience, patients do not view these as separate events, but rather as a collection of encounters that determine the patient's perception of his or her experience.
- The patient experience bundle advantage is real-time feedback with concurrent review of how process improvements are impacting patient satisfaction.
- All facilities can improve scores regardless of the starting position: low-performing sites move to the middle distribution, mid-tier sites are able to springboard to the upper tiers and top-tier sites achieve and sustain 90th percentile and higher ratings.

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# Achieving an organizational culture of excellence for the patient experience

Community Memorial Hospital, Hamilton

## EXECUTIVE SUMMARY

To maximize patient satisfaction, areas for improvement were identified and a deliberate and strategic implementation of goals and key action plans was initiated to create a system-wide culture. Improving responsiveness of hospital staff, care transition and communication of medications were targeted areas for improvement. Key performance indicators were identified to monitor progress, including establishing monthly quality standard baselines higher than the national levels (95th percentile), engagement of frontline staff in quarterly Hospital Consumer Assessment of Healthcare Providers and Systems results and transparency of HCAHPS dashboards among all stakeholders.

These initiatives enabled Community Memorial Hospital to establish a culture of optimizing the patient experience while achieving the recognition of becoming the only CMS 5-star level hospital for patient satisfaction in New York state.

## OUTCOMES ACHIEVED

- The hospital achieved a CMS 5-star rating for patient satisfaction.
- The hospital consistently met the national and New York state benchmarks for patient experience.
- A culture was established that optimizes the patient experience through standard, mandatory and cross-departmental educational sessions on cultural change and customer service.

## LESSONS LEARNED

- Patient and family voices identified critical components for improvement.
- System-wide collaboration in setting goals and taking action on key strategies established ownership in a culture that optimized the patient experience.
- System-wide educational sessions that provided the opportunity to reinforce lessons learned maximized the new culture of excellence.

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# EVS collaboration for exceptional patient experiences

White Plains Hospital

## EXECUTIVE SUMMARY

In 2014, White Plains Hospital embarked on a program to improve patient satisfaction and patient safety specific to environmental services. The objective was to improve patient satisfaction outcomes measured by Hospital Consumer Assessment of Healthcare Providers and Systems percentile rank. Methods included improving employee engagement, focused education and training, incentives and staff accountability, which are all aspects of the hospital's culture. Hospital administration support has fostered an atmosphere where environmental services staff are willing and able to provide exceptional patient experiences.

## OUTCOMES ACHIEVED

- Tier I was achieved in a single year.
- HCAHPS scores increased and were sustained from 35th to 83rd percentile for patient satisfaction and cleanliness.
- *Clostridium difficile* infections showed a steady decrease.

## LESSONS LEARNED

- Changing the hiring process, including staff in decision making and developing highly engaged employees, were necessary steps to achieve the hospital's patient satisfaction improvement goals. The higher the staff engagement, the greater the value. The greater the value, the more patients sense they are better cared for.
- Patient satisfaction takes a program, dedicated managers to administer the program, engaged staff to carry out the initiatives of the program and senior administration with the courage to set high expectations, all while supporting the environmental services team to reach its goals.

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# EMPLOYEE ENGAGEMENT AND SAFETY

# Building a culture of engagement — A precursor of high reliability

Bassett Medical Center, Cooperstown

## EXECUTIVE SUMMARY

Employee engagement is a fundamental requirement for achieving highly reliable processes and outcomes. Organizations with engaged and motivated staff have fewer harm events, better patient outcomes, superior patient experience ratings and higher net margins. Bassett Medical Center embarked upon a cultural revolution that involved implementation of a number of evidence-based strategies for improvement. Post-implementation survey data revealed that the organization had achieved a statistically significant improvement in overall workforce engagement, as well as in key drivers of engagement. Additional benefits included a significant decrease in employee turnover and an increase in staff contributions to the organization's employee assistance fund.

## OUTCOMES ACHIEVED

- The organization achieved a statistically significant improvement in overall employee engagement compared to the baseline.
- The ratings on 97% (29/30) of engagement survey questions improved. Improvement in nearly 60% of questions (17/30) reached statistical significance.
- Annual employee turnover decreased 13.5%.

## LESSONS LEARNED

- Engagement starts at the highest levels of the organization. The executive leadership team engaged in joint work to improve its own communication, transparency, teamwork and collegiality. This was critical to the organization's success.
- Never underestimate the power of recognition. The overwhelming success from implementing a formal recognition program far outweighs the minimal investment required.
- Engaged employees are more likely to give back to the organization in other ways, such as contributing to funds to help their co-workers during times of financial need.

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# Building a hospital team-based staff emotional support program

Strong Memorial Hospital, Rochester

## EXECUTIVE SUMMARY

Strong Memorial Hospital recognized a gap in its ability to respond to emotional crises clinicians experience after critical incidents. A task force was formed to identify resources and develop a hospital-wide staff emotional support program. Strong created a comprehensive program providing emotional support and resources to all hospital staff using a team-based model. Over the past three years there has been a successful transition to a culture of continuous emotional staff support.

## OUTCOMES ACHIEVED

- Strong achieved a widespread culture shift recognizing the impact critical incidents can have on staff performance, well-being and resilience and acknowledgement that staff well-being has a direct impact on providing optimal patient care.
- Frontline staff leaders were educated on what to do immediately after an event and at the end of the shift to lessen or eliminate psychological harm that occurs with staff.
- The organization established hospital-wide access to trained debriefing facilitators for team-based support sessions.

## LESSONS LEARNED

- Creating well-defined mission and vision statements was crucial to the task force's work.
- There was a knowledge gap that needed to be addressed initially and on an ongoing basis with regard to recognition, assessment and need for response to stressful events in clinical areas.
- Building upon a strong relationship with the existing employee assistance program, which provides individual guidance, Strong was able to build a unique team-based support model that allows teams to debrief together and support each other.

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# Risk avoidance through safe patient mobility

## Catholic Health Services of Long Island, Rockville Centre

### EXECUTIVE SUMMARY

Elderly and debilitated patients in acute healthcare settings need assistance in performing normal daily tasks such as sitting up, repositioning or walking. Helping patients with these tasks requires significant physical demands, increasing the risk of employee musculoskeletal injuries. Evidence is strong that safe patient handling programs reduce the risk of injury for both healthcare workers and patients while improving the safety of patient care and patient experience.

In 2014, Catholic Health Services of Long Island began implementing safe patient handling programs at its six acute care hospitals in an effort to reduce employee injuries and workers' compensation costs while increasing staff satisfaction and reducing nursing turnover. The implementation of a safe patient handling program across multiple acute care facilities required a significant capital investment and major culture change.

### OUTCOMES ACHIEVED

- Workers' compensation claims related to patient handling decreased 49%.
- Workers' compensation program costs (premium and funding) decreased 6%, concurrent with a 6% payroll increase, resulting in a spending reduction of $1,286,686 and additional funding decrease of $1,044,679.
- The nursing turnover rate decreased 13%.

### LESSONS LEARNED

- Strong clinical engagement and leadership were necessary to achieve the culture change required.
- Utilization of change management tools (The Joint Commission Robust Performance Improvement) was key.
- It was clear that Catholic Health Services of Long Island could not become a highly reliable organization without focusing on workforce safety as much as patient safety. It has now begun analyzing and reporting on employee events just like safety events.

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# The trickle-down effect of employee engagement and psychological safety on harm prevention

St. Joseph Hospital, Bethpage

## EXECUTIVE SUMMARY

St. Joseph Hospital initiated an organization-wide training on error prevention and reporting. Managers underwent Just Culture training to ensure that they had the tools available to create a supportive environment conducive to organizational learning. This was reinforced with weekly executive leadership rounds and department-elected safety coaches. The vision of this project is to be a zero harm organization. In the interim, the focus is on increasing the engagement and psychological safety of staff and as a result, creating better channels for communication for the transfer of knowledge from the front line to leadership.

## OUTCOMES ACHIEVED

- St. Joseph Hospital achieved a 44.7% increase in the number of events reported. In addition, the frequency of "good catch" events increased from 1 per 20.2 days to 1 per 9.98 days (103% increase), indicating that the hospital is recognizing potential harm events before they can impact patients.
- The frequency of serious safety events decreased by 20% in a single year.
- Year-over-year improvements were noticed in all 12 categories of the Agency for Healthcare Research and Quality Culture of Safety Survey. In addition, all categories rose above the New York State Partnership for Patients mean and eight of 12 performed above the national mean. There were also noted improvements in several of the domains in the annual employee engagement survey.

## LESSONS LEARNED

- The transfer of knowledge from frontline staff to their managers is imperative to the advancement of a continuous learning organization. The work of frontline staff is what ultimately determines customer value; therefore, the only way to improve value is through engaged employees.
- Traditional performance improvement focuses on improving the steps in a process and often forgets to take into account the individual's commitment. This commitment can only be embedded when there is a shared governance in the decision making.
- Culture cannot be pushed down to the front lines. Universal engagement starts with leadership.

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# Improving staff safety during care of patients with aggressive behavior

NYC Health + Hospitals/Lincoln, Bronx

## EXECUTIVE SUMMARY

In response to staff concerns regarding injuries, a multidisciplinary team of physicians, nurses, hospital police officers, behavioral health associates, department administrators and executive leaders evaluated the problem and initiated a staff safety initiative as part of a hospital-wide performance improvement program in January 2016. The goal of the staff safety initiative is to eliminate potentially preventable staff injuries sustained during care of patients who demonstrate aggressive behavior. The hospital used the Plan-Do-Study-Act methodology for performance and quality improvement.

## OUTCOMES ACHIEVED

- The monthly average rate of overall staff injuries sustained during care of patients with aggressive behavior decreased over the last three years from 2016 to 2018.
- The monthly average rate of potentially preventable injuries sustained during care of patients with aggressive behavior has also decreased over the last three years.
- Most injuries encountered were categorized as minor, according to the World Health Organization's injury classification.

## LESSONS LEARNED

- Educating and training staff to identify triggers among patients with potential for aggressive behavior and using standardized approaches to managing patients at risk for aggressive behavior is critical.
- Using simulation to train frontline staff teams in high-risk situations with potential for staff injuries (e.g., care of agitated patient, restraints use and prevention of elopement) showed positive results.
- Expanding orientation to include de-escalation techniques for all staff caring for patients with potential for aggressive behavior set the organization up for success.

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# Improving staff safety through safe patient handling

## Sunnyview Rehabilitation Hospital, Schenectady

### EXECUTIVE SUMMARY

Employee injuries related to patient movement are commonplace in hospitals, resulting in missed days and a significant cost to the hospital. These injuries mostly occur during bed mobility, positioning, transfers and ambulation. This is especially true for rehabilitation units/facilities as patients are learning to perform tasks again with significant functional limitations. The goal of this program was to decrease the number of staff injuries related to patient movement by evaluating the current education program and the need for additional equipment.

### OUTCOMES ACHIEVED

- The number of staff injuries related to patient movement decreased.
- The number of lost days related to injuries related to patient movement decreased.
- The cost to the facility due to employee injuries related to patient movement decreased.

### LESSONS LEARNED

- Education must be continuous and in real time using actual patients, and training methods must be flexible.
- Equipment must be purchased based on patient types and sizes, and it does not always work as expected.
- Learn from your mistakes/failures.

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# Six Sigma project: Nurse satisfaction

## Good Samaritan Hospital Medical Center, West Islip

### EXECUTIVE SUMMARY

The goal of this project was to increase the level of registered nurse satisfaction from below 46% to above 75%. The National Database of Nursing Quality Indicators RN satisfaction survey results were used as a baseline to select domains. Using a shared governance model, multiple focus groups and town hall meetings were held to provide nurses with alternate venues for their voices to be heard. Anonymous data were collected via survey, asking nurses to describe what is important to their satisfaction. Six Sigma methods were used to define and develop improvement strategies.

### OUTCOMES ACHIEVED

- Communication, schedule distribution and equipment allocation within the emergency department all improved.
- RN satisfaction (NDNQI-measured) improved by 33%. Defects were reduced from 69% to 46% in one year.
- RN satisfaction (measured in-house) improved by 31%. Defects decreased from 72% to 50% in one year.

### LESSONS LEARNED

- This subjective topic was challenging when using a Six Sigma methodology.
- Use of a department champion/point person might have assisted with the process.
- A time-consuming process is dependent on others to follow through.

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# CHAPTER TWO:
# CAPACITY AND PATIENT FLOW

# Optimizing hospital capacity through a discharge before noon initiative

The Mount Sinai Hospital, New York City

## EXECUTIVE SUMMARY

Emergency department overcrowding and high inpatient occupancy levels significantly impact patient safety and quality of care. The Mount Sinai Hospital's "discharge before noon" initiative was part of a strategic plan to maximize hospital throughput and improve patient safety, from admission to discharge, by reducing ED overcrowding and creating overall hospital capacity. The methods used were increased communication pathways, the implementation of a multidisciplinary team approach to patient-centered care and the creation and execution of a hospital-wide surge plan.

## OUTCOMES ACHIEVED

- The hospital achieved progressive annual increases in DBN percentages, from 16% in 2015 to 25% in 2018.
- There was a 31-minute shift in median discharge time over a four-year period, from 14:51 in 2015 to 14:20 in 2018.
- The hospital saw a 40% improvement in "average bed ready to bed occupied for critical care" transfers from 2.0 hours in 2015 to 1.2 hours in 2018.

## LESSONS LEARNED

- Transparent communication and technological measures allowed the institution to benchmark against "self" and enhance visibility of progress through dashboard and reporting metrics.
- Knowledge exchange from members of multidisciplinary teams not only fostered team-building, but was needed to best implement sustainable DBN strategies.
- Multiple patient flow techniques were devised and implemented throughout the institution to reduce throughput barriers and capacity constraints, further fostering a hospital community of cooperation and collaboration.

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# Adult primary care continuity and access initiative

NYC Health + Hospitals/Bellevue

## EXECUTIVE SUMMARY

The backbone of adult primary care is continuity between a patient and his or her primary care provider; this leads to improved efficiency and less waste, better quality outcomes and increased patient satisfaction. The hospital's goal was to improve patient-PCP continuity by redesigning its scheduling templates and contact center scripting.

New scheduling templates were developed, which contained rolling, time-released appointment slots using open access principles. Concurrently, contact center scripts were adjusted to emphasize the scheduling of patients with their identified PCP, even if that meant asking a patient to delay a visit by a few days to a week, if clinically appropriate and agreed upon by the patient.

## OUTCOMES ACHIEVED

- The hospital saw a marked improvement in patient and PCP continuity rates.
- Improving clinic scheduling efficiencies decreased "third next available" new patient appointments.
- There was also a decrease in third next available revisit patient appointments.

## LESSONS LEARNED

- Patients are willing to wait several additional days to see their continuity PCP rather than be seen by another PCP.
- Reduction of non-continuity PCP visits led to increased clinic efficiencies and increased PCP capacity for their continuity patients.
- The coordination between the contact center and clinic structure (i.e., scheduling templates) is important in order to achieve sustainable outcomes.

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# Serving the community through our front door

St. Elizabeth Medical Center, Utica

## EXECUTIVE SUMMARY

Under the sponsorship of the chief nursing officer and the senior leadership team, a system-wide, multidisciplinary performance improvement team was established to address the need to provide care to all patients in a more expeditious manner while improving patient flow from arrival to the inpatient floor. To ensure immediate tactical improvements and sustained strategic improvement, the science of improvement was applied through the use of the Plan-Do-Study-Act quality improvement methodology and "Profound Knowledge" for this major initiative.

## OUTCOMES ACHIEVED

- The length of stay in both emergency departments decreased for both admitted and discharged patients
- "Leave without being seen" decreased for both emergency departments on the two campuses.
- The length of time for medical imaging and laboratory testing decreased.

## LESSONS LEARNED

Though numerous lessons were learned, the following are the top three:

- Strategic Alignment: Creates a single commitment to the goals and purpose of the initiative.
- Communication: Addresses the what and why of the initiative (clarity around purpose and vision, emotional and rational commitment, staff engagement).
- Cooperation: Enhances the relationships between teams and departments (staff and other partners).

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# Peri-operative patient throughput improvement project

New York Eye and Ear Infirmary of Mount Sinai, New York City

## EXECUTIVE SUMMARY

To evaluate the correlation between patient experience scores and pre-operative wait times, New York Eye and Ear Infirmary conducted a study in its ambulatory surgery unit. Next, a protocol was put in place to decrease the waiting time experienced by patients as they move from the pre-operative area to the operating rooms. This was accomplished by reducing the number of missing mandatory documents in the patient's medical chart on the day of surgery. The project, using the Plan-Do-Study-Act methodology, included creating a clinical chart review team to evaluate the completeness of patient charts and correct deficiencies prior to the day of surgery.

## OUTCOMES ACHIEVED

- Wait times in the pre-operative area decreased.
- The percentage of ambulatory surgery patients responding "very good" to the Press Ganey survey item "Wait time before procedure" increased.
- The facility achieved improvement in 7:30 a.m. first surgical case "on time" starts.

## LESSONS LEARNED

- A complete clinical chart review, one day before surgery, is critical.
- An educational outreach to physicians' offices regarding hospital pre-operative policy and guidelines allowed for improved compliance and accountability.
- Involving all pre-operative touchpoints in performance improvement initiatives helped to establish a cohesive decision-making team.

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# Achieving predictive performance without a crystal ball

## Good Samaritan Hospital Medical Center, West Islip

### EXECUTIVE SUMMARY

Inefficient patient flow and patient progression lead to dissatisfaction, inconvenience, high costs and poor outcomes. To redesign hospital-wide patient flow, Good Samaritan Hospital Medical Center decided to use logistical software with analytics and a new care coordination model combined with leadership and departmental involvement.

### OUTCOMES ACHIEVED

- Acute inpatient length of stay was reduced by 14.5% from 2016 to 2018.
- Patient throughput and flow achieved a 29% improvement as measured by median time emergency department "door-to-floor" (arrival to unit) from 2016 to 2018.
- Quality care was optimized with a 42% reduction in ED patient holds from 2016 to 2018.

### LESSONS LEARNED

- Efficiency and coordination of care reduces the opportunity of preventable harm while being respectful of patients' time.
- Innovation fostering increased communication improves patient-focused outcomes.
- Coordinated patient movement throughout the hospital requires the simultaneous involvement of every department, both clinical and non-clinical.

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# Decreasing medicine length of stay to enhance patient flow

NYC Health + Hospitals/Jacobi, Bronx

## EXECUTIVE SUMMARY

The purpose of this project was to decrease inpatient medicine length of stay. NYC Health + Hospitals/Jacobi's aim was to initiate daily interdisciplinary team rounding to achieve a sustained decrease of 0.5 days in this crucial metric. Executive leadership engaged the Lean/Breakthrough department to facilitate a more efficient discharge process. A multidisciplinary team with representation from all relevant services evaluated the initial state, identifying barriers and setting goals. Standardizing interdisciplinary team rounds, including the development of a rounding tool, was the first step in this continuous improvement process.

## OUTCOMES ACHIEVED

- The facility achieved a sustained reduction of 0.84 days in the length of stay (2016-2018), with a concomitant increase in the number of discharges from 477 in 2016 to 582 in 2018.
- Standardization of interdisciplinary team rounds was woven into the safety culture of inpatient medicine patients, such that 100% of the patients are attended to through rounds on a daily basis, with coordinated care leading to more timely discharge.
- The consistent facilitation by Lean/Breakthrough staff helped ensure sustainability as the root causes of challenges were addressed in real time. The program has been sustained for 25 months.

## LESSONS LEARNED

- The interdisciplinary rounds generated a forum where everyone's voice and creative ideas are heard, leading to more efficient processes, a shared mental model and enhanced safety culture.
- The consistent facilitation by the Lean/Breakthrough staff aided in troubleshooting challenges and identifying barriers, thus ensuring sustainability.
- Mitigating the unique needs of the long-stay patients greater than 20 days continues to be a challenge, which the organization is better equipped to address with the new collaborative culture.

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# Saving lives with ED throughput: In-person pull from the ED

## Kingsbrook Jewish Medical Center, Brooklyn

### EXECUTIVE SUMMARY

As an evolving high-reliability organization, Kingsbrook capitalized on this opportunity to use robust process improvement methods in combination with change management principles to support the goal of zero defects. Using Lean Six Sigma methodology as one of the robust process improvement methods used to streamline the pull process (or "pick up") by the inpatient critical care nursing team, the project was launched on April 5, 2018. Kingsbrook created a value flow map (current state and future state), deconstructing the start and end of the process. Implementation of the future state flow map began on April 9, 2018. A staff team developed standard work processes on in-person pull of patients, which have replaced "pre go live" work processes.

### OUTCOMES ACHIEVED

- Kingsbrook decreased wait time by 75 minutes to a current wait time of 38 minutes, from when a clean bed is assigned until the patient leaves the emergency department.
- There were fewer surge conditions in the ED compared to the prior year.
- There have been zero ED diversions since implementation.

### LESSONS LEARNED

- Multiple opportunities for efficiency in ED throughput can be modified with workflow analysis using Lean methodology.
- Staff have clear perspectives of workflow and workarounds and are critical in the engagement for change, including with goal-setting and with updates on progress toward goals.
- A bias to action using systematic scientific methods of improvement that includes executive sponsorship is superior to endless problem-solving meetings that are reactionary and limited in scope.
- Current technology in bed board management is useful in eliminating phone calls.

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# CHAPTER THREE: HEALTHCARE-ASSOCIATED CONDITIONS

# INFECTIONS:
# Broad Infection Control Interventions

# Zero Harm: Our health system's journey to eliminate hospital-acquired complications

NYU Langone Health, New York City

## EXECUTIVE SUMMARY

Senior management at NYU Langone Health chartered the Zero Harm initiative to decrease hospital complications. Eighteen multidisciplinary teams were formed with more than 100 individuals. With a focus on high reliability and going back to basics, each team took responsibility for improving a particular aspect of care (e.g., environment of care, optimizing antibiotic use, bundles to eliminate surgical site infections, improving timeliness of apparent cause analyses and Methicillin-resistant *Staphylococcus aureus* screening and decolonization).

Each team started by revising existing standards, creating new ones where necessary and ensuring staff received proper training and education on the new standards. Many teams implemented electronic health record fixes to enhance documentation and developed process of care metrics to track staff compliance with the organization's standards. An executive steering committee and an operations group continue to provide oversight and support for the initiative and to bring both success stories and barriers to the table.

## OUTCOMES ACHIEVED

- The health system-wide hospital-acquired conditions composite score decreased by 45% from 9.1 per 1,000 discharges in the first quarter of 2017 to 5.0 per 1,000 discharges in the fourth quarter of 2018.
- The health system-wide central line-associated blood stream infections rate dropped from 1.5 per 1,000 central line device days in the first quarter of 2017 to 0.74 in the fourth quarter of 2018.
- The health system-wide catheter-associated urinary tract infection rate dropped from 3.3 per 1,000 urinary catheter days in the first quarter of 2017 to 0.13 in the fourth quarter of 2018.

## LESSONS LEARNED

- Ensuring interventions and new standards trickle down to frontline staff can be challenging.
- "Dashboardization" to foster accountability for best process adherence is slow.
- Emphasis on high reliability, eliminating culture of blame and encouraging staff to "stop the line" is imperative to success.

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# Our journey to ZERO: Reducing overall hospital-associated infections through a collaborative interdisciplinary approach

Peconic Bay Medical Center, Riverhead

## EXECUTIVE SUMMARY

Peconic Bay Medical Center's objective was to reduce hospital-associated infections by 50% in 2018, with an overarching goal to reduce mortality, length of stay and the associated costs related to hospital-associated infections. The team leveraged Lean methodology to examine the organization's processes, identify opportunities for improvement and implement a collaborative, interdisciplinary, team-based approach to achieve sustainable results.

## OUTCOMES ACHIEVED

- The organization achieved a 100% reduction of HAIs in critical care.
- Central line-associated blood stream infections decreased 83%.
- *C. auris* infections decreased 70%.

## LESSONS LEARNED

- Interdisciplinary collaboration, as championed by nursing and medicine, was a significant driver of success.
- Ongoing education, with a commitment to patient safety, organizational excellence and promoting best practices, drove employee engagement.
- Successful execution of the goals required the sponsorship of the executive leadership team.

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# Starting with clean hands: Hand hygiene as a paradigm to align safety

Mount Sinai Health System, New York City

## EXECUTIVE SUMMARY

Improving hand hygiene compliance through the implementation of a system-wide improvement initiative aligns with the health system's strategy of decreasing hospital-acquired infections. Hand hygiene was selected as the first major system-wide process improvement project, which aimed to create a foundation from which other system-wide process improvement work would be based. A multi-faceted approach was used to improve hand hygiene and promote a culture of patient safety. Through a focus on leadership accountability, data transparency and communication of best practices, the health system improved hand hygiene compliance, reduced HAIs and created a model for future process improvement programs.

## OUTCOMES ACHIEVED

- Hand hygiene compliance improved by about 20%.
- An analysis revealed a significant correlation between increasing hand hygiene compliance and reducing *Clostridium difficile* infections. *C. difficile* infections decreased 71% between 2015 and 2018.
- A multi-faceted approach to improve hand hygiene helped establish a foundation to support a culture of patient safety across the health system.

## LESSONS LEARNED

- Build a foundation that includes leadership engagement, data transparency and system-wide communication of best practices.
- Allowing each individual hospital to adapt local practices enabled the system to leverage internal expertise and spread best practices as part of the journey to high reliability.
- Engage employees to help them understand their role in keeping patients safe.

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# Hand hygiene "CATCH" initiative

## Mount Sinai St. Luke's, New York City

### EXECUTIVE SUMMARY

The goal of this initiative was to increase the rate of hand hygiene compliance on all hospital inpatient medical/surgical units to greater than 90% within 12 months. Mount Sinai St. Luke's used The Joint Commission's Targeted Solutions Tool to collect data via anonymous observers and identify drivers of hand hygiene non-compliance. Then the organization dramatically increased and sustained hand hygiene compliance through interventions to the unit environments and departmental workflows, and the introduction of a monthly reward and recognition program.

### OUTCOMES ACHIEVED

- The hospital hand hygiene compliance rate increased from 78% in January 2017 to 91% in December 2017.
- Hand hygiene compliance increased by almost 20% within two years, from 79.6% in 2016 to 88.9% in 2018.
- There was a significant reduction in both hospital-associated infection rates and annual cost of patient harm.

### LESSONS LEARNED

- The reward and recognition program was key to program success. It enabled the team to socialize the initiative, creating friendly competition between units that increased compliance.
- A hospital executive and leadership "coaching blitz" was a powerful way to quickly raise awareness and promote good behavior, but hand hygiene coaching should also be integrated into regular leadership rounds.
- Over-reliance on volunteer observations plus lack of unit ownership regarding observation data collection and submission was identified as an additional opportunity late in the program.

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# INFECTIONS
# Catheter-associated urinary tract infections

# Catheter-associated urinary tract infection: The disappearing act

Northern Westchester Hospital, Mount Kisco

## EXECUTIVE SUMMARY

Northern Westchester Hospital implemented a CAUTI reduction program developed from a root cause analysis. The RCA process identified that definitions for indwelling catheter indications were misunderstood, there was a lack of alternatives to indwelling catheters and there was a cultural belief that intermittent catheterization has a higher infection risk to patients. This led to the development of an educational plan consisting of defining indications for use, alternatives to the use of indwelling catheters (such as bladder scanning and developing a straight catheterization protocol) and presenting the clinicians with the evidence-based literature on the benefits of straight catheterization over indwelling catheters.

The initiative was sustained by incorporating daily multidisciplinary rounding and daily auditing through a web-based tool, monitoring for program compliance for patients with or at high risk for indwelling catheters. The audit tool assisted with direct feedback to frontline staff, tracking and trending compliance and reporting management challenges.

## OUTCOMES ACHIEVED

- The CAUTI standardized infection ratio fell from 3.31 in 2017 to zero infections in 2018.
- Organizational culture shifted by streamlining alternatives to indwelling catheterization.
- Zero CAUTIs were sustained for 17 months facility-wide.

## LESSONS LEARNED

- Engaging the frontline clinicians using shared governance councils and interdisciplinary collaboration helped to facilitate the early adoption of the CAUTI reduction program.
- Providing the right tools to the frontline clinicians, such as bladder scanners, and the development of a nurse-driven straight catheterization protocol and female urinals was critical.
- Web-based auditing tools assist in sustaining the program through direct feedback, tracking trends and reporting outcomes/outliers to leadership and direct-line staff.

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# Standardized system-wide initiative to reduce catheter-associated urinary tract infection by using best practices

NYC Health + Hospitals

## EXECUTIVE SUMMARY

NYC Health + Hospitals' "Zero CAUTI" initiative is aligned with the organization's strategic goals of improving quality care and clinical outcomes. By using standardized best practices as stipulated by the Centers for Disease Control and Prevention's guidelines and the New York State Partnership for Patients' "Guiding principles for reduction of CAUTI," NYC Health + Hospitals was able to decrease CAUTIs by 50% across the organization and significantly reduce the catheter utilization rate.

## OUTCOMES ACHIEVED

- NYC Health + Hospitals sustained a 50% reduction in CAUTIs across the organization.
- There was also a sustained reduction in Foley utilization across the organization.
- Urinary catheter utilization, insertion, maintenance and duration was standardized across the organization and lessons learned are shared using a standardized platform and format, i.e., Plan-Do-Study-Act.

## LESSONS LEARNED

- Sharing lessons learned when a CAUTI event occurs using a standardized platform and format helped facilities learn from each other.
- A standardized competency assessment checklist also played a great role in standardizing the practice across the organization.
- The simulation center staff provide crucial assistance by conducting site visits during facility-based training to provide quality assurance, support and mentorship to trainers and to help troubleshoot.

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# The Journey to "Zero" catheter-associated urinary tract infections

Flushing Hospital Medical Center

## EXECUTIVE SUMMARY

Catheter-associated urinary tract infections are the most common and mostly preventable healthcare-associated infections, frequently resulting in increased length of stay, cost of care and patient discomfort. Eliminating hospital-acquired conditions is one of Flushing Hospital Medical Center's strategic initiatives on the journey to becoming a highly reliable organization. The hospital formed a CAUTI task force made up of multidisciplinary leadership with the objective of decreasing the number of CAUTIs by at least 35% in one year.

A multifaceted approach was implemented including education, supply upgrades, a two-registered nurse insertion procedure, addition of chlorhexidine baths, daily rounding team validation of continuation necessity, maintenance bundle monitoring, random audits of room cleaning effectiveness and data sharing.

## OUTCOMES ACHIEVED

- The number of CAUTIs was reduced by 83% from 24 (2017) to four (2018).
- Urinary catheter device days decreased by 35% from 24.41 (2017) to 15.75 (2018).
- The hospital achieved a 99% overall compliance rate with the urinary catheter maintenance bundle for 2018.

## LESSONS LEARNED

- Review the entire urinary catheter process as part of a proactive risk assessment and action plan (product used, insertion practices, maintenance practices, Foley necessity review).
- Establishing layers of accountability provided checks and balances that raised the standard of care and shortened catheter device days.
- Raise the standard of maintenance practices for those urinary catheters deemed necessary.

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# #NoMoreCAUTI: Reducing CAUTI by improving process reliability through frontline engagement

NYU Winthrop Hospital, Mineola

## EXECUTIVE SUMMARY

Despite implementation of evidence-based practices to reduce catheter-associated urinary tract infections, NYU Winthrop Hospital still saw unacceptable variation in outcomes. Successful strategies from other high-reliability industries are particularly challenging in healthcare due to the complexity of healthcare delivery systems. The goal was to drive process reliability to the CAUTI bundle to improve outcomes.

After executing standardized practices hospital-wide, the team introduced a lean management tool, the Kamishibai ("K") card, to engage frontline staff by providing direct coaching and feedback. This strategy led to increased knowledge and clarity of individual bundle elements and a change in culture around urinary catheter use. This ultimately improved process reliability, supporting efforts to achieve zero harm.

## OUTCOMES ACHIEVED

- The CAUTI standardized infection ratio was reduced.
- The urinary catheter utilization ratio decreased.
- The organization achieved improved process reliability as evidenced by adherence to the CAUTI bundle and catheters being placed and maintained for appropriate indications.

## LESSONS LEARNED

- Relentless reinforcement of the bundle elements at multiple venues (e.g., apparent cause analysis; departmental, chairperson, nursing and transporter meetings) created the imperative to increase awareness and enhance knowledge-supported improvement.
- Frontline staff engagement and defined accountability structures were essential.
- Leadership support and use of escalation drove accountability across all levels and disciplines.

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# Getting to zero harm — Reduction of CAUTI

Samaritan Hospital, Troy

## EXECUTIVE SUMMARY

Samaritan Hospital's catheter-associated urinary tract infection rates had been variable for three years with limited improvement. The goal of this initiative was to improve processes around safe and appropriate insertion of catheters and prompt removal when a catheter is no longer needed. With improved processes, the aim was to decrease the CAUTI rate by 25% by the end of 2018. Changes were accomplished through a multidisciplinary group, checklist, focus rounding and data feedback to units.

## OUTCOMES ACHIEVED

- At this writing, there have been 385 days and counting since the last CAUTI.
- A CAUTI checklist was implemented.
- "Days since last" reports provide feedback to units and hospital-wide.

## LESSONS LEARNED

- Multidisciplinary review of each infection increased awareness.
- Focus of catheter removal during intensive care unit rounds led to fewer patients being transferred out of the ICU with catheters.
- "Days since last" is easily understood and interesting to staff.

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# INFECTIONS
## Central line-associated blood stream infections

# Vascular access stewardship: Enhancing patient safety and reducing cost one (less) line at a time

NYU Langone Health, New York City

## EXECUTIVE SUMMARY

Peripherally-inserted central catheter usage in the United States has grown dramatically in the past decade and is associated with an increased risk of both central line-associated blood stream infection and venous thromboembolism. The goal of NYU Langone Health's vascular access stewardship initiative was to reduce the number of PICCs placed, PICC days, non-mucosal barrier injury CLABSIs and PICC-associated VTEs. The organization required every PICC be approved by senior leadership, designed a seamless workflow in the electronic medical record, collaborated with vascular access nurses and executed an interdisciplinary education campaign.

## OUTCOMES ACHIEVED

- PICC placement decreased 72%.
- PICC days decreased 61%.
- The facility also saw a 30% reduction in the non-mucosal barrier injury CLABSI rate.

## LESSONS LEARNED

- The vascular access stewardship initiative is not only effective, but sustainable and portable across different hospitals within the system.
- The initiative is anchored in an aligned vision with senior leadership, timely feedback and celebrated wins.
- This initiative harnessed the power of the interdisciplinary team and the expertise of the organization's vascular access nurses at no incremental expense to the institution.

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# Reducing central line-associated blood stream infections

## Albany Medical Center

### EXECUTIVE SUMMARY

In 2017, Albany Medical Center's medical intensive care units identified central line-associated blood stream infections as an opportunity for improvement. The medical intensive care units and an interprofessional leadership team used Lean principles, including conducting a rapid improvement event with key stakeholders from within and outside of the unit, in an effort to reduce the CLABSI rate. An interdisciplinary group, including nurses, physicians, infection prevention specialists, environmental services and unlicensed personnel met over several days to discuss and implement strategies to reduce the units' CLABSI rate; the goal was to meet and/or exceed the national and state standard infection rates for CLABSIs.

### OUTCOMES ACHIEVED

- The CLABSI rates were reduced to meet national and state standard infection rates or lower.
- All members of the interprofessional team who are involved with catheter placement and daily management were re-educated.
- An interdisciplinary group was formed to achieve key stakeholder standard work for catheter placement and maintenance.

### LESSONS LEARNED

- A multidisciplinary approach was necessary to achieve buy-in from all stakeholders.
- Verifying standards of care and methods for placement, care and management of catheters was necessary.
- The organization identified opportunities to improve the standard of care for line placement and collection of blood cultures to align with the Centers for Disease Control and Prevention and Agency for Healthcare Research Quality.

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# It takes a village — Reducing CLABSI in an era of constrained resources

## SUNY Downstate Medical Center, Brooklyn

### EXECUTIVE SUMMARY

Central line-associated blood stream infections are a common problem in hospital care and contribute to excess morbidity, mortality and expense. SUNY Downstate Medical Center sought to develop a multilevel and multidisciplinary approach to reduce the rate of CLABSIs by engaging hospital leadership, increasing staff awareness of risk reduction strategies and creating barriers to the placement of unnecessary catheters. Peripherally-inserted central catheter lines and femoral lines were targeted, as these were being commonly used and have been associated with significant CLABSI rates. The team sought to identify clear clinical targets that would result in lower rates of complications and created barriers to unnecessary procedures. The team also engaged in educational forums and performed rapid clinical case reviews with staff and leadership.

### OUTCOMES ACHIEVED

- The use of PICC lines and central venous catheters decreased.
- Staff are more aware of the problem and risks contributing to CLABSIs.
- The facility has achieved a sustained, dramatic reduction in the rate of CLABSIs.

### LESSONS LEARNED

- Competing strategies for efficient healthcare delivery (i.e., use of long-term indwelling venous catheters and lowering the rate of healthcare complications) do not always lead to the safest outcomes for patients.
- Engaging hospital leadership in a direct conversation with staff about risk management is a powerful tool for achieving positive patient care outcomes.
- Constant vigilance is necessary to maintain good results, especially in hospitals with busy training programs with rotating house staff.

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# INFECTIONS
## Surgical site infections

# Improving outcomes of the cardiac patient through a multidisciplinary team approach in the peri-operative setting

Mercy Hospital of Buffalo

## EXECUTIVE SUMMARY

Mercy Hospital's goal was reducing surgical site infection for cardiac patients undergoing coronary artery bypass grafting and valve replacement surgery. The facility implemented a multidisciplinary team approach to support and implement interventions to decrease SSI. The stakeholders designed a Lean Six Sigma project to gather, analyze and execute strategies to improve clinical outcomes. A pre-surgical consultation was completed by the provider detailing a risk assessment and patient education. Post-operatively, the patient-specific order set was standardized and patient education was reinforced. Upon leaving the cardiovascular recovery room, patients are transferred to a single nursing unit where the nurses and ancillary staff are specially trained in the care of these patients and continue care with specifically ordered standardized order sets. With collaboration, patient education continues in the rehabilitation and home care setting.

## OUTCOMES ACHIEVED

- The rate of SSI in cardiac patients decreased.
- The facility introduced clinical best practices and improved patient safety by developing standardized order sets and plans of care.
- Physicians and mid-level providers are actively engaged, resulting from best practices, education and established standards of care.

## LESSONS LEARNED

- The successful implementation of a multidisciplinary team approach to decrease SSIs was enhanced by communication, resulting in best clinical practices.
- Consistent, repeated and easy education provided to all patients, both orally and written by providers and staff, improved patient outcomes.
- Standardization of care throughout the process including education; order sets; and pre-operative, intra-operative and post-operative care of all cardiac patients, resulting in decreased SSIs.

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# The basics make a difference

## John R. Oishei Children's Hospital, Buffalo

### EXECUTIVE SUMMARY

The infection preventionist at John R. Oishei Children's Hospital identified an opportunity to decrease the number and severity of surgical site infections following caesarean sections. After reviewing the cases for commonalities, confirming sterile processing best practices, reviewing the current/available scholarly literature and performing a risk assessment, the infection preventionist, nurse manager and the inpatient obstetrician-gynecologist medical director co-led a team. The team assessed current practices and used the Plan-Do-Study-Act methodology to identify evidence-based best practices. The team focused on proper hand hygiene, wound class/risk assessment and updated vaginal and surgical site preparation.

### OUTCOMES ACHIEVED

- The c-section SSI rate is now less than the pre-intervention rate.
- Wound class/risk assessment are accurately scored 100% of the time.
- No additional costs or personnel are required for these improvements.

### LESSONS LEARNED

- Standardized best practice is the best way to promote patient safety.
- Education should be provided to all personnel, including physicians and residents to ensure personnel are current with evidence-based best practices.

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# Reducing immediate use steam sterilization while increasing production

St. Charles Hospital, Port Jefferson

## EXECUTIVE SUMMARY

The immediate use steam sterilization process is an abbreviated (and therefore less comprehensive) technique used to rapidly decontaminate equipment when needed emergently. However, this technique can lead to an increased chance of surgical infection. Realizing the significant impact the output yielded by central sterile can have on surgical infection rates and operating room throughput, St. Charles Hospital decided to reconstruct the sterilization process and cross-train staff to ensure ample sterile trays are available for the operating room, therefore decreasing the number of instances of IUSS and improving the overall throughput of the OR.

## OUTCOMES ACHIEVED

- Instances of IUSS were reduced, contributing to a 0.44% surgical infection rate in 2018, and remaining below state benchmarks in several categories.
- Productivity increased by 55% in 2018 allowing for an increase in the OR case load by 0.92%, leading to an estimated $1.5 million in revenue for the hospital.
- The OR first case delay rate due to equipment decreased, leading to an increase in the OR first case on-time rate from 54% in 2017 to 58% in 2018.

## LESSONS LEARNED

- Employee satisfaction and perception of safety improved due to expanding technical competencies of central sterile, leading to a 68% overall perception of safety on recent employee surveys (New York state benchmark: 63%).
- Implementation of an automated equipment tracking system has promoted communication of priorities and allowed for enhanced monitoring of progress through the system.
- Sterile trays are commonly cannibalized for specific instruments due to shortages/lack of spares in the packing list of trays. Resolving these packing list issues can increase equipment availability.

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# Point-of-use cleaning in the operating room

## Highland Hospital, Rochester

### EXECUTIVE SUMMARY

Highland Hospital's five-year strategic plan has a goal to reduce preventable harm by 20% by implementing best practices related to reduction of hospital-acquired conditions, which includes surgical site infections. The project's target was to reduce the presence of bioburden on surgical instruments to less than 2% by establishing standardized processes and procedures in the first step of the decontamination process (point-of-use cleaning). The project also aimed to create a quality assurance process to ensure project sustainability. The project team utilized the Lean Six Sigma methodology and tools along with a project management framework to achieve intended outcomes.

### OUTCOMES ACHIEVED

- The number of bioburden incidents is now consistently under 1%.
- The goal of increasing point-of-use cleaning compliance and decreasing the number of grossly soiled instruments being sent to the sterile processing department has been successful to date. When the audits started in July 2018, compliance was roughly 80%. There has been an increase in compliance month over month with a projected sustainable compliance rate of 95% or higher.
- The number of instruments having to be returned to the decontamination area from the assembly area is at an all-time low, with just a few instruments per month recorded.

### LESSONS LEARNED

- In a highly process-dependent workflow, the integration of audits and check points must never be undervalued nor underutilized.
- Process metrics are crucial in determining the success of quality improvement.
- Leadership support and buy-in from frontline staff lay the foundation for sustainable improvements.

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# INFECTIONS:
## *Clostridium Difficile*

# Improving hospital-acquired *Clostridium difficile* rates: An interdisciplinary approach to implementing best practice

St. Luke's Cornwall Hospital, Newburgh

## EXECUTIVE SUMMARY

St. Luke's Cornwall Hospital formed an interdisciplinary team to decrease the rate of *C. difficile*. Using the Institute for Healthcare Improvement methodology, the team pursued a multifaceted action plan derived from evidence-based practice and innovation through a series of Plan-Do-Study-Act cycles to reduce unnecessary *C. difficile* testing, assure proper handwashing and personal protective equipment compliance by staff and visitors and ensure compliance with the post-discharge terminal cleaning process.

## OUTCOMES ACHIEVED

- The hospital achieved a 63% reduction in hospital-acquired *C. difficile* infections from 2017 to 2018.
- The median *C. difficile* rate decreased from 7.7 to 2.6 per 1,000 patient days.
- There was a 20% reduction in the number of *C. difficile* tests conducted from 2017 to 2018.

## 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 hospital workflow.
- Nursing staff engagement is integral to hardwiring processes.
- Changing a culture of practice requires much communication: talk until everyone has heard it — and then talk again.

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# Clinical decision support strategies to reduce hospital-onset *Clostridium difficile* infections

## Jamaica Hospital Medical Center

### EXECUTIVE SUMMARY

Jamaica Hospital Medical Center identified an opportunity to reduce hospital-onset *C. difficile*. This goal is aligned with the organization's journey to becoming a highly reliable organization.
The *C. difficile* task force performed a root cause analysis on previous *C. difficile* cases and decided to focus on improving specimen testing appropriateness. Major components of the initiative included:

- education (appropriate specimen collection/testing, documentation, differentiation between infection and colonization and updates to treatment guidelines);
- clinical decision support tools in the electronic medical record with specimen testing order questions and data feedback to individuals and through committee reports.

### OUTCOMES ACHIEVED

- *C. difficile* infection rates remained below the New York state benchmark at 4.30 (NYS 5.20) and 4.13 (NYS 5.99) for 2017 and 2018, respectively.
- *C. difficile* infection cases decreased by 17% from 35 in 2017 to 29 in 2018, with 12 (41%) of the 29 cases in 2018 occurring in the two months prior to the intervention.
- Specimen testing decreased by 29% from 798 in 2017 to 564 in 2018.

### LESSONS LEARNED

- Using clinical decision support in the EHR to streamline the *C. difficile* stool test ordering process was crucial to decrease inappropriate specimen testing.
- Staff education is required in addition to electronic prompts and tools.
- A multidisciplinary approach from leadership, quality, infection control, infectious diseases, gastroenterology, nursing, medical staff, pharmacy, professional development and information technology supports buy-in and ensures sustainable results.

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# CDIFFerently: A bundled approach to sustained *Clostridium difficile* infection prevention

## Faxton St. Luke's Healthcare — St. Luke's Campus, Utica

### EXECUTIVE SUMMARY

Faxton St. Luke's Healthcare set out to use a "Define-Measure-Analyze-Improve-Control" process improvement model to assess its *C. difficile* rates and to develop a comprehensive reduction strategy.
The CDIFFerently initiative was launched as a bundled approach to *C. difficile* reduction, incorporating elements aimed at addressing diagnostic stewardship, environmental contamination, transmission prevention and education. The individual CDIFFerently elements were tied together with a marketing campaign designed to pique interest in *C. difficile* reduction and sustain engagement.

### OUTCOMES ACHIEVED

- The healthcare facility-onset incidence rate of *C. difficile* decreased 48%.
- The hospital achieved greater than 80% compliance with the testing algorithm.
- Use of a UV light disinfection system was expanded to include 98% of *C. difficile* discharge rooms and 13% of total discharge rooms.

### LESSONS LEARNED

- The importance of assembling and engaging a multidisciplinary team cannot be overstated. The expertise of many individuals contributed to the ongoing success of CDIFFerently.
- The CDIFFerently marketing campaign was pivotal to success. It sparked and fostered enthusiasm, focused attention and connected the individual components of the initiative into a consistent message.
- By developing meaningful methods of auditing the CDIFFerently initiatives, the organization has been able to efficiently address fallout and sustain success.

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# Technology utilization in the reduction of *Clostridium difficile*

Peconic Bay Medical Center, Riverhead

## EXECUTIVE SUMMARY

In the spirit of collaboration, a multidisciplinary team at Peconic Bay Medical Center comprised of environmental services, nursing and infection control, coupled with the support of leadership, embarked on a yearlong journey to reduce hospital-associated infection *C. difficile* rates. The multidisciplinary team established a goal to reduce the baseline rate by 50% from the previous year (2017-2018). The methods used to successfully achieve the goal incorporated technology, ongoing education, situational awareness, staff engagement and the Team Strategies and Tools to Enhance Performance and Patient Safety — Team STEPPS — methodology.

## OUTCOMES ACHIEVED

- There was a 100% reduction in *C. difficile* in the intensive care unit.
- Hospital-associated *C. difficile* infection rates decreased by 67.7%.
- The organization created a collaborative culture of education and execution.

## LESSONS LEARNED

- Using TeamSTEPPS as a framework for collaboration, escalation and communication served as a catalyst for this project.
- Multidisciplinary collaboration is the key driver in the successful execution of performance improvement projects and organizational excellence.
- Barriers to progress can become opportunities for improvement when multidisciplinary departments align their priorities through professional partnership.

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# Implementation of a clinical intervention and electronic decision support system to reduce healthcare-associated *Clostridium difficile*

NewYork-Presbyterian/Queens, Flushing

## EXECUTIVE SUMMARY

NewYork-Presbyterian/Queens decreased its hospital-onset *C. difficile* rate by ensuring timely collection and testing when an order is placed, prompt chart review to ensure proper clinical indications are met and establishment of an electronic alert algorithm within the electronic medical record system. The team intensified surveillance of positive patients and thoroughly reviewed pending nucleic acid amplification orders. The team also collaborates with information systems staff to construct an alert within the EMR to notify providers of existing orders and current laxative treatment or recent positive/negative tests, and encourages them to contact the infection preventionist if they want to continue the order.

## OUTCOMES ACHIEVED

- Awareness of proper indications for *C. difficile* testing increased among providers and caregivers.
- Reportable healthcare-onset cases, *C. difficile* infection rates and the standardized infection ratio all decreased.
- There was a decrease in unnecessary antibiotic treatment of patients (false-positive cases) and associated costs.

## LESSONS LEARNED

- The organization recognized the high rates of colonization among the patient population and the importance of active surveillance/chart review to minimize unnecessary testing, overdiagnosis and unwarranted treatment of *C. difficile*.
- Infection preventionist 24/7 on-call availability to ordering providers has proven valuable in addressing questions and concerns while providing peer-to-peer education.
- Steadfast support is needed from hospital leadership to improve provider understanding of *C. difficile* disease and appropriate utilization of nucleic acid amplification tests.

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# Success in decreasing hospital-onset *Clostridium difficile* infections

SBH Health System, Bronx

## EXECUTIVE SUMMARY

SBH Health System's initiative to reduce *C. difficile* infections was accomplished by formulating a multidisciplinary committee with administrative support to engage in performance improvement to decrease the incidence of *C. difficile*. A root cause analysis was performed on all *C. difficile* cases. Protocols were then updated and emergency department nurses and providers were educated about the timely collection of stools. *C. difficile* education was broadly incorporated through many venues targeting staff, patients and visitors. Environmental cleaning became a top priority, unit-based contact precaution monitoring was completed daily and obstacles to infection control were removed.

## OUTCOMES ACHIEVED

- The rate of hospital-onset *C. difficile* infections decreased significantly.
- Improvement was sustained over a three-year period, evidenced by continuously declining rates.
- There was a cultural shift toward hospital-wide ownership of the goal of decreasing infection rates.

## LESSONS LEARNED

- The hospital emergency department has a significant role in the effort to "Stop *C. difficile* at the Door."
- It is important to adopt enhanced technology directed toward *C. difficile* diagnosis and prevention, e.g., improved laboratory testing and electronic verification of effective environmental cleaning.
- The organization learned the value of process mapping to identify and address the root causes of *C. difficile* spread.

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# Managing an outbreak: Winning the battle and keeping the peace

United Memorial Medical Center, Batavia

## EXECUTIVE SUMMARY

United Memorial Medical Center formed a multidisciplinary rapid response committee in 2011 to address and manage a *Clostridium difficile* outbreak in the hospital. With the goal of decreasing the *C. difficile* rate, the committee identified five key processes that influence *C. difficile* and conducted multiple Plan-Do-Study-Act cycles to improve those processes. *C. difficile* rates decreased after the first year, then increased again in 2013. Upon identifying and improving upon a sixth key process, antibiotic stewardship, *C. difficile* rates decreased to target levels and monitoring and management of all key processes was assigned to existing departments where the work was determined to be in line with department function and goals. While the rapid response team could be called upon if rates increased, department ownership ensured sustainment of key processes.

## OUTCOMES ACHIEVED

- From 2011 to 2018, there was an 86.55% reduction in the rate of hospital-acquired *C. difficile* infections (per 1,000 patient days).
- The quinolone utilization rate is lower than the national average for a same-sized institution and was halved from the fourth quarter of 2017 to the fourth quarter of 2018 (from 30.1 to 16.2 days of therapy per 1,000 days at risk).
- Ongoing and proactive review of the key processes that drive *C. difficile* infections has been operationalized into existing departments where sustaining success becomes a part of everyday work.

## LESSONS LEARNED

- Creating a multidisciplinary rapid response team to implement PDSA is an efficient step in immediately managing increases in infection.
- Sustaining the work done in the rapid response team requires that successful interventions and the monitoring of those interventions are integrated into everyday work done by departments.
- It is important to continually benchmark the organization's practices against national best practices, which evolve over time.

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# INFECTIONS:
# Other Infections

# Ventilator-associated pneumonia in adult trauma patients

NYC Health + Hospitals/Bellevue

## EXECUTIVE SUMMARY

Participation in the Trauma Quality Improvement Program, a quality improvement tool that benchmarks a trauma center's performance against the national average, revealed an opportunity to reduce ventilator-associated pneumonia in adult trauma patients. The aim of this project was to reduce the rate of VAPs in adult trauma patients by achieving a culture change through multidisciplinary effort and empowerment.

Interventions were:

- implementation of a ventilator bundle;
- creation of an oral care tracking system;
- adoption of an analgesia/sedation guideline; and
- use of a tracking tool to monitor compliance and enable real-time feedback.

## OUTCOMES ACHIEVED

- Compliance with the ventilator bundle increased from 93% to 100% after two months and was sustained over the six-month tracking period.
- As of the third and fourth quarter of 2017, the facility center was no longer an outlier in VAPs/adult trauma admissions (rate: 0.9%, decile: 7th, operating room: 1.62).
- The improvement was sustained through the third and fourth quarter of 2018 (rate: 0.4%).

## LESSONS LEARNED

- Benchmarking is a vital tool in identification of latent patient safety risks.
- Prospective monitoring of process changes ensures timely implementation and allows for real-time feedback.
- Multidisciplinary buy-in is vital in creating and sustaining a culture change within a unit or hospital.

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# Strategies to eradicate hospital-onset *Candida auris* infections

## Flushing Hospital Medical Center

### EXECUTIVE SUMMARY

In 2016, a newly emerging fungal organism, *C. auris*, was identified in healthcare institutions. The virulence of this organism at that time was unknown. *C. auris* is challenging to manage, as it persists in the environment for extended periods and can be lethal. Flushing Hospital Medical Center created an interdisciplinary task force to ensure the safety of patients. The initiative included opening a *C. auris* unit with dedicated staff and equipment, early implementation of special contact precautions for suspected cases, a *C. auris* checklist and quick look guide, aggressive environmental cleaning protocols, extensive staff education, regular bundle compliance rounds, flagging of *C. auris* history in the electronic health record and collaborating with local nursing homes and the New York State Department of Health.

### OUTCOMES ACHIEVED

- As of January 2019, there were no hospital-onset *C. auris* cases for the preceding 12 months.
- The 2018 hospital onset *C. auris* rate was reduced to zero.
- The facility implemented of a successful multidisciplinary approach to control and eradicate a potentially lethal organism outbreak.

### LESSONS LEARNED

- Providing a separate *C. auris* unit with dedicated staff and equipment is essential to this initiative's success.
- Infection control and prevention staff working with environmental services on a daily basis to ensure that all *C. auris* patient rooms are appropriately being cleaned was an effective strategy.
- A multidisciplinary approach ensures the highest quality of care and safety for patients and aligns with the organization's journey to high reliability.

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# Getting to Zero — Hospital-acquired MRSA bacteremia

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

### EXECUTIVE SUMMARY

Mount St. Mary's Hospital and Health Center identified an opportunity to reduce hospital-acquired methicillan-resistant *Staphylococcus aureus* bacteremia. Recognizing that hospital-acquired MRSA is a major cause of illness and death in the hospital population, the hospital decided to immediately review current patient bathing protocols and best practice literature. With the full support of administration, clinical and medical staff leadership, daily bathing with chlorhexidine gluconate was implemented.

### OUTCOMES ACHIEVED

- The MRSA standardized infection ratio decreased from 3.704 per 1,000 hospitalizations in 2016 to 1.984 in 2017, to a 2018 rate of 0.000 (note: 2017 cases were very early in the year, January - April).
- The facility saw improvement in frontline nurse and nurse attendant awareness of the benefit of chlorhexidine gluconate bathing, increased hand hygiene observations and a more accurate accounting of hand hygiene monitoring/compliance.
- The organization developed patient educational tools and tip sheets for associates to use. Environmental services staff placed educational brochures in each patient room.

### LESSONS LEARNED

- A collaborative, interdisciplinary approach was imperative to success.
- Collaboration between nursing and patient/family on education of using the chlorhexidine gluconate bath properly was key to a successful reduction in MRSA.
- Providing periodic updates on progress to frontline associates fueled morale for continued improvement.

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# PRESSURE INJURIES

# Comfort, care and cost: A multifactorial approach to preventing pressure injuries

## Buffalo General Medical Center

### EXECUTIVE SUMMARY

The goals of this project include decreasing the prevalence of pressure injuries, retiring mattresses to improve patient comfort, maintaining hospital-owned inventory of mattresses to avoid rental costs and delays in treatment, improving wound team processes and engaging individual unit champions.

The methods used for this improvement project included a $2 million investment from the board of directors in new low air-loss mattresses, enhanced communication and work flow for the wound team, recruitment of unit-based wound champions, evaluation of products used for patients' skin breakdown and close alignment with the wound team physician champion.

### OUTCOMES ACHIEVED

- Pressure injury prevalence decreased 46% from 2017 to 2018.
- The wound team's communication and processes improved.
- The organization saved money by not renting beds.

### LESSONS LEARNED

- Basic nursing care around turning and positioning of patients is essential no matter what mattress is used.
- Engaging bedside staff is critical to the success of any patient care improvement project.
- Ongoing education around documentation, prevention strategies and use of products is an important consideration for all nursing and ancillary staff.

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# The right way to care — Prevent pressure injuries

Catholic Health System, Buffalo

## EXECUTIVE SUMMARY

Catholic Health System's goal was to reduce hospital-acquired pressure injuries through a focused team effort using Six Sigma and Lean methodology. A multidisciplinary team started with a detailed assessment of the problem by conducting a root cause analysis on all of stage 3 and 4 pressure injuries that had occurred within the organization. Data were aggregated with regard to similar findings leading to the development of the ulcers. Based on these assessments, the team developed the following initiatives: collaborative rounding between nurses, use of appropriate wound dressings on all patients admitted to critical care, a multidisciplinary documentation summit, skin bundles and having two nurses assess all patients on admission.

## OUTCOMES ACHIEVED

- The rate of all stage hospital-acquired pressure injuries decreased from 4.50 per 1,000 patient days in 2017 to 2.79 in 2018.
- Reduction in stage 3 and 4 hospital-acquired pressure injuries decreased from 0.59 in 2017 to 0.37 in 2018.
- Staff and leadership are actively engaged in reducing pressure injuries.

## LESSONS LEARNED

- Completing a thorough assessment of the problem using standardized tools such as the root cause analysis allowed for an extensive assessment of the problem areas.
- Presenting process data to the team supports a culture of accountability.
- Inclusion is important to success of the project. Obtaining direct care staff input is essential to achieving buy-in to the necessary changes.

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# Building resiliency in pressure injury prevention interventions

Jamaica Hospital Medical Center

## EXECUTIVE SUMMARY

Hospital-acquired pressure injuries are associated with increased morbidity, decreased quality of life and increased costs. In 2016, an initial inpatient prevalence study revealed an opportunity to improve HAPI rates. In line with the organization's aim to eliminate hospital-acquired conditions, the goal was to establish a comprehensive, evidence-based pressure injury prevention and treatment program led by the wound care team to reduce the HAPI rate below the national rate. The methods included senior leader support, wound care team leadership, interdisciplinary engagement, multiple educational methods (didactic, online, simulation and rounds with wound care experts), evidence-based practice preventive supplies/equipment, processes tailored to the individual needs of patients, data feedback and celebrating successes.

## OUTCOMES ACHIEVED

- Hospital-acquired pressure injuries decreased from 3.25% (first quarter 2016) to 0.57% (third quarter 2018); sustained below the 2.07% national rate for more than two years.
- Increased team engagement and readiness to seek help and clarification led to a 50% increase in preventive wound team consults since 2016.
- With each small success, additional financial resources have become available to continue to invest in the program, including much-needed preventive supplies and equipment.

## LESSONS LEARNED

- It takes a village — from buy-in to commitment in achieving a shared goal to celebrating successes.
- Culture change is possible when all levels of management provide the necessary tools for success. These tools include education, accountability, preventive supplies and most importantly, empowerment of the staff.
- Implementing a project is easy. Sustaining the intended gains is the difficult part and takes ongoing communication and feedback at all levels.

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# Improving patient outcomes with decline of medical device-related, hospital-acquired pressure injuries

## St. Francis Hospital, The Heart Center, Roslyn

### EXECUTIVE SUMMARY

The need for attention on medical device-related hospital-acquired pressure injuries arose when St. Francis Hospital worked to identify a contributing cause for hospital-acquired injuries. An analysis indicated that medical device-related hospital-acquired pressure injuries resulted from prolonged use of pulmonary and feeding support through endotracheal tubes, tracheostomies, noninvasive ventilation, hiflo, nasal cannulas and nasogastric tubes. Prolonged use of these devices increased the risk of pressure injury to the face, tongue, head and/or neck of patients. With the knowledge of a staff registered nurse certified in wound, ostomy and continence and in conjunction with facility leadership and the unit-based council, the team developed a plan to decrease and eliminate these injuries.

### OUTCOMES ACHIEVED

- A favorable decline from device-related pressure injuries occurred, from 2.08 per 1,000 patient days in the fourth quarter of 2017 to zero in the third and fourth quarters of 2018.
- A favorable decline within ventilator utilization was achieved, from 0.51 in 2015 to 0.31 in 2018.
- There was also a favorable reduction within hospital-acquired possible and probable ventilator-associated pneumonia, from 1.36 per 1,000 ventilator days in 2017 to zero in 2018.

### LESSONS LEARNED

- Prolonged use of facial mechanical devices increases the risk of pressure injury to the face, tongue, head and/or neck of the facility's patients.
- Increased assessments of the skin of the face, tongue, head and neck under devices every two hours instead of each shift proved effective.
- Concentration on mechanical ventilator device injuries consequently leverages into an awareness of ventilation utilization.

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# FALLS

# Patient safety initiative: Reducing falls with injury using a multi-modal process on the telemetry unit

St. Catherine of Siena Medical Center, Smithtown

## EXECUTIVE SUMMARY

St. Catherine of Siena Medical Center implemented a focused fall reduction initiative in its telemetry unit. Upon admission and each shift thereafter, registered nurses now complete a fall risk assessment. The Falls Efficacy Scale was introduced to determine a patient's "fear of falling" or "confidence level." Senior leadership supported fall prevention efforts by purchasing hospital beds with a fall prevention alarm system. The beds illuminate the floor with green when safety features are active.

Along with this initiative, hourly, intentional and purposeful rounding was put into place. The system-wide fall prevention policy and Patient/Family Fall Prevention Agreement were updated, promoting an increased patient/family awareness and partnership. To improve the investigative process, the team adopted The Joint Commission's Targeted Solutions data collection tool. A clinical pharmacist who completes a thorough medication review of all inpatient falls was identified as an integral member of the interdisciplinary fall committee to report identified trends and issues.

## OUTCOMES ACHIEVED

- The fall rate (number of falls/1,000 patient days) decreased by 51% (4.7 to 2.3).
- Total injury rate (all degrees of injury included) decreased by 80% from 0.76 to 0.15.
- Average length of stay was reduced from 5.01 days to 4.21 days.

## LESSONS LEARNED

- Intense analysis of patient falls that occurred on the telemetry unit revealed there was no direct correlation between the number of falls or fall-related injuries to the Falls Efficacy Scale assessment; however, there was a significant impact on staff awareness of identifying patients' risk for fall accurately and comprehensively.
- Traditional fall risk prevention techniques are effective but need to be supplemented with a change in culture and use of various fall prevention strategies to facilitate a dramatic reduction in fall rate and injuries. Success could not be achieved using any one strategy.
- The use of a multidisciplinary approach, innovative, out-of-the-box thinking, sustained culture of mindfulness and sense of urgency facilitated the proactive management of overall patient care and safety.

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# Person-centered interdisciplinary approach to falls reduction

## St. Catherine of Siena Nursing and Rehabilitation Care Center, Smithtown

### EXECUTIVE SUMMARY

St. Catherine of Siena Nursing and Rehabilitation Care Center decided to create an interdisciplinary fall prevention team consisting of all departments to expand the focus of reviewing falls, fall prevention and the development of action plans. Through active discussion, use of the Define, Measure, Analyze, Improve and Control methodology and a root cause analysis, the facility discovered there were no direct correlations to falls. Therefore, the organization decided to develop a fall prevention program with interventions for a patient-centered care approach while decreasing use of psychoactive medications. Anticipated outcomes include: decreased fall rates, fall-related medical care cost and psychoactive medication use and improved quality measure scores and quality of life for patients and residents.

### OUTCOMES ACHIEVED

- In 2016, the fall rate was 4.1%; by 2018, it had decreased to 3.5%.
- In 2016, the fall with injury rate was 1.1%; by 2018, it had decreased to 0.7%
- The facility's psychoactive medication use decreased during 2016 to 2018 and is currently under the CMS benchmark rate. Hypnotic use started at 4.75%, decreased to 2.68% and is currently 0% for the long-term population; the sedative medication use rate started at 24.6% and decreased to 14.6%.

### LESSONS LEARNED

- Focusing on individualization of interventions has a higher level of success. This required culture change for staff, which included an increase in communication between all stakeholders and implementation of interventions not conventionally used by multiple departments.
- Fall reduction is an interdisciplinary process assessing the individual patient from varied viewpoints (medical, social, psychological, spiritual). This interdisciplinary process increases the efficacy of the interventions designed.
- Assessment of preferences, life patterns and fall risk potential assists in preventing falls. Individualizing a patient's plan of care to reflect his or her prior living preferences will assist in resuming a regular, known routine.

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# Two quality improvement initiatives in the surgical and neuroscience ICU

Albany Medical Center

## EXECUTIVE SUMMARY

Albany Medical Center implemented a multidisciplinary approach to assess transition out of the intensive care unit to a lower level of care nursing unit. The goal was to reduce the number of back transfers. Methods used included increased collaboration, communication and triaging of patients between nurses and providers. The initiative involved:

- purposeful hourly rounding;
- staff education;
- toileting;
- engagement with patients;
- family involvement;
- shift huddle communication;
- implementation of the American Association of Critical Care Nurses' Assess, Prevent and Manage Pain, Both Spontaneous Awakening Trials and Spontaneous Breathing Trials;
- choice of analgesia and sedation;
- Assess, Prevent and Manage, Early Mobility and Exercise and Family Engagement and Empowerment bundles; and
- partnering with physical and occupational therapy staff.

## OUTCOMES ACHIEVED

- Patient falls decreased 41.6% from 2017 to 2018.
- Back transfers decreased 28.6% from 2017 to 2018.
- Patient and family satisfaction improved.

## LESSONS LEARNED

- Increased collaboration, communication and triaging of patients between nurses and providers resulted in fewer patients returning to the intensive care unit within 48 hours after being sent out to a lower level acuity nursing unit.
- Patients who returned to the intensive care unit did so due to respiratory compromise.
- Patients who fell were either attempting to go to the bathroom or were delirious.

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# Decreasing health disparities in our elderly population by maintaining their safety and preventing falls

## Mercy Medical Center, Rockville Centre

### EXECUTIVE SUMMARY

Mercy Medical Center is focused on preventing patient falls. With an understanding that fall prevention is multifaceted and requires a comprehensive approach, the organization has deployed many strategies in the past including the use of 1:1 safety watches. While some of these interventions have been effective, falls were still occurring. In an effort to provide a solution, Mercy adopted the AvaSure system, a remote patient observation system that enables both visual and audio monitoring of patients at risk of falls. This remote monitoring has enabled Mercy to expand the population being monitored and reduce the need for safety watches, resulting in savings, improved staff satisfaction and patient safety.

### OUTCOMES ACHIEVED

- The hospital saw a 24% reduction in patient falls per 1,000 patient days from 3.4 in 2017 to 2.6 in 2018.
- Patient falls with injury per 1,000 patient days decreased 43.2% from 0.74 in 2017 to 0.43 in 2018.
- The number of full-time equivalents necessary to cover safety watches decreased by 107, resulting in $188,000 savings.

### LESSONS LEARNED

- Staff education is essential to be successful with the program.
- Buy-in and accountability on behalf of the staff on the units is key to success.
- The staff at the monitoring station are an integral part of the team and need to demonstrate excellent communication skills.

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# CHAPTER FOUR: DRIVING TREATMENT AND DIAGNOSTIC INNOVATION

# Hepatitis C virus treatment cascade and therapy all the way to a sustained virological response

NYC Health + Hospitals/North Central Bronx

## EXECUTIVE SUMMARY

This facility's quality improvement process was designed to ensure patients who tested positive for HCV Ab are closely followed up for appropriate virology testing (viral load and genotype) and offered treatment as per national guidelines. Over the last three years (2015-2018), 500 patients who tested positive for HCV Ab with no subsequent treatment and cure were called by providers to come in for HCV viral load testing. If the treatment target was detectable, a genotype analysis was done; based on results, an appropriate, directly acting antiviral agent was prescribed as per national guidelines.

## OUTCOMES ACHIEVED

- Preliminary results for HCV-infected patients from 2017 to 2018 are available: out of 170 people tested positive for HCV, polymerase chain reaction was performed on only 70 patients (41.2%).
- Out of 70 who had a PCR, 27 (38.5%) were found to be treatable.
- From the treatable group, seven (25%) completed treatment and achieved sustained virological response.

## LESSONS LEARNED

- The majority (58.8%) of patients were not contactable or were lost to follow-up.
- These results demonstrate deficiencies in the process of linkage to care.
- After identifying all obstacles to treatment and learning from failures, the team envisaged a clinical pathway for all HCV-positive patients at the system that will enable seamless treatment from the time of diagnosis to achievement of a virological cure.

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# Massive blood loss emergency response

## Phelps Hospital, Sleepy Hollow

### EXECUTIVE SUMMARY

To minimize the possibility of patient harm related to catastrophic error with administration of blood and blood products, like most organizations, Phelps Hospital had very defined, strict process controls on blood products. Without adversely affecting safety, Phelps aimed to dramatically reduce the time needed to deliver and administer massive blood and blood products. Leaders and staff from any areas that were links in the chain of product delivery and administration were pulled together and through brainstorming, diagramming, re-enactment and Plan-Do-Study-Act cycles, turnaround time was dramatically reduced.

### OUTCOMES ACHIEVED

- Phelps developed a massive transfusion protocol.
- The facility achieved 100% compliance with the protocol in nine cases.
- Turnaround time from order to administration of blood products was reduced from a high of 40 minutes prior to the protocol to under 10 minutes in recent cases.

### LESSONS LEARNED

- A specific, standardized protocol was needed for emergency cases with massive blood loss.
- Clinical, as well as process issues, are involved.
- Of paramount importance at all levels is staff training regarding early recognition of signs and symptoms, a standardized protocol and periodic drills.

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# Eclampsia simulation for resident physicians

NYC Health + Hospitals/Queens

## EXECUTIVE SUMMARY

Eclampsia is an infrequent obstetric emergency in developed countries. Obstetric simulations are essential to maintain and improve clinical skills and response to infrequent obstetric emergencies and procedures. Simulation training is proven to improve performance of healthcare workers during emergent events. Additionally, simulation improves communication, which is a leading cause of healthcare errors. This is a priority at NYC Health + Hospitals/Queens. This initiative has engaged physicians, nursing, senior administration and non-clinical staff.

## OUTCOMES ACHIEVED

- The organization provided a framework that has been implemented to assist others in setting up eclampsia simulations for resident physicians.
- This initiative demonstrated the superiority of simulations with live models (over simulations using mannequins) in skill retention for resident physicians in obstetrics.
- Basic resuscitation skills for parturient with eclampsia were learned.

## LESSONS LEARNED

- The framework for simulation training includes review of basic concepts pertaining to eclampsia followed by simulation and then debriefing.
- Repeat drills at three- to six-month intervals is necessary to maintain the skill set.
- Teamwork, communication and leadership skills are developed during eclampsia simulation and involve collaboration between resident physicians, nursing staff, other obstetric providers, newborn intensive care unit staff and anesthesia staff.

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# Multidisciplinary approach to reducing ventilator days in a small community hospital

St. Joseph Hospital, Bethpage

## EXECUTIVE SUMMARY

The focus of this initiative was to decrease ventilator-associated events, prolonged ventilator days and length of stay in the critical care unit and the hospital. A benchmark was set to reduce ventilator days by 20% and decrease VAEs by 50%. The origins of this problem were polygenic; St. Joseph Hospital knew its resolutions had to address multiple issues. Phases included:

- development of a respiratory-driven weaning protocol;
- a Team Strategies and Tools to Enhance Performance and Patient Safety — Team STEPPS — approach to interdisciplinary morning and evening rounding;
- a plethora of staff education on the developed weaning protocol;
- Confusion Assessment Method for the intensive care unit; and
- early morning sedation vacations and creation and utilization of Assessment of Readiness to Wean tool, which was built into the electronic health record. This was used daily in interdisciplinary rounds.

## OUTCOMES ACHIEVED

- There was a 36% reduction in ventilator days over a 12-month period (July 2017-June 2018). This constituted a reduction of 702 ventilator days.
- Ventilator-associated events decreased in the same time period, from nine events to one event for an 89% reduction in VAEs.
- The length of stay in the cardiac care unit decreased from 4.31 days to 3.9 days for a 0.41-day reduction.

## LESSONS LEARNED

- Data analysis yielded great insight into the lost opportunities for identification of readiness to wean and the use of weaning protocols in weaning ventilator patients.
- Investment in staff education and increased availability of resources provided a positive return on LOS and decrease in VAEs.
- Approaching the problem as an interdisciplinary team approach allowed for more dynamic solutions.

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# Reducing PICC-related thrombosis using an ultrasound-guided risk assessment tool

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

## EXECUTIVE SUMMARY

Infusion Nurse Society standards recommend completing a catheter-to-vein ratio vessel assessment before a peripherally-inserted central catheter is used. Catheter-to-vein ratios of greater than 45% put the patient at an increased risk of catheter-related thrombus formation. The goal of this project was to demonstrate a reduction in PICC-related thrombosis with the use of an ultrasound-guided risk-assessment tool. The methodology used was a retrospective data review. Thrombosis rates were calculated pre- and post-intervention. The data were calculated by dividing the total number of thrombotic events by the number of PICCs inserted. Thrombus was identified by diagnostic upper-extremity ultrasound.

## OUTCOMES ACHIEVED

- Post-implementation data showed a thrombosis rate for "5 French" PICC catheters of 6.2% and "4 French" PICC catheters of 1.5%.
- Post-intervention, the overall thrombosis rate was calculated at 4.1%. A decrease in the overall PICC thrombosis rate of 33% was demonstrated after one year of using the ultrasound risk-assessment tool.
- Overall reduction in PICC placements due to better assessment techniques yielded to alternate intravenous access when catheter-to-vein ratios were greater than 45%.
- Central line days decreased.

## LESSONS LEARNED

- With vessel assessment using an ultrasound-guided risk-assessment tool, PICC-related thrombosis can be decreased.
- Application of technology to assess catheter-to-vein ratios has reduced the total number of PICCs placed.

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# Enhanced recovery after surgery for elective colorectal patients: ORMC "Keeps You Movin'"

## Orange Regional Medical Center, Middletown

### EXECUTIVE SUMMARY

Orange Regional Medical Center conducted an internal review of all colorectal procedures, which revealed varying lengths of stay over two years. Focusing on reducing LOS for elective colorectal surgical procedures, the facility aligned with the Agency for Healthcare Research and Quality's Improving Surgical Care and Recovery program, which enhances the recovery of surgical patients. This collaboration includes the American College of Surgeons, Johns Hopkins Medicine and the ISCR database where hospitals input core process measures and outcomes, allowing for regional/national benchmarking analysis.

Multidisciplinary team members formed the enhanced recovery after surgery core team to model a comprehensive patient care pathway, including best practices for preventable harms. Enhanced recovery principles of patient engagement, early mobility and non-opioid analgesia were integrated in educational components and all phases of care order sets. Policies and clinical pathways were created reflecting evidence-based practice protocols. Marketing staff applied the ORMC "Keeps You Movin'" logo on a cinch sack holding the newly developed surgery guide, pre-habilitation supplies and chewing gum to be used post-operatively to stimulate peristalsis. A specific plan of care, education guide goals for care and simultaneous data collection reinforced continuous performance improvement and quality assurance.

### OUTCOMES ACHIEVED

- ORMC reduced LOS for elective colorectal patients.
- There was improvement in the patient experience and satisfaction related to engagement and partnership in care.
- Specific order sets for all phases of care reduced variability and increased patient safety.

### LESSONS LEARNED

- Maximizing utilization of the electronic medical record to an optimal level can help meet the needs of patients and staff — creating order sets and corresponding clinical pathways, a linked plan of care and education components.
- Comprehensive pre-admission patient education with the colorectal-specific surgery guide was critical for success.
- Application and implementation of the EBP EV1000 Edwards Lifescience advanced hemodynamic monitoring system was an effective way to maintain optimal patient fluid loads and reduce cardiac and renal stress in the peri-operative period.

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# Preventing the first cut: Peer-driven cesarean section reduction initiative

## Richmond University Medical Center, Staten Island

### EXECUTIVE SUMMARY

Richmond University Medical Center identified the opportunity to decrease its cesarean section rate. The objective of this project was to educate patients and have a conversation regarding planned mode of delivery to reduce, if possible, the number of patient deliveries by cesarean section. The methods used were education, data transparency, peer review and the Plan-Do-Study-Act improvement framework.

### OUTCOMES ACHIEVED

- The use of cesarean section as the mode of delivery for low-risk delivery decreased.
- Interdisciplinary involvement in nursing staff increased (this was not measured as the timeframe did not allow for more than one staff engagement survey).

### LESSONS LEARNED

- Evolving evidence-based medical treatment modalities are not adopted passively; full adoption requires consistent effort.
- Provider buy-in for improvement efforts is key. Using a transparent approach, providers are learning different methods, maneuvers and techniques from their peers to decrease potentially avoidable procedures.
- Continued departmental adherence to guidelines yields significant improvements through continuous monitoring and case review in a peer setting.
- Episiotomy rates are a balancing measure to ensure non-surgical modes of birth are safe.

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# Peri-operative glucose management in total joint replacement surgery

St. Elizabeth Medical Center, Utica

## EXECUTIVE SUMMARY

St. Elizabeth Medical Center's total joint team identified the importance of glycemic control in improving surgical outcomes and the absence of a formalized glycemic management program for surgical cases. As a result, a multidisciplinary team was created to identify best-practice guidelines for peri-operative glucose management, create and implement processes to incorporate these practices into the program and measure the impact of this system by comparing blood glucose values pre- and post-implementation. The team consisted of physicians from several specialties, nurses from each of the surgical areas, pharmacists and quality professionals. The Plan-Do-Study-Act methodology was utilized.

## OUTCOMES ACHIEVED

- In the 12-month period following implementation, the percent of patients with at least one elevated post-op BG (>180 mg/dL) dropped to 26.0% compared with 44.2% in the control period. Simultaneously, despite the more aggressive use of insulin in the peri-operative period, the rate of hypoglycemia decreased from 5.8% to 2.9%.
- The improvement in the rates of post-op hyperglycemia (19.8%) and hypoglycemia (0%) were statistically significant compared with the baseline period.
- Only 6.3% of BGs on arrival to the hospital on the morning of surgery were out of range (71-180 mg/dL), reflecting the effectiveness of pre-admission medication instruction.

## LESSONS LEARNED

- Practitioners within the three groups of physicians involved (orthopedic surgeons, anesthesiologists and hospitalists) were unaware of practice variations.
- Through the use of standardized protocols, it was possible to simultaneously lower the rates of both hyperglycemia and hypoglycemia in the peri-operative period.
- This project helped identify additional improvement opportunities, leading to a larger initiative to change glycemic management to the basal/bolus/correction insulin method throughout the health system.

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# ANTIMICROBIAL STEWARDSHIP

# Optimizing the diagnosis and treatment of infections with appropriate antibiotic usage

Catholic Health Services of Long Island (Our Lady of Consolation, St. Catherine, Good Samaritan)

## EXECUTIVE SUMMARY

Harm from antibiotic overuse is significant for the frail and elderly population, including *Clostridium difficile*, increased adverse drug events, drug interactions and colonization and/or infection with antibiotic resistant organisms. A team was formulated to perform an in-depth review of antibiotic usage, infectious criteria and documentation of diagnosis and infection. This review was performed during the latter part of 2017. The team initiated a project charter and formulated an action plan for improved management.

## OUTCOMES ACHIEVED

- Infection management protocols were implemented for most commonly treated infections, based on criteria from Association for Professionals in Infection Control and Epidemiology and Centers for Disease Control and Prevention.
- The inappropriate antibiotic usage rate decreased 63% from 2017 to 2018 in all three of the system's skilled nursing facilities.
- *C. difficile* rates decreased from 0.4% in 2016 to 0% in the fourth quarter of 2018.

## LESSONS LEARNED

- Inappropriate antibiotic usage was more prevalent than initially considered. Diagnosis of numerous nosocomial infections did not meet criteria for infection, primarily asymptomatic bacteriuria.
- Enhanced guidance, education and monitoring were indicated, requiring the development of infection protocols and alternative treatments for conditions that did not meet the diagnosis of infection.
- Inappropriate antibiotic usage was not intentional. Antibiotics were being ordered for management of symptoms, to enhance patient comfort and prevent secondary infections or complications.

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# Value of transparency in engaging staff with provider-specific reporting in antibiotic stewardship

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

### EXECUTIVE SUMMARY

Although the awareness of the dangers of antibiotic overuse has increased, work remains to be done. Across the country, performance statistics reveal that only 20% to 40% of patients with acute bronchitis do not receive antibiotics. The Centers for Disease Control and Prevention states that 100% of patients with acute bronchitis should not receive antibiotics. This quality improvement project engaged providers with timely transparent feedback on their rate of avoiding prescribing antibiotics in acute bronchitis.

### OUTCOMES ACHIEVED

- The emergency department providers improved their rate of avoiding prescribing antibiotics in acute bronchitis from 36.5% in the 12-month baseline, to 94.8% of patients.
- A significant degree of improvement took place during the first five months of the 12-month outcome period.
- Compared to the 12 months that preceded the study, the mean Press Ganey response for "overall satisfaction" and "likelihood of recommended" increased.

### LESSONS LEARNED

- A skilled data extraction analyst was a cornerstone of this project.
- Transparent and data-driven feedback was crucial for engaging provider staff.
- Timely reporting of the providers' prescribing habits was key.

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# Improving resident safety and quality of life through a comprehensive interdisciplinary antibiotic stewardship program

## Trump Pavilion for Nursing and Rehabilitation, Jamaica

### EXECUTIVE SUMMARY

The Trump Pavilion's data indicated a high prevalence of antibiotics to treat urinary tract infections compared to other infection types. The team was additionally concerned about the more frequent use of fluoroquinolones in the geriatric population. In response, the facility put in place a clinical team responsible for reviewing all antibiotic starts daily. All members of the clinical team are antibiotic stewardship certified. The resident council is kept informed about the ongoing efforts. Information is shared with family members at the semi-annual family meeting and as needed. Best practices and tools for improvement were also integrated, e.g., McGeer's "Criteria for Urinary Tract Infections"; "Situation, Background, Assessment, Recommendation"; and the Plan-Do-Study-Act model.

### OUTCOMES ACHIEVED

- The organization achieved an overall 10% reduction of the incidence of antibiotic starts and a 12% overall reduction of the incidence of the use of fluoroquinolones.
- There was a 15% reduction of the incidence of antibiotic starts for urinary tract infections, translating into a 23% reduction of the incidence of days of therapy.
- There is now increased time available for nursing staff to provide direct patient care and quality interaction.

### LESSONS LEARNED

- A successful antibiotic stewardship program requires collaboration and education of residents, administration, physicians, nursing and families.
- Changes in policies and procedures were necessary to facilitate culture change.
- Weekly surveillance and ongoing reinforcement are essential for a successful program.

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# Impact on guideline adherence using staff pharmacists for reporting rPCR MRSA and MSSA results

## Cayuga Medical Center at Ithaca

### EXECUTIVE SUMMARY

Molecular technology that rapidly identifies Methicillin-sensitive *Staphlococcus aureus* and Methicillin-resistant *Staphlococcus aureus*, coupled with the intervention of an infectious disease-trained pharmacist improves patient outcomes and reduces length of stay. As infectious disease-trained pharmacists are a limited resource, the objective was to use frontline staff pharmacists, trained internally by the infectious disease specialist, to report and discuss optimal therapy with providers using the institution-specific treatment algorithm. This antibiotic stewardship initiative was audited periodically for prescriber compliance with guidelines, de-escalation opportunities and timeliness to changing therapy.

### OUTCOMES ACHIEVED

- Rapid result calls to frontline staff pharmacists supported an algorithm adherence rate of >90%, >80% and at least 66.6%, for MRSA and MSSA positive bacteremia, wound infections and joint infections, respectively.
- The pharmacist intervention rate on de-escalation of therapy averaged 30% of all initial empiric orders for the past two years.
- The time between pharmacist intervention and prescriber de-escalation of antibiotic regimens ranged from 15 minutes to nine hours.

### LESSONS LEARNED

- Train frontline staff pharmacists to meet specific stewardship goals.
- Cooperation and feedback from all stakeholders — microbiology, nursing, providers and pharmacists — is critical to the sustainability and success of this initiative.
- A dedicated infectious disease specialist who is engaged with the prescribing staff is essential for influencing provider attitudes toward pharmacy-driven stewardship initiatives.

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# ASP-guided procalcitonin initiative to improve diagnosis of bacterial pneumonia

NewYork-Presbyterian/Queens, Flushing

## EXECUTIVE SUMMARY

Accurate and timely diagnosis of bacterial pneumonia in the emergency department is extremely challenging. Lack of rapid, quantifiable information, minimal objective data and non-specific clinical presentation often results in a broad differential diagnosis. This may lead to inappropriate antimicrobial use, delay in appropriate care, unnecessary hospital admission, prolonged length of stay, adverse events, antimicrobial resistance and hospital-acquired infections such as *C. difficile*. Procalcitonin, a precursor peptide released in the setting of systemic bacterial processes, has long been used to guide antimicrobial therapy for lower respiratory tract infections. However, it has yet to become the standard of care. The team sought to implement and evaluate the impact of an antimicrobial stewardship program-guided procalcitonin guideline to assist in the diagnosis and management of bacterial pneumonia.

## OUTCOMES ACHIEVED

- Antibiotic stewardship-guided procalcitonin was successfully implemented and has remained the standard of care.
- A reduction in antibiotic duration (1.4 days) and length of stay (4.2 days) was observed in patients admitted for pneumonia and found to have negative procalcitonin results.
- No increase in adverse outcomes was reported for those whom antibiotic therapy was stopped as per the hospital-approved procalcitonin guideline.

## LESSONS LEARNED

- Procalcitonin, in addition to clinical judgment, resulted in a reduction in inappropriate antibiotic use.
- The antibiotic stewardship-guided aspect of the procalcitonin guideline was important in accurately interpreting results, providing real-time feedback to providers and increasing compliance with guideline recommendations (e.g., discontinue antibiotics with negative procalcitonin results).
- Continuous educational efforts emphasizing appropriate patient populations, result interpretations and desired outcomes are crucial to the safe and impactful sustainability of a procalcitonin guideline.

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# Using an effective antibiotic stewardship program to prevent *Clostridium difficile* events in the hospital and achieve the Triple Aim for the community

Arnot Ogden Medical Center, Elmira

## EXECUTIVE SUMMARY

Healthcare today is moving toward value-based care, rather than the traditional fee-for-service model. Less medication and antibiotics can help improve preventive care success. Arnot Ogden Medical Center sought to prevent one of the most dangerous infections in the community, *C. difficile*, and was able to achieve its goal of reducing *C. difficile* by 54%. The hospital made it possible by implementing a strict antibiotic use of targeted agents through an antibiotic stewardship program and other methodologies that supported a robust clinical decision support system. Arnot Ogden aimed for the Triple Aim method in patient care processes.

## OUTCOMES ACHIEVED

Arnot Ogden achieved the following improvements:

- a 15% reduction in targeted antibiotics use using a stewardship program;
- a 50% reduction in *C. difficile* infections; and
- a 10% reductions in total spend of antibiotics.

## LESSONS LEARNED

- Changing culture for patients' use of antibiotics was not a straightforward process.
- Educating providers to treat the right patients at the right time requires repetition.
- Reducing the cost of care to focus on the right clinical pathways requires robust changes.

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# Establishing a network-wide outpatient antibiotic stewardship initiative

MediSys Health Network, Jamaica

## EXECUTIVE SUMMARY

Initially, MediSys Health Network reviewed compliance with current national guidelines for appropriate management of strep pharyngitis in its ambulatory clinics. Based on the opportunities identified and the White House's executive order on combating antibiotic-resistant bacteria, the network and ambulatory care leadership committed to developing an outpatient stewardship program to monitor antibiotic prescribing for acute respiratory illnesses. The organization developed a three-pronged approach to improving antibiotic prescribing (provider education, patient education and electronic health record provider support). The goals were to decrease both total and inappropriate antibiotic prescribing across the network in a comparative pre- and post-implementation review.

## OUTCOMES ACHIEVED

- Overall antibiotic prescriptions decreased 26.44% from the pre-implementation period (November 2014 to April 2015) and post-implementation period (November 2017 to April 2018), and decreased 30.70% comparing the pre-implementation and continuation period (May to October 2018) data.
- Inappropriate antibiotic prescriptions decreased 63.28% from the pre- to post-implementation period, and 62.16% from the pre-implementation to continuation period.
- Patient education tools, upper respiratory prescription pads and EHR provider support were implemented in all clinics throughout the network.

## LESSONS LEARNED

- The success of an outpatient antibiotic stewardship program requires executive support, ambulatory care leadership support and EHR leadership cooperation.
- Continual feedback on prescribing to providers is needed to sustain the program.
- Provider education and feedback impacted inappropriate prescribing more than the use of EHR hard stops.

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# DIABETES

# Hypoglycemia response and management

## NYC Health + Hospitals/Kings County, Brooklyn

### EXECUTIVE SUMMARY

Of the 13 identified community health needs for North Central Brooklyn, diabetes ranks as the number one health action priority for the population served by the NYC Health + Hospitals/Kings County. Therefore, glycemic management was the prominent factor in the hospital's ongoing commitment to patient safety and clinical quality as staff care for hospitalized patients. The organization's aim was to improve hypoglycemia response and management for adult medical or psychiatric inpatients with a known history of diabetes, who have a glucose level that is less than 70 mg/dl and to ensure that levels are maintained within the range of 70 to 110 mg/dl.

### OUTCOMES ACHIEVED

- All project-related goals and objectives were accomplished within the established timeframes.
- Specific achievements included a hypoglycemia order set and treatment algorithm.
- The organization developed a policy and standard of work for hypoglycemia response and management.

### LESSONS LEARNED

- Establish a multidisciplinary team of professionals with complementary experiences and knowledge to provide a complete clinical picture of hypoglycemia management.
- Have results-oriented team members who are focused on achieving project goals and keen on making clinical decisions based on best available evidence.
- To better assess the efficacy of new procedures, more rapid experimentation could have been carried out during the night and weekend tours.
- Engagement in one performance improvement activity might uncover multiple causes of a problem (besides the one that is currently being investigated) and reveal other areas of practice where there are opportunities for improvement.

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# Quality diabetes care: Creating a culture of excellence through innovation

Stony Brook University Hospital

## EXECUTIVE SUMMARY

In 2015, Stony Brook University Hospital transformed the way nearly 7,000 patients with diabetes are identified, monitored and cared for during their inpatient stay each year. Upon formation of a multidisciplinary diabetes advisory committee, diabetes care was established as a high priority workgroup focused on the development and implementation of three major pillars:

- "glucometric" defined dashboard monitors for patients with diabetes and associated risk indicators;
- standardized insulin order entry; and
- system-wide education.

Goals included a decrease in associated outcome measures for hospital length of stay and readmissions, as well as clinical process indicators for decreased rates of hypoglycemia, increased compliance with hemoglobin A1c monitoring and order set utilization.

The development of an innovative tracking monitor gleaned from the electronic medical record provided immediate identification of the patient population while guiding interventions for endocrine consultations, insulin pump care or proper dietary and education referrals. Standardized insulin order sets were implemented house-wide with low, medium and high dosing algorithms, including insulin infusion phases for the critically ill or peri-operative patient. Newly developed institution-wide education includes annual rotations for diabetes care, policy updates and outcome measures, as reviewed and directed by the diabetes advisory committee.

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## OUTCOMES ACHIEVED

- The organization established an institutional culture of excellence and awareness regarding the care of patients with diabetes through standardized insulin order entry and administration, supported from leadership to the unit level.
- The team developed an innovative, automated tableau dashboard to monitor and track real-time and historic glucometrics for diabetic patients, including clinical indicators, outcome metrics and physician-, unit- and service-level care reports.
- Significant improvements were made in system-wide diabetes outcomes. The LOS index decreased from 1.22 to 1.06, readmission rates decreased from 16.82 to 12.99, hbA1c monitoring increased from 57% to 88% and point of care testing decreased by more than 5,000 tests per month, resulting in a net savings to the institution of $7.2 million.

## LESSONS LEARNED

- Success can be achieved through the hardwiring of best practices with continuous Plan-Do-Study-Act cycles to review and assess progress and efficacy.
- Automated, accessible data analyses in both real time and historic trends help to promote and motivate change.
- Full stakeholder representation and leadership support ensures a dynamic and capable improvement team.

# Reducing inpatient recurrent hypoglycemia

## South Nassau Communities Hospital, Oceanside

### EXECUTIVE SUMMARY

The 2018 organizational strategic priority approved by the South Nassau Community Hospital board included improvement in the management of diabetes through evidence-based practice. The implementation of best practice standards of care is paramount to the mission and vision of this organization. The collaborative membership of the endocrine disease committee includes a senior leadership member, physician and nurse lead, endocrinologist, intensivist, pharmacist, dietician, laboratory, home care, critical care and resident staff. The goal was to decrease inpatient recurrent hypoglycemia on the non-critical care units by 25%. For this project, the members of the endocrine disease committee used the Six Sigma quality improvement methodology as a design method for data collection and analysis.

### OUTCOMES ACHIEVED

- South Nassau created an initiative allowing a specifically trained and certified pharmacist to decrease Lantus insulin dosage up to 20%, change meal orders and change intravenous solutions in response to trends and patterns of high risk or evidence of hypoglycemia.
- Critical care units realized an overall improvement of 8%.
- Non-critical care units realized an overall improvement of 72%.

### LESSONS LEARNED

- Weekly unit-based education was key.
- Tracking of timing is important between point-of-care glucose and prandial insulin administration and timing between prandial insulin administration and meal delivery.
- Reporting of timing is important between point-of-care glucose and prandial insulin administration and timing between prandial insulin administration and meal delivery.

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# Implementation of diabetes self-management education program in the ambulatory setting

## Catholic Health Services of Long Island, Physician Partners

### EXECUTIVE SUMMARY

According to the American Diabetes Association, diabetes is the most costly chronic disease in the U.S. and diabetes care is 95% self-care. Diabetes self-management education is an evidence- and team-based program that helps engage patients to increase their knowledge about the disease process and to reduce the risk of diabetes-related complications as demonstrated by a reduction in hemoglobin A1c and weight loss. Catholic Health Services of Long Island implemented a DSME program in the ambulatory setting to assist patients in their journey to self-management with tools for setting goals and enhancing knowledge. A certified diabetes educator facilitates the education process by providing specialized information regarding the disease process, nutrition and diet, exercise, medication and wellness techniques. The goal is to increase the health of patients with diabetes and reduce diabetes-related complications.

### OUTCOMES ACHIEVED

- Improved outcomes for patients: 66% of patients with pre/post DSME lab testing had a reduction in HbA1c; 55% of patients experienced weight loss.
- Ten percent of all patients with diabetes in the demonstration site participated in the DSME; 25% of high-risk patients (HbA1C>9) enrolled in the program.
- Fifty-five percent of participants demonstrated improved knowledge of diabetes as evidenced by their diabetes knowledge test score pre/post DSME.

### LESSONS LEARNED

- Setting and reviewing goals with the patient instead of for the patient is the cornerstone of self-management and the key to success.
- Using an open-forum group format promotes optimal learning through peer-to-peer sharing of similar experiences and challenges.
- Practice staff at all levels must be fully engaged and committed to the tenets of the DSME.

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# STROKE

# Maximizing outpatient anticoagulation therapy through a pharmacist-led collaborative drug therapy management program

Adirondack Medical Center, Saranac Lake

## EXECUTIVE SUMMARY

Pharmacists are integral members of healthcare teams in community health centers and hospital outpatient departments. The collaborative drug therapy management extension for pharmacists' licensure in New York state has allowed for clinical pharmacy services to be conducted in accordance with a written agreement from a voluntarily participating physician. When physicians and pharmacists work closely together, patients achieve better results from their drug therapies and their overall health improves. These services have contributed positively to quality and clinical measures. Integration of the pharmacist into population health management is necessary to improve performance on medication measures and survive in a value-based healthcare system.

## OUTCOMES ACHIEVED

- Time in therapeutic international normalized ratio range increased by 18% in the 12 months post initiation, compared to 12 months baseline data prior to the service.
- Direct monetary impact from billing the incident to the physician (99211 code) in the anticoagulation clinic increases revenue for the health system.
- Indirect financial benefits include preventing hemorrhagic stroke, severe bleeding, thromboembolism and ischemic stroke and increased physician referrals and/or volume due to increased interaction with patients and pharmacists.

## LESSONS LEARNED

- Stepping out of your profession's comfort zone and paving new paths toward better patient care can have a very positive impact, especially in rural healthcare facilities.
- Starting a new clinical service line can cause unexpected hardship. Although pharmacists can be very capable clinicians, understanding and implementing other aspects of new services may be more difficult.
- It is important to have a business plan to guide processes in a new service; however, sometimes planned operational models change unexpectedly.

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# Improving thrombolytic times in acute stroke patients

## Long Island Community Hospital, Patchogue

### EXECUTIVE SUMMARY

The purpose of Long Island Community Hospital's initiative was to assure delivery of standard of care and provide timely evidence-based interventions. The hospital used pre-notification data to identify opportunities to enhance knowledge and communication with emergency medical services partners. The facility participates in the Coverdell collaborative to receive performance data to benchmark performance against the organization's peers. The objectives were to improve the rapid identification of stroke by emergency medical services and hospital staff and to administer timely thrombolytic therapy.

To achieve these objectives, the team assessed baseline compliance and goal-setting with emergency department and quality leadership program staff, redesigned the process for treating stroke patients upon arrival to the ED, identified opportunities for EMS performance improvement, educated key hospital staff, held monthly stroke process improvement meetings and continued to monitor for core measure and time target compliance.

### OUTCOMES ACHIEVED

- Thrombolytic times for patients with a primary diagnosis of ischemic stroke improved from 51% in 2017 to 67% in 2018.
- The organization elevated its level of recognition from the New York State Department of Health's Target Honor Roll Elite in 2017 to Elite Plus in 2018. The target for Elite Plus recognition is to administer tPA in less than 60 minutes 75% of the time and in less than 45 minutes 50% of the time.

### LESSONS LEARNED

- Pre-activation via EMS radio transmission is key to allowing for assembly of the stroke team prior to patient arrival, which enables rapid assessment and treatment.
- Patients are now assessed immediately on arrival and taken directly to the ED computerized tomography scan.
- Thrombolytic therapy is now ordered for appropriate patients immediately after determining that the CT scan is negative for hemorrhage.

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# Reducing door-to-needle times for administration of tPa in ischemic stroke patients

## Mercy Medical Center, Rockville Centre

### EXECUTIVE SUMMARY

In 2016, Mercy Medical Center launched an initiative to decrease door-to-tissue plasminogen activator (tPa) administration in stroke patients and increase tPa utilization. At that time, the hospital's door-to-needle time was 75 minutes and only 38% of its stroke patients were receiving tPa within 60 minutes. tPa can reduce disability after acute ischemic stroke, but this effect is time sensitive. To achieve this goal, Mercy Medical Center formed a multidisciplinary team that included all the services that could impact the timing, and ultimately the patient outcome. Rapid administration of intravenous tPa requires teamwork between the emergency department, radiology, laboratory, pharmacy and neurology. Using the Plan-Do-Study-Act performance improvement model, the facility analyzed outliers, looked at barriers and developed improvement plans.

### OUTCOMES ACHIEVED

- The tPa door-to-needle time decreased by 50%.
- The utilization of tPa increased 55%.
- Pre-notification by emergency medical services for stroke patients improved 32% from 2016 to 2018.

### LESSONS LEARNED

- Collaboration across multiple disciplines leads to process improvement.
- Staff education and feedback are of utmost importance.
- Review of every tPa administration provides opportunities for improvement.

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# Introduction of a thrombectomy program

## Mount Sinai Queens, Astoria

### EXECUTIVE SUMMARY

Due to a rapidly aging population in Mount Sinai Queens' neighborhood, there is an anticipated increase in the community prevalence of stroke. In conjunction with the wide acceptance of thrombectomy as the best practice treatment for acute ischemic stroke, Mount Sinai chose to implement a thrombectomy program in the facility's interventional radiology suite while the organization was constructing a specialized stroke center to accommodate the community's needs for timely treatment for stroke. To successfully implement a new clinical procedure that was unfamiliar to existing emergency and ancillary staff, the organization used multiple models for improvement best practices to anticipate process vulnerabilities and standardize workflows.

### OUTCOMES ACHIEVED

- Since September 2017 there have been 13 thrombectomies onsite with good outcomes.
- The Institute for Healthcare Improvement's model for improvement methods was used for developing this workflow and for education on how to apply the tools to other contexts.
- Staff are familiar and comfortable with a brand new clinical procedure.

### LESSONS LEARNED

- Communication at crucial handoffs is important.
- The efficacy and benefit of using process improvement methodology became clear.
- Build team cohesion and bond by working together in advance of the go-live date.

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# Improving stroke care in a rural hospital

## Olean General Hospital

### EXECUTIVE SUMMARY

Olean General Hospital's objective was to become stroke certified by implementing evidence-based stroke care guidelines. By implementing a quality improvement program utilizing A3 Lean, the organization was able to demonstrate enhanced stroke care to improve patient outcomes and decrease patient complications. Designated stroke centers are required to meet crucial timelines. An organizational multidisciplinary effort was developed to achieve this objective.

### OUTCOMES ACHIEVED

- Dysphagia screening prior to oral intake improved 75%.
- Compliance with the National Institutes for Health Stroke Scale screen completion improved from 40% to 100%.
- There was 100% improvement in low-density lipoproteins and statin prescription on discharge.

### LESSONS LEARNED

- Driving outcomes requires continuous monitoring of data. You need to analyze data to understand what it means.
- Vigilance and working action plans must be put into place if the data indicate that a change has impacted care delivery.
- Using Plan-Do-Study-Act is an important improvement method to keep a pulse on current conditions.
- Continuous staff education is essential to sustain processes and implement amendments noted through the PDSA process.

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# SEPSIS

# Achieving universal sepsis excellence through a patient- and staff-centered culture along with alignment of purpose, people and processes

Saratoga Hospital, Saratoga Springs

## EXECUTIVE SUMMARY

To address the need for knowledge and awareness regarding this life-threatening condition, Saratoga Hospital firmly established sepsis as a clinical priority. What began as an internal awareness campaign has matured into a comprehensive, collaborative and structured program buoyed by a consistently sustained patient- and staff-centered culture.

This mission-driven initiative focuses on saving lives and improving the health and experience of patients and community while meeting and exceeding regulatory requirements. This has been accomplished through the development of innovative technologies to improve timeliness of recognition and treatment along with expanding community outreach and engagement. Using a team-based, structured approach and leveraging the culture, leadership support and technology, the organization successfully achieved improvement in key outcome metrics.

## OUTCOMES ACHIEVED

- The facility increased use of the Centers for Medicare and Medicaid Services' Early Management Bundle, Severe Sepsis/Septic Shock (SEP-1), achieving top 10% in New York state and nationwide.
- There was a 60% improvement 30-day readmissions for severe sepsis.
- There was a 43% decrease in 30-day mortality for severe sepsis.

## LESSONS LEARNED

- Leveraging a strong baseline culture that includes physician, nursing and quality champions is critical to ongoing success.
- Developing creative tools and structuring a team-based methodology helps provide real time, concurrent data that can be used by providers and staff to drive more timely diagnosis and treatment.
- Collaborating with patients, families, skilled nursing facilities and community-based organizations to educate regarding early identification and treatment supports continued success.

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# Improving sepsis outcomes

## NYC Health + Hospitals/Woodhull, Brooklyn

### EXECUTIVE SUMMARY

To improve hospital-wide compliance with evidence-based management bundles in adult and pediatric patients presenting to the emergency department and inpatient units with severe sepsis or septic shock, the hospital targeted compliance with New York State Department of Health criteria for sepsis management through early identification (appropriate management of time-zero) and timely intervention (ordering/collecting lactates and cultures, and administering antibiotics and crystalloid fluid).

### OUTCOMES ACHIEVED

- The organization's adherence to the three-hour bundle improved 35%.
- The sepsis mortality rate improved 62%.
- Compliance with initial and repeat lactate improved 9% and 19%, respectively.

### LESSONS LEARNED

- The use of point-of-care technology to measure lactate at the patient's bedside has increased rapid recognition of severe sepsis/septic shock.
- Standardized antibiotics placed into Pyxis and use of a "go bag" to bring antibiotics to the patient's bedside increased the timeliness of antibiotic administration.
- Daily monitoring and initiation of the Code Sepsis (Dr. SMART) overhead page and immediate text/email with the patient's name and medical record number to chiefs of service, quality management, clinical documentation improvement specialists and leadership has improved early identification of, and response to, patients with severe sepsis/septic shock.

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# Improving sepsis bundle compliance and decreasing mortality

## Guthrie Cortland Medical Center

### EXECUTIVE SUMMARY

In September 2017, Guthrie Cortland Medical Center set a goal to improve compliance with best practice care for patients with sepsis. Using several Plan-Do-Study-Act cycles, multiple forms of education and information sharing, individual accountability and collaborating with multiple departments, the facility improved compliance with the sepsis bundles and significantly decreased mortality from sepsis.

### OUTCOMES ACHIEVED

- The sepsis mortality rate decreased from 26% in 2016 to 7% for 2018.
- Sepsis bundle compliance improved and was sustained, from 75% in 2017 to 96% in 2019.
- Collaboration between nursing staff and providers improved.

### LESSONS LEARNED

- Improvement requires buy-in from all staff involved.
- Sustaining improvement requires as much effort as making the initial improvement.
- Real-time alerts provide opportunities for just-in-time education and direct impact on improved bundle compliance.

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# Striving for higher reliability — Using the Trajectories® methodology to reduce the progression of sepsis to severe sepsis

NYC Health + Hospitals/Metropolitan

## EXECUTIVE SUMMARY

NYC Health + Hospitals/Metropolitan served as the first pilot in a five-hospital initiative to use the Trajectories® process for modeling clinical risk. With the help of two Outcome Engenuity advisors, the clinical risk team spent a week building a model of human errors and at-risk behaviors that could lead to delay in diagnosis and treatment of sepsis. The team included the patient safety officer, chief and head nurse of the emergency department, information technology staff, ED sepsis champion physician, ED chief resident and deputy chief of ED.

## OUTCOMES ACHIEVED

- The delay in diagnosis and treatment of sepsis was reduced.
- The length of stay decreased.
- Trajectories® helped save the hospital nearly $3.5 million by preventing progression of sepsis to septic shock.

## LESSONS LEARNED

- The Trajectories® risk modeling process helped reduce delay in diagnosis and treatment of sepsis.
- Using early i-STAT lactate helped prevent progression of sepsis to septic shock.

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# An "all hands on deck" approach to decreasing sepsis mortality

A.O. Fox Hospital, Oneonta

## EXECUTIVE SUMMARY

Implementing processes to gain improvement in sepsis requires a multidisciplinary, flexible approach. A.O. Fox Hospital's quality improvement team consists of physicians, nurse practitioners, physician assistants, nurses, lab, respiratory, pharmacy, infection control, quality, clinical documentation improvement nurses, coders, patient education, information technology and leadership staff. The quality and clinical documentation improvement nurses attend daily rounds to identify and address bundle compliance issues and/or clarify diagnoses.

Monthly sepsis and documentation improvement team meetings have resulted in the development of tools such as: reference posters, pocket cards, badge buddies, a bedside checklist, a concurrent abstraction checklist and patient education materials (pamphlets and social media). These tools are used during orientation and the concurrent review process. A multi-faceted, professional, "all hands on deck" approach has decreased A.O. Fox's sepsis mortality rate.

## OUTCOMES ACHIEVED

- The hospital's sepsis mortality rate decreased.
- Compliance with the three-hour bundle improved, achieving 100% compliance in November 2018.
- The team improved compliance with the composite bundle.

## LESSONS LEARNED

- Develop processes that work for your institution — one size does NOT fit all.
- There is no substitute for direct communication.
- People learn in different ways — you need to use many approaches.
- Physician/clinician buy-in and leadership support is critical.

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# Cracking the code to decrease sepsis mortality

## St. Catherine of Siena Medical Center, Smithtown

### EXECUTIVE SUMMARY

St. Catherine of Siena's sepsis committee, established in 2011, has matured into a strong, multidisciplinary team with support from staff and senior leadership. The committee meets monthly to collaborate on strategies to improve quality improvement bundle compliance. While initially focusing on the emergency department/critical care, the need to expand to hospital-wide implementation was obvious, as sepsis can develop and progress rapidly in any hospitalized patient.

Collaboration with staff and providers helped identify workflow challenges and process issues. While some solutions were simple, others proved to be more complex, requiring higher level support. Staff caring for sepsis patients must possess a comprehensive knowledge of signs/symptoms and treatment protocols. Leadership is responsible to support education, provide resources and hold staff accountable for any deviations in the standard of care through a non-punitive process. These efforts have significantly impacted the safety of patients as demonstrated in the facility's improved bundle compliance and decreased mortality.

### OUTCOMES ACHIEVED

- The facility's team estimates that there would have been 126 additional possible mortalities had its sepsis care process improvements not been implemented.
- From 2014 to 2018, its three-hour bundle compliance increased by 47.45% and its six-hour bundle compliance increased by 88.24%. These are statistically significant improvements, placing St. Catherine of Siena in the 99th percentile in New York state.
- Decreased mortality can be attributed to significant improvements in bundle compliance.
- A "Timeline for Sepsis Tool" was initially developed for use in the ED, but was readily adopted house-wide as a sepsis handoff communication tool, promoting teamwork and improved bundle compliance.

### LESSONS LEARNED

- Promoting staff engagement and open discussion facilitates cooperation by reducing staff barriers to change.
- By reviewing 100% of sepsis cases, using a mini-root cause analysis methodology, all misses are identified.
- Staff, who are empowered to speak up, provide the support to hold each other accountable.

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# Decreasing mortality in severe sepsis cases through timely administration of antibiotics and fluids in the emergency department

NYC Health + Hospitals/Bellevue

## EXECUTIVE SUMMARY

The goal of this initiative was to reduce sepsis mortality by using innovative interventions to improve sepsis recognition and sepsis bundle compliance, and continuously identify opportunities for improvement. NYC Health + Hospitals/Bellevue implemented a five-part strategy with broad representation of specialties and disciplines, and was ultimately able to attain a mortality rate of 13.9% for 2018. The strategy propelled the organization to be the best performer in New York state for hospitals with more than 50 cases (2017).

## OUTCOMES ACHIEVED

- Sepsis mortality decreased from 16.2% in 2017 to 13.9% in 2018.
- Compliance in recognition of sepsis and implementation of the sepsis bundle improved.
- Innovative, logic-driven tools integrated with the electronic medical record to improve recognition, treatment and documentation of care.

## LESSONS LEARNED

- Concurrent reviews of care were the best driver of culture change.
- Logic-based EMR triggers can be embedded to improve recognition of cases and improve bundle compliance.
- Frontline staff involvement is crucial in development of strategies to address change in process.

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# Improving sepsis care using a collaborative approach

## Brooks-TLC Hospital System–Dunkirk Campus

### EXECUTIVE SUMMARY

The facility identified opportunities for improvement with its sepsis protocol, care and outcomes. In July 2016, a multidisciplinary sepsis team was formed with a goal of identifying focus areas for improvement. Opportunities identified included sepsis protocol revision, nursing and physician education, modifications to the electronic documentation, clinical process improvement and concurrent review of sepsis patient care. The sepsis team continues to meet with a focus on maintaining the successes achieved and identifying and implementing additional improvement strategies.

### OUTCOMES ACHIEVED

- SEP-1 compliance improved from 16.7% in 2015 to 68.3% for 2018.
- The sepsis protocol was streamlined (reduced from nine pages to three) to improve efficiency and align with clinical best practices.
- Awareness and buy-in from physicians, nurses and ancillary staff members improved.

### LESSONS LEARNED

- Promote stakeholder engagement by including everyone: nursing staff, physicians, lab, pharmacy, infection prevention, information technology, etc.
- Balance process improvement efforts and educational strategies to target clinical specialties while promoting continued interdisciplinary collaboration.
- Share the results in a meaningful way (mortality, length of stay, success, readmission, etc.), with the focus not just on data, but on individual patient care and outcomes.

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# BEHAVIORAL HEALTH

# Perinatal bereavement program

Sisters of Charity Hospital, Buffalo

## EXECUTIVE SUMMARY

The perinatal bereavement program provides guidelines that assist the staff in caring for families dealing with a loss of a pregnancy or infant in accordance with our mission and values. This program guides the staff to provide compassionate, respectful and supportive care for those dealing with a loss, including parents and extended family. A certified counselor is also available to families and is thoroughly involved in all stages of care. The care extends beyond patient discharge and assists the family throughout the stages of the grieving process.

## OUTCOMES ACHIEVED

- Despite experiencing a traumatic event such as a loss, 139 out of 140 patients surveyed said they would return to the facility for a subsequent delivery because of the compassionate care they received.
- Based on their experience, the bereavement team developed a "Pregnancy Loss" booklet that is available as a resource to other healthcare systems and obstetric offices.
- Families are given choices for a situation in which they feel a loss of control.

## LESSONS LEARNED

- What the hospital staff do matters. The actions of the staff carry the patient/family through the grief process.
- When patient/family expectations are not met, grief increases.
- To be effective, cultural appropriateness must be factored into the program.

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# Creating a suicide-safer community within a behavioral health hospital

Gracie Square Hospital, New York City

## EXECUTIVE SUMMARY

In an effort to better equip clinical and non-clinical hospital staff with strategies for assessing and intervening with psychiatric inpatients who are suicidal, Gracie Square Hospital implemented a suicide prevention training program called "ASIST": Applied Suicide Intervention Skills Training and "SafeTALK": Suicide Alertness for Everybody to all staff within an acute-care psychiatric unit.

All inpatients assessed as at-risk for suicide received interventions aimed at reducing suicidal ideation and improving adaptive coping strategies. The hospital demonstrated the feasibility and effectiveness of training unit staff in ASIST/SafeTALK, found improvements in motivation and aptitude and improved patient response to staff efforts, compared to the standard inpatient model of treatment.

## OUTCOMES ACHIEVED

- Patients who received ASIST interventions were 100% to 150% more likely to report favorable responses to suicide interventions than patients receiving standard inpatient treatment, based on responses to a patient evaluation questionnaire.
- Patients who received ASIST interventions were 100% to 115% more likely to report that staff validated their suicidal thoughts and feelings and were committed to help than patients receiving standard inpatient treatment.
- The facility achieved improvements in hospital staff's self-reported motivation, aptitude and effectiveness in implementing suicide prevention protocols, based on responses to a staff evaluation questionnaire.

## LESSONS LEARNED

- These results support the utility of a patient-centered, recovery-oriented program addressing suicide assessment and intervention in an inpatient, psychiatric setting.
- The facility demonstrated the feasibility and effectiveness of training clinical and non-clinical hospital staff in suicide intervention and prevention strategies using ASIST/SafeTALK, establishing Gracie Square Hospital as the first behavioral health facility in New York City to implement this program.
- The receptiveness of staff and patients indicates the applicability of the ASIST/SafeTALK program across a variety of clinical populations; thus, the facility is continuing to expand this program throughout the remainder of the hospital.

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# Mobile crisis response

## Nicholas H. Noyes Memorial Hospital, Dansville

### EXECUTIVE SUMMARY

Mobile crisis response is a collaborative initiative between Noyes Mental Health and Wellness, Livingston County Department of Mental Health and local law enforcement agencies, designed to deploy mobile crisis teams to provide 24-hours-a-day crisis stabilization services on location using evidence-based protocols developed by medical staff. The goal is to reduce mental hygiene arrests and subsequent emergency department admissions by allowing for onsite response by a behavioral health clinician trained in the application of advanced crisis intervention techniques.

The clinician is able to appropriately triage for hospital admission or next-day outpatient services. Additionally, direct observation of the behavioral health clinician's interactions with clients, coupled with ongoing case reviews, will enhance first responders' ability to develop and implement effective hospital diversion tactics. The eventual expansion of the pilot to include other law enforcement agencies will have a positive impact on hospital diversions.

### OUTCOMES ACHIEVED

- Mental health crises-related arrests decreased.
- The volume of mental health patients using emergency room services rather than appropriate outpatient treatment options decreased.
- The number of individuals in crisis connected with community and treatment resources after the incident that prompted the initial response increased.

### LESSONS LEARNED

- Many mental health arrests can be avoided with proper intervention in the field.
- Individuals in crisis are more likely to follow up with mental health services after having had contact with a mental health professional.
- While well-intentioned, law enforcement is not trained to adequately assess mental health needs.

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# Inpatient psychiatry length-of-stay reduction project

NYC Health + Hospitals/Bellevue

## EXECUTIVE SUMMARY

The inpatient psychiatry department at NYC Health + Hospitals/Bellevue is a seven-unit, 188-bed service on which the hospital and community are heavily dependent. For several years, the mean length of stay has been approximately 21 days; this has resulted in the service being frequently at or over capacity and has led to substantial unit and emergency room crowding, understaffing and patient aggression. Reduction in the length of stay was therefore of paramount importance. Psychiatry leadership instituted a new system of bed allocation that ensured balance between each of the seven units.

## OUTCOMES ACHIEVED

- The mean length of stay decreased from 21 to 17 days in a six-month timeframe, with a corresponding reduction in median length of stay from 16 to 13 days. There was no concomitant increase in 30-day readmissions.
- Emergency room dwell time for admitted patients decreased from 23 hours to eight hours (65% reduction).
- The assault rate in the inpatient psychiatry service decreased 27.5%.

## LESSONS LEARNED

- Length of stay is dependent on uniformity and efficiency in the manner in which units run. Reducing unpredictability with respect to admissions improves efficiency and thus length of stay.
- Focusing on eliminating long-stay outlier cases is not productive when attempting to reduce mean length-of-stay/bed capacity. Attention must be paid to the typical case (i.e., the median patient), which allows for small improvements to be scaled broadly.
- System-level (rather than patient- or clinician-level) changes are the best way to avoid potentially negative secondary effects of length-of-stay reduction (e.g., increased readmissions).

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# Behavioral health readmissions reduction initiative

Samaritan Hospital, Troy

## EXECUTIVE SUMMARY

This effort used a cross-system (emergency room, inpatient, outpatient, care coordination) approach to identify high-impact interventions in each setting with monthly collaboration and review for continuous improvement. High-impact interventions included: consistent implementation of evidence-based practices (post-acute follow up, collateral meetings, outreach), inpatient treatment team participation in crisis intervention, outreach and collaboration with care coordination, risk identification and stratification, readmission review audits and feedback loop.

## OUTCOMES ACHIEVED

- The annual readmission rate decreased 37% from 2017 to 2018.
- Project implementation in May 2018 resulted in a 49% reduction in the readmission rate from the first half of the year to the second half (post-implementation).
- Cross-system collaboration reduced readmissions, decreased preventable high-cost utilization and leveraged interventions across the full complement of services.

## LESSONS LEARNED

- Behavioral health readmissions can effectively be reduced.
- Real-time review and trending is critical to success and program modification.
- Full service line participation improves long-term sustainability.

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# Successful alternatives to psychoactive medication management of resident behaviors

## St. Catherine of Siena Nursing and Rehabilitation Care Center, Smithtown

### EXECUTIVE SUMMARY

In 2013, St. Catherine of Siena participated in a Lean Six Sigma project focusing on antipsychotic medication reduction. The facility successfully reduced antipsychotic usage from 24.6% to 2.8% using non-pharmacological alternatives for behavioral management. The facility rate of other psychoactive medications remained an opportunity for improvement. A focused review of these residents revealed behaviors that were based in uncertainty, nervousness, fear and sleeplessness rather than the physical and verbal agitation and aggression identified during the review of residents receiving antipsychotic medications. The team began to research alternate non-pharmacological approaches that would provide a sense of comfort, improve focus, reduce fear and uncertainty and facilitate positive sleep patterns.

### OUTCOMES ACHIEVED

- Sedative/anti-anxiety medication usage decreased from 28% to a current rate of 14.6%.
- Newly identified non-pharmacological interventions for the management of residents with anxiety-related behaviors decreased sedative/anti-anxiety medication usage by 48%.
- The reduction of psychoactive medication usage resulted in a 24% reduction in falls.

### LESSONS LEARNED

- Management of resident behavior requires individualized review and observation to identify successful alternatives for each individual resident.
- Management of the resident's environment and medication regimen must occur collaboratively to promote success of the initiative and the comfort of the individual resident.
- Reduction of medications that cause sedation result in improved resident quality of life and participation, and reduce the risk of serious side effects such as falls.

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# Prevention of behavioral escalation by increasing communication and routinizing interdisciplinary collaboration

NYU Langone Health, New York City

## EXECUTIVE SUMMARY

In 2017, NYU Langone Health initiated a behavioral emergency response team to address behavioral crises throughout the medical center. Following a review of data collected from the service's first year, a series of targeted interventions were developed to pursue more proactive management. These interventions included increasing opportunities for frontline staff to communicate and escalate concerns and initiation of daily safety huddles to develop individualized treatment plans for patients at highest risk of requiring a BERT call. Without any impact to the budget, the move toward proactive management resulted in decreased overall incidence of BERT calls by more than 14% and calls for patients with delirium/dementia diagnoses by 34%, despite expansion to cover more patients, including pediatric patients not included in the program during the first year.

## OUTCOMES ACHIEVED

- NYU Langone successfully launched scripted proactive rounding (twice per day) and daily behavioral health safety huddles with interdisciplinary treatment team members on patients who were identified as high risk for having a behavioral health emergency.
- Through collaborating with the delirium prevention committee and diagnosis-specific treatment planning, supported by proactive rounding and safety huddles, the number of BERT activations for patients with delirium or dementia diagnoses decreased by 34%.
- The amount of total BERT activation decreased by 14% in the second year of operation.

## LESSONS LEARNED

- Standardizing the approach through scripted rounding and safety huddles allowed capture of essential information and treatment planning, ensuring consistency in care.
- Proactive management of patients at risk for behavioral health emergencies was greatly effective in reducing the incidence of behavioral health emergencies.
- Collaboration and consistency of participation between interdisciplinary team members from both psychiatry and medicine was the most successful in reducing the amount of BERT activations.

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# Joining forces: Improving behavioral health in the emergency department

Mather Hospital, Port Jefferson

## EXECUTIVE SUMMARY

Emergency departments across the United States are overwhelmed by the sharp increase in the number of patients suffering from behavioral health problems, including psychiatric illness and conditions related to substance abuse. Inability to properly care for this extremely challenging patient population can be a threat to safety in the ED and prevents achievement of high-quality outcomes. Mather Hospital placed a dedicated team of experienced behavioral health staff in the ED and found significant improvements in care quality and outcomes among ED patients and staff.

## OUTCOMES ACHIEVED

- ED and ED behavioral health unit "Mr. POWERS" notifications to security rates decreased.
- ED and inpatient behavioral health complaints decreased.
- RN satisfaction in the ED (2018) improved to above the benchmark on all six key categories on the National Database of Nursing Quality Indicators RN Satisfaction Survey.

## LESSONS LEARNED

- Psychiatric illnesses, chemical dependency and substance abuse problems are highly complex.
- ED staff need more support and training to provide safe, evidence-based care to patients with behavioral/mental health conditions.
- The paradigm shift that is increasing the numbers of patients with behavioral/mental health problems in the ED requires new, innovative approaches to ED staffing that are effective in improving care delivery and quality outcomes.

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# Successful conflict resolution using de-escalation strategies and team-based training

## Maryhaven Center of Hope, Catholic Health Services of Long Island

## EXECUTIVE SUMMARY

Individuals with intellectual developmental disabilities may display severe challenging behaviors that often result in the use of restrictive physical interventions, which also leads to client and staff injuries.

The goal of this project is to develop a sustainable training program that will provide staff with proactive strategies and tools to help calm an individual before he or she reaches a state of challenging behavior. Incorporating these strategies throughout the agency will ultimately decrease challenging behaviors, the need for restrictive interventions and the number of staff injuries.

De-escalation training is comprised of role play, presentations, behavioral analogies and interactive discussions. Training as a team was an important component of the initiative.

## OUTCOMES ACHIEVED

- The use of restrictive physical interventions decreased by 6% in the pilot sites.
- Four of the six pilot sites saw a reduction of challenging behaviors, including physical aggression, self-injurious behavior, tantrums and property destruction.
- Prior to de-escalation training, staff were asked to complete a survey to ascertain if they felt equipped to handle a crisis, if they felt confident in using calming techniques and if they felt it was possible to turn a crisis situation around. Following de-escalation training a slight improvement was noted in staff's perception of being able to handle challenging behavior.

## LESSONS LEARNED

- The standardized de-escalation curriculum provides general strategies; however, they may not be fully applicable to all individuals, specifically those with psychiatric conditions. The de-escalation curriculum must be individualized using person-centered strategies to ensure individual success.
- Staff turnover affected the consistency of trained staff on site during the 2018 pilot period. Additional training sessions were needed to include new hires to maintain the consistency of trained staff on site.
- Buy-in from onsite management and support from clinical staff is crucial in sustaining de-escalation strategies and achieving assimilation into the culture at the site.

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# The forgotten mourners: Implementation of a bereavement program for Hispanic children and caregivers

Good Shepherd Hospice, Farmingdale

## EXECUTIVE SUMMARY

This program uses a group model serving a highly marginalized population in Brentwood and surrounding towns on Long Island. The target population is grieving Hispanic children and their caretakers. Many of the program's participants experienced sudden, violent loss with other types of trauma that complicate grief, including undocumented citizenship, economic insecurity, homelessness, deportation, discrimination, gang activity, neglect, sexual abuse and substance/alcohol abuse. Goals of the children's program are to decrease their sense of isolation, normalize experiences and feelings and assist in development of proactive coping strategies. The adult group focuses on education and support, including understanding how children grieve based on the child's developmental level, age, risk and protective factors.

## OUTCOMES ACHIEVED

- Bi-lingual, culturally competent bereavement specialists facilitated seven separate cycles of eight-week group programs for grieving Hispanic children and their caretakers during the past two and a half years.
- A total of 49 educational programs were conducted by bereavement specialists for community entities that interface with grieving children.
- A culturally sensitive and inclusive environment was created for this highly vulnerable population through a partnership with Bob Sweeney's Camp Hope, a two-day bereavement camp for children and their caregivers and an annual children's Christmas party.

## LESSONS LEARNED

- Disparities in access to healthcare are a reality for this population. Some of the group's members met diagnostic criteria for psychiatric disorders (i.e., major depression, complicated grief, post-traumatic stress disorder), which fall outside the scope of this program.
- Ongoing education and outreach with community partners is imperative in establishing access and trust.
- Grieving Hispanic families on Long Island experience a large amount of loss due to traumatic death (e.g., murder, suicide and accidents).

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# Celebrating success of culture change — Pathway to zero harm

Erie County Medical Center, Buffalo

## EXECUTIVE SUMMARY

The goal of this initiative, as a part of a continued pathway to zero harm, was to decrease the use of restraints. Verbal de-escalation classes; the introduction of Patient Safety Companions; the use of tactile items as a means to re-focus a patient; and heightened, purposeful rounding by nursing staff sustained the implementation of each of these tools and allowed for the continued culture change toward restraint reduction. Staff were encouraged to think outside the box to discover what methods would work best for each patient and their plan of care.

## OUTCOMES ACHIEVED

- In 2014, the number of restraints used in medical/surgical units decreased 82% by the end of 2017.
- Today, three-quarters of the hospital's medical/surgical units have zero use of restraints for half the year or more, with the highest unit achieving more than 21 consecutive months with zero use of restraints.
- The behavioral health department's hourly restraint rates decreased 45%, well below the national average.

## LESSONS LEARNED

- Staff engagement around the goal of zero harm is essential. As frontline staff internalized the goal and took ownership of the program, creative solutions blossomed and culture change took root.
- Providing continuous, multidisciplinary education to direct care staff was invaluable in creating a toolbox of alternative methods to restraint. This allowed for options to be available at every patient touchpoint; should one solution not work, staff could produce another method from the "toolbox."
- Restraint reports continue to be reviewed each month and as benchmarks are achieved, public celebrations are held to honor success.

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# OPIOIDS

# Facing the opioid crisis: A psychiatric inpatient service's approach

Gracie Square Hospital, New York City

## EXECUTIVE SUMMARY

Opioid addiction, including prescription opioids, is a major issue in the United States. According to the Centers for Disease Control and Prevention, more than 210 million opioid prescriptions were filled in 2010, with 12 million people admitting to abusing these medications by taking them for non-medical reasons. Drug overdoses have become the leading cause of death of Americans under age 50, with two-thirds of those deaths from opioids. The dual-focus unit staff raised their concerns about how the hospital can help people in the community post-discharge be safe. The first step of this program was applying for the hospital to become an Opioid Overdose Prevention Program. Free naxolone kits are now available upon discharge to any patient or loved one who wishes to learn about its life-saving potential.

## OUTCOMES ACHIEVED

- A total of 65 patients with dual diagnosis were identified.
- Forty-two patients agreed to receive opioid training (how to recognize opioid overdose and administer naloxone spray).
- Out of these 42 participants, 25 patients accepted a naloxone kit.

## LESSONS LEARNED

- Facing the opioid epidemic requires a coordinated approach involving healthcare providers, state agencies and affected communities to fight addiction and reduce deaths from overdose.
- Community management of opioid overdose through administering naloxone by trained bystanders may help as the crisis worsens.
- At the hospital level, a multidisciplinary, integrated approach to train patients and their families has been proven to be effective in saving lives.

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# Staying ahead with pain management communication

St. Francis Hospital, The Heart Center, Roslyn

## EXECUTIVE SUMMARY

Failure to address a patient's pain before it escalates to an intolerable level can result in a slower recovery, poor patient experience and the elevation to a higher level of pain medications. Addressing a patient's pain in a timely manner, assessing the severity of pain and acting accordingly is aligned with the top priorities and focus of St. Francis Hospital. Alignment of materials provided during pre-admission testing with dialogue from internal caregivers allows for opportunities to educate patients to ensure a complete understanding of treatment. Identifying and eliminating gaps between the hand-off communications provides patients with a better understanding and empowerment of their pain management.

## OUTCOMES ACHIEVED

- Streamlining and bridging gaps of communication between pre-admission testing and medical-surgical units resulted in an enhanced collaboration between departments and disciplines.
- Large Press Ganey database ranking scores improved and were sustained: third quarter 2017, 10; fourth quarter 2017, 57; first quarter 2018, 52; second quarter 2018, 90; third quarter 2018, 83; fourth quarter 2018, 80.
- As a byproduct, there was an improvement in the rate of patient falls: third quarter 2017, 1.78 per 1,000 patient days; fourth quarter 2017, 2.14; first quarter 2018, 0.71; second quarter 2018, 0.37; third quarter 2018, 0.71; fourth quarter 2018, 0.36.

## LESSONS LEARNED

- The organization understands the optimum benefits of maintaining a consistent bridge of patient communication from pre-admission testing throughout the inpatient setting.
- Timeliness and frequency of pain assessment and follow-up significantly impact a patient's satisfaction with pain management.
- Promoting an optimal non-opioid healing process showed no negative impact toward patient safety.

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# Opioid and addiction detection and treatment campaign

## Long Island Community Hospital, Patchogue

### EXECUTIVE SUMMARY

To address the opioid crisis in the community and to reduce the stigma of addiction by implementing evidence-based practices, Long Island Community Hospital provided psychological education to staff regarding effective ways to treat addiction; implemented harm-reduction strategies such as distribution of Narcan kits for home use; increased inpatient Clinical Institute Narcotic Assessment protocol use; and used Screening, Brief Intervention and Referral to Treatment to provide appropriate aftercare referrals to patients suffering from addiction.

### OUTCOMES ACHIEVED

- Over six months, Long Island Community Hospital made 2,722 drug/alcohol referrals.
- Total contingency management full screens done: 490 (18.93%).
- The staff engaged in 329 brief interventions.

### LESSONS LEARNED

- Substance abuse patients have a stigma that is furthered by a lack of awareness of salient issues of this disease by both healthcare professionals and the public.
- The patients in recovery can contribute to society.
- This illness has broad-reaching effects.

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# Combatting opioid and substance use disorder through community collaborations

Catholic Health Services of Long Island, Rockville Centre

## EXECUTIVE SUMMARY

Catholic Health Services of Long Island adopted a collaborative approach to not just treat the immediate medical needs of patients presenting to the emergency department for drug-related incidents, but connect them with a community-based peer navigator to follow them through the recovery process. This unique approach has three parts:

- identify the patients in the ED through a specialized screening tool;
- ensure medical stabilization and immediate support of the withdrawal process through Suboxone administration; and
- provide support beyond the ED through a community-based peer liaison.

A Plan-Do-Study-Act approach was used to implement the program and included clinicians from the health system, religious agencies and multiple community agencies with leaders experienced in addiction recovery.

## OUTCOMES ACHIEVED

- The one-hospital pilot decreased ED utilization of this population after the intervention by 44.6% out 180 days, and 58.4% out 90 days.
- At the pilot hospital, 96% of the ED physicians have been trained in Suboxone administration.
- A total of 191 patients have been referred to the "Sherpa" program. Sherpa represents a community collaboration that provides two navigators: one to guide the patient through treatment and the second focuses on support for the family members or caregivers impacted.

## LESSONS LEARNED

- The data showed that opioid-addicted ED patients were less likely to consent for the peer navigator support versus alcohol or other substances. Efforts will be made to revise the referral process and consider expanding the navigator program to better capture this population.
- The system's emergency medicine service line physician leader shared that while the ED physicians have completed training on Suboxone medication administration, more education and support is needed to build confidence in the connection with longitudinal outpatient care.
- The community agency providing the peer navigators to follow the patients discovered the need for alcohol-related abuse and dependency was greater than expected. The program was originally intended for opioids only, but was expanded to other substances based on the need.

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# CHAPTER FIVE: READMISSION REDUCTION

# Stopping the revolving door: Advancing community paramedicine to engage high utilizers

## Montefiore Nyack Hospital

### EXECUTIVE SUMMARY

This initiative aimed to reduce unnecessary readmissions and costs of care, and improve the patient and provider experience by offering "gap filling" services to individuals who, for medical, social and/or behavioral health reasons, over-utilize emergency departments or are at a high risk for hospital readmission. Field-based community paramedics, supervised by mid-level providers in the ED, provide navigation within the primary care system with an emphasis on improved health and strategies to prevent unnecessary ED utilization and hospital readmissions. They often identify creative solutions to addressing the social determinants of health needs of the patients.

### OUTCOMES ACHIEVED

Montefiore Nyack Hospital achieved a:

- 52% decrease in the overall number of ED visits for patients in cohort #1 (2,028 visits in 2017; 1,047 visits in 2018);
- 66% decrease in hospital admissions for cohort #1 (373 in 2017; 245 in 2018); and
- 61% decrease in multiple visits per day (89 same day repeat visits in 2017; 59 in 2018).

### LESSONS LEARNED

- Increasing program enrollment criteria to include patients at risk for excessive utilization before they meet "super utilizer criteria" resulted in a dramatic decline in "new" super utilizers.
- Expanding the hospital outside its walls is crucial. Having access to available community resources and building linkages to organizations that can address social determinants complements the medical care model and empowers the care team to work collaboratively to improve care, decrease costs and satisfy patient and staff needs.

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# Reduction of 30-day re-hospitalization rate for home care patients with primary diagnosis of heart failure

## Catholic Home Care, Farmingdale

### EXECUTIVE SUMMARY

The 30-day hospital readmission rate of patients with an acute exacerbation of heart failure is a pervasive challenge within the health system. A Six Sigma project was initiated in September 2017 with a goal to sustain a reduction of the 30-day re-hospitalization rate of home care HF patients at less than 17%. The scope of the project included adult (>18 years of age) patients referred from system hospitals with primary diagnosis of HF.

### OUTCOMES ACHIEVED

- The 30-day readmission rate of HF patients was reduced by 4% compared to 2017 baseline data.
- The organization identified and improved all factors directly impacting readmission of HF patients.
- The facility developed restructured evidence-based protocols and standardized practice guidelines to decrease practice variability in the management of HF patients.

### LESSONS LEARNED

- Partnership with system entities is essential in delivering seamless, cross-continuum provision of evidence-based care for HF patients.
- Daily weight management is a crucial component of effective disease management.
- Patient engagement is essential for sustained long-term management of HF symptoms.

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# Preventing avoidable readmissions using evidence-based protocols

## South Nassau Communities Hospital Home Health Agency, Oceanside

### EXECUTIVE SUMMARY

Using a Plan-Do-Study-Act approach, the organization convened a multidisciplinary team to identify factors that placed a patient at high risk for readmission. Evidence-based protocols were identified, staff were educated on new processes and new practices were implemented. Initial and ongoing education was provided. Continued compliance with protocols is validated during home visits. Data are monitored regularly to support continuous improvement.

### OUTCOMES ACHIEVED

- Implementation of best practice protocols promotes optimal wellness and decreases acute care readmission. Data show an average readmission rate of 7.7% for patients receiving telehealth monitoring, compared to an average acute care hospitalization rate of 20.5%.
- Patient satisfaction improved from 2017 (89.25%) to 2018 (94.15%).
- Communication between patients and the healthcare team improved.
- Patient/caregiver involvement in the medication management process improved.

### LESSONS LEARNED

- Use of a standardized risk assessment tool on admission to home care leads to early identification of patients at increased risk for re-admission.
- Use of telehealth technology is effective in the early detection of changes in clinical status and results in early intervention of symptom management, patient education and health awareness.
- Reconciliation of medications within 24 to 48 hours of discharge increases compliance through patient education and engagement.

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# Improving the effectiveness of post-discharge case management using tele-monitoring for patients at risk for readmission

Columbia Memorial Hospital, Hudson

## EXECUTIVE SUMMARY

Patients with chronic conditions and their families often have difficulty managing care between discharge and a follow-up visit with their physician. This initiative included tele-monitoring of patients at risk for readmission. Using a tele-monitoring tool kit consisting of a scale, blood pressure cuff, pulse oximeter and a smartphone, patients can monitor their daily vital signs and send them electronically to their case manager. Self-monitoring and daily communication with the case management team allows for early intervention to problems that may otherwise cause the patient unnecessary emergency room visits or readmissions.

## OUTCOMES ACHIEVED

- In 2018, the tele-monitoring program inclusion criteria were expanded and the number of patients served increased 50% from the prior year.
- Patients who participated in the tele-monitoring program saw a 46% decrease in readmissions compared to the prior six-month period before going on the program.
- In general, the case management team finds tele-monitoring to be an effective use of technology to engage patients and their caregivers in chronic disease self-management and an efficient means of communication.

## LESSONS LEARNED

- Engaging patients and their caregivers in disease self-management activities such as daily monitoring is necessary to have a positive impact on reducing unnecessary emergency visits and readmissions.
- Providing the tool kit and technology simplifies the monitoring activities and improves the communication process. Simplicity increases the likelihood of patient participation.
- Communication and support between the case management team and the patient are critical during the transition period from discharge to follow-up physician appointment.

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# COPD Readmission Reduction Project

St. Peter's Hospital, Albany

## EXECUTIVE SUMMARY

St. Peter's Hospital developed a Lung Center Program led by inpatient respiratory therapists who identified patients with a primary or secondary diagnosis of chronic obstructive pulmonary disease. Respiratory therapy staff met with the patients every day in the hospital and educated them about their disease, taught them how to determine their COPD Assessment Test score, gave them a zone sheet, scheduled follow-up appointments with the pulmonary function test lab and performed follow-up phone calls after discharge. A clinical pharmacist also met with these patients prior to discharge to ensure all medications were appropriate, provide education and in many instances, prompt a change in medications if affordability or access issues were discovered.

A weekly COPD readmission huddle was also initiated across the entire integrated health system to review all cases of patients with COPD who had a 30-day readmission during the prior week. The huddle ensured all processes listed above occurred for each patient on the index admission and gave staff the opportunity to intervene with more services and resources if needed.

## OUTCOMES ACHIEVED

- There was a dramatic reduction in the facility's annual COPD 30-day readmission rates, from 20.7% in 2015 to 15.5% in 2018.
- From November 2017 to December 2018, 304 patients were cared for in the Lung Center program.
- Discharge medication reconciliation pharmacists reviewed discharge medications for 704 patients with a history of COPD during this period, provided patient education and made 444 medication modifications.

## LESSONS LEARNED

- The Lung Center reinforced the value of conducting standardized, disease-targeted follow-up calls and patient education (including educational materials).
- The weekly readmission huddles have highlighted a need for earlier involvement of palliative care among COPD patients.
- Weekly huddles have also reinforced the importance of real-time feedback among multidisciplinary, cross-continuum team members.

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# Readmission reduction strategies

## Brooks-TLC Hospital System–Dunkirk Campus

### EXECUTIVE SUMMARY

Reducing readmissions is challenging in the current healthcare environment. Process improvement and collaboration with other healthcare organizations to care for these individuals has been successful in reducing readmissions at the hospital system. This has been achieved with implementation of the following readmission reduction strategies:

- A case management project manager visited all primary care offices in the area.
- All physicians are notified of discharges concurrently.
- An emergency department navigator position was created to cover the emergency department and health home referrals.
- Follow-up was provided to patients and/or patient care partners after discharge to ensure they went to their appointments and have their medications.

### OUTCOMES ACHIEVED

- Total readmissions decreased from 9.59% in 2017 to 8.65% in 2018.
- Post-discharge phone calls were made for all areas of the hospital.
- The reduction in readmissions was attributed to discharge planners assessing the needs of every patient and completing a written, focused assessment on each patient who is readmitted within 30 days.

### LESSONS LEARNED

- Collaboration with other healthcare providers has been critical in the transition of care.
- Asking the right questions and listening to the patients for a better understanding of their needs and the reasons for readmission is essential.
- Collecting data has helped the organization identify causes and track readmissions so the focus can be on prevention.

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# From hospital to transitional supportive housing

## Strong Memorial Hospital, Rochester

### EXECUTIVE SUMMARY

The goal of this project is to establish a safe, accessible and responsive transitional supportive housing option for adult inpatients who are homeless or currently have housing instability. Strong Memorial Hospital focused on providing an appropriate level of care short term, rather than using shelters or nursing home beds. The organization partnered with a community-based housing agency with proven mastery in individual housing needs combined with psychosocial complexities. Strong also partnered with its home care agency and health home agencies, as applicable, to create a model that would allow a vulnerable patient population to transition from hospital to short-term housing with supports.

### OUTCOMES ACHIEVED

- Of the 124 patients who have participated in the transitional supportive housing program, 66% have achieved the goal of long-term housing.
- Only 7% of the patients who achieved alternate housing were readmitted within 30 days.
- The average length of stay of patients hospitalized before and after going into transitional housing was reduced by five days.

### LESSONS LEARNED

- The availability of safe supportive housing, home care services and care management support allow the transitioning patient to stabilize in the outpatient, community-based setting instead of recurrent and unnecessary hospital visits due to social and housing uncertainties.
- A key element to combating homelessness among the most medically compromised individuals is to offer an intensive, interdisciplinary and comprehensive approach to the individual who needs assistance to navigate resources and options between the healthcare system and community-based services.
- The success of the transitional supportive housing model is to meet patients where they are, appreciate their most critical needs, help them with prioritization and help them access resources.

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