32nd Annual
Management Innovations Poster Session
59th Congress on Healthcare Leadership
March 14–17, 2016
Chicago, Illinois
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieving Improved Efficiency Through Redesign of Support Staff Activities: The Mayo Clinic Endocrinology Experience</td>
<td>Leslie J. Baker; Curtiss B. Cook, MD; Owen E. McClure; et al.</td>
<td>1</td>
</tr>
<tr>
<td>Empowering Front Line Staff to Reduce Supply Waste in the Department of Medicine</td>
<td>Ryan A. Fix; Mario E. Zamarripa; Daryl L. Elder, RN; et al.</td>
<td>2</td>
</tr>
<tr>
<td>Implementation of Lean Six Sigma Processes Decreases Excessive Use of Ancillary Resources in the SICU</td>
<td>Rodrigo F. Alban, MD, FACS; Ara Ko, MD; Charles Coffey, MD; et al.</td>
<td>3</td>
</tr>
<tr>
<td>Improving Patient Access: A Strategic Imperative to Achieve Competitive Advantage</td>
<td>Roshanak Didehban, FACHE; Genevieve Bautista Young; Debra C. Immen; et al.</td>
<td>4</td>
</tr>
<tr>
<td>Reducing No-Shows to Enhance Patient Access and Provider Satisfaction</td>
<td>Fred DeGrands; Lisa Hultine; Craig Nielsen, MD</td>
<td>5</td>
</tr>
<tr>
<td>The Clinical and Financial Value of Good Laboratory Management: Targeted Continuous Real-Time Supervision of a Workflow Process Improves Quality of Care and Significantly Decreases Expenditures</td>
<td>Irina Lutinger, FACHE; Eldad A. Hod, MD; Alexander Kratz, MD, PhD</td>
<td>6</td>
</tr>
<tr>
<td>TrustedCare: Process Redesign for Elective Caesarean Section Care to Improve Patient Outcomes and Control Costs</td>
<td>Shephali Tagore, Kenneth Kwek, Thilagamangai, et al.</td>
<td>7</td>
</tr>
<tr>
<td>Cardiovascular Lab: Optimizing Staffing Models &amp; Anesthesia Support for New Efficiencies</td>
<td>Christopher H. Hasse; Barbara D. Naffziger, RN; Virginia E. Reynolds, RN; et al.</td>
<td>8</td>
</tr>
<tr>
<td>Improving the Experience of Hospitalist Patients Through Building a Patient Centered Culture</td>
<td>Suparna Dutta, MD; Francis Fullam</td>
<td>9</td>
</tr>
<tr>
<td>Developing Cardiovascular Care Team Models for Enhanced Access &amp; Increased Satisfaction</td>
<td>Christopher H. Hasse; Leslie T. Cooper, Jr., MD; Virginia E. Reynolds, RN; et al.</td>
<td>10</td>
</tr>
<tr>
<td>Streams of Care: Impact of Split Flow Model on Emergency Medicine</td>
<td>Kimberley DuBose; Johnnie Leonard, RN</td>
<td>11</td>
</tr>
<tr>
<td>Improving Patient Flow Using Live Information</td>
<td>Sharon Prinsloo, RN; Murtaza Mohiuddin Quadri Syed; Bakr Sadoon Ismael, GP; et al.</td>
<td>12</td>
</tr>
<tr>
<td>Partnering with Physicians</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using Physician Incentives in a Gainsharing Program to Lower Costs and Improve Quality</td>
<td>April Venable; Anthony Stanowski, DHA, FACHE</td>
<td>13</td>
</tr>
<tr>
<td>Using Physician Targeted Interventions and Information Technology Support to Improve the Care of Diabetic Patients in the Emirate of Abu Dhabi</td>
<td>Fayeza Nasir, MD; Richmond Austria; Luena Palacios</td>
<td>14</td>
</tr>
<tr>
<td>Patient Safety and Quality</td>
<td>Page Number</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------</td>
<td></td>
</tr>
</tbody>
</table>
| A Quality Improvement Project and Community Partnerships: Aimed to Reduce Chronic Obstructive Pulmonary Disease (COPD) Readmissions  
Joan Agee, RN; Dyana Blood, RN | 15 |
| A Regional Hospital and EMS Quality Improvement Program for Cardiovascular Emergencies  
James R. Langabeer II, PhD; Tiffany Champagne-Langabeer, PhD; Jeffrey Helton, PhD; et al. | 16 |
| Departmental Dashboards—Fostering Participative Management to Save and Enhance More Lives  
Prakash Rao, PhD, FACHE; Misty Marchioni; Maria Garey; et al. | 17 |
| Meeting the Challenge of Healthcare Change  
Jo M. Wilson, FACHE | 18 |
| Reducing Readmissions Through Improving Care Transitions (RRTICT): Using a Tailored Approach to Improve Post-Disposition Outcomes  
Ashley Ketterer; Michael W. Kennedy, PhD; Emily Rentschler Drobek; et al. | 19 |
| University of Colorado Consultation Responsiveness  
Jonathan Pell, MD; Jennifer Wiler, MD, FACEP; Evalina Burger, MD; et al. | 20 |
| **eHealth** | |
| The Utilization of eVisits to Manage Stable Diabetic Patients in Primary Care  
Hope E. Greig, FACHE; Floyd B. Willis, MD; Kevin M. Barrett, MD; et al. | 21 |
| **Length of Stay** | |
| “Plan for the Day, Plan for the Stay”: Focusing Progression of Care Rounds (POCR) to Enhance Patient Care and Reduce Length of Stay  
Sonia Chhina, RN; Melissa Friedman, RN; Jody Haddock, RN; et al. | 22 |
Achieving Improved Efficiency Through Redesign of Support Staff Activities: The Mayo Clinic Endocrinology Experience

Authors: Leslie J. Baker; Curtiss B. Cook, MD; Owen E. McClure; Darin V. Goss; Mario E. Zamarripa; Robert C. Graber; Ryan A. Fix

Objective: The Division of Endocrinology has increased the number of providers without increasing the supporting roles for the practice. The Division had not undertaken a review of back office support for over 10 years to ensure each role was working at their highest level of training and efficiency. Emphasis was placed on identifying workload size, compliance with scope of practice parameters, and compliance with non-licensed delegate regulations. The goal of the review was to reduce medical practice secretary (MPS) tasks by 30% by March 2015 without decreasing provider satisfaction.

Planning/Research Methods: The Division of Endocrinology at Mayo Clinic in Arizona is composed of an outpatient clinical practice on the Scottsdale, Phoenix, and Glendale campuses and inpatient service on the Phoenix campus. The Division consists of 6 clinicians, 6 mid-level nurse practitioners, 4 dieticians, 1 RN/CDE, 1 nursing supervisor, 1 operations administrator, and 4 medical practice secretaries.

Through role analysis methodology the staff (MD, NP, RN, Admin) were asked to identify all of the requests of the MPS staff and to then sort those tasks by workflow phase (pre-visit, visit, post-visit, continuing care, administrative):

- Pre-Visit: medical records-obtain/coordinate, referral requests, patient notifications, scheduling, ins. auths, etc;
- Visit: MD/pt workflow, patient orders, prior authorizations, lab results/requests, order placement, etc;
- Post-Visit: Rx requests/refills, prior authorizations, lab results, order placement, return visit coordination, etc;
- Continuing Care: Prior authorizations, lab requests, orders, Rx requests/refills, referrals, etc;
- Administrative: Concur, travel arrangements, mail, Provider meeting scheduling, etc.

They were additionally instructed to comment on who they thought would be the appropriate recipient of that specific task or if the task should be eliminated entirely. To complete the analysis the final request was to develop an action item or solution for each task not appropriately assigned to the MPS.

Implementation Methods: A Lean Kaizen Team was developed with membership consisting of a team facilitator, team sponsor, team leader, and 11 team members. The Team goals were to make work more efficient and meaningful for the MPS staff, to ensure MPS duties fell within their scope of practice, to establish a clear inventory of MPS tasks, and to identify and secure the needed resources for those tasks identified as not appropriately assigned to MPS staff.

The Division of Endocrinology created an action plan with full implementation slated for April 1, 2015. The plan was multi-faceted and included, but was not limited to, the appropriate staff assignment of tasks/duties, the addition of a nurse resource, provider training for Concur and provider utilization of travel office services, as well as the return of scheduling to more appropriately identified staff.

Most critical was the addition of a new team member (RN) for reassignment of prescription requests, pharmacy calls, prior authorizations, and patient orders thereby eliminating these as MPS tasks.

Results: The original Task Audit target of 30% by March 2015 was surpassed and demonstrated a reduction of 34%. The Task Audit additionally demonstrated an increase in understanding of roles, responsibilities and tasks of the MPS staff. Provider satisfaction levels improved 8% between pre- and post-project levels after reassignment of inappropriately placed MPS duties. Initial 34% decrease in MPS assigned duties further translated to an increase in MPS satisfaction and retention, thus impacting positively on provider satisfaction. The Division of Endocrinology recognizes that long term success is dependent on ongoing monitoring.

Contact: Owen E. McClure | Operations Administrator | Mayo Clinic | mcclure.owen@mayo.edu
Empowering Front Line Staff to Reduce Supply Waste in the Department of Medicine

Authors
Ryan A. Fix, MHA; Mario E. Zamarripa, MBA; Daryl L. Elder, R.N.; Amber N. Lovelace; Genevieve L. Bautista Young, MHA

Objective
Reduce waste in the Department of Medicine (DOM) procedural areas of Cath Lab, Electrophysiology (EP) Lab, and Endoscopy by 0.5 sigma from current baseline levels (Endoscopy = 4.36, Cath Lab/EP = 3.86), by November 30, 2014, without impacting provider or allied health satisfaction and procedural time.

Planning/Research Methods
Multiple stakeholders were consulted including Administrative leadership, Physicians, Nurses and Technicians, and Clinical Support Services (SCM). A multi-disciplinary team was formed to collect stakeholder input from the members listed above. Using the DMAIC method, the team mapped current state processes and workflows. DMAIC is an acronym for Define, Measure, Analyze, Improve and Control. This improvement methodology is data-driven and used to optimize and improve defined processes and designs. Using our Supply Inventory Management Systems (SIMS) database, we were able to determine the total waste for the baseline period. Robust reporting capabilities allowed the project team to drill down to the individual case level.

Factors contributing to procedural waste upon review of the retrospective data included the following:
- Varied perceptions about the definition and meaning of waste categories led to reporting inaccuracies.
- Swim Lane analyses revealed multiple opportunities where communication could be distorted. This led to an increase in supplies that were open, but unused.
- Stakeholder interviews were conducted amongst allied health staff members. These informal interviews uncovered unconscious bias with regard to waste reporting.

The Quality Improvement Methodology used in our project consisted of multiple Plan, Do, Study, Act (PDSA) cycles, as well as Lean Six Sigma methodologies to improve process variation and imbalances.

Implementation Methods
We defined defects as wasted items from the inventory location to the patient. Initially, our group used dollars as a measurement of waste. Upon analysis we discovered that this was not the most appropriate metric and therefore we shifted our focus to quantity of items wasted and used Sigma levels. In collaboration with the clinical practice, the project team implemented the following interventions to reduce the instances of wasted items in the procedural process:
- **Awareness**: Creation and discussion of waste dashboards with DOM Leadership and allied health staff.
- **Reporting**: Clinical Support Service team developed customized dashboards based on leadership input.
- **Education**: Ongoing review of waste definitions with DOM allied health staff to ensure accurate categorization of waste. Both GI and Cath/EP Techs were coached to open products upon proper confirmation from the physician – just prior to supply use in the procedure.

Results
At the end of the project the following results were realized:
- Gastroenterology achieved a 38% reduction in supply waste. The process increased from 4.36 sigma to 4.57 sigma level.
- Cath Lab/EP achieved 27% reduction in supply waste. The process increased from 3.86 sigma to 4.00 sigma level.
- Our counterbalance metrics revealed that the level of satisfaction increased by an average of 11.6%.

Contact
Ryan A. Fix, MHA | Operations Manager | Mayo Clinic | Fix.Ryan@mayo.edu
Implementation of Lean Six Sigma Processes Decrease Excessive Use of Ancillary Resources in the SICU

Rodrigo F. Alban MD FACS, Ara Ko MD, Charles Coffey MD, Harry Sax MD FACS FACHE

Objective: Changes in health care policies have influenced transformations in hospital systems to be cost-efficient while maintaining robust outcomes. This is particularly important in intensive care units (ICU) where significant resources are utilized to care for critically-ill patients. We sought to determine if high-value care processes (HVCp) implemented in a surgical ICU (SICU) have an impact on commonly utilized ancillary tests.

Planning and Implementation Methods: An implementation phase using a Lean-Six-Sigma approach was performed in October 2014 at a 24-bed large academic center SICU with aims to decrease orders of excessive daily laboratory tests and x-rays. The HVCp implemented included use of daily checklists, staff education, and visual reminders emphasizing the importance of appropriate laboratory tests and chest x-rays (CXR). Pre (July 2014-October 2014) and post-intervention (November 2014-June 2015) phases were compared.

Results: Average SICU census, case mix index (4.3 vs. 4.4, p=0.57), APR severity of illness (3.2 vs. 3.2, p=0.91) and SICU mortality (7.1% vs. 5.1%, p=0.18) were similar in both phases. A significant reduction of excessive laboratory tests was evident after the implementation period. 865 arterial blood gases (ABGs)/month were obtained in the pre-intervention phase compared to 420 ABGs/month post-intervention (p = 0.004), representing a 51.4% reduction. Similar results were obtained with complete blood counts, basic metabolic profiles, coagulation profiles, and CXRs (12%, 17.8%, 30.2% and 20.3% reductions respectively), a total estimated cost-savings of $59,137/month and prevention of excess phlebotomy of approximately 4L blood/month.

Conclusions: By implementing an HVCp including a checklist, visual reminders, and provider education, we significantly reduced the use of commonly ordered ancillary tests in the SICU without affecting outcomes, resulting in an annual cost-savings of $710,000.

Figure. Lab tests and chest x-rays per patient per month.
Improving Patient Access: A Strategic Imperative to Achieve Competitive Advantage

Authors – Roshanak Didehban, MHS, FACHE; Genevieve Bautista Young; Debra C. Immen; Owen E. McClure

Background – As a multidisciplinary destination medical center, Mayo Clinic is consistently recognized for expert physicians and scientists in every specialty with access to the latest technology and research, as well as an unparalleled patient experience. Mayo Clinic in Arizona, located in 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. Easy and patient-centered access processes are key to securing patient volume.

Mayo Clinic maintains a Central Appointment Office (CAO) function that schedules the majority of new patient appointments. This office has access to the clinical calendars of providers throughout the multi-specialty practice and utilizes practice-developed guidelines to schedule the patient accordingly. In addition, weekly access meetings with CAO and practice leadership serve to review appropriate access data (unfilled rates, capacity in the next three weeks, and barriers to scheduling). Although focus on access processes has been ongoing, baseline data in 2013 indicated that only 70.5% of targeted patients received an appointment when calling the CAO.

In Arizona, the long-term evolution of appointment office guidelines and clinical calendar templates had resulted in a system that safeguarded the right patient being seen by the right provider; but also created inefficiencies, delays, and patient perceptions of difficult and unaccommodating access. Patient surveys further supported that appointment access processes were difficult.

Objective – To evaluate current access processes and develop an approach to improving patient access and scheduling. The primary metric of success was the percentage of targeted patient appointment requests scheduled.

Planning/Research Methods – A Taskforce was convened with membership from clinical, CAO, and patient experience leadership to assess current practices and develop an action plan for improvement.

As part of the assessment phase, the activities of the Taskforce included:
1. Meeting with the CAO staff to understand perceived barriers and recommended improvement opportunities,
2. Listening in on CAO calls,
3. Reviewing available access data and patient experience surveys,
4. Assessing practice-specific access metrics and current calendar templates, and
5. Identifying areas of manual effort where automated processes are available.

Based on the assessment, the following actions were implemented:
1. Broad communication from senior leadership of patient access as a central priority for improvement,
2. Implementation of an escalation process to practice leadership when appointment requests are declined,
3. Elimination of multiple review processes and enforcement of a 48 hour response time for practices retaining reviews,
4. Review and elimination of indications identified as “Hard Stop” (do not schedule) for targeted patients, and
5. Individual meetings with each clinical practice to review access metrics, calendar templates, and implement opportunities for improvement. These meetings resulted in practice-level improvements, including:
   a. Allowing Nurse Practitioners/Physician Assistants to see new patients with lower acuity indications,
   b. Redesigning practices and clinical templates to increase the number of new patient appointments per day,
   c. Adding clinical capacity on Saturdays for key radiology testing (MRI, CT, and Ultrasound),
   d. Focusing effort on practice secretaries to work collaboratively with CAO staff, and
   e. Partnering with emergency medicine to ensure easy patient access for needed follow-up care.

Results – After two years, the percentage of targeted patients receiving an appointment when calling the CAO improved from 70.5% (December 2013) to 82.0% (December 2015). Additionally, feedback from CAO staff indicates improved ability to schedule patient requests and improved communication with departments related to access questions and escalation requests. Weekly access reports have been developed and are reviewed by senior leadership to ensure continued success.

Additional opportunities for improvement remain and will continue to be a focus in coming years. An aggressive target of 90% has been set by senior leadership, with additional tactics currently under development.

Contact – Roshanak Didehban, MHS, FACHE | Associate Administrator | Mayo Clinic | didehban.roshanak@mayo.edu
Reduction No-Shows to Enhance Patient Access and Provider Satisfaction  
2016 ACHE Management Innovations Poster Session

Author Information:  
Fred DeGrandis, MPA- Department Administrator, Cleveland Clinic Internal Medicine and Geriatrics  
Lisa Hultine- Department Workleader, Cleveland Clinic Internal Medicine and Geriatrics  
Craig Nielsen, MD- Vice Chairman, Cleveland Clinic Internal Medicine and Geriatrics

Background:  
Each year, a significant number of appointment slots are lost when patients no-show for appointments across the Cleveland Clinic Health System (344,918 no-shows in 2014). These no-shows have a significant impact on patient access and revenue due to decreased slot availability and also lead to decreased provider satisfaction.  
- Discussions with other leading healthcare institutions found that this problem is not unique to Cleveland Clinic.  
- Further analysis using an internally developed appointments datamart identified an outlier patient population that is responsible for a disproportionate number of no-shows each year. In one pilot department, 1.5% of attributed patients accounted for 20% of their total no-shows (selection of pilot dept. based upon greatest no-show rate).  
- A multi-disciplinary team (clinical departments, central scheduling, and the center for systems and training) was formed to develop and pilot a scheduling approach that focuses on proactively identifying no-show outliers during the scheduling process to reduce lost appointment slots.

Summary of Intervention:  
In collaboration with Call Center leadership and the Center for Systems and Training, the No-Show Flag Pilot Committee:  
- Identified a list of outlier patients with 3 or more no-shows within the same clinical dept. within the last 12 months.  
- Created a flag to identify outlier patients in our electronic medical record in real-time to alert agents during the scheduling process.  
- Collaborated with central scheduling to develop scripting and instructions:  
  - If patient is trying to schedule in a clinical department where they are listed as an outlier - send to home dept. to provide enhanced access (supports increased access and avoids lost slots).  
- Developed several different workflows to support enhanced access for no-show outliers; workflow determined at the home department (figure #3: process map of a pilot department’s workflow).  
- Pilot workflows (sorted by frequency of use) include:  
  - Patient offered walk-in clinic access - patient instructed to come in during a pre-determined time and directed to a walk-in clinic for acute care; patient selects day that is most convenient.  
  - Patient double booked - patient appointment request accommodated via a double booking on a doc-of-the-day schedule at a predetermined time - requests vetted with physician.  
  - Appointment scheduled at end of day - patient offered the last appointment of the day (usually via add-on) to minimize disruption during a provider’s clinic day.

Outcomes:  
After 5 months of piloting and several PDSA cycles to refine workflow and scripting, the pilot department was able to reduce the no-show rate of its outlier population from 48.8% to 32.1% -- a net change of 16.7% (34.2% improvement). Figures 1 & 2 examine the pre/post intervention of the outlier no-show population from our Internal Medicine pilot department (the same 388 patients are used in pre vs. post to determine impact).

Conclusion:  
By proactively identifying outlier no-show patients during the scheduling process, we were able to:  
- Enhance patient satisfaction by improving access for all patients of the practice.  
- Provide enhanced access to our outlier patient population via walk-in and same-day access.  
- Improve provider satisfaction by decreasing the number of lost appointment slots on their schedule.  
- Improve patient access and financial performance by reducing lost slots due to no-shows.
Title: The clinical and financial value of good laboratory management: Targeted continuous real-time supervision of a workflow process improves quality of care and significantly decreases expenditures

Irina Lutinger, FACHE, MPH, MASCP, MT(ASCP)DLM, Eldad A. Hod, MD, and Alexander Kratz, MD, PhD

Objective of the program: Many hospital laboratories use separate workflows for the most urgent (“stat”) samples. The additional staffing, instrumentation, and reagents needed make this approach financially inefficient. The objective of this program was to demonstrate that with appropriate management and continuous real-time supervision, such separate workflows can safely be integrated into the general (“routine”) workflow of the laboratory. Furthermore, we quantified the financial savings that can be achieved with this approach.

Planning/research methods: Laboratory leadership reached out and met with the Emergency Room's (ER) leadership to assess their needs and service expectations regarding cardiac marker testing. We then collected data on the present level of service, performed the intervention, and collected data on the situation after the intervention.

Implementation methods: We discontinued the separate workflow for stat troponin samples sent from the ER of our hospital. Simultaneously, we started an intensive, continuous, real-time monitoring program of troponin turnaround times from the ER. At least once a day during the first six weeks after implementation, a medical director of the laboratory reviewed the turnaround time reports for these samples. When all samples were reported within the target time, the supervisors and staff of the shift were publicly congratulated. If there were samples that were not reported within the target TAT of one hour, the responsible supervisor was contacted, provided with the accession number(s) of the sample(s) in question, and asked for a written explanation for the delay and a brief corrective action plan. Recurring causes of service failures were addressed. Once the target turnaround time was consistently achieved, supervisors were instructed to run the turnaround time report themselves at the end of every shift, and to report any outliers.

Results: The elimination of the separate workflow for ER troponins had both clinical and financial benefits: before the intervention, less than 90% of all troponins were resulted within one hour; this improved to 99% after the intervention. The discontinuation of leases and service contracts for four instruments that had been used in the separate workflow, and of the continued purchase of calibrators, reagents, and proficiency testing materials for these instruments led to annual savings of $252,000. In addition, the approximately 2.2 FTEs who had been assigned to operate the now discontinued workflow allowed for annual savings in labor costs of approximately $154,000. Annual savings therefore totaled over $400,000.
TrustedCare: Process Redesign for Elective Caesarean Section Care to Improve Patient Outcomes and Control Costs

Tagore S1, Kwek K2, Thilagamangai3, Yeo GSH1, Chern B4, Lim G5, Chin S6 Lew E7, Tan KH4
1. Senior Consultant, Department of Maternal/Fetal, 2. CEO, Executive Office 3. Associate Director, Department of Nursing, 4. Senior Consultant, Department of OBGYN, 5. CFO, Finance 6. Director, Department of ISD 7. Senior Consultant, Department of Anaesthesia

Objective
KK Women’s and Children’s Hospital, Singapore is a large tertiary referral center in South East Asia (approx. 12,000 deliveries per year) providing comprehensive, extremely well-coordinated, multi-disciplinary care to low and high risk mothers. A multidisciplinary taskforce was formed to create a new model of care for elective caesarean section by redesigning the entire process from listing of the surgery to discharge. The objective of this evidence based, redesigned pathway model supported by optimal IT and finance infrastructure was to improve the clinical efficiency, patient safety and to track the operational (i.e. resource utilization, patient volume) and financial outcomes (i.e. class status, length of stay and bill size) with the aim to control costs.

Planning/Research Methods
The project was initiated and driven by the hospital leadership team. A multidisciplinary team comprising of members from medical (obstetricians, anaesthetists, neonatologists, nursing & residents), information technology (IT) and the finance department was formed. The team reviewed the current pathway and implemented changes based on evidence.
Electronic data entry was introduced seamlessly to facilitate comprehensive data collection, monitoring and tracking of outcomes and to develop a dashboard for regular review. Analysing the compliance, outcome and the financial baseline data was essential to study the baseline performance and to set the goal for our improvement strategies.

Implementation
The following interventions were implemented from January 2014 - Jan 2015
1. Review of Caesarean Section guideline based on current evidence
2. Implementation of the new workflow for elective caesarean section at 5 levels
   Preadmission (at clinic), Preoperative (at ward), Labor and delivery, OT and Post-operative (Discharge/outcomes) with the help of Workgroup Champions
3. Educating the entire division of Obstetrics and Gynecology on the new model
4. Training the staff by Information systems Department (ISD) for the electronic data entry
5. Implementation of the Pilot Project in January 2014 followed by hospital wide roll-out in April 2014 with regular enhancements every six months

Results
The new model of care was extremely successful in improving the entire process of listing of caesarean section to discharge, reporting/analysis of data and coordination between various multidisciplinary teams.
As clinical data is now in discrete format, Information can be extracted easily. Financial data can be linked to the clinical data in a structured manner for appropriate decision making. Bundled payments may be facilitated with possibility of insurance provided in future. The leadership team is able to make better decisions due to standardization of processes and consumables, thereby reducing bill size fluctuations. For example, subsidized patients who undergo elective Caesarean Sections now enjoy cost savings ($180-300) through the elimination of expensive non-standard consumables. With the strong success in our model of care, it has now been adopted by other institutions within our SingHealth cluster e.g. Coronary Artery Bypass Grafting in National Heart Centre, Singapore (TrustedCare CABG)
Background: Established in 1986, the Mayo Clinic in Florida (MCF) routinely delivers elite complex comprehensive care to patients from local, regional, national and international levels. The Department of Cardiovascular Diseases (CV) has been identified by Executive Leadership as a key element to achieving the institution’s overall vision and strategic direction of becoming a destination medical center. In order to become a premier center for complex cardiovascular care and treatment, the CV Lab needed to enhance operational excellence and improve clinical workflow without compromising on quality or patient safety. Data collected from November and December of 2014, revealed that approximately 38% of the 8:00 AM scheduled cases experienced delayed starts of over 25 minutes. Top three areas for improvement and waste reduction were:

- **Wait Time:** Delayed staff arrival (physicians/fellows, anesthesia or CV team), team huddle length and/or lab results
- **Over-Processing:** Multiple members of procedural team reviewing charts and duplicating non-critical discussions
- **Under-Utilization:** Staff awaiting directions, unclear assignments and inconsistent input on communication board

Objective: The CV Lab aimed to increase overall efficiency and improve the daily clinical workflow of the unit. Recognizing that multiple Lean Process Improvement and Planning interventions would be needed to achieve the desired efficiency outcomes, the CV Lab Leadership Team (CVLLT) identified the following objectives and metrics:

- Improve on-time starts for first case (Cath & EP)
- Develop staffing schedule patterns for predictability
- Establish protocols for Anesthesia staffing

Planning: The CV Department consists of 19 cardiologists, including three interventional catheterization (Cath) consultants and three electrophysiology (EP) consultants. At the time of this study, the CV Lab consisted of three procedural rooms. Services include EP ablation therapies, structural heart interventions and cardiac catheterization procedures. The CV Lab Leadership Team (CVLLT) was formulated and membership included Nursing Administration, EP & Cath Lab Physician Directors, Practice Administration, Anesthesia Leadership and other CV Lab representatives (prep/holding, intraoperative, post-op, etc.). The CV Lab engaged MCF’s Systems & Procedures Department to lead education/tutorials on Lean Process Improvement interventions. The CVLLT developed a detailed communication plan, which depended on physician and nursing champions for staff education and targeted presentations (including final report to MCF Executive Leadership).

Implementation: The CV Lab leveraged 5S standardization initiatives, visual management applications, redesigned checklists, root cause analysis, and rapid tests of change (PDSA cycle) during May and June of 2015. Multiple collaborative work sessions with all CV Lab stakeholders directly contributed to staff ownership of the processes and would lead to post-implementation sustainability. CV Department Leadership received weekly check-point reports, assisted with removing barriers and advocated for incremental project support (when needed). Consistent data collection occurred for on-time starts (manual), case volume (automated), procedure access availability (manual), and scheduling efficiency (manual). CVLLT received daily feedback (verbal and written) from CV Lab physicians, anesthesia staff and allied health staff.

Results: The CV Lab showed positive improvements in on-time starts for Cath & EP cases scheduled for 8:00 AM. Data collected through July 2015 exhibited a 51.3% decrease in delays for the first case (tracking unit of minutes). CV Lab morning huddles were restructured to follow an updated checklist, and non-critical information/news was deferred to staff meetings or communicated via S.B.A.R. email memos (Situation, Background, Assessment & Recommendation). Gantt charts and detailed staffing schedules were designed to align with CV lab procedural demand in a newly formatted two-week pattern. Anesthesia support was designated to precise assignments for each half-day block to enhance scheduling efficiencies and information was accurately recorded at 6:00 AM on the CV Lab Prep/Holding electronic communication board:

- **Week-A:** Allows 88.8% allocation for EP cases & 11.2% for TEE/cardioversions (emergent coverage available)
- **Week-B:** Allows 77.6% allocation for EP cases, 11.2% for TEE/cardioversion & 11.2% complex structural cases

Comparing CV Lab volumes from 2014 to 2015, catheterization cases increased by 19.4%, EP cases increased by 17.3% and TEE/cardioversion procedures increased by 10.0%. Reoccurring biweekly meetings were established (every other Monday at 5:00 PM) with the CVLLT to consistently discuss operations, volume, staffing, supply logistics, policies and other topics.

Contact: Christopher H. Hasse, MBA, CSSBB, CFPH | Operations Administrator | Mayo Clinic | hasse.christopher@mayo.edu
2016 ACHE Poster Abstract: Suparna Dutta, MD & Francis Fullam, MA
(francis_fullam@Rush.edu) Rush University Medical Center, Chicago, IL

Title: Improving the Experience of Hospitalist Patients through Building a Patient Centered Culture

Objective of program: Improve a key element of Hospitalist patient experience – communication with their physicians.

Planning/research methods: Rush Hospitalist patients have a number of background characteristics that make dr-pt communication a challenge (unfamiliarity with their physician and the nature of Hospitalist care, preponderance of admission through the ED, etc.). In addition, the complex nature of Hospitalist care – the sheer number of physicians, nurses and other on the care team as well as the number of handoffs – make excellent communication a challenge at Rush. This appears to be true nationally as well. Preliminary data from Hospitalist programs around the country suggest there is a gap in HCAHPS Doctor Communication scores between Hospitalists and Non-Hospitalists, in general – rather than an issue specific to Rush.

This led to a study of best practices among Hospitalists and the implementation of multiple interventions based on these and internal brainstorming. Physician leadership has been key to all interventions.

Implementation methods:
Education: Prior to implementing any quality improvement initiatives, the group had several educational sessions. These sessions related to the importance of communication, techniques associated with effective communication, and background on the HCAHPS survey and scoring. These sessions were also used to unveil our ‘best practices’ checklist and to set goals for the upcoming year.

Creating a checklist of best practices for optimal patient/physician communication and monitoring it’s use. This checklist consisted of practices to both optimize team communication and patient/provider communication. Included in the checklist was mandatory usage of ‘face cards’, ensuring the white board in patient rooms was filled out with the team names, standardizing an afternoon rounds to update patients on test results, hospital care plan, etc. Compliance with the checklist was monitored via medical student interviews with patients, and feedback given to the group

Providing feedback to hospitalists on communication style. This was done in several different ways. Hospitalists were observed in role playing situations with simulated patients, during real time physician-patient interactions at bedside, and bedside patient interviews after encounters. This allowed hospitalists to obtain consistent, real-time feedback on a level not possible with quarterly HCAHPS provider reports. Utilization of the ‘best practices’ checklist was also monitored in this setting, especially with the bedside patient interviews and real time physician-patient interactions.

Creating a culture of transparency and sharing of ideas. The group’s HCAHPS scores were made public and several educational seminars were held, with high scoring providers educating the group on practices they felt made them successful. Training videos were also created by the institution by high performing faculty, to disseminate their practices to the group and others at the Medical Center.

Standardization of hiring: Part of the new hospitalist orientation consisted of an on-boarding process via observation/feedback from a behavioral scientist. This ensured all new physicians had a concrete idea of expectations around communication.

Implemented a resident education plan on the importance of clear, empathetic communication

Results: Rush Hospitalist performance on the “Doctor Communication” domain has improved over time from the 4th national percentile to the 66th national percentile.
Developing Cardiovascular Care Team Models for Enhanced Access & Increased Satisfaction

Authors: Christopher H. Hasse, MBA, CSSBB, CFPH; Leslie T. Cooper, Jr., M.D.; Virginia E. Reynolds, R.N., BSN; Fred Kusumoto, M.D.; Amy W. Pollak, M.D.; Mohamad H. Yamani, M.D.

Background: The Mayo Clinic Enterprise is relentlessly striving to achieve its goal of serving over 200 million patients by the year 2020. The Mayo Model of Care thrives on an integrated team-based approach consisting of unhurried examinations to provide comprehensive care in an unparalleled format. In alignment with the enterprise’s strategic vision, the Department of Cardiovascular Diseases (CV) at Mayo Clinic in Florida (MCF) developed a detailed business plan to foster a culture of innovation and change to become the premier destination for complex cardiovascular care in the southeastern United States. The challenges surrounding today’s health care system are fueling the need to transform access and delivery. Common concerns associated with redesigning and reengineering care models include diluted quality standards, provider/staff and patient dissatisfaction, excessive standardization equating to loss of autonomy and inadequate resources for sustainability.

Objective: The CV Department aimed to enhance patient access to targeted subspecialties and increase overall volumes to cardiovascular services-lines. The following objectives were identified by CV Leadership and focus metrics were developed:

- Organize providers into collaborative CV service-lines
- Grow subspecialty clinic access and overall volume
- Increase CV Provider (MD & NP) satisfaction
- Recognize positive trends in patient satisfaction

Planning: The CV Department at MCF consists of 18 cardiologists, 6 cardiovascular fellows, 9 nurse practitioners (NPs), and over 90 allied health staff. Clinical operations include electrophysiology (EP) procedure labs, catheterization labs, echocardiogram reading (clinic/stress/hospital), hospital service, outpatient clinic and more. To guide the CV Department’s restructuring framework, five distinct CV service-lines were identified and physician leaders were assigned: Heart Failure, EP/Heart Rhythm, Structural Valve, Ischemic and General Cardiovascular (consisting of six subspecialty classifications). NPs were assigned to targeted service-lines to build continuity of skills and consistent patient care. Service-lines were tasked with developing collaborative care team models to increase clinic access and downstream cardiovascular services (procedural interventions & other treatments). Counterbalance metrics were identified to ensure quality of care would not diminish.

Implementation: Through a robust series of CV Leadership meetings with providers and nursing stakeholders, the service-line infrastructure was finalized in early May 2015. Physician leaders were tasked with driving provider engagement, identifying key diagnoses, referral/demand opportunities, areas of improvement in continuity/coordination of care and more. Reengineered clinic templates, appointment visits and electronic care-set orders were implemented in July 2015, with a recognized start-date of September, 28, 2015. The CV Clinical Practice Committee provided oversight to the implementation process and managed communication plans. Process improvement interventions (flowcharts and process mapping) guided redesign efforts, decision-making, education and communications. Physician champions delivered targeted presentations.

Results: The service-line infrastructure enhanced timely access for multiple subspecialties and increased clinic throughpout. The CV Department’s overall metric of ‘New Eval & Consult (N&C) Volumes per Total MD Staff on Floor per Work Day’ saw a favorable increase of 22.6%. The new care models and service-line clinic templates did not increase clerical burden or EMR interactions/tasks for the physician staff. Fourth Quarter 2015 produced 3,972 evaluation & consult visits (N&C visits) compared to Third, Second & First Quarter 2015 volumes of 3,125 visits, 2,930 visits & 2,842 visits, respectively. 2015 & 2014 comparison of Fourth Quarter volumes revealed a 34.5% increase (2,951 visits). Service-line achievements included:

- **Women’s Heart Health**: Designed an innovative clinic template which increased morning clinic New Eval & Consult access (7:45 AM to 12:00 PM) by almost 75% (frequency of 1-2 instances per week, dependent on staff availability).
- **Heart Failure**: Increased real-time access by over 50% to the Heart Failure Team (physician, NP & RN coordinator) for evaluations, consultations, return visits and titration visits (frequency of 2-3 instances per week). Face-to-face return visits have declined due to heightened care coordination via online patient portal & telephone communication.
- **EP/Heart Rhythm**: Established new templates to allow physicians to staff/supervise NPs with internal consultations during morning clinic (60% increase), afternoon clinic (50% increase) and during protected reading time (80% increase) for electrocardiogram studies (frequency ranged between 3-6 instances per week, dependent on CV Lab).

Press Ganey™ patient satisfaction scores were closely monitored throughout the CV service-line redesign process. Overall Top Box Scores have increased since the implementation from 81.6 to 84.6. This includes significant increases in the sections of Access (72.2 to 78.8), Moving Through Your Visit (59.9 to 64.4) and Care Provider (87.3 to 89.7). Physicians and NPs provided positive feedback on increased collaboration and concentrated subspecialty focus, which supported trends from the 2015 Sirota™ staff survey results, including a 38% increase in provider engagement compared to 2013 results (response rate of 78.6%). CV Leadership continues to actively monitor data metrics and integration as best practice diffusion continues.

Contact: Christopher H. Hasse, MBA, CSSBB, CFPH │ Operations Administrator │ Mayo Clinic │ hasse.christopher@mayo.edu
Streams of Care: Impact of Split Flow Model on Emergency Medicine

Authors
Kimberley DuBose, MBA, MIOP, PMP, CMP Emergency Services Operations Manager, Houston Methodist Hospital
Johnie Leonard, MSN, RN, CEN, NE-BC, Emergency Services Director, Houston Methodist Hospital

Background
With wait times to see a provider averaging at over an hour due to a bottleneck of patients competing for the same resources, in addition to a construction project underway to expand the footprint of the current emergency department, the timing was right for Houston Methodist Hospital to implement a split flow model of care. This model allows for the nursing staff to quickly assess a patient’s condition and then direct the patient to the appropriate treatment area for quicker care. High acuity emergency cases are managed in a 23 bed area with dedicated clinical staff and providers. Lesser acute cases are managed in a 10 bed area under the direction of a provider and clinical team, utilizing an attached care continuation waiting area for constant patient flow. Through the use of these dual streams of care with dedicated resources, patient wait times to see providers and start treatment measures was reduced dramatically, thus improving the overall patient safety and satisfaction level as well as quality of the experience.

Objective
The specific aim of this initiative was improve efficiency of care by decreasing the door to provider time and, as a result, provide a safer patient environment. As a supplement to this action, a decrease the number of patients who left without being seen, a decrease in the patient’s length of stay and improvement in the patient’s satisfaction with their visit was expected. By having a provider at the start of the care stream, reduction in unnecessary protocol was also projected.

Planning/Research Methods
A multidisciplinary team of providers, nurses, patient care assistants, patient access representatives and management was assembled into a steering committee to plan and implement over the course of the 6 months leading up to the change. Key subject matter experts from pharmacy, imaging and lab 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 addition to a site visit and conference calls to peer hospitals who have successfully implemented similar models.

Implementation Methods
This undertaking represented substantial change to the Emergency Department, complete with a new real estate footprint, 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, job descriptions, mock run throughs and continual feedback loops. Through these endeavors the following improvements were made:
- New 10 room intake/supertrack area opened
- New technologies implemented including walkie talkies, nurse call systems, and patient/family tracking tools
- Dedicated provider moved to the front of the care process
- Clinical team roles clearly defined and communicated for understanding and ownership
- Communications to patient and family on to new care delivery model developed

Results
When comparing our 2015 pre-implementation baseline to the values returned at the end of the year, post implementation, the following improvements occurred:
- Door to Provider Time: 79.01 minutes to 38.81 minutes (51% reduction)
- Bed to Provider Time: 24.59 minutes to 14.30 minutes (42% reduction)
- Left Without Being Seen Rate: 3.5% to 1.5% (57% reduction); estimated annual revenue increase of $745k
- Average Length of Stay (Discharge): 272.24 minutes to 234.57 minutes (14% reduction)
- Average Length of Stay (Admit): 482.55 minutes to 419.54 minutes (13% reduction)
- Patient Satisfaction (Overall): 82.1 to 83.4 (2% increase)
- Patient Satisfaction (Waiting Time to See Doctor): 71.6 to 78.4 (9% increase)
- Reduction in unnecessary EKGs: over 100 per month; estimated annual savings over $20k in direct cost

These improvements are seen in light of a 3% increase in ED patient volume.

Contact
Kimberley DuBose | Emergency Svcs Operations Manager | Houston Methodist Hospital | kdubose@houstomethodist.org
Improving patient flow using live information

Sharon Prinsloo, RN, CM (sprinslo@seha.ae) Murtaza Mohiuddin Quadri Syed, MS, PG-HIM, CCS (mmsyd@seha.ae) Bakr Sadoon Ismael, GP (bisma@seha.ae) Naveedullah Khan, BS(CS), PMP,CSP (navkhan@seha.ae) Richmond Austria, DIH, CHDA,CPHQ,PMP,CMQ/OE (raustria@seha.ae) Elsadig Elmardi, MBBCh, MPH (eelmardi@seha.ae) Khuloud Abdulla Mohsen Obaid Aldhaleei, M.B.CH.B., MRCGP (kdhee@seha.ae)

Objective of Program: Development of a tool to support managers and improve patient experience related to patients waiting time. Waiting time as KPI is defined as the time interval between registrations up to a patient being seen by the clinician. It is a relevant indicator toward patient access and satisfaction, affecting the health center’s reputation and marketing strategy toward a competitive advantage. The process used at the time involved having a report extracted for the waiting times and shared with all clinic managers on monthly base. The disadvantage of this particular process was the lack of current waiting time status to enable the managers to take action and mitigate concerns such as bottlenecks within the flow of patients in order to optimize utilization of the manpower toward the experience of the patient during the journey. The improvement involved the development of a tool to convert the electronic data into a report format with easy access to managers to be used daily and during peak patient flow hours. The key performance indicator set for waiting time within the organization is 85% of all patients to be seen within 45 minutes.

Planning/Research Methods: FOCUS PDCA and Project management methodology was used. Innovative approaches within the process included regular meetings, brainstorming sessions and linking strategic objectives to staff appraisal objectives. In addition knowledge sharing as well as training sessions in order to define ownership initiating changes in process and functions as well as assigning accountability. Transparency in communication the essence, with a great deal of community involvement as well. Celebrating of the achievements was positive toward motivating employees.

Implementation Methods: On the initiative to manage patient flow having proved successful within one clinic. Further onsite analysis was done recognizing variances in the report itself as well as the patient flow cycle addressed to maximize the outcome. The project was elevated becoming a multisite, multidisciplinary team process, represented by IT, Web development, Quality, HIM and health operations as departments. The extraction of data is now centralized by using the live waiting time dashboard as a tool. The patient flow cycle reviewed and a patient flow coordinator role established in support of the high volume clinics not meeting the waiting time target. All data converted to information was validated by the HIM and quality team as part of project analysis prior to releasing the link and doing the training for the managers on the use of the live waiting time dashboard tool, inclusions and exclusions were standardized as part of the process The live dashboard is now accessible through AHS intranet and patient flow can be viewed in real-time. Remote access is included.

Results (e.g., cost savings, increased productivity, and improved quality of care): The waiting time achieved prior the project was at 80% and has improved to 87% after implementing the tool thereby meeting the KPI. Also, this resulted to an improvement in access as well as the overall experience for the patients as indicated by the decrease in complaints related to waiting time. During a survey of managers followed by a focus group discussion, the use of the dashboard as tool and the benefits of the team based process was highlighted which indicated that 83% of managers used the information obtained from the dashboard.
Using Physician Incentives in a Gainsharing Program to Lower Costs and Improve Quality

**Background:** The Inspira Health Network comprises three hospitals, four multi-specialty health centers and more than 1,000 medical staff members in southern New Jersey. The leadership team sought to enhance transparency and accountability on what matters most to patients and to payers: outcomes, cost, and value. Aligning the hospital and physicians’ financial incentives and quality goals was essential for success.

**Objective:** Since physicians are most responsible for managing costs within a hospital (Leff, et al., 2009), Inspira implemented a gainsharing program to engage physicians to control costs through the direct payment of incentives based on reducing inpatient costs and improving quality performance.

**Planning methods:** Inspira elected to participate in the New Jersey Hospital Association (NJHA) Gainsharing Program as part of the CMS BPCI Model 1 (Acute Care only) initiative, an expansion of an earlier successful NJ Medicare Gainsharing Demonstration (Agency for Healthcare Research and Quality, 2014).

**Implementation:** The NJHA program established “Best practice norms” (BPNs) based on state-wide inpatient discharge data. BPNs are the 25th percentile (lowest costs) for each APR DRG. Costs are calculated by cost center to enable service utilization comparison. While physician incentives are conditioned on quality performance, the financial calculations are based on:

1. Performance - actual cost compared to the BPN.
2. Improvement - actual cost compared to each physician’s historical costs.

The NJ program is a Medicare initiative and provides all the necessary waivers (e.g. antikickback, Stark and Civil Monetary Penalties). Physician participation is voluntary. All patients admitted to Inspira receive notification that the hospital is participating in the program on admission.

**Results:** Inspira found that the gainsharing program reduced inpatient costs (Reference Figure 1). The Vineland and Elmer campuses realized $3.8 million in marginal cost savings after incentives and program costs. By January – June 2014, they recognized nearly $2 million in direct savings from the program, and identified 26% of savings opportunities.

The incentive program reinforced care redesign protocols. Notable results are:

1. The readmission rates for patients who participate in the COACH and palliative care programs is better than the 20% improvement goal.
2. Through use of the VTE assessment, hospital-acquired DVTs and pulmonary emboli are minimal.
3. The pneumonia core measure of administering the appropriate antibiotic reached 98%.

**Authors:** April Venable, Director of Population Health, Inspira Health Network. venablea@ihn.org

Anthony Stanowski, DHA, FACHE, Vice President, AMS. astanowski@amspbis.com

**References**


Title: Using Physician Targeted Interventions and Information Technology Support to Improve the Care of Diabetic Patients in the Emirate of Abu Dhabi.

Fayeza Nasir, MBBS, MD, CMQ (fnasir@seha.ae), Richmond Austria DIH, CHDA, CPHQ, PMP, CMQ/OE (raustria@seha.ae), Luena Palacios, Senior Quality Officer (lpalacios@seha.ae)

Objective of Program: In order to support delivery of consistent high Quality care to diabetic patients in primary healthcare in Abu Dhabi, Ambulatory healthcare Services (AHS) adopted the National Committee of Quality Assurance (NCQA) criteria as evidence based standardized performance measures. The measures cover areas such as A1C control, blood pressure control, eye examination, foot examination, and nephropathy assessment. In Quarter 1 of 2013, only 30% of the Diabetic care targets were met. Lack of knowledge & skills among physicians, unavailability of patient tracking tools, and inadequate systemic support for communication and care-coordination were the most common factors contributing to not achieving the targets.

Planning & Implementation Methodology: A taskforce, comprising of representatives from the Quality department, medical affairs, Health information department, and IT departments worked on developing a comprehensive Diabetes Management program. The Improvement strategies included physician targeted interventions and Using Information Technology Support tools.

Physician Targeted interventions: 77 physicians from 37 healthcare centers were identified as physician champions. Physician champions’ training sessions included educating physicians on performance measures, current performance and how to use the Quality Improvement tools such as PDSA to improve. The champions worked with teams in their own centers to implement the PDSA cycles. Follow up sessions were held to discuss improvements and challenges. Other physician targeted interventions included linking improvement in the measures to the annual appraisals of the physicians as a tool to motivate and encourage physicians to manage diabetic patients more effectively.

Information Technology Support systems were developed to provide physicians with patient tracking tools, and feedback mechanisms. The health maintenance Module in “Malaffi”- the Electronic Medical Records were enhanced so that physicians are alerted to tests that patients are due for, or to abnormal test results that require further intervention. Another transformational IT Support system was the development of Physicians’ dashboards. The dashboards show physicians their daily performance in clinical measures, and can be drilled down to identify the patients in whom further intervention is required.

Results: AHS was able to achieve the targets in 90% of the Diabetic Care. The improvement was evident in all of the individual key performance measures. The greatest improvement was evident in the percentage of diabetic patients who had their eye examination & foot examination which went up from 31% and 12% respectively in Q1 of 2013 to 71% and 88% in Q4 of 2015.

Conclusion: Enhancing physicians’ knowledge and skills in improving performance measures and enhancement of systems to track patients’ progress are critical factors in improving the care of diabetic patients.
Title: A Quality Improvement Project and Community Partnerships: Aimed to Reduce Chronic Obstructive Pulmonary Disease (COPD) Readmissions

Author: Joan Agee, DNPc, MSN, RN; Dyana Blood, BSN, RN, LSSBB

Objective: The Centers for Medicare and Medicaid Services (CMS) recently ruled, for FY15, the intent to impose an inpatient payment penalty on hospitals for COPD 30-day readmissions, thus making this an important issue for healthcare leaders. As such, this quality improvement project focused on the reduction of preventable COPD readmissions. In an effort to avoid costs and reduce the risk of readmission penalties, without negatively impacting the quality of care, a one-year goal of 10% reduction was set.

Planning: Employing the quality improvement methods of LEAN and PDCA, a multidisciplinary team from St. Joseph Regional Medical Center (SJRMC), along with community partners, set out to develop a coordination of care quality improvement project aimed at decreasing the rate of COPD readmissions (defined for this project as a hospital admission within 30 days of discharge from the emergency room or inpatient setting). Initial analysis of all-cause inpatient and emergency room COPD readmissions revealed a greater than 30% readmission rate. Identified factors contributing to COPD readmissions at SJRMC included an absence of: (a) pulmonary rehabilitation therapy in the community; (b) formalized community coordination of care for patients with COPD; and (c) a standardized treatment plan or education program for patients with COPD.

Implementation: Based on the body of evidence and clinical practice guidelines, the following interventions were implemented: (a) upon hospital admission, standardized care protocols and a clinical pathway based upon GOLD guidelines are used for every patient with a primary or secondary COPD diagnosis; (b) standardized patient education material is provided upon admit, and taught throughout the hospital stay by key disciplines (nursing, speech therapy, respiratory therapy, pharmacy, dietary, and social services); (c) internal and community healthcare personnel were provided education on the proper use of inhalers, better preparing them to supervise and teach patients; (d) patients are taught to identify worsening symptoms, the importance of obtaining quick treatment, and are provided a tool for daily monitoring of symptoms once discharged; (e) community partners planned coordination of care to facilitate COPD patients seeing primary care providers, rather than seek emergency room treatment, upon worsening symptoms; (f) community partners hosted a COPD community awareness day; (g) SJRMC developed a pulmonary rehabilitation therapy program.

Results: The hospital hypothesized that: (a) the implementation of evidence-based interventions, that included the transition of care into the community, would result in a decreased rate of COPD readmission and (b) a decrease in COPD readmissions would result in cost avoidance. The quality improvement project interventions were initiated on June 1, 2015. Data collection and analysis occurred for all admission and readmissions of patients with COPD; collection began June 1 through November 30, 2015 and was then compared to patient data during the same six-month period of the prior year. The 2014 period identified 408 patients, with 377 patients in the 2015 period. The analysis of all-cause 30-day COPD readmissions found a 7.6% reduction in overall COPD hospital admissions and a 46.03% reduction in COPD readmissions. The successful reduction in readmissions resulted in decreased costs by 47.95%, while maintaining quality of care. Based upon these results, the QI project focus will be expanded to reduce hospital readmissions of other chronic disease conditions.

Reference


Contact:
Joan Agee, DNPc, MSN, RN – jagee@zagmail.gonzaga.edu

15
A Regional Hospital and EMS Quality Improvement Program for Cardiovascular Emergencies

James R. Langabeer II, PhD¹; Tiffany Champagne-Langabeer, PhD¹; Jeffrey Helton, PhD²; Wendy Segrest, MS³

¹The University of Texas Health Science Center, Houston, TX; ²Metropolitan State University, Denver, CO; ³American Heart Association, Denver, CO; On behalf of the Dallas American Heart Association Caruth Initiative

ACHE – Management Innovations - Abstract

Program Objective
Cardiovascular quality performance metrics (such as ‘door to balloon’) are critical to hospital performance comparison and accreditation, since patients that suffer from myocardial infarction (heart attacks) need definitive treatment <60 minutes from arrival and <180 minutes after symptom onset. We developed a rigorous, comprehensive, regional, and collaborative quality improvement (QI) program focused on improving emergency cardiovascular care performance. We sought to identify recommendations for management process changes to yield continuous improvement.

Planning and Research Methods
This quality improvement program is a multi-institution community change effort. We raised nearly $3.5 million from the W.W. Caruth Foundation, and assembled key physicians and leaders from 15 participating hospitals and 25 emergency medical services (EMS) agencies. Over 1,200 de-identified myocardial infarction patients in the tenth largest city in the United States (Dallas, Texas) were analyzed for two consecutive years. Our QI program was rooted in six sigma methodology. Physician, paramedics, and nurse leaders participated in monthly and quarterly education and monitoring activities in a 24-month quality improvement (QI) program focused on developing collaboration and performance improvement. Quarterly, we assessed all summary data and shared with hospital and EMS participants, and then used team-based QI methods to recommend strategies to improve performance across the region. We conducted statistical analyses of time-based performance metrics routinely and provided awards for greatest facility improvements. Using a variety of QI techniques (cause and effect diagrams, boxplots, statistical process control, variation minimization), we sought to continuously measure and improve performance across hospitals and the region.

Results
We statistically significantly improved the region’s overall treatment time averages from +190 minutes to 170 minutes (11%) in total ischemic time (time difference from patients reported symptom onset to arterial reperfusion). 94% of the participating facilities observed improvements in door to balloon times as well, with overall averages bettered by +10 minutes (14% improvement). Team recommendations produced several key innovations that were implemented, including: 1) early and extensive use of EMS, including a marketing campaign to encourage EMS usage; 2) remote “field” activation of the cath lab by paramedics, versus waiting for the ED to initiate; 3) technology and improved communication between medics, nurses, emergency physicians, and cardiologists; and 4) extensive training of electrocardiograph (EKG) interpretation to ensure proper diagnosis. Of these, collaboration and communication between the hospital and the notifying EMS agency was considered most significant.

Discussion
Healthcare managers need to continuously monitor cardiovascular service line performance metrics in their hospital, yet improvements at least partially require broader outside collaboration and participation from EMS and referral hospitals. We found that a focus on data, outcome scorecards, technology, collaboration, communication, and process mapping can significantly improve performance outcomes by 14% or more in critical performance metrics.
Departmental dashboards - Fostering Participative Management To Save and Enhance More Lives

Authors: Prakash Rao, Misty Marchioni, Maria Garey, Donna King, Ijeoma Okere, Julien V. Napoleon, Helen LaCarrubba, Maria Agilucho, Nancy Mata, Patricia Harris, Tess Lewis, David O’Hara, Joseph Roth

Objective of Program: Beginning in 2014, our transplant laboratory started using dashboards as a tool to foster participative management. Departmental dashboards promote transparency, visually display information needed to reach specific goals and objectives, and communicate progress.

Planning Methods: Key performance indicators (KPI) specific to laboratory operations, yet supporting organizational goals were identified. Dashboards were designed in an easily recognizable format with gauges displaying milestone values. Quantified KPI are plotted on the dashboards and results are updated regularly. Dashboards are available at any time via the organization intranet by all employees and discussed daily at a managerial level. Results are directly tied to each laboratory employee’s annual evaluation.

Implementation Methods: The first KPI (1) chosen was the Operational Efficiency Ratio (OER). The OER is calculated by dividing the laboratory’s gross expense by gross revenue and reflects the percentage of income which is being utilized to pay operational and maintenance expenses. A lower ratio denotes a higher performance. An OER of over 0.80 means that the business will be more vulnerable to changes in the market, so an OER of less than 0.80 is desired.

The second KPI (2) chosen was the median turn-around-time (TAT) for testing deceased donor Complement Dependent Cytotoxicity Crossmatch (CDC), Flow Cytometric Crossmatch (FXM), and Human Leukocyte Antigen (HLA) Typing. It is imperative that transplant laboratories are able to provide accurate results to transplant programs in a quick and efficient manner to minimize cold ischemia time, therefore maximizing organ function following transplant.

The third, and most important KPI (3) chosen was the number of Lives Saved. This is the tally of transplant recipients that have benefited directly from our laboratory’s testing. This number represents a direct connect to purpose for all laboratory employees, as our mission is to Save and Enhance Lives.

Results: We observed: (1) A significant effort put forth by the laboratory employees to keep costs down, sustaining the OER at less than 0.75. (2) A decrease in test TAT. (3) A qualitative increase in the enthusiasm to Save and Enhance more Lives and a quantitative increase in the number of lives saved through clinical transplantation.

<table>
<thead>
<tr>
<th>Test</th>
<th>Median TAT 2014</th>
<th>Median TAT 2015</th>
<th>% Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC</td>
<td>5.0 hours</td>
<td>4.31 hours</td>
<td>16%</td>
</tr>
<tr>
<td>FXM</td>
<td>5.7 hours</td>
<td>4.66 hours</td>
<td>22%</td>
</tr>
<tr>
<td>HLA</td>
<td>197 minutes</td>
<td>180 minutes</td>
<td>9%</td>
</tr>
<tr>
<td>Lives Saved</td>
<td>2014</td>
<td>2015</td>
<td>% Increase</td>
</tr>
<tr>
<td></td>
<td>631</td>
<td>842</td>
<td>31%</td>
</tr>
</tbody>
</table>

Departmental dashboards have proven to be an effective tool for monitoring of laboratory expenses and TAT. Dashboards can be a universal aid to monitor operational efficiencies for all departments in an organization.

Contact: Prakash Rao, PhD, MBA, FACHE, HCLD | NJ Sharing Network |
In 2011 the Western Maryland Health System found itself in a regulated environment where the Triple Aim of Healthcare was going to become a living, breathing reality. The Health Services Cost Review Commission (HSCRC), which regulates hospital rates in Maryland (an all-payer system under an agreement with CMS), decided to embark on an experiment in support of the Triple Aim of Healthcare. This demonstration project, called Total Patient Revenue (TPR), provided 10 hospitals that are the sole providers in the counties they serve with a fixed amount of revenue for hospital care. This gave hospitals an incentive to focus on appropriate utilization of services and provide quality, cost-effective care that would lower the cost of delivering care. Since revenue did not fluctuate with volumes, hospitals with excess revenue at the end of the year could keep some of those savings and hospitals with expenses higher than revenue would experience a financial loss.

Our objective was to implement the Triple Aim. We planned on reducing unnecessary utilization, especially readmissions; ensuring appropriateness of admissions; promoting quality of care across the continuum; addressing socioeconomic needs and identifying techniques to build community partnerships to improve outcomes.

An analysis by Berkeley Research Group showed that just 1,972 patients accounted for $140 million annually. Common diagnoses were heart failure, diabetes, COPD, and anticoagulation medications, as well as underlying behavioral health issues and end-stage renal disease (ESRD) for many of these patients. Data from the Maryland Department of Health and Mental Hygiene showed that Allegany County ranked in the highest state grouping in ED visits for behavior health condition, adults with high percentages of BMI over 30, adults with high blood pressure and adults diagnosed with diabetes. Where 1 is the best, we ranked 21 out of 24 for Health Outcomes and 19 out of 24 for Health Factors in 2011. Our Community Health Assessment (CHA) echoed these results in even greater detail.

We implemented a number of initiatives to change these results based on the above analysis. We instituted the President’s Clinical Quality Council where C-Suite and physician leaders came together to solve problems and effect quality, cost-effective care. The Triple Aim Coordinating Council was implemented, bringing leadership, staff, and physicians from along the continuum (pre-acute through acute to post-acute) together to develop innovative ways to address issues. This group focused on the reduction of length of stay and readmissions, hospital-acquired conditions, discharge process, patient education, transitions to skilled nursing facilities, and home care as well as socioeconomic needs of our patients. This focus gave rise to nontraditional approaches to traditional problem areas, such as behavioral health where innovative “porch visits” resulted in significant reduction in readmissions. Partnerships between nurses and social workers skilled in dialysis led to major reductions in readmissions for ESRD patients. Provided home care visits to ensure a positive transition to home even if the patient’s insurance wouldn’t cover it and supplying medications and other non-covered DME to patients if needed for a safe transition home. And our increased interaction and sharing of skills with skilled nursing facilities enabled them to treat their residents in place as opposed to sending them to the ED. An increased use of care coordinators for inpatients and outpatients also made a huge difference in the success of our programs. And a fresh concept in treating patients with chronic conditions is our Center for Clinical Resources (CCR). Offered at no charge to the patients, this centralized approach to symptom and care management has reduced hospital visits of all types for these patients, resulting in a savings/cost avoidance of $7.6 million since its inception two years ago.

Results demonstrate that the actions we have taken and continue to take make an enormous difference in the care of our patient population.
Reducing Readmissions Through Improving Care Transitions (RRTICT): Using a Tailored Approach to Improve Post-Discharge Outcomes

Ashley Ketterer, MHA1; Michael W. Kennedy, PhD1; Emily Rentschler Drobek, MSPPM1; Lior Turgeman, PhD2; Terrence L. Hubert, PhD1; Jerrold May, PhD2; Robert Monte, RPH, MBA1; Kathryn Sapnas, PhD, RN-BC, CNOR3

1Veterans Engineering Resource Center, VA Pittsburgh Healthcare System, Pittsburgh, PA; 2Joseph M. Katz Graduate School of Business, University of Pittsburgh, Pittsburgh, PA; 3Office of the Assistant Deputy Under Secretary of Health for Patient Care Services (10P4), VA Central Office, Washington, D.C.

Objective:

Reducing 30-day hospital readmissions is a national priority for the Veterans Health Administration (VHA). Our team addressed this concern by targeting improvement of the current inpatient work stream and post-discharge continuous care process. To this end, we developed and implemented a novel, comprehensive care coordination program, Reducing Readmissions Through Improving Care Transitions (RRTICT), to better utilize in-patient beds, increase access to care, and advance interdisciplinary team work while reducing unnecessary hospital readmissions. The RRTICT program was piloted at six Veterans Affairs Medical Centers (VAMC) over a six month period and targeted a 5% reduction in the 30-day readmission rates in piloted medical units by Federal Fiscal Year 2016.

Methods:

In partnership with the Office of Patient Care Services (PCS), the Veterans Engineering Resource Center (VERC) identified 30-day hospital readmissions as an opportunity for improvement across VAMCs, through a review of Strategic Analytics for Improvement and Learning (SAIL) data. Care strategies selected from 1) literature-derived evidence-based best practices and 2) submissions of self-identified best practices from 32 VAMC site directors, which were successfully piloted at the VA Pittsburgh Health System, informed the development of the RRTICT bundle as an intervention to reduce 30-day hospital readmissions. In partnership with the University of Pittsburgh’s Joseph M. Katz Graduate School of Business, a predictive model was developed that allowed the tailoring of this bundle based on the predicted readmission risks of inpatient Veterans.

Following a national invitation for VAMCs to participate in the RRTICT program, the VERC selected six sites based upon their organizational readiness. The VERC supported the sites in the formation of a local team of clinicians to implement RRTICT. With the Katz Graduate School of Business, the VERC reported Veteran readmission risk stratification predictions to the project site teams daily. The Office of PCS and the VERC held regular information and training sessions to facilitate cross-site communication and motivation. A midpoint review was performed to assess team engagement. At the conclusion of the six-month implementation, the VERC calculated the 30-day hospital readmission rate of the intervened population at individual sites, according to the VA Inpatient Evaluation Center (IPEC) all-cause readmission rate definition. Our team then compared those rates to rates from the same six month time period in Federal Fiscal Year 2014 using the Two Proportion Z-Test, with significance accepted at p < 0.05.

Results:

The RRTICT program demonstrated an overall decrease of 28% in the 30-day hospital readmission rate, with individual site results ranging from a 9% to 48% reduction in 30-day readmission rate. Qualitative data collected during the pilot identified high levels of team engagement within and across facilities. As a next step, the VERC and the Office of PCS are facilitating multiple VAMCs in the expansion of RRTICT throughout their inpatient units. This expansion will enable the use of targeted care strategies to ensure that high-quality care is provided to the Veteran.
University of Colorado Consultation Responsiveness

Authors: Jonathan Pell, MD; Jennifer Wiler, MD, MBA, FACEP; Evalina Burger, MD; Kelly Bookman, MD, FACEP; Matthew Thompson, MBA

Objective of Program: As many as 20% to 40% of patients in the nation’s Emergency Departments (ED) require a bedside consultation. Timeliness of consultation is a process of care quality metric with the potential to improve throughput, patient and provider satisfaction, and clinical outcomes. At our large academic center we defined four “Rights” of consult effectiveness: the right care in the form of actionable recommendations, delivered to the right patient, at the right time, and using the right resources. The variability in consultation responsiveness was identified as a common problem within our center. A previous initiative established a stratified framework of consult priorities and definitions for timeliness. The current study worked to implement and measure this newly established framework with a single consult service of orthopedic surgery for patients in the Emergency Department. This project created opportunity to improve quality, efficiency, patient and provider satisfaction, and to standardize use of the electronic health record (EHR).

Planning/Research Methods: The FADE QI model was used for framing this project with a multidisciplinary leadership group of Vice Chairs for Clinical Affairs and Quality from the University of Colorado School of Medicine. The process was (i) evaluation of current state, (ii) development of shared consultation and consultee principles, (iii) development of consultation responsiveness definitions and (iv) development of goals for timely written actionable recommendations. A customized workflow was developed for data tracking and implemented in the EHR (Epic, Madison, WI).

Implementation Methods: Changing processes and culture to improve the effectiveness of consultations is challenging due to the multiple stakeholders involved in the care of ED patients. Using uniform definitions of urgency, across all disciplines, negates potentially confusing terminology, such as “urgent” versus “emergent.” This enables busy consult services to quickly set priorities, schedule appropriate resources, and respond accordingly.

EHR optimizations tied to this framework include an automatic page to the consultant when a consult order is placed electronically. The text within the page includes the patient location, level of urgency and call-back number of the requesting provider. Process metrics capture time from this request to the first note filed in the EHR, designated as the time of initial actionable recommendations by the decision-maker. The timestamp for filing the finalized consult note is also captured. In addition, the evaluation of response times and actionable recommendations by level of urgency and by consult service enables identification of potential opportunities for process education and potential workflow or staffing adjustments.

Results: Implementation, education, and data collection began in March 2015. Over 1,700 consults from the ED to Ortho were placed and analyzed from March 2015 to December 2015. Since a new group of residents started residency and continued the project in July/August 2015, the average length of time from consult placed to actionable recommendation decreased from 176 minutes to 84 minutes with an average time of 119 minutes over ten consecutive months (median time = 26 minutes). In addition, 90% of consults had an actionable recommendation within 120 minutes and 77% within 90 minutes. Data is being collected and analyzed to illustrate a correlation between average ED length of stay (LOS) and average time of consult. While more analysis is being completed, a correlation is present and we can begin to calculate a return on investment on the decrease in LOS for these patients. This has the potential for significant cost savings for the hospital while opening up additional access and increasing patient and provider satisfaction. This project is currently being extended to Gynecology and a project plan has been created to expand this initiative across all consulting services from the ED. In addition, a committee has been put together to expand the project to the inpatient care setting.

Contact: Jonathan Pell, MD, Assistant Professor, Hospital Medicine, Department of Medicine, University of Colorado School of Medicine; jonathan.pell@ucdenver.edu; (720) 848-2143.
The Utilization of eVisits to Manage Stable Diabetic Patients in Primary Care

Authors: **Hope** E. Greig, MSH, FACHE, Floyd B. Willis, M.D., Kevin M. Barrett, M.D., M.Sc., Wendy Hattery

**Objective:**
The eVisit offers convenient, cost-effective access to health care by providing virtual clinic visits via a patient portal for non-emergent chronic conditions such as diabetes. An eVisit improves patient access and allows physicians to make frequent adjustments in a patient’s treatment regimen to achieve clinical goals. Patients with chronic disease especially benefit from an eVisit through increased communication with their care team for better management of their conditions between office visits. The expectations of the eVisit pilot were to provide a timely communication with the care team, provide efficiency for the patient (no travel), and validation that an eVisit will be favorable to the patient.

**Planning Methods:**
A limited eVisit pilot was initiated July 2014 through March 2015 for established diabetic patients at Mayo Clinic in Florida’s Family Medicine practice. In lieu of a routine face-to-face return visit, patients electronically provided answers to a series of questions about their symptoms, allowing physicians to adequately make clinical judgment on the patients’ status. Depending on each patient’s response, the care team followed-up with a course of action or scheduled a face-to-face appointment.

**Implementation Methods:**
Diabetic patients of three participating Family Medicine physicians and their respective care teams were invited to participate. The teams met with Information Technology, Scheduling Technology and Connected Care to create workflows for key processes for the pilot. The physicians determined qualification criteria for the pilot, which included: non-insulin diabetics, active account on Mayo Clinic’s patient portal, and Hemoglobin A1c < 9%. Thirty-six qualified pilot patients were asked complete the following before completing the eVisit: blood draw for the Hemoglobin A1c, diabetic follow-up questionnaire using the patient portal, and pre and post eVisit surveys. The patients’ responses were sent securely to the providers’ inbox. Providers responded to patients using secure messaging with a course of action or request for the patient to schedule a face-to-face visit.

**Results:**
Of the 36 patients enrolled in the pilot, 23 patients completed the eVisit, 9 patients were converted to future face-to-face visits and 4 dropped out of the pilot. Pre and post survey results were reviewed and showed a favorable (Pre-9 Yes, Post-18 Yes) response from patients in communication with care team. Additionally, patients provided comments on the post survey form that indicated the most important factors regarding the eVisit process was convenience, no need to travel to appointment, and the overall time savings. The eVisit pilot demonstrated acceptance and feasibility of the concept. Based on these results the care team is considering expanding this work to other diabetic populations (insulin dependent patients and Hemoglobin A1c >9%) and other chronic disease conditions.

**Contacts:**
Hope Greig, MSH, FACHE
Operations Administrator
Mayo Clinic in Florida
[greig.hope@mayo.edu](mailto:greig.hope@mayo.edu)
“PLAN FOR THE DAY, PLAN FOR THE STAY”
FOCUSING PROGRESSION OF CARE ROUNDS (POCR) TO ENHANCE PATIENT CARE AND REDUCE LENGTH OF STAY

Authors:
Sonia Chhina, RN, BSN, MBA; Melissa Friedman, RN, BSN, CCM, Jody Haddock, RN, BS, ACM, HCM & Carol Beehler, FACHE, NEA-BC, RN, BSN, MSN, MBA

Overview and Background:
- The Medical Center is a 886 bed tertiary care, Level 1 Trauma Center and teaching institution
- Historically discharge planning rounds were not standardized and did not focus on the length of stay (LOS)
- A hospital wide initiative to decrease LOS was the impetus for standardizing daily POCR to improve discharge planning and quality of patient care. The new model for the POCR focuses on effective discharge planning, identifying necessary services, barriers to discharge, and patient/family education
- A physician advocate (PA) role was developed to serve as a clinical resource to the POCR process
- The “Plan for the Day, Plan for the Stay” has become the focus of the POCR
- A planned technology upgrade provided an opportunity to prominently display the expected date of discharge (EDD) on each patient’s EHR banner and patient’s white board (displays daily care plan) to assure a focus on LOS by the health care team The initiative had the support of senior administration, case management, and medical and nursing leadership

Implementation methods:
- Identified system issues of original daily discharge rounds by videotaping process
- Provided results to hospital and nursing administration & acquired buy-in to standardize daily rounds
- Designed a new format for POCR including roles and responsibilities for all involved healthcare team members
- Recognized the need to focus on EDD in POCR process
- Implemented Medicare DRG and Geometric Mean Length of Stay to identify the EDD
- Educated all healthcare team members on the new process and importance of the EDD
- Tasked nursing leadership with ownership of the POCR process.
- Initiated a pilot of the new POCR with a focus on EDD on 2 medical-surgical units as a progressive roll out.
- Dedicated the use of PAs on high volume units
- Trained a selective group of case managers, nurses and social workers to provide education, monitor and evaluate the POCR process
- Developed a quantitative evaluation process (Scorecard) for the POCR which includes monitoring attendance and participation of health care team members

Results:
- Reduced LOS from 6.2 in January 2014 to 5.8 in July 2014 and to 5.2 by December 2014 thru June, 2015
- POCR daily rounds shortened from 60 to 30 minutes with assigned follow up for issue resolution
- Physician Advocate role contributed to reduction in Length of stay & Length of stay index

Conclusion:
From June, 2014 thru today, the hospital’s culture on POCR underwent a significant transformation. Healthcare teams participate daily in discharge planning with a focus on EDD resulting in a positive impact on LOS and quality of care.

Contact: Case Management Department
Phone: 310-423-4446
January, 2016