33rd Annual

Management Innovations Poster Session

60th Congress on Healthcare Leadership
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Incorporating weekends and holidays into the workweek for healthcare coverage

Authors– Masaaki Matoba, M.H.A; Yumi Kamijo, M.D. M.H.A

Background– Japan has one of the most rapidly aging societies in the world. In Tokyo, Japan’s capital, the population of those 75 years and older was 1,220,000 in 2010. However, it is estimated that this number will increase by more than 60% to 1,970,000 by 2025, leading to more than a 20% rise in healthcare demands. The government has been promoting the functional differentiation of sustainable hospitals, restrictions on the number of sickbeds, and establishment of a plan to curtail hospitalization durations.

Objective– Although hospitals offer hospitalization and emergency services 365 days per year, many generally do not offer outpatient consultations or elective surgeries on weekends or holidays. However, hospitals are equipment-oriented businesses employing high-tech medical devices, and limiting services on weekends and holidays leads to a decrease in device operation, which is problematic from the standpoint of the performance of invested capital. In the present study, the effects and challenges resulting from the incorporation of weekends into the workweek were examined.

Implementation methods – Since its reopening following relocation near Tokyo Bay in March 2014, Showa University Koto Toyosu Hospital has been offering consultations on weekends and holidays according to the same standards and operational policies employed on weekdays. Despite fewer weekend days than weekdays, the hospital has established a framework for providing elective surgeries and standard offerings in outpatient consultations, diagnostic examinations, and rehabilitation services.

Research Methods– The number of patients hospitalized, discharges, surgeries in each department, elective surgeries, and emergency surgeries for each day of the week over a 31-month period from April 2014 to October 2016 were examined in the present study. These results were compared to those from another hospital affiliated with the same university that does not operate on weekends to investigate the effect of incorporating weekends into the workweek.

Results– The number of patients hospitalized at Koto Toyosu Hospital during the corresponding period was 20,977, with an average hospitalization length of 8.9 days. Hospitalizations were most frequent on Mondays, averaging 29.6 cases, whereas discharges were most frequent on Saturdays, averaging 23.6 cases. During the corresponding period, 6,519 elective surgeries involving anesthesia, and 956 emergency surgeries were performed. Surgeries were most frequent on Thursdays and least frequent on Saturdays. Compared to the other hospital during the same period, Koto Toyosu Hospital had less day-to-day variability in the number of hospitalizations, with numerous patients being hospitalized on weekends as well. The effects of incorporating weekends into the workweek were estimated to increase the number of hospitalizations by 1,000 and boost revenue by $6,900,000 per year.

The present study confirmed that incorporating weekends and holidays into the workweek and operating these days similarly to weekdays permits reduction in the day-to-day variability in hospitalizations and discharges; thus, it is a way to effectively use sickbeds and equipment. However, restructuring physician labor participation presents a challenge. Although most physicians are employed through the university corporation, in contrast to nurses and other medical personnel, the manner in which they balance their education, research, and healthcare responsibilities is entrusted to them as individuals and managed autonomously. Strong resistance to changes in working practices is likely, but the introduction and establishment of a shift-based labor system is necessary for hospitals seeking to offer uninterrupted medical care through the incorporation of weekends into the workweek.

Contact– Masaaki Matoba, M.H.A, Assistant Professor | Showa University, Tokyo, Japan. | matoba@nr.showa-u.ac.jp
The After-Hours Use of Rehab Department Rooms as ED Consultation Rooms: Improving Service Quality while Decreasing ED Overcrowding

Authors: Leslie Chia (Project Administrator), Lee Khai Pin (Medical Doctor), Lee Choy Kuan (Nurse Manager), Satyaki Sengupta (Rehabilitation Centre)

Background: KK Women’s and Children’s Hospital operates the busiest Emergency Department (ED) in the country of Singapore. Originally built to cater for 150 patients per day, it is now serving an average of 500 patients per day. The ED is located immediately beside the Rehab Centre, which runs regular working day hours and whose closure hours coincide with the peak periods in the ED.

Objective of Program: To turn around rooms in Rehab after close of rehab hours for use as ED consultation rooms, and revert usage as rehab rooms again on commencement of rehab hours, to ease the pressure on space in the ED.

Planning/Research Methods

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Implementation Methods

- Set patient safety as overriding consideration in the implementation of the project
- Defined criteria to activate Rehab for ED consultation
- Identified patient group appropriate for consultation in a location not set up for life-saving emergency interventions, stat medication, treatment orders and procedures, etc.
- Identified medical equipment, consumables, medication, etc. normally required for the identified patient group
- Addressed need for resuscitation in case of patient deterioration
- Established turnaround time for housekeeping, location set up and reinstatement

Results (26 January 2016 to 31 December 2016)

- Setup and ready for operation within 30 minutes of activation by senior doctor
- Increased productivity of “idle” clinic space by 27.1% (additional 3.8 operating hours/day)
- Estimated 19,022 persons diverted from the overcrowded primary ED location (namely, 5435 paediatric patients accompanied by 2 to 3 caregivers each)
- Appropriate and robust patient selection criteria
  o Only 7% sent back to the primary ED location for more appropriate care management
  o Only 6.4% admitted versus 17.45% admission rate in the primary ED location
  o No patient had a sudden deterioration in status such as to require resuscitation care
- Eradicated potential for cross-infection, breach of patient confidentiality, patient safety lapses and staff distraction for the 5435 patients seen in Rehab
- Staff satisfaction rated at 7.42 (on a scale of 1 to 10)
- 84.6% of staff assessed that there are no patient safety issues
- 91.4% of staff wanted the space-sharing arrangement to continue on a permanent basis

Contact: Ms Leslie Chia (leslie.chia.yp@kkh.com.sg), Dr Lee Khai Pin (lee.khai.pin@singhealth.com.sg)
Effective Management of Heart Failure Population in Home Health Care Setting

Authors: Mandeep K. Mangat MD, MPH; BAYADA Home Health Clinical Practice Team

Background: Heart Failure (HF) is a leading cause of hospitalization in people 65 and older and one of the top diagnoses of BAYADA's Home Health Practice. The high costs of care for this population do not yield commensurately high levels of quality. Although there are many competing explanations for this ineffectiveness, areas of broad unanimity include care fragmentation and lack of standardization of evidence-based best practices. Bayada Home Health Care specialty practice provides customized home health services to nearly 10,000 patients in 22 US states. Home health care services are offered to Medicare beneficiaries who need skilled services for an intermittent period and require substantial effort to leave home (homebound). Because of Medicare homebound requirements, home health care patients may represent “sicker” HF patients. In January 2015, the organization designated Heart failure as a key strategic initiative for Home Health Practice.

Objective: The aim of HF initiative was to standardize evidence-based best practices, reduce variation in care and improve performance practice wide amongst 100 service offices in 22 states with an overarching goal of reducing hospitalizations and keeping HF patients safe at home.

Development and Implementation: A multidisciplinary team developed evidence-based educational, clinical and operational processes for a team based HF population management. HF initiative was implemented in 100 service offices across 22 states on Dec 1, 2015.

Key components of HF Initiative
- Development of Specialized HF Care Teams through the integration of evidence-based education and practice.
  - Mandatory HF training to elevate the knowledge of 2800 health care professionals; development of cardiac leads in each of the 100 service office through additional specialized HF training.
- Development of HF Patient and Caregiver Self-Management Education in collaboration with Home Health Quality Improvement (HHQI) organization.
- Continuous Care Model. Make providers available to patients during and between home visits;
- Coordination across settings. Efficient use of care transition specialists and clinical liaisons to coordinate patient care and guide them through settings
- Internal Policies and Procedures. Align internal policies and procedures with evidence-based training and protocols
- Clinical Pathways. Integrate evidence-based care plan that details essential steps in the care of HF patients with a goal to standardize care, improve outcomes and reduce costs.
- Documentation Improvement. Improve clinician skills to ensure accurate and timely clinical documentation which reflects the scope of services provided.
- Measurement. Use clinical process, outcome and satisfaction measures; track and report findings on consistent basis at a practice level to promote transparency and accountability

Results: Pre-heart failure period measured from Jan 1, 2014, through Nov 30, 2015; post-HF period from Dec 1, 2015, through Aug 24, 2016

- Patient Outcomes: For HF patients (n=2000) admitted from the hospital, the initiative led to 16.9% decrease in hospitalizations, 13.4% decrease in hospitalizations within 30 days of admission and 41.8% decrease in hospitalizations beyond 30 days of admission. Initiatives led to improvement in several outcomes including dyspnea (6.6%), ambulation (9.4%), and pain interfering with activity (10.3%).
- Clinician Outcomes: 90% of Bayada health care professionals (n=2500) completed evidence-based mandatory HF training. Specialized training successfully developed 400 cardiac leads across 100 offices. 99% of the healthcare professionals who completed training recommended it to other colleagues in a feedback survey.
- Operational Outcomes: Decreased utilization of unnecessary skilled nursing (12.9%) and therapy visits (4.1%). Organization experienced 27.2% increase in HF admits as it demonstrated its ability to manage this population effectively

Conclusion: All healthcare professionals along with HF patients and caregivers play a critical role in effective HF management. The importance of investing in evidence-based HF education and resources for individuals involved in the care of these patients cannot be overstated. An organized system driven by specialized care teams forms an integral component of heart failure population management.

Contact: Mandeep K Mangat, MD, MPH | Bayada Home Health Care | mandeep.mangat@gmail.com
Title: Home alone: how hospitals can mitigate the unintended consequences of Medicare policy

Authors: H. John Keimig, MHA, FACHE; Kimberly Pelland, MPH; Emily Cooper, MPH; Alyssa DaCunha, MPH; Kathleen Calandra, BSN, RN; Rebekah Gardner, MD

Objective: Hospitals are under pressure to reduce length of stay and prevent readmissions. Despite their critical role in partnering with hospitals to prevent readmissions, home health agencies (HHAs) face challenges obtaining reimbursement for Medicare patients. As of 2011, HHAs must comply with the Centers for Medicare & Medicaid Services (CMS) face-to-face requirement, which mandates that a physician, independent of the HHA, have a face-to-face encounter with the homebound patient within a specific time frame. Discharging hospital physicians generate most home care referrals, but usually defer completion of face-to-face documentation to community physicians, placing a substantial burden on HHA staff to obtain documentation required for reimbursement. CMS has advised HHAs not to accept referrals without complete documentation, potentially leading to longer hospital stays or unsafe discharges home. By revising their discharge processes, hospitals in Rhode Island (RI) aimed to increase the rate of completion of face-to-face documentation at hospital discharge.

Planning, Implementation, and Research Methods: A group of healthcare leaders and stakeholders known as the RI Healthcare Advisory Board, convened by Healthcentric Advisors, the Medicare Quality Innovation Network-Quality Improvement Organization (QIN-QIO) in New England, sent a letter to RI hospital executives in August 2015 describing the patient safety concerns with incomplete face-to-face documentation. In response, 8 out of the 11 acute-care, nonfederal hospitals in RI reported changing their discharge process to incorporate face-to-face documentation (the intervention group). For example, one health system revised their discharge module within their electronic health record (EHR) to include a statement certifying that a face-to-face encounter occurred and prompting a signature from the attending physician prior to discharge.

To measure the impact of these changes, Healthcentric Advisors conducted an Institutional Review Board-approved retrospective chart review among a convenience sample of HHAs in RI. Recruited HHAs audited the first 10 hospital referrals each month for Medicare patients with a home visit. The primary outcome was the percent of referrals with complete face-to-face documentation pre- versus post-intervention. Referrals were classified as pre- or post-intervention based on whether the hospital had changed their discharge process at the time of referral.

Results: Seven home health agencies audited a combined 495 referrals from 11 hospitals during the study period (July 2015 to May 2016). The percent of complete face-to-face documentation provided by referring hospitals increased after hospitals changed their discharge processes. Of the pre-intervention referrals, less than 19% had complete face-to-face documentation from hospitals, compared to about 44% of post-intervention referrals (see Table). In addition, the main source of the required documentation shifted from community physicians to hospital physicians (p<.0001).

HHAs provided 1,795 home visits within 30 days of discharge for patients without complete documentation, putting the agencies at risk of forfeiting nearly $220,000 for services already rendered, based on an average Medicare skilled nursing visit reimbursement of $125 in CY 2015. If the HHAs in this study had declined to provide care to patients without complete documentation, per CMS’ recommendation, about a third of patients in this sample would have been left without timely home care or faced longer hospital stays, putting them at greater risk for readmission.

These findings demonstrate yet another way hospitals can help improve patient transitions between care settings. Hospitals in this study integrated face-to-face documentation into their EHRs and discharge paperwork with minimal disruption to physician workflow. Although the overall completion rate was only slightly greater than two thirds post-intervention, shifting the source of documentation to hospitals helped HHAs by reducing the burden of tracking down paperwork from physician offices, easing reimbursement, and facilitating timely home care to discharged patients. This work demonstrates the value of collaboration among HHAs and hospitals to adapt in a rapidly evolving payment landscape and to work together to reduce readmissions. Health systems can implement similar discharge processes to support earlier discharges and shorter lengths of stay and simultaneously help their home care partners obtain the reimbursement needed to remain solvent.

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Improving ED LOS by Reducing CT Throughput Time

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Michelle Stone, Emergency Services Summer Intern, Houston Methodist Hospital

Background
With increasing volumes and heightening pressures to care for patients within finite real estate within the Emergency Department setting, any opportunities to decrease throughput bottlenecks impacting the patient length of stay is of upmost importance. One such opportunity area within the Houston Methodist Hospital Emergency Department is affiliated with CT throughput times in which delays contribute to longer patient overall stays and proliferates overcrowding issues that have the potential of impacting quality, revenue generation, patient satisfaction, and throughput issues.

Objective
The specific aim of this initiative was to decrease throughput time for all ED patients requiring a CT scan, which is defined as when the order is placed by the provider to when the results are made available. The target was to reduce the CT throughput time by 10% from the average three month pre-implementation rate of 221 minutes.

Planning/Research Methods
A multidisciplinary team of providers, nurses, patient care assistants, CT technicians and management was assembled into a steering committee to plan over the course of the three months leading up to the change. Key subject matter experts from IT were also included on critical process flows that were applicable to their respective area. Research of best practices was conducted by reviewing published articles in order to understand what could potentially be replicated within the given environment. In addition, a time and motion study was conducted to study the flow of patients to and from the area along with the tasks completed between order submittal and results posting.

Implementation Methods
This undertaking represented substantial change to the Emergency Department, complete with new technologies, new roles and responsibilities and new process flows. Project management and change management efforts were married to address with tools such as process maps, time and motion studies and continual feedback loops. Through these endeavors, the following improvements were made:

- New technologies implemented including walkie talkies and EPIC/IT enhancements
- Additional CT technician added to second shift
- Clinical team roles clearly defined and communicated for understanding and ownership
- Communications pathways were established to identify personal throughput times and overall impact by month

Results
June through August average CT throughput time baseline was 221 minutes. Post Implementation, the CT throughput time was reduced by 39% to 134 minutes on average. In addition, the ED LOS for discharge patients was reduced by 3% and the ED LOS for admitted patients was reduced by 1%. Overall ED patient satisfaction increase by over a point as well.

Contact
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Optimizing Discharge Coordination and Improving the Patient Experience

**OBJECTIVE**
The Discharge Coordinator role improved the quality and efficiency of care for complex patients. It provided a consistent resource for the multidisciplinary team and family throughout the hospital stay. As a result, this role transformed our discharge process, emphasizing accountability, safety, and transparency in the coordination of care.

**PLANNING/RESEARCH METHODS**
As our institution faced challenges with patient flow, we continuously monitored our patient flow metrics and identified delays in our discharge process for patients medically ready for discharge. After trialing many other tests of change, we initiated the trial of a discharge coordinator role. Our cohort for this trial were complex cardiac patients less than one month old and/or patients who have never been discharged. This cohort was selected due to their multitude of needs as well as the involvement of physicians, nursing, case management, social work, and additional ancillary departments to get the patient safely discharged.

**IMPLEMENTATION**
Innovation was accomplished through being proactive. The discharge coordinator was pivotal in analyzing patient trends, improving processes, standardizing workflow, and dismantling barriers in our discharge process. Creation of a Neonatal discharge checklist, prioritization of departmental testing, identification of insurance needs, and scheduling follow up appointments transformed our discharge process.

**RESULTS**
The Discharge Coordinator improved care provided to Neonatal patients by reducing the number of patient days in the Cardiac Center. Prior to beginning of this role Neonatal patients in the cardiac center averaged over 20 days in the Cardiac Center. Through implementation of the Discharge Coordinator the Cardiac Center averaged 16.6 days in the Cardiac Center. On average the cost per day in the Cardiac Center is $6,550; the cost in patient days for the baseline patients totaled over $5.9 million dollars and the cost for the DC Coordinator patients totaled $5.5 million dollar; which resulted in a cost saving of over 350K in patient days. Annually this savings would average over $1.4 million in cost savings for our Neonatal population.

1) Baseline Patient Population included 43 patients from March16 – April16 who would have been eligible for DC Coordinator services
2) DC Coordinator Patient Population included 51 Patients from June16 – September16
Reducing length of stay and improving quality for total knee/hip patients by partnering orthopedic surgeon with hospitalist nurse practitioner

Authors
Brian Buchner, DNP, APRN, ACNP-BC, FAANP  Christine Meister, OTD, MBA, OTR/L, FACHE
Andrew Moats, RN, BSN, MSN     Cass Nakasone, MD

Objectives
- To improve care progression efficiency - reducing length of stay and cost of care
- To better manage medical co-morbidities, avoiding complications and readmissions
- To make the discharge process more efficient and ensure the patient feels ready for discharge
- To increase percentage of patients discharging to home versus skilled nursing/rehab

Planning/Research Methods
- Creation of interprofessional team for initial and continuous performance improvement
- Review of current process and quality metrics as well as patient experience data related to discharge
- Selection of metrics to measure success. Identification of process barriers to care progression

Implementation Methods
- Orthopedic surgeon partnering with nurse practitioner on the hospitalist team to co-manage all knee and hip replacement patients (as many as 16 patients per week)
- Staff communication: Nurse calls NP directly for medical issues, collaborates with NP on discharge time. Rehab communicates discharge readiness and any barriers to discharge directly to NP, who is present on the unit.
- The NP has critical role in setting patient expectations at every stage
- NP reviews patient medical information the week before surgery to discover any medical issues that might jeopardize proceeding with surgery or may require additional planning for the patient’s recovery
- The NP identifies patients who may need short term rehab and begins referral process the day of surgery
- NP sees patient day of surgery to continue to set expectations and to prepare the patient/family for discharge
- On post-op day 1, NP leads interprofessional morning rounds, manages acute/chronic medical conditions to minimize complications, and identifies barriers to progression/discharge. NP begins discharge process, including prescriptions, discharge instructions, and summaries. NP coordinates afternoon multidisciplinary rounds with orthopedic surgeon to manage care progression and finalize discharge plans
- New workflow alleviates need to wait for hospitalist or surgeon to respond to request for telephone orders or a consult. NP is taking care of all patients and managing the medical components before issues arise
- Measuring and sharing data: The performance improvement team meets monthly to continue to improve
- Continuous quality improvement: We learned we needed back-up for this NP as LOS spiked for two weeks while he was on vacation and cross coverage plan established

Results
- Decreased length of stay 27% with substantial cost savings. Reduction sustained for 9+ months so far
- HCAHPS score for discharge section from 39th percentile to 86th, good understanding of managing health from 82nd to 91st
- Percentage discharged to home from 64% to 76%
- Patients discharging day of surgery felt comfortable at discharge
- Surgeon experienced a 95% decrease in calls from the unit, improving efficiency in clinic day after surgery
- Readmissions stayed far below expected ratio of 1.0 (0.42 to 0.55)
- Complication rate decreased by half after implementation

Contact Chris Meister, Director Bone & Joint Service Line, at chris.meister@hawaiipacifichealth.org
A cultural change: Lean methodology used to decrease inappropriate use of “blood cultures” in an acute care facility

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Objective: The “Lean” process improvement journey for Newton Medical Center (NMC) began in 2014 with a goal to reduce waste, empower employees in data driven decision making, sustain process improvement and align organizational and leadership support. Several successful projects within the institution were completed within the past 3 years using Lean methodology and we would like to present our experience with one such project in an acute care setting. As part of the Atlantic ACO, NMC is closely affiliated to two large tertiary care institutions and this enables us to compare institutional statistics in real time and also share successful protocols. The inpatient Laboratory team identified “blood cultures” as an important target for process improvement. Blood cultures (BC) are used to detect infections of the blood and identify the type of the organism and guide antimicrobial therapy. This is a critical step in the diagnosis of “sepsis” and any delay in this can dramatically increase mortality. It is therefore, imperative to have a standardized protocol that is evidence based, cost effective and consistent across all units and departments.

Planning and implementation methods: A multidisciplinary steering team was chosen and consisted of representatives from Nursing, Information services, Emergency room, Laboratory services, infection prevention team, Hospitalist physicians and consultants from Infectious disease. Initial data showed that NMC blood culture ordering was 12-22 percentage points higher than the tertiary care institutions based on patient days. The scope of the project was first defined and it included all initial blood cultures (also identified as KPI or key performance indicator) ordered in the ER and repeat blood cultures ordered within any inpatient unit including the ICU. Maternity and inpatient psychiatry were excluded from the pilot project. “Current state” and “Future state” mapping was done with a goal to identity root causes of inappropriate blood culture orders. Value stream mapping was also done based on location and included both provider and laboratory perspectives.

Results: The project started in April 2015 and standard “appropriateness” guidelines were developed in conjunction with the Infectious disease consultants. At baseline, when these criteria were applied, it was found that 30% of repeat blood cultures were ordered inappropriately. The goal was therefore set to a 25% reduction of repeat blood cultures ordered inappropriately (to 22.5%). With value stream mapping, the team identified root causes and started making changes including revision of the electronic order set to delete the option to order blood cultures for morning rounds. Memos were sent from infectious disease physicians to the medical staff regarding appropriate blood culture ordering guidelines. Education (peer to peer review) were targeted to specific providers and Education and heightened awareness of appropriateness criteria was provided for all stakeholders. Data from September 2016 showed a 77% improvement from the baseline to pilot KPI. This far exceeded the goal and an initial financial analysis of the project showed a savings of $9,175 with this sample. This project is our initial step in redesigning organizational culture to focus on resource stewardship and can potentially generate huge cost savings for the organization when it is extended across all facilities and inpatient testing parameters.
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Background
The Division of Gastroenterology and Hepatology (GIH) at Mayo Clinic Arizona (MCA) operates two endoscopy suites; one located on the Phoenix campus, the other on the Scottsdale campus. Early in 2016, the Phoenix campus opened a new endoscopy suite, which increased procedural capacity by 50% from the previous unit. In order to accommodate the increased capacity, physician staffing needed to increase by 60% from the previous staffing model. This was complicated by a reduction in the number of endoscopists available for procedures each day through the expansion of the GIH fellowship (needing increased staffing for fellows in clinic), increasing access to new evaluations and consultations, and increased time for physician leadership and scholarly activities. GIH leadership did not wish to reduce procedural capacity, so it became clear that a new model would be needed to maintain output, while reducing the number of procedural physicians needed each day.

Objective
To evaluate the current endoscopy model employed at the Scottsdale campus and develop an approach to enhancing provider efficiency, reducing downtime, maximizing patient throughput, and improving collaboration and teamwork within the unit. Original objectives of the project included the following:

- Increase efficiency in the Scottsdale endoscopy unit by 1 procedure per provider per half-day
- Improve turnaround time (TAT) between procedures
- Improve endoscopy unit efficiency metrics (specific metrics discussed in results)
- Reduce the number of physicians scheduled each day by 1, while maintaining current allied health FTE

Planning/Research Methods
Under the governance of the MCA Endoscopy Committee, a multi-disciplinary project team consisting of physicians, nurses, technicians, and various operations support staff was formed to review the current model and develop a charter. Utilizing the DMAIC method (Define, Measure, Analyze, Improve and Control), the project team mapped the current state through process maps and flowcharts. Robust reporting capabilities allowed the project team to better understand baseline data. These capabilities also provided real-time feedback during implementation. Before implementation, finance conducted an analysis to review NOI to determine financial feasibility. The results showed that the model would increase NOI by 17% per day if calendars remained full and payer mix targets were met. The project team also reviewed endoscopy models employed at other Mayo Clinic sites to gain insight into best practices. An assessment was done of the various models and a pilot model was developed to fit the needs for MCA. The project team also employed rapid tests of change (Plan, Do, Study, Act Cycles), as well as other Lean Six Sigma methodologies, to improve process variation and imbalances.

Implementation Methods
The pilot implementation was conducted between April 25, 2016 and May 6, 2016. Continuing to use one appointment calendar, patients were scheduled in an open access model (i.e. patients may have never met the performing endoscopist at the time of procedure). Physicians were assigned to teams of two prior to arrival in the endoscopy suite. Each team of physicians performed endoscopies out of three procedural rooms – a shift from the previous model where each physician was assigned to one room. This allowed for the physician to complete the procedure, complete their procedural note and walk to the next room where a patient was already waiting, eliminating the turnaround time between cases. Physicians were accountable to one another and were responsible for their team’s patient list. Procedural mix was closely monitored during scheduling to ensure optimal throughput. Virtual Desktop Infrastructure was utilized to allow physicians and technicians to seamlessly move between rooms without logging off of computers.

Results
With the exception of one metric, the results showed significant improvement in efficiency. TAT time was essentially eliminated. Since physicians no longer had downtime between cases, they needed extra time when entering the room to review the patient chart prior to procedure. This caused a slight increase from the time the physician entered the room to the time they inserted the scope. However, the endoscopy unit demonstrated that output could be maintained with one less endoscopist utilizing the new model. Counterbalance metrics revealed improved physician and allied health satisfaction due to the gained efficiencies. The following endoscopy unit efficiency metrics were realized:

- Total number of endoscopy cases remained unchanged compared to baseline
- Physician on-time starts increased by 40%
- Scope-Out to Scope-In of next case (TAT metric) decreased by 22%; no downtime for physicians between cases
- Scope-Out to Bedded/Recovery (allied health metric) went unchanged
- Average time of last case in morning went from 11:58 a.m. during baseline to 11:14 a.m. during pilot
- Average time of last case in afternoon went from 3:51 p.m. during baseline to 3:25 p.m. during pilot
- MD in Room to Scope-In increased by 8.84%

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Increasing Patient Access in the Mayo Clinic Department of Neurology by Creating a High Throughput Clinic


Objective: Across the country, high demand for neurological services combined with limited access to neurologists has resulted in significant patient wait times and provider burnout. Mayo Clinic in Arizona has been particularly focused on ensuring patients needing specialized neurological services have timely appointment access. The objectives of the High Throughput Autonomic Clinic is to: 1) improve patient access 2) reduce the time between initial evaluation and the establishment of a treatment plan 3) and leverage the team-based model to provide more timely and efficient longitudinal care. The autonomic team, which consists of one physician, two advanced practitioners, two nurses, one licensed practical nurse, and a secretary, identified three challenges negatively impacting patient appointment access: limited providers within this subspecialty, inefficiencies in clinical appointments, and patients desiring follow-up exclusively with the physicians.

Planning Methods: Traditionally, a patient would meet with the physician with no pre-assessment and limited team-based care processes, thus decreasing the value of that initial visit. In an effort to develop an innovative solution to improve access and provide more efficient and timely care, the autonomic team proposed the creation of a multi-provider clinic that would increase patient access while ensuring new patients had the opportunity to meet with the physician and receive valuable education from nursing. The team determined essential patient information prior to a visit, thereby creating a robust, pre-visit triage process and pre-schedule autonomic and other diagnostic testing. Simultaneously, administrative leadership worked to create clinic templates that could accommodate the additional patient volumes. Most importantly, the team met to talk through patient selection and process flows.

Implementation Methods: All team members played a critical role in the implementation of the new clinic. Prior to scheduling patients, the nurse reviewed the patient appointment request to identify appropriateness and schedule necessary testing following the initial appointment. Once patients were identified, the medical practice secretary scheduled the patient for a 2.5 hour block of time and prepped them for a follow-up call with the nurse to review and document past medical history, allergies, results of prior diagnostic evaluations, and medications. This information was documented in the medical record. This pre-visit information allowed physician and advanced practitioner providers to be better prepared for the visit and reduced the clerical burden following the visit. Patients were scheduled in groups of five and roomed in groups of 2 to 3. Patients who saw the advanced practitioner first, would then visit with the physician to discuss diagnosis and review the treatment plan. The nurse would conclude the visit by providing education for longitudinal care and post-visit expectations. In the High Throughput Clinic the pre-visit activity is essential to optimizing the appointment and achieving success.

Results: The High Throughput Clinic has been tremendously successful. The new clinic model increased patient appointment access by 300%. Our team completed surveys for 70% of the patients who participated in clinic and 94% would recommend the provider to a friend or family member. 87.5% of patients surveyed were satisfied with their visit and felt they received very good or excellent service from the staff. Patient feedback has been exceptionally positive on the timeliness of receiving an appointment and 87.5% said they were satisfied with their visit. According to the clinicians, the efficient use of clinical time is the paramount benefit of the High Throughput Clinic. Patients present with preliminary questions and medications verified which allows the provider to focus primarily on the patient and their clinical issues, through a reduction in non-essential documentation and clerical duties. The physician in particular mentioned that the efficient use of time to focus on the current issue increases provider satisfaction and decreases the time spent on burdensome clerical responsibilities.

Future Steps: Selecting patients for the High Throughput Clinic is currently a manual process performed by the care team based on the limited detail provided in the patient record or appointment request. To enhance efficiency, the team looks to define criteria that can be assessed by a scheduling representative to automate the patient selection process. In the initial phase, patient selection focused on local patients who could readily present for an appointment. Our team would like to expand to long distance patients which would require additional patient coordination to ensure their testing can be accommodated during the specified visit.

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LEAN Out of Our Legacy to LEAP into Innovation Management: A Transformational Pilot

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Background: Current industry trends require health system change that is beyond LEAN continuous process improvement (PI) approaches such as with CMS Bundled Payment for Care Improvement Programs (BPCI). Thus, health system strategy calls for care transformation and names innovation as a core value. However, operational leadership state low levels of perceived self-efficacy to lead and manage innovation with current training, systems and processes to drive the change necessary to stay relevant.

Objectives: The objective of this pilot was to develop and validate a reproducible process for innovation management problem-solving (PS), while utilizing existing LEAN PI education and systems for enterprise use.

Planning/Research Method
Innovation Methodology Curriculum Creation: Borrowing from industry, create a new innovation creativity discipline and process curriculum to blend with legacy LEAN continuous process improvement curriculum.
Care Redesign Proof of Concept: Pilot innovation methodology in care redesign in response to BPCI to achieve 2% hurdle cost of care reduction through major LOS reduction, past Lean PI waste reduction.
Innovation Management Process Spread: Create a reproducible process for validated innovation methodology management across the health system by translating to other applicable BPCI Programs.

Implementation Methods
Innovation Methodology Curriculum Creation: Combine legacy LEAN “A3” problem solving with Kaplan’s LEAPS Disruptive Innovation Strategies to create a repeatable exercise methodology for problem-solving.
Proof of Concept: Joint Replacement Care Redesign was used as the pilot proof of concept for CMS as it was the first CMS Innovation pilot and care redesign required different problem-solving than LEAN PI waste reduction alone.
Innovation Management Process Spread: Phase One: Training program development with Operational Leadership. Phase two: Process Improvement Specialists to use this Innovation Management technique across the health system with other BPCIs and other applicable projects for innovation.

Results

<table>
<thead>
<tr>
<th>Objective</th>
<th>Area of Focus</th>
<th>N</th>
<th>Metric</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Leadership</td>
<td>Perceived Self- Efficacy</td>
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<td>Generalized Self-Efficacy Scale</td>
<td>31.3</td>
</tr>
<tr>
<td>Proof of Concept CMS BPCI</td>
<td>Partial Knee Arthroplasty</td>
<td>11</td>
<td>Length of Stay (LOS) (hours)</td>
<td>32</td>
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<tr>
<td>Spread CMS BPCIs</td>
<td>Trans Ischemic Attack</td>
<td>36</td>
<td>Length of Stay (hours)</td>
<td>22.89</td>
</tr>
<tr>
<td></td>
<td>Chronic Obstructive Pulmonary Disease</td>
<td>15</td>
<td>Length of Stay (hours)</td>
<td>28.38</td>
</tr>
</tbody>
</table>

The LEAPs teaching led to 17% increase in perceived self-efficacy in innovation management PS prior to the BPCI care redesign project for Partial Knee. This BPCI successfully met the hurdle rate (cost reduction of 2%) as a result of innovative care redesign. We believe that increased self-efficacy in innovation management built on Lean PI made further CMS BPCIs successful (all met hurdle rate) demonstrating a sustainable process for innovation management process spread while achieving desired outcomes. Further statistical analysis is needed to determine a relationship.

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The Triple E: Developing a Multi-Stakeholder Team Based Approach for Improving Clinical Efficiency, Patient Experience, and Employee Engagement at the Front Line

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Background:
Consistently lower than expected scores for front desk patient experience metrics on CG-CAHPS survey, affecting patients adversely and decreasing work satisfaction for caregivers in the Cleveland Clinic Women’s Health Institute.

- Patient Service Representative (PSR) and Nursing shortages
- Wait Time Challenges
  - Long wait times for patients
  - No communication to patient (PSR and Nursing)
  - Clinics visible and loud
- PSR Challenges
  - Bombarded with schedule changes
  - Constant interruptions – not able to focus on patients resulting in registration errors
  - PSR’s questioned about wait time for providers, which is out of their control

Objective:
- To improve excellent responses on Front Desk CG-CAHPS survey by 10% (80% to 90%) while increasing employee engagement and clinical efficiency through the development of a structured communication process with all relevant stakeholders

Planning / Research Methods:
- Participation and commitment from all relevant stakeholders for a twelve week continuous process improvement process: SolVE (Solutions for Value Enhancement)
  - Included: Front Desk PSR, Clinical Coordinator, Physician, Administrative Management
- Developed an internal patient satisfaction survey in order to obtain a more detailed assessment of patient dissatisfaction for front desk service
- Developed a Priority Payoff Matrix chart to assess bottlenecks vs. opportunities for improvement

Implementation Methods:
- Developed combined (Nursing, Front Desk PSR, Physician, Administration) daily huddles to discuss staffing, physician schedules, and types of procedures for the day to better anticipate and address any potential delays
- Closed doors from lobby to clinical hallway to reduce loudness causing distractions for both front line staff and patients
- Developed “Red Zone” process that prevented any clinical staff from coming up to front desk and interrupt PSR’s while checking in patients. Transitioned one of the three front desk PSRs to a back row that was more private and served as the resource for all clinical staff needing to schedule immediate follow-up appointments for patients leaving their clinic visit. The Red Zone PSR proactively will come out to the patient seating area to make patients aware of any potential delays from their particular provider. This now limits the number of patients walking up to the front desk to ask while the other PSRs are checking patients in.
- Installed Patient Wait Time Monitor in lobby to reflect most current wait times for each physician, updated in real time, that helps provide consistent communication to patients and limited interruptions to front desk staff.

Results:
- Within three months of our implementation methods, our Women’s Health Institute increased CG-CAHPS Front Desk Domain satisfaction scores by 12%.
- Medium Wait Times have gradually decreased as a result of physician participation in the daily huddles and the awareness of how to best optimize schedule templates. Patient satisfaction continued to increase on the internal patient satisfaction survey through improved communication process.
- Much greater efficiencies achieved and significant increase in engagement from front line staff to the clinical providers. Process has evolved Women’s Health Institute mindset to a culture of improvement.

1/11/2017

Objective: To meet clinical, financial and regulatory necessities, hospitals must continually work to improve flow, discharge patients early and maintain efficient and safe care. Observation in lieu of admission is a proven method to accomplish many of these goals. Although observation status can occur in any clinical location, the position of the American College of Emergency Physicians (ACEP), is that observation occur in a dedicated area. However, it’s estimated that only one-third of hospitals have designated observation units in place. Logistics of planning and implementing an observation unit are often time and resource intensive. Here we describe the use of lean management principles in the planning and development phases of an ED observation unit.

Implementation: 2P, process and preparation, events focus on the design, creation and implementation of critical processes. Flow, staffing, cost, volume, and turnaround are commonly addressed in a 2P event. A multi-disciplinary team including clinicians, nursing, finance, facilities, administration and care management, were selected to participate in the week long 2P event that would work out the flow of the newly developed unit. Box 1-3, Reason for action, current state and target state were provided to the team for review. Collaboratively the team developed the patient primary flow. To achieve acceptable levels of flow, different versions of the physical configuration was created. Each layout was then graded on patient and staff safety, quality of care, patient privacy, bed turnover, space utilization and cost. After concluding on one optimal process to achieve the best flow, barriers between the current state and target state were analyzed. The root cause of these gaps were broken down further into basic parts and possible solutions to solve the issue were formulated. Simulations of patient rooms, care delivery and transfer to the observation unit were then conducted. A detailed document with completed and pending deliverables, owners and due dates was produced and provided to leadership for implementation.

Results: Four months after the 2P event, the ED observation unit officially opened. As initially planned the unit was closed, protocol driven and operated by the Department of Emergency Medicine. The unit was opened with only four clinical guidelines and expanded to nine one month later. Metrics were chosen based on the observation unit’s impact on the emergency department. Within one month of opening, the ED Triage to First Provider metric decreased more than 10 minutes improving ED efficiency.

Conclusion: Lean methodologies have been successfully utilized in healthcare for over a decade. Lean has proven to be a valuable tool in increasing efficiency and reducing waste while simultaneously improving the quality of patient care. Advanced lean techniques, such as a 2P, are appropriate when rolling out a new product or service design. It requires participation of every stakeholder in the process to develop an organized and functional method that delivers on productivity, cost, quality, and timely delivery of services. Although an intensive process, the benefits are more to the hospital and customer, the patient.

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Objectives: While teamwork in the health care setting has widely been recognized as an important factor in providing high quality patient care, instituting its practice in everyday duties is challenging. Acute care environments, like the emergency department, are especially vulnerable to team breakdown secondary to communication failures. Simulation can be utilized to promote teamwork and good communication among health care professions to improve safety and quality of patient care. Traditional simulation-education has been delivered remote from the clinical area. An onsite simulation education bundle incorporating TeamSTEPPs concepts, reduces lost clinical time to off-site training, offers an innovative and engaging modality to engage multi-disciplinary teams and improve communication.

Planning/ Research Methods: An approach combining TeamSTEPPs training, in-situ based simulation and facilitated debriefing was instituted to improve teamwork and communication in the Emergency Department of Kings County Hospital (KCH), an urban, public tertiary care teaching institution. All clinical area staff, including residents, attendings, and nursing staff participated. A before and after survey and observations were conducted, using the validated Safety Attitudes Questionnaire (SAQ) and the Team Emergency Assessment Measure (TEAM). The SAQ covered workplace satisfaction, morale, and self-impression on current team dynamics. Participants were surveyed regarding their perceptions of critical care teamwork and communication pre- and post-intervention.

Implementation Methods: Trained observers conducted evaluations of actual clinical resuscitations in the Critical Care Trauma (CCT) area of the KCH – ED prior to initiation intervention. The intervention consisted of weekly in-situ simulation scenarios followed by facilitated debriefing conducted by Simulation-trained faculty and simulation specialists. Sessions were scheduled to minimize impact on clinical responsibilities and to maximize volume and diversity of staffing. During simulation debriefings, clinical scenarios were reviewed, however, systems issues, teamwork and TeamSTEPPS concepts were emphasized and not clinical management. Post intervention surveys and resuscitation observations were collected and analyzed.

Results:

<table>
<thead>
<tr>
<th>Question</th>
<th>Intervention</th>
<th>Disagree strongly</th>
<th>Disagree Slightly</th>
<th>Neutral</th>
<th>Agree Slightly</th>
<th>Agree Strongly</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse input is well received</td>
<td>Pre-</td>
<td>9.7%</td>
<td>19.4%</td>
<td>25.8%</td>
<td>24.7%</td>
<td>20.4%</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Post-</td>
<td>1.5%</td>
<td>10.6%</td>
<td>16.7%</td>
<td>50.0%</td>
<td>21.2%</td>
<td></td>
</tr>
<tr>
<td>Physicians and nurses here work together as a</td>
<td>Pre-</td>
<td>14.0%</td>
<td>18.3%</td>
<td>9.7%</td>
<td>37.6%</td>
<td>20.4%</td>
<td>0.127</td>
</tr>
<tr>
<td>well-coordinated team</td>
<td>Post-</td>
<td>4.5%</td>
<td>10.6%</td>
<td>10.6%</td>
<td>42.4%</td>
<td>31.8%</td>
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<tr>
<td>Medical errors are handled appropriately in</td>
<td>Pre-</td>
<td>2.2%</td>
<td>15.1%</td>
<td>31.2%</td>
<td>24.7%</td>
<td>21.5%</td>
<td>0.054</td>
</tr>
<tr>
<td>this clinical area</td>
<td>Post-</td>
<td>1.5%</td>
<td>4.5%</td>
<td>19.7%</td>
<td>39.4%</td>
<td>22.7%</td>
<td></td>
</tr>
<tr>
<td>Communication breakdowns that lead to delays</td>
<td>Pre-</td>
<td>6.5%</td>
<td>18.3%</td>
<td>17.2%</td>
<td>40.9%</td>
<td>17.2%</td>
<td>0.620</td>
</tr>
<tr>
<td>in delivery of care are common</td>
<td>Post-</td>
<td>6.1%</td>
<td>27.3%</td>
<td>15.2%</td>
<td>33.3%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>I would feel safe being treated as a patient</td>
<td>Pre-</td>
<td>8.6%</td>
<td>18.3%</td>
<td>22.6%</td>
<td>30.1%</td>
<td>20.4%</td>
<td>0.054</td>
</tr>
<tr>
<td>here</td>
<td>Post-</td>
<td>4.5%</td>
<td>10.6%</td>
<td>10.6%</td>
<td>47.0%</td>
<td>27.3%</td>
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</tbody>
</table>

Conclusion:
On site-based simulation targeted at improving teamwork and communication in the emergency setting is effective. Although this study and its design have limitations, the unit-based simulation bundle offers an innovative and engaging educational modality to improve teamwork and communication. TEAM observations, while still ongoing, have also shown significant improvements in leadership and collaborative care.

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Patient Education Card: Improving Patient Communication and Expectations

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Background: In today’s sophisticated healthcare landscape, patients are often left to navigate their care with questions and uncertainty pertaining to next steps. Mayo Clinic in Arizona is a multi-disciplinary practice with patients often scheduled for multiple appointments and tests each day across various specialties. A gap in quality communication and expectations between patients and providers regarding care plans and next steps was identified. Staff observed a lack of patient portal use, incoming calls which needed to be directed to more appropriate departments, and available resources and expectations not being discussed with patients.

Objective: To improve patient communication and set service expectations for patients seen in the Division of Gastroenterology and Hepatology (GIH) at Mayo Clinic in Arizona. Primary metrics of success include increasing online patient portal use and decreasing “other” calls without adversely impacting staff and patient satisfaction.

Planning/Research Methods: A team comprised of administrators, nurses, advanced practitioners and physicians was formed to initiate the project using the DMAIC (Define, Measure, Analyze, Improve and Control) quality improvement framework. The team’s activities included:

- Engaging key stakeholders and resources (physicians, RNs and LPNs, patients, medical practice secretaries, call-center employees, patient surveys, and the Office of Patient Experience) to understand current practices and opportunities to standardize communications to patients.
- Analyzing GIH Call Center data, calls routed to the Electronic Health Record Message Center inboxes for triage RNs, and messages received from patients through the online patient portal. Calls were categorized into one of five categories: portal, sick, results, prescriptions, other (scheduling, billing, insurance, medical questions, prep issues, and testing). The data sample size was 981 messages over a three week period.

Interventions Implemented: Three PDSA (Plan, Do, Study, Act) cycles were initiated to develop a Patient Education Card with input from the allied health staff, operational support staff, physicians, and patients. Elements of the 8x5 inch Education Card include: an introduction of GIH care team members; instructions on how to use and sign up for the patient online portal; service expectations regarding test results; and instructions for appointment scheduling, insurance questions, and prescription renewals.

Education Cards were distributed to patients completing GIH consultations, evaluations and follow-up visits. Check-in desk and LPN staff were educated on reviewing the cards with patients, and physicians were engaged and instructed to encourage patients to use them.

Results: Data from messages at 30- and 60-days after initiating card distribution was analyzed.

- Results showed a 12% decrease in the number of “other” (non-GIH related) phone calls and a 16% increase in patient portal use, contributing to increased patient engagement and fulfilling Meaningful Use requirements.
- The reduction in the number of “other” calls and appropriate triaging of portal messages had a positive impact on secretary and call center staff satisfaction.
- Additional metrics and patient satisfaction scores will be analyzed throughout Q1 2017 to determine long-term impact on patient satisfaction.
- This intervention is currently being diffused to other Departments due to its simplicity, low cost, and significant impact.

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Reducing Opioid Use while Improving Perceived Quality of Life

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Background/Objective- The United States opioid epidemic continues to climb sharply, as demonstrated by a 72.2% increase in deaths related to prescription opioids from 2014-2015 (Rudd, Seth, David & Scholl, 2016). Mayo Clinic in Arizona’s objective was to create a sustainable rehabilitative treatment program to drastically reduce opioid use while improving perceived quality of life for patients with chronic pain.

Planning/Research Methods- Project Management Principles (PMBOK) were utilized to develop the program, including a project charter, definition of project scope, definition of roles and responsibilities along with sequencing of multiple stakeholders input into the Pain Rehabilitation Center (PRC), cost budgeting, performance of quality assurance methodologies, hiring and staff education and communication/marketing of the new program. An assessment of current pain management programs and empirical literature suggested an opportunity to better support patients who have debilitating chronic pain through non-pharmacological interventions. Strategic goals for this program included:

- Elimination of the use of opioid analgesic pharmacotherapies
- Drastic reduction in polypharmacy (simultaneous use of multiple, often unnecessary, medications)
- Improvement in patient depression symptoms
- Improvement in patient objective functioning and subjective quality of life scores
- Maintenance of positive care team performance metrics
- Demonstration of financial sustainability or profitability

Implementation Methods- ADKAR (Awareness/Desire/Knowledge/Ability/Reinforcement) principles were utilized to gain institutional leadership support of the development of the program. Given this program must include many disciplines spread across several work areas, institutional support and stakeholder engagement was necessary. Most critically, the ADKAR method was utilized to assist in educating the multidisciplinary team as to the differences between traditional treatments of chronic pain and a cognitive behavioral, interdisciplinary, rehabilitative approach emphasizing patient self-management of chronic pain symptoms. The program was implemented as a three-week intensive group-based program, including 100+ hours of didactic information and practical application activities to gain mastery of chronic pain management. Support for this program and clinical care to the patient was provided by the pain physicians, physician assistants, pain psychologists, nurses, occupational therapists, physical therapists, administration, administrative staff in collaboration and coordination from the Departments of Anesthesiology, Psychology, Nursing, PM&R, Chaplaincy, Clinical Operations Administration, Revenue Cycle and Registration, and Patient Financial Services.

Results- Mayo Clinic PRC was able to demonstrate success in all areas of emphasis utilizing standardized tests and measures. This includes:

- Decreased average opioid analgesic use, from 75 morphine mg equivalents per day (MME) to 1 MME/day.
- Improved major depression rating by 67%
- Increased aerobic capacity and endurance by 38%
- Demonstrated financial viability by covering all start-up and direct costs within 5 months of program start.

The counter balance to these measures was patient satisfaction. Upon program completion, participant responded to an anonymous program satisfaction evaluation utilizing a 7 point Likert scale with 7 representing high levels of satisfaction. These results indicated:

- Quality of Care 6.7
- Compassion of Staff 6.5
- Meeting of Expectations 6.7
- Perceived Quality of Life 6.2 – reflecting an 89% improvement

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Transforming Documentation Culture: A Key to Reducing Errors

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Objective of Program
Chart audits conducted in the Department of Respiratory Therapy show substantial documentation and charge capture errors. New department leadership determined that primary causes of these errors centered on lack of accountability, process variance, inconsistency in communication, and excessive guidelines. Given the demand for demonstrating productivity and the necessity of accurate documentation, our goal is to reduce documentation errors by utilizing a rapid process management design to transform the documentation culture.

Planning/Research Methods
Charge capture for the respiratory therapy department is a built in component of electronic chart documentation. The charge capture portion of documentation was utilized to determine the financial impact of charting discrepancies. Manual auditing of respiratory therapist (RT) documentation was implemented in 2012 to find charting errors. A discrepancy notification was distributed to each staff member with the error(s) requesting correction. Each missed charge was compiled and reported each month as the total charge capture error. A new department director was brought in during the last quarter of 2015. The common charting errors were reviewed and analyzed to determine common problems and themes. We investigated the system setup to determine possible workflow improvements.

Implementation Methods
In January 2016, we implemented a new process to improve our documentation. Backend edit rules for charge corrections were applied within our documentation system with assistance from the revenue cycle department. This allowed for the establishment of a standardized documentation workflow process. All current RT staff members were educated on this new workflow, and the new hire process for documentation training was redesigned. The audit process remained unchanged, however, an accountability process was put into place to track notifications and individual trends. Individual staff member metrics are reported and utilized for performance reviews.

Results
We observed a 61% reduction in charge capture errors in the first quarter of implementation compared to the previous quarter. Likewise, when we looked at the same time period one year prior we observed a 62% reduction in charge capture errors (Q3-16 vs Q3-15). Additionally, we observed an overall reduction of 63% in our average quarter in 2016 compared to 2015.

Conclusions
Streamlining processes, educating staff, and holding staff accountable produces improved accuracy in EMR charting. This process also ensures appropriate billing, accurate volume, and productivity reporting.
Background: Mayo Clinic’s brand is synonymous with world-class healthcare in every specialty with access to state-of-the-art technology and research. Mayo Clinic’s commitment to its patients goes above the delivery of healthcare, and ensures an unparalleled patient experience. On a yearly basis, The Office of Access Management at Mayo Clinic Arizona serves the scheduling needs of nearly half a million patients, which yields for many opportunities for Mayo to confirm its commitment to service excellence.

Objective: Improve service levels for the Central Appointment Office Call Center from 81% to 95% first-time quality by October 11th, 2016. For the purpose of this project, any interaction achieving 95% or greater is deemed as meeting the requirement. In addition, disseminate the improvement tools created in this project to the remaining areas of the Office of Access Management (OAM). This improvement is to be accomplished without negatively impacting staff or supervisor satisfaction. Pre-implementation levels of supervisors and staff satisfaction are 3.79 and 3.65 respectively.

Planning and Implementation Methods:
Input from leaders (n=13) and call center representatives (n=103) from the Office of Access Management and other call centers within Mayo Clinic Arizona was initially captured. A process improvement team was formed that included: trainers, supervisors, and call center representatives to capture stakeholders’ input and develop a process to improve the quality of service. Utilizing the DMAIC (Define, Measure, Analyze, Improve and Control) method, the team identified the areas of improvement and the leading causes for the deficiencies. This improvement methodology combines process engineering and statistical tools to assess the efficiency, improve, and statistically test the optimization. The team used data from the Call Service and Metrics reports from 2015.

Quality improvement tools that assisted with the identification of leading causes for the quality deficiencies were:
- Pareto Chart
- Cause and Effect Diagram (Fishbone)
- Stakeholders’ Survey
- Likert Scale (1-5: 1 being strongly disagree and 5 being strongly agree)
- PDSA (Plan, Do, Study, Act)
- Hypothesis Testing
- First Time Quality

Upon analysis of the data (n=143), 81% of first-time quality was attributed to minimal follow-up coaching (data derived from stakeholders input). In addition, the factors contributing to our gap in quality were due to the absence of a service performance rubric along with the absence of coaching within the other three areas of OAM (General Scheduling, EDIM, and MPS Support Services). The quality improvement team identified two additional areas that needed to be included into capturing service excellence within the rubric. These additional sections include: Employee Attendance and Employee Productivity standards.

The team decided to use the ADKAR method, Awareness, Desire, Knowledge, Ability, and reinforcement, to defuse and present the improved rubric and process.

Results:
At the completion of this project the following results achieved:
- The rubric and quality assurance process is now part of all areas within the Office of Access Management in Arizona.
- A re-measurement of staff and supervisors demonstrated improved satisfaction of 4.21 and 4.38 respectively.
- 98% of all observed service interactions (n=56) achieved a quality score of 95% or greater, this is statically significant from baseline (.81 VS .98 p-Value=0.00).

Lessons Learned:
- The time between measurement and coaching session with the employee is crucial.
- The team discovered that this rubric has to be an evolving document that allows for future modifications based on employee feedback and/or the needs of the business.

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Implementing an Employee Walk-in Clinic to Enhance Patient Access and Employee/Patient Satisfaction
2017 ACHE Management Innovations Poster Session: Abstract Submission

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Background:
In late 2013, the Department of Internal Medicine and Geriatrics received approval to develop and implement an on-site Employee Walk-in Clinic on Cleveland Clinic’s Main Campus for Caregivers and their adult dependents.

Objective
The objective of this initiative was to:
• Provide a central access point for hospital employees and their adult dependents to receive care in the most appropriate and affordable setting
• Increase engagement and wellness by offering a special clinic dedicated for Cleveland Clinic employees
• Improve patient access for non-employee patients in primary care and specialty areas
• Reduce time spent away for hospital employees receiving medical care

Planning Methods
A multi-disciplinary team of providers, nursing, and administrative leadership was assembled to plan and implement an employee walk-in clinic in mid-2014. Key milestones for this team included:
• Business Planning and benchmarking of volumes to inform staffing plan
• Construction- conversion of office space to clinical space in a centrally located area
• Workforce Planning and Onboarding
• Marketing and Communication Plan
• Go-live on August 4, 2014

Outcomes:
After 2 years of operation, the Employee Walk-in Clinic continues to be well-received by employees. Initial outcomes include:
• Volumes have exceeded our initial projections- average of 50 patients per day with continued growth (figure 1)
• The Employee Walk-in Clinic is a significant employee satisfier- 95% of respondents rated their experience as “Excellent”
• Employees feel that this clinic saves them time- 85% of respondents indicated they saved at least >1 hr and up to 8 hours of time by visiting the walk-in clinic
• Several specialty access initiatives/partnerships have launched within the Employee Walk-in Clinic and have improved access in specialty areas, including Dermatology, Orthopedics, and Otolaryngology
• Cost savings- reduced utilization of specialty services and ED visits for Cleveland Clinic Employee Health Plan patients

Conclusion:
By implementing a dedicated Employee Walk-in Clinic on Cleveland Clinic’s Main Campus, our team was able to:
• Enhance employee engagement and improving access for patients in primary and specialty care
• Partner with specialty areas and the Employee Health Plan to improve access and reduce costs
• Reduce employee time away from work to address medical needs and meet our target of a 30 minute cycle time (figure 1)

Figure 1: Employee Walk-in Clinic Operational Summary

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Average Patients Per Day</td>
<td>50</td>
</tr>
<tr>
<td>Hours of Operation</td>
<td>7am-6pm</td>
</tr>
<tr>
<td>Provider FTEs</td>
<td>3.0 Advanced Practice Providers</td>
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<tr>
<td>Support Staff FTEs</td>
<td>3.0 Total FTEs</td>
</tr>
<tr>
<td></td>
<td>-1.5 FTEs Clinical Support- Medical Assistants</td>
</tr>
<tr>
<td></td>
<td>-1.5 Patient Service Representatives</td>
</tr>
<tr>
<td>Average Cycle Time (pt arrival to departure)</td>
<td>30 mins</td>
</tr>
<tr>
<td>Payer Mix</td>
<td>95% of patients have Employee Health Plan Benefits</td>
</tr>
<tr>
<td>Other Services Provided by the Walk-in Clinic</td>
<td>Employee Weight Checks for the Employee Health Plan</td>
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<tr>
<td></td>
<td>Smoking Cessation for EHP members</td>
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<td></td>
<td>TeleDerm Consult Access</td>
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<tr>
<td></td>
<td>Workers Comp for minor workplace related injuries</td>
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<td>Wellness Activities- PAP clinics for Employees</td>
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1/11/2017
Mentoring, Education and Engagement (M.E.E.) – an employee training technique to improve patient experience and employee satisfaction

Dave Geiger, BS, RRT, Tammy Hether, R.EEG/EP T.,R.NCS T, Raghav Govindarajan, MD, FISQua, FACSc, FCPP

Background: Changes in healthcare have put patient experience at the forefront. Patient experience is a measure of patient centeredness and one of six health care quality aims proposed by the National Academy of Medicine. Further patients value and expect interpersonal aspects of healthcare. Many hospitals and healthcare centers face challenges in meeting this expectation and our neurophysiology lab was no different faced with multiple resource demands, poor employee satisfaction and a lack of education and skills needed to meet the demands of ever evolving healthcare and its consumers.

Objective: The objective of this study was to evaluate the impact of a novel training technique- M.E.E. on employee satisfaction and in turn patient experience.

Planning Method: MEE consisted of engaging employees (electrodiagnostic technicians and neurologists) in open conversations on improving patient satisfaction, developing educational resources including hands on training, role play and pocket flash cards to help with interpersonal patient communication and provide one to one mentoring to employees who needed help (avoiding the blame culture).

Implementation Method: This was a prospective study that compared patient experience in the neurophysiology lab using National Research Cooperation Picker Catalyst survey. Scores from July 2015 to December 2015 were compared with scores from January 2016 to August 2016 after M.E.E. was introduced. Employee satisfaction survey data using the Qualtrics online survey tool from December 2015 was compared with employee satisfaction survey data from July 2016. A p<0.05 was considered statistically significant.

Results: A total of 70 surveys from 2015 were compared with 80 surveys from 2016. For the main question ‘Using any number from 0 to 10, where 0 is the worst facility possible and 10 is the best facility possible, what number would you use to rate this outpatient testing facility?’ the percentage of patients who gave scores 9/10 improved from 79% to 90% (p<0.01). For the question -‘Did staff/technologists who performed your tests or procedures treat you with courtesy and respect?’ the percentage of patients who gave score of 9/10 improved from 73% to 91% (p<0.01). For the employee satisfaction question- My work gives me a feeling of personal accomplishment the percentage of employees who rated strongly agreed increased from 20% to 80% (p<0.05). For the question- ‘I have the tools and resources to do my job well’ percent who said strongly agreed increased from 10% to 90% (p<0.01).

Conclusion: Patient experience and more so patients feeling respected is directly related to employee satisfaction at workplace. Making employees (physicians and allied healthcare professionals) partners in this process and providing them with the necessary tools through education and one on one mentoring is an important step towards improving patient experience.
Saturday Clinics: Responding to Evolving Patient Preferences and Improving Access to Specialty Care

Authors – Roshanak Didehban, MHS, FACHE; Andrew D. Keimig, MHA; Michael D. Yardley, MBA; Christopher S. Jaeckel, Laurie L. Wilshusen, MA; Stephen J. Traub, M.D.

Objective/Background – As many industries execute strategies to meet customer needs in innovative and more efficient ways, a new phenomenon of “liquid expectations” is coming to the forefront in healthcare. This term, liquid expectations, describes a customer’s expectations in one industry being based on experiences they have had in a different industry. As patients compare their healthcare service experiences with their service experiences outside of healthcare, providers need to draw on best practices from other industries to meet evolving expectations. For example, the failure of traditional practices in meeting customer expectations for convenience has enabled retail clinics to enter the primary care market.

Mayo Clinic is consistently recognized for expert physicians and scientists in every specialty with access to the latest technology and research. Mayo Clinic’s campus in Arizona, located in Phoenix, the sixth largest metropolitan area in the United States, faces strong competition in key strategic practices and is a relatively small market player with approximately three percent of inpatient beds. In an effort to respond to the liquid expectations of working adults (demand), a Saturday Access Initiative was undertaken. Saturday was selected because it seemed simpler to implement, manage, and measure than extending hours during the week.

Planning/Research Methods – In 2015, a post-scheduling survey of 392 Mayo Clinic patients indicated that 22% of working adults preferred weekends when asked, “If you could have your appointment on any day of the week, what day would you prefer?” Additionally, a survey of providers indicated that over 80% of physicians and over 90% of Nurse Practitioners/Physician Assistants indicated “Yes” or “Maybe” when asked, “Would you be interested in creating a flexible schedule?” In response to these initial data points, a taskforce was convened to complete an assessment of the concept, define resource needs and implementation strategy, and implement a pilot. This taskforce included physicians, nurse practitioners/physician assistants, administrators, nursing, human resources, finance, scheduling services, and facilities.

Implementation Methods – Based on the efforts of the taskforce and with senior leadership engagement, a six month pilot was implemented, from September 10, 2016 through February 25, 2017. In order to size the effort, a smaller clinic building (13,000 square feet, 19 exam rooms) was opened on Saturdays from 7am to 3pm. Providers were asked to accommodate their standard number of visits per day on each Saturday. Participating providers included two primary care providers and between two and five specialty care providers each week. The specialties engaged in the pilot included gastroenterology, vascular surgery, nephrology, cardiology, gynecology, hematology, oncology, dermatology, neurology, otolaryngology, endocrinology, and plastic surgery. In addition, lab services were offered on site and radiology services could be accommodated in the adjacent hospital building.

Results – Overall, the results of the pilot were highly favorable and support continued efforts to provide access for patient care outside of standard business hours. Primary Care appointments had a 73% fill rate and Specialty Care appointments had a 77% fill rate. Although lower than the target fill rates of 90%, this was achieved without any marketing support and with no corresponding negative impact on fill rates during the week. Additionally, 68% of patients were within the targeted population of working adults and 15% of patients were Mayo Clinic employees, providing an opportunity for employees to access care without missing work. Point-of-service patient satisfaction and provider satisfaction surveys were completed, with the following results:

- 91% of patients (n=421) indicated top box scores of “very good” for their overall rating of care and 86% of patients indicated “very good” for convenience of office hours.
- 56% of patients indicated a preference for Saturday appointments, whereas 6% indicated a preference for weekdays. The remainder had no preference.
- 57% of providers (n=42) indicated “strongly agree” or “agree” on “I would work a Saturday in the future.”

Opportunities for additional consideration as expansion plans are considered, include:

- Higher than desirable provider dissatisfaction; need to identify methods to improve satisfaction and engagement.
- Some specialty service lines clearly have a higher demand for Saturdays than others. For instance, vascular surgery, a specialty treating a higher percentage of non-working/retired patients, had comparatively poor demand on Saturdays.

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Improved workflow and productivity by leveraging on custom built mobile phone application – e-Portering

Authors
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Objective of program
In the past, requestors raised a transfer request in a text based system and once noted by the controller of Patient Transport Service (PTS) department, the next available porter will be activated by calling them on their Android based phone. In the phone conversation with the porter, controller will dictate the task with limited details while the former transcribe it down in their logbook. At the end of the day, task details are matched on the logbook with those in the system before the timings at the various touch point were entered. This modus operandi was time consuming and held up the response time of the next transfer task which in turn create a ripple effect on all the requests that follows.

A new approach using automation is needed to improve the response time to a patient-centric transfer request by reducing unnecessary time spent on assigning transfer request to the next best available porter. We also wanted to reduce the errors arising from dictation/transcription and time spent on back end data entry.

Planning/research methods
The major stakeholder for e-Portering is from PTS department while requestors from ward, outpatient clinics and clinical departments play a minor role. In June 2014, the IT vendor was identified and the various stages of the project in chronological order were as follows: requirements gathering, design, technical construction, system integration test, user acceptance test, training, roadshow and roll out.

Implementation methods
During the initial phase of e-Portering development, our senior porters cum controllers together with the administrative team were deeply involved and feedback from our requestors were also taken into considerations when we built the system up from scratch. At the training stage, we allowed our porters to first get used to using iOS platform by allowing them to make and receive calls from iPhone 6+. Once the application was installed and after training, weaker staffs were identified and chaperoned by our admin staff or tech savvy porter to use the application while doing task transfer. This move helped to smoothen the learning curve of our porters tremendously as their average age was 53 years old. Two briefing sessions on separate days were organized for all the requestors using e-Portering system at the auditorium before the official launch on 1st July 2015.

Results
- Response time to patient-centric transfer task has improved tremendously from 72.5% in April 2015 to 83.7% in March 2016.
- Errors arising from dictation/transcription were reduced to zero as the transfer task details went directly from the requestors straight to the porter’s iPhone.
- Back end data entry at the end of the day of the timing at various touch point of each transfer task was eliminated as the timing was already captured when our porter touches the various icons on the e-Portering application of their assigned iPhone.
- In addition, the real time data captured enabled traceability of the transfer task at an instance from the system without having the need to recall a porter back and scour though their logbook to look for the details.
- The average time savings per task was reduced from 8 to 1.5 minutes. This worked out to be an average savings of 134 man-days per year or in monetary terms at $12,824 per year.
- Our internal customer service survey held in February 2015 and 2016 showed a year-on-year improvement for ratings good and excellent from 62.9% to 74.3%.
Improvements in Telemetry Utilization Associated with Integration of Guideline Alerts in an EMR

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Background
The inappropriate use of telemetry results in increased costs and carries the risk of producing false positive results leading to poor patient management. The American Heart Association (AHA) has established guidelines recommending telemetry utilization based on the patients risk for a cardiac event; patients are classified as Class I, II, or III from highest to lowest risk, respectively.

Objective
The aim of this study was to investigate whether integrating telemetry guideline alerts into an electronic medical record (EMR) system had the ability to improve the rates of appropriate telemetry utilization in hospital medical-surgical units.

Planning/Research Methods
We developed a telemetry guideline algorithm adopting the criteria from the AHA statement on electrocardiographic monitoring to improve the appropriate use of telemetry. The guideline was integrated into the EMR and a “pop-up” alert system was configured. Clinical staff and physicians were educated on the guidelines and EMR alert pop-ups before implementation. Data was captured from patients who received telemetry one year prior to the training period (January to December 2015), and three months after training (January to March 2016). Data on the number of telemetry orders, average duration of telemetry monitoring, and average costs of telemetry were recorded.

Implementation Methods
We analyzed data from patients being treated on the medical-surgical units at Adventist HealthCare Shady Grove Medical Center. The guideline algorithm was set to prompt clinicians to choose an indication each time telemetry is ordered for patients. For patients who were receiving telemetry, the system alerted physicians and nurses at 48 and 72 hour intervals to review the indication for telemetry and decide on how to proceed with care. Nurses were advised to communicate with physicians in the event a pop-up alert would appear in the system while they were treating a patient.

Results
The implementation of an EMR based telemetry guideline alert system appeared to result in both clinical and economic benefits:

- The average number of telemetry orders on the medical-surgical units decreased from 86 orders/day in 2015 to 65 orders/day in the first quarter of 2016.
- The EMR alert system was associated with slight reductions in the duration of telemetry use, but only after 3 months of implementation.
- The average cost/month of telemetry decreased from $120,000 in 2015 to $91,000 at 3 months after implementation (March of 2016).
- There were some technical issues with the integration of the pop-ups into the EMR, which was not fully resolved until March 2016.

Overall, our results indicate that the use of an EMR alert system with integrated AHA telemetry guidelines may aid in reducing unnecessary telemetry utilization and reduce the costs of care. Moreover, it could help to improve the workflow and backlog issues related to patients waiting for telemetry beds. More studies to assess the benefits of long-term use of the EMR telemetry alert system, as well as its effect on patients’ outcomes are warranted.

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