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62nd Congress on Healthcare Leadership

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Embedding a Specialist Within Primary Care to Improve Access for Low-Complexity Indications
Brynn Howard, M.H.A., Stephen Fischer, M.H.S.A., Julie Jensen, Jonathan Torrens-Burton, M.A.

Background: Every year, 1.3 million people seek care at Mayo Clinic from highly specialized experts who treat rare and complex conditions. In addition to tertiary and quaternary care, generalists are providing care coordination for community, employee, and destination patients' symptoms that range from low complexity and acuity to high complexity and acuity. Historically, there has been no operational process to differentiate symptom groups, resulting in high and low complexity patient populations competing for the same specialty access. This results in longer wait times and unnecessary utilization of subspecialist resources.

Objective: The goals of embedding specialist:
> 1) Improve timeliness and access for community patients and employees by having low complexity and acuity issues addressed at the original point of care;
> 2) Facilitate "curbside" consultations, in which the provider and specialist are able to discuss patient issues and determine the best plan of care without requiring a specialty appointment;
> 3) Improve specialty capacity for other patients who require a higher level of care;
> 4) Reduce the specialist FTE required to appropriately address the needs of low complexity patients; and
> 5) Increase new referrals to the surgical and procedural practices.

Planning/Research Methods: Pre/post implementation data were collected from scheduling and finance databases to assess impact to patient volumes. The assigned providers developed criteria by which to triage incoming appointment requests to determine the type of consult the patient needs: Integrated Community Specialist, Specialty Clinic, electronic or curbside consultation.

Implementation Methods: The Spine Center allocated 0.5 physician FTE to the Integrated Community Specialist practice. Calendars were built with appointments and designated time for curbsides and electronic consults.

Results:
- Integrated Community Specialist reduced primary care referrals to the specialty clinic by 70%.
- Spine Center specialty appointments for patients requiring a higher level of care increased from 588 in 2016 to 807 in 2017 due to open capacity from removing low complexity patients.
- The orthopedics and neurosurgical spine practices experienced a net increase of 208 surgical cases between Q4 2016 and Q4 2017.

Conclusion: Embedding a Spine specialist into primary care has provided 1) more rapid consultations in the primary care environment and 2) opened capacity in the Spine specialty practice and increased high complex referrals. Curbside consultations with the embedded specialist resulted in educating primary care providers on the optimal spine care plan and resulted in patients not needing to see a specialist. By 2018, the embedded Spine specialist had become oversubscribed with appointment requests, requiring the FTE allocation to be revisited.

Lessons Learned: The successful implementation of an embedded Spine specialist within primary care has developed an additional opportunity for an embedded Gastroenterology & Hepatology (GIH) specialist. This was successfully piloted for four weeks and will be fully implemented in January 2019.
Embedded GIH Pilot Results:
- 25% of patients stayed within the primary care practice.
- 100% of patients were seen 0-2 days after the primary care provider.
- Improved access to GIH specialist by reducing appointment times to 30 minutes for low complexity indications.

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MAYO CLINIC

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Background Mayo Clinic, similar to other healthcare organizations, has seen declining reimbursement rates over the past several years. In addition, the aging demographic has added more expense to healthcare and created shortages of specialized healthcare providers. Through care team optimization, several Mayo Clinic practice areas have developed strategies to enhance care delivery and quality, improve throughput, patient experience and staff satisfaction, and reduce provider burnout.

Objectives The objective was to provide a framework to implement effective outpatient care delivery models in specialty practices through successful implementation of outpatient care team- based delivery models focused on improving access to specific patient populations, right task right role of allied health staff and improved continuity of care.

Planning/Research Methods In order to optimize care teams, the first step is to understand the demand for different type of services delivered by each clinic and then determine appropriate mix of staff necessary to meet the demand. The level of staff mix necessary varies by specialty and is dependent on the pre-visit, during visit and post- visit processes. Several process engineering and quality improvement tools can be used to facilitate the transition to new care team model. The following key steps/milestones were adopted to identify areas of opportunity:
- Engage stakeholders to conduct surveys, brainstorming focus groups, observations, and interviews.
- Conduct time driven activity based costing TDABC) process mapping to identify roles and responsibilities of each care team member and the time being spent on each activity.
- Plan Do Study Act (PDSA) with key focus measures to understand the impact of changes and dynamics of team structure.
- Employ advanced analytics to predict the staffing needs and necessary training.

Implementation Methods Primary interventions and care team mix varied by the specialty area. Primary areas of opportunity were communication methods such as huddles and message management, allowing the care team members to work to the top of their licensure, cross training and reducing variation in provider styles. As examples:
- Pain Clinic was able successfully transition long term follow up care of Obstructive Sleep Apnea patients by incorporating Primary care provider as a part of the care team and developing standardized protocols.
- Kidney Transplant incorporated a small group of physicians, nurse coordinators and nurse practitioners/physician assistants to form team clinics versus individual provider clinics. Panel size indicated need for 3 team clinics to meet demand. The teams implemented daily huddles and other strategies to improve communication.
- Oncology implemented the care team model comprised of physicians, nurse practitioners/physician assistants, nurses and other allied health staff focused on specialized tumor types. The teams implemented huddles, and specific patient education materials to communicate the changes, including flyer (Care Team Profile) that described the team composition with providers' picture.

Results

Practice Area	Improve Access	Patient Satisfaction
Pain Clinic	Increased new patient volumes by 10%	Reduced follow up visit by 14%
Kidney Transplant	Increased new patient access by 100%	Improved Press Ganey overall patient satisfaction by 16.5%
Medical Oncology	Increased patient appointments by 11% Clinical productivity increased by 6%	Patient satisfaction remains stable from pre-care team through the care team implementation phase

Lessons Learned
- Care Team Optimization strategies vary by practice needs but a standardized methodology can be used to effectively discover and implement changes.
- Staff training takes time and developing standardized protocols is the key.
- It is important to take provider and staff burnout into consideration while formulating the model.
- Patient Education is critical to successful adoption.

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Implementation of a Surgical Transfer Unit: An Innovative Approach to Increase Timely Access to Surgical Subspecialists

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Background
A review of emergency department boarder hours for surgical patients, transfer delay data, and customer feedback substantiated significant delays in access to Erlanger Health System Surgical Services for transfers and direct admission. These delays resulted in referral sources seeking alternate care locations both locally and regionally. Surgical transfers and direct admissions were found to often access Erlanger Health System via the Emergency Department resulting in significant Emergency Department boarder hours and overcrowding.

Objective
The goals we set out to achieve:
- Increased and more efficient access both locally and regionally to Erlanger Health System surgical subspecialists.
- Reduction in Emergency Department boarder hours by surgical patients.
- Reduced cost by eliminating Emergency Department presentation for transfers and direct admissions.
- Reduced delays in acceptance of transfers and direct admissions.
- Reduced surgical mortality.
- Increased referral volume.

Planning/Research Methods
The concept for this unit was identified by our Chief of Surgery based on the University of Maryland's (UMMC) Critical Care Receiving Unit. The need for surgical subspecialty access is no different for Erlanger Health System's local and regional customers in need of subspecialty surgical care. Secondary to significant throughput challenges, the Chief felt this model presented a viable option for improvement of the current transfer and direct admission process.

Implementation Methods
The vision was presented to Erlanger Health Systems executive team which resulted in a site visit to UMMC's Critical Care Receiving Unit. Those in attendance included the system COO, Chief of Surgery, AVP of Surgical Services, Director of Perioperative Services and Manager of PreOperative Services. A review of literature, limited to the USA, failed to reveal any specialty surgical units. The UMCC Critical Care Receiving Unit most closely resembled the vision of Erlanger Health System and therefore was chosen as our model.

Results
After process development, our Regional Transfer Center (EROC) and key leaders including surgeons were educated on the eSTAR (Erlanger Surgical Transfer and Receiving Unit) admission procedure. Admissions were prioritized with priority given to transfers and direct admit patients in an effort to limit unnecessary presentations to the Emergency Department (cost and overcrowding). Secondary goal was to decrease boarder hours in the Emergency Department. In the first 19 months of operation eSTAR prevented >1250 unnecessary Emergency Department presentations and >740 boarder days. As for the secondary goal of decreasing the amount of time a surgical patient spends in the Emergency Department boarding, >1400 non-trauma surgical patients were accepted from the Emergency Department accounting for a reduction of >850 boarder days in eSTAR.

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MAYO CLINIC
Improving Access to Care in Rural America: An Innovative Approach to Physician Recruitment

AUTHORS: Sharon M. Trester, M.S., P.M.P; Susan N. Myaya, M.H.A.; Eric B. Reeve, M.B.A

BACKGROUND

As a not-for-profit, academic health system, Mayo Clinic cares for over 1.3 million patients from all 50 states and nearly 140 countries each year. In addition to a strategic focus on providing integrated multi-specialty care to patients with serious and complex illness; Mayo Clinic also provides community care in more than 60 rural communities in Iowa, Wisconsin, and Minnesota through the Mayo Clinic Health System.

Mayo Clinic is not immune to the national pressures of workforce demographics, providing affordable healthcare, and regulatory changes. Mayo Clinic had two otorhinolaryngology positions within rural communities that had been unfilled for over three years despite significant recruitment efforts. The dearth of surgeons practicing, or willing to practice, in rural areas can negatively impact patient access to care, as well as adversely affect local rural economies. The National Center for Rural Health Works estimates that an average rural general surgeon generates $2.0 million of direct revenue and 19 jobs, with a community impact of $2.66 million and 26 jobs.

Mayo Clinic implemented an innovative surgeon staffing model, thereby helping drive the Triple Aim – improving the health of the population, enhancing the experience and outcomes of the patient, and reducing per capita cost of care for the benefit of communities.

OBJECTIVE

- Fill surgeon vacancies in the community practices.
- Increase Department of Surgery retention through career development and job satisfaction.
- Increase specialty surgical service line offerings in the community practices.
- Provide general surgery services in alignment with facility and resource availability.

METHODS

The Department of Surgery at Mayo Clinic addressed these pressures by hiring surgeons to the destination location, Rochester, MN, and allocating surgeon time between the main campus and rural communities. The majority of the surgeon's time is spent in the community practice. This allows patients to receive care in their communities and support community hospitals while providing surgeons the ability to maintain their specialty skills in an academic center.

Planning methods included defining current state of the Southeast Minnesota General Surgery Practice, including collecting data on provider satisfaction, open positions, existing capabilities, and available performance metrics (e.g. volume and types of cases, payer mix, patient demographics, patient satisfaction, quality, etc.). A future state was outlined which assessed strengths/weaknesses, defining roles, catchment area, role of education (resident/fellowship training), and recommendations for service delivery.

Implementation methods include:
- Implementing a Mayo Clinic recruitment strategy vs site based recruitment strategy, including using a single recruiter for Department of Surgery at all locations.
- Adopting joint appointment model (80% community based and 20% complex care practices), resulting in four placements.
- Regional Morbidity and Mortality Conferences to help integrating the practices. The opportunity to review cases creates common understandings of practice patterns and decision-making along with building relationships.

RESULTS

- 100% retention of joint appointment model between the Destination Practice and the Community Practice (+2 years).
- Eliminated the use of Locums in the Department of Surgery-Division of General Surgery/Mayo Clinic Health System.
- Mayo Clinic Health System at Mankato Minnesota, Otorhinolaryngology: Two positions were open for 3+ years. After implementation, offers were extended within 4 months.
- Maintenance of complex surgical skills
- Increase access to specialty care
- Lower patient transfers to main campus
- Lower surgeon turnover
- Reduced time to hire
- Surgeons have association with an academic center

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Optimizing Procedure Practice Access: A Neurology Example

Authors: Christopher Tommaso, M.S.; James Watson, M.D.

Background: Procedural practices are significant revenue generators for many hospitals and clinics. Operating these practices efficiently to maximize capacity is critical not only for meeting patient needs, but also for driving positive financial outcomes. Patient demand for Neurology diagnostic procedures at the Mayo Clinic in Rochester has been growing significantly over the last several years. Many of these practices now have demand that is greater than their available capacity. This demand-capacity imbalance creates access issues for patients, delays care, and often causes patients to frequently call for openings due to cancellations. This project looked at increasing capacity for the Electromyography (EMG) Lab, Electroencephalogram (EEG) Lab, Epilepsy Monitoring Units (EMU), Autonomic Lab, and Movement Disorders Lab (MDL) practices.

Objective: Increase the schedulable capacity for the Neurology procedural practices and create plans for future capacity increases. Consider technologist and provider staffing models to increase efficiency and maximize procedure room utilization.

Planning/Research Methods: Over a period of six months, a multidisciplinary team was formed which included the supervisors and medical directors for all procedural practices. The team agreed upon a standardized template for compiling data, defining metrics, and detailing capacity improvement plans. Baseline data was gathered on the space utilization, existing capacity, calendar availability, and historical growth. These metrics were used to estimate potential future growth. The desired future capacity was then set to match the future growth with a 92% calendar fill rate. The team then used the baseline utilization data to understand opportunities to increase capacity. Staffing (technologist and provider), equipment, and space restrictions were reviewed to identify limits to growth.

Capacity improvement opportunities that did not require additional resources were implemented immediately. Plans were defined for capacity improvements that required additional resources.

Interventions Implemented and Results:
- EMG Lab – implemented a standardized calendar that set the number of openings based on the number of providers in the lab. Schedulable capacity was increased by 3% without added resources.
- Pediatric EMU – Increased schedulable capacity by 20% by shifting an underutilized Nurse Practitioner resource from the clinic to the EMU two half days per week.
- Adult EMU – Increased schedulable capacity by 17% by converting unfilled short term monitoring slots to standard admission slots.
- Movement Lab – Increased schedulable capacity by 12% by prioritizing coverage of the lab practice over other clinical assignments.

The impact of the immediate improvements implemented in 2018 increased revenue by 2% with minimal increases in expenses of less than 0.5%. Detailed capacity improvement plans were also created for all practices to document resources needed and increments of capacity available to meet the projected demand for the next 5 years. Implementing the defined capacity improvement opportunities will realize additional 20% increase in revenue per year by 2022 with a 10% increase in annual expenses.

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Outcomes of a Data Driven Physician Practice Re-Design

Authors: Kimberly McVeigh, MBA; Jacey Fazio, MHA; Thomas Rizzo, M.D.; Juan Irias Munoz, MBA

Background: As the number of patients requesting an appointment at Mayo Clinic continues to grow, we must be data-driven and strategic in how we create additional appointment availability, without requiring more resources. With limited facility space and a desire by the organization and physician providers to reduce burnout, we must be innovative in how we utilize the physical footprint, as we investigate a physician practice re-design.

Project Objectives: The primary aim of this project was to increase access for consults by 15%, increase availability for new patient evaluations by 50%, and improve financial performance by July 2018. A secondary aim, and also the counter-balance measure, was maintaining physician burnout scores.

Planning/Research methods: In the medical speciality of Physical Medicine and Rehabilitation (PM&R), historical demand data was utilized to calculate capacity, which led to building data-driven provider templates. Internal demand data was derived from orders that other providers placed into PM&R. External demand data was based on the information we capture when patients call in asking for an appointment. With finite physical space as a constraint on additional appointments for patients, we determined that offering extended AM and PM hours of care would allow us to more effectively utilize the physical space that we had. Finally, we considered the hours of our check-in and scheduling teams to ensure they were staffed adequately for these extended hours. To accommodate their reduced staffing during early AM and late PM hours, we put several return visits on the provider's calendars during those times because fewer resources are required by this team for those appointments.

Implementation methods:
(1) Converting provider calendar to four 10-hour workdays (as opposed to five 8-hour workdays) to avoid an increase in provider burnout and improve facility space utilization.
(2) Creating calendars that aligned historical demand with the capacity offered in the calendar
(3) Reducing capacity for return appointments, after using historical data to understand that we had more capacity than demand. This capacity was converted into appointments for consults and new patient evaluations.

During and post implementation, we monitored burnout scores to assess the impact of the schedule change on providers. Data collection was completed 3 months prior to and post implementation.

Results: After implementation of the new templates, we were able to increase our access by the measures listed below. While improving our ability to see patients in a timely manner, we were also able to increase our gross revenue by **10.62%** and reduce our physician burnout score by **25%.**

Measure	Pre (Sep-Nov 2017)	Post (Jan-Mar 2018)	% Change
# of New Evaluations per Month	26	52	100%
# of Consults per Month	206	239	16%
# of Procedures per Month	20	34	70%
Average 3rd Available for Consult	55 days	28 days	N/A
Average 3rd Available for New Evaluations	55 days	17 days	N/A

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Redesigning Clinic Access for New Efficiencies: Multi-Disciplinary Stone Clinic

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Background & Objectives: "The needs of the patient come first." are not only the words found on clinic walls but the guiding principle of Mayo Clinic and its never-ending commitment to providing elite patient care, education and ground breaking research. In today's fast paced culture, timely access plays a major role in how patients choose their health care provider. Stone Disease impacts approximately 1 in 11 Americans and can be a complex disease to effectively manage. The Departments of Urology and Nephrology at Mayo Clinic in Arizona diagnose and treat patients for Stone Disease independently, generating numerous appointments and often a duplication of work- a significant source of patient and employee dissatisfaction. Enhancing clinical access, increasing clinical efficiency, employee engagement and improving patient and learner experience are all essential factors to successfully provide world class care and maintain a competitive edge.

Planning/ Research Methods: Multiple stakeholders were consulted including Urology Physicians, Urology Administrative Leadership, Urology Allied Health Staff, Nephrology Physicians, Nephrology Administrative Leadership and Nutritional Services Leadership. A multidisciplinary project team was assembled with champions from each area that would be impacted by future change with a project manager and regular meetings. Other established multidisciplinary clinic models were reviewed as a baseline. A priority was to implement this clinic in a cost neutral manner and department approvals were sought and granted to implement.

Implementation Methods: In 2016, a Multidisciplinary Stone Clinic was formed so patients could be evaluated by experts from three different medical specialties including Urology, Nephrology and Dietary Services in one place during one patient appointment. The initial clinic's development included dedicating 0.1 FTE of three providers to a twice-monthly, half day of clinic, and utilizing a shared clinic space to increase the revenue per square foot. Two generic appointment calendars were used to schedule patients over a half day of clinic; one for surgical patients and the second for medical patients. Patient's charts were reviewed at the bi-weekly Kidney Stone Conference to triage appropriate patients to the appropriate calendars. Due to the overwhelming response in appointment requests for this clinic, a patient experience survey was conducted. The survey (N=101) addressed numerous questions including: patient access, clinical efficiencies, provider interactions, and satisfaction with care and education received. Given the results of the survey and the overwhelming appointment requests generated, the clinic was then expanded from a half day clinic to a full day of clinic with the three providers.

Results: The Multidisciplinary Stone Clinic has been tremendously successful. Within 18 months of the clinic launch, more than 400 appointments were generated, of which, more than 300 were unique new patients. Productivity and patient access increased by 100% as the Multidisciplinary Stone Clinic transitioned from a half day clinic to a full clinic day. Patient satisfaction surveys indicated 92.1% of patients felt they left their visit with a plan of care for their Stone disease. 71.6% of patients surveyed were likely to recommend the Stone Clinic to others. Patient feedback has been positive in regards to the educational benefit of having multiple providers review the reason for kidney stone formation and prevention. The efficient use of clinical time, real time team based care and communication is the paramount benefit of the Multidisciplinary Stone Clinic from the clinical provider perspective. The physicians stated that the efficient use of time via the pre-clinic conference allowed them to focus on current stone episodes in clinic; this increased provider efficiency and satisfaction due to the decreased clerical burden of providers no longer needing to place further orders for follow-up. Additionally, clinicians have increased their engagement through attendance of dedicated Kidney Stone Education Conference as well as the development of 8 ongoing research trials and improvement in stone-specific residency testing scores. The stone clinic recognizes the value of patients' time by efficiently getting them to the correct resources every time, provides a unique service, increases educational opportunities and has made research more concentrated and impactful.

Next Steps:

- Continue to add additional capacity to the stone clinic and the individual physicians, leveraging the use of Advanced Practice Practitioners, residents and the morning and afternoon clinic conferences.
- Develop a robust pre-visit and intake process for patients that will ensure labs, metabolic urine and other key items to support clinical decision making are completed prior to patient visits.
- Utilize the stone clinic to further expand the unique educational experience it provides for learners and the outcomes of their future patients.
- Use AI and algorithms to analyze patient behaviors and create lifestyle recommendations to lower the frequency of stone episodes.
- Share successes and best practices with other specialties that can benefit from a similar multidisciplinary approach to patient access.

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1. **Title:** A Lean Approach to Weight Loss Operations
2. **Authors:** Julie Hamm, BSN, MSN, ACNP-BC, Heather Hubbs, MSHA, MBA, Liam Woodard, MHA, SSBB
3. **Objective of Program:** The objective of the Lean event and subsequent process improvement initiatives is to reduce waste in the clinic's processes that lead to poor patient satisfaction, experience, and volume.
4. **Planning/research methods:**

   In November of 2017, Vanderbilt University Medical Center's Surgical Weight Loss Clinic held a Lean Event. The goal of this event was simple; clinic leadership wanted to reduce waste in the clinic's processes that led to poor patient satisfaction, experience, and volume. Over the course of three and a half days, team members including front-line associates, clinical providers, administrators and support staff met to review the current state clinic flow. The result of this event was a Vanderbilt record breaking one hundred and six identified problems and sixty-eight process improvement specific solutions to implement over the course of the next twelve months.

5. **Implementation methods, including sample sizes:** Visits to the clinic were measured by analyzing NEC GNAV Pro Link data for Patient Access to the Weight Loss Center pre and post Lean Event. The phone agent data represented is broken into three important categories; Agent Average Speed to Answer (how quickly the team answers a new phone call), Abandonment Rate (when a patient hangs up a call without answer after hearing the automated phone tree options) and Total Number of Agent Outbound Calls. The data displayed covers the timeline of August 1, 2017 to August 1,2018. Post Lean Event data is represented after the November Lean Event happened on November 1, 2017. All data was a direct report pull from NEC GNAV Pro Link by selecting the first and last day of the month for each respective month.

   Visits to the clinic were measured by analyzing Epic data for completed visits to the Weight Loss Center pre and post Lean Event. The visits are represented in the graph as falling between 8/1/2017 to 8/1/2018. The post Lean Event data is represented after the November Lean Event that happened on November 1, 2017. Looking at the visit data after the Lean Event, you can see a rise in overall visit volume compared to pre-Lean Event visits. All data was a direct report pull from our Epic EMR system.

   Patient Satisfaction was measured by analyzing Press Ganey data for average top box scores pre and post Lean Event. Pre Lean Event data represents surveys from visit dates falling between September 1, 2017 and November 30, 2017. Post Lean Event data represents surveys from visit dates falling between December 1, 2017 and September 30, 2018. To understand the impact the Lean Event had on patient satisfaction, we analyzed the following overall standards: Access, Moving Through Your Visit, Nurse/Assistant, Care Provider, Personal Issues, and Overall Assessment.

6. **Results (e.g., cost savings, increased productivity, improved quality of care):**
   - 94% Improvement in Patient Access
   - 55% Increase in Visit Volume
   - 9% Increase in Patient Satisfaction

Title: Creating a Financially Sustainable Transcatheter Aortic Valve Replacement (TAVR) Program

Authors: Alexis Kainz, M.H.A., FACHE; Peter Pollak, MD; Kevin Landolfo, MD; Barbara Naffziger, R.N., BSN; Amy Swenson, RCIS; Cynthia Lynady, RCES, RCIS; Rachel Rutledge, MAcc, M.H.A; Heather Walton, M.B.A.; Lindsay Shaw, M.H.A.; Christopher Hasse, M.B.A., FACHE

Background: In 2016, growth in TAVR procedures was experienced at all Mayo Clinic sites. In Florida, annual volumes grew 350%, increasing from 12 procedures in 2014 to 54 procedures in 2018. Due to the cost per valve of $67,000 and because TAVR procedures require intensive physician and allied health resources, each case performed resulted in a net operating loss. In order to continue to offer this critical service to our patients, we needed to assess opportunities for cost reduction to create a financially sustainable program.

Objectives:
1. Reduce the cost per case for TAVR procedures
2. Ensure the highest level of patient safety is maintained
3. Maintain performance in 30-day readmission and mortality rates

Planning/ Research Methods: An enterprise interdisciplinary team, consisting of physicians, nursing, administration, finance, supply chain, clinical documentation, and health systems engineering was formed. Key stakeholders were engaged to review current processes and diffuse best practices across sites. The team focused on opportunities to reduce supply costs and operational expenses, while ensuring appropriate coding to maximize reimbursement.

Implementation Methods: The following cost reduction strategies were implemented in a phased approach at Mayo Clinic Florida:

- Eliminated the need for perfusion standby.
- Transitioned the majority of cases from the OR to Cath Lab. The care team meets on a weekly basis to review cases and determine location based on clinical criteria.
- Eliminated the need for ICU stay post-procedure by increasing skills and competency of nurses to provide post-procedure care on the Cardiology floor.
- Reduced the number of allied health staff involved in the case.
- Reduced the length of stay for TAVR procedures.

Results: Through these interventions, we were able to reduce the overall cost per case while maintaining quality outcomes for our TAVR procedures.

- Reduced overall cost per case by 22%.
- Decreased length of stay from 4 days to 2 days.
- Decreased OR utilization, resulting in savings of $4,250 per patient. Since implementation, 85% of TAVR cases have been performed in the Cath Lab.
- Eliminated need for ICU stay for the majority of cases, resulting in savings of $1,700 per patient.
- Maintained 30-day readmission and mortality rates at MCF above the national average based on registry data.

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Improving Ambulatory Clinical Efficiency Through a Team-Based Care Approach

Authors
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Background
Planned Parenthood of Maryland (PPM) is an ambulatory reproductive health specialty practice that provides health care services of family planning, sexually transmitted infection testing and treatment, vaccines, birth control, cancer screenings and well women care. In FY 2018 PPM served 35,000 individual patients. With an over 90-year history of providing high quality reproductive care, PPM is the trusted provider to many women and men. In the summer of 2017, cycle time and patient satisfaction metrics for the seven health centers of Planned Parenthood of Maryland were not aligned with PPFA standards. Clinical inefficiencies contributed to extended cycle times for patients which resulted in poor patient and staff satisfaction. For family planning services, cycle times ranged up to 90 or more minutes, well above the PPFA standard of 60 minutes. The seven health centers struggled with appropriate patient satisfaction as reflected in the 2017 quarter three (2017 Q3) Press Ganey score (mean standard overall score) of 83.5, with centers ranging as low as 73.5.

Team-based care is a valid approach to improving clinical efficiencies and patient satisfaction in healthcare settings. Based on a toolkit of team-base care strategies, Planned Parenthood of Maryland adapted the Team Centered Patient Care approach from PPFA, and conducted a rapid implementation at all health centers over a course of 10 weeks.

Objective
Improve the patient experience for Planned Parenthood of Maryland patients through a reduction in cycle time and improved team-based care approach.

Implementation Methods
Planned Parenthood of Maryland, implemented a state-wide roll out of team-based care through a rapid training and implementation approach. The roll-out consisted of a rapid 3-day training and implementation per center, with a team of 3-4 peer trainers. It included 20 team-based care concepts broken out across three days, and changed practice in front desk registration, customer service, clinical intake, exam room practice, documentation and use of technology. Staff were trained for approximately 1 hour, and then asked to put changes into practice immediately for that session of service. Concepts were briefed at the beginning of the day, at lunch, and debriefed at the end of the day. Cycle time metrics were tracked through a Patient Activity Tracker (PAT) that had been previously implemented. Real-time data from PAT allowed trainers and staff alike to monitor their progress and evaluate the implementation per session and across the 3 days. Peer trainers coached side-by-side throughout sessions to reinforce training, resolve flow issues, and assist staff in implementing all concepts immediately. At the end of 3 days, trainers and health center staff celebrated their success

Results
The 3-day rapid training and implementation resulted in a reduction in cycle time by 15-30% per center. Six out of the seven ambulatory centers achieved the PPFA standard of 60 minutes or less for cycle time at the end of the 3-day training. In addition, results of increased patient satisfaction were realized and demonstrated through improved Press Ganey scores. Press Ganey mean score improved to 87.5 for 2017 Q4 and improved to 88.4 for 2018 Q1. Patient and staff satisfaction increased as well, with immediate positive feedback from frontline staff, providers, and patients.

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Improving Outpatient Chemotherapy Access and Workload Using Optimization Modeling Approach

Authors: Yu-Li Huang, Ph.D., Sherry A. Looker, R.N., Winston Stellner, Kirsten L. McLaughlin, Brieahna Dolan, Ismail Ahmed, Robert R. McWilliams, M.D., Joleen M. Hubbard, M.D., Rebecca L. Hinchley, Rebecca A. Pautz

BACKGROUND

The chemotherapy infusion unit is the key operational unit of an outpatient hematology/oncology practice. Safe administration of chemotherapy is crucial, and thus optimally managing workflows is a primary concern. National shortages of chemo trained nurses and the need to minimize overhead costs from treatment chairs both drive the need for efficient use of limited resources. A typical pattern of midday (10am – 2pm) peak volumes has led to insufficient staffing and lack of appointment availability. Moreover, the high treatment duration variability and the required medical attentions for each treatment add to the complexity of appointment scheduling. Our team believed that an optimal scheduling template could potentially address these issues.

OBJECTIVE

Although it was important to determine the number of nurses needed, it was foremost critical to allocate nursing resources where patients' needs were during the infusion when designing a scheduling template. Therefore, the objective was to minimize the nursing resource constraint violations (unmet patient needs) using constraint-based optimization accounting for staffing and space capacity in a finite clinic hour to determine when a patient should be scheduled so that a more evenly-distributed or smoother patient load throughout a clinic day could be achieved.

PLANNING/RESEARCH METHODS

The scheduling template design used optimization approach to achieve smoothed daily workload; see graph. The steps were:

1. Understand scheduling volume and visit type distribution: Appointment data was used to determine the numbers of each patient type should be dedicated in a scheduling template to meet patient preference and medical needs.
2. Define nursing resource constraints: Three constraints were considered: (i) patient to nurse ratio of 2.5:1 at any time in a day; (ii) patient to nurse ratio of 1:1 for the first and the last 15 minutes of treatment; (iii) patient to nurse ratio of 1:1 during treatment in a 15-minute interval defined by medical necessity and experience.
3. Develop the constraint-based optimization model: The objective was to minimize nursing resource constraint violations with constraints of space, nursing staff, hours of operations, patient type mix, and patient volume.
4. Develop the levelling (smoothing) algorithm: The objective was to finalize template by utilizing minimal chair capacity while accommodating patient volume and needs to alleviate high patient volume during the peak hours.

IMPLEMENTATION METHODS

To ensure smooth transition from current practice, the following tasks were executed:

- Create external and internal communications for both patients and medical staffs to understand the changes on what was changing, why the changes were needed, and what else patients and staff should know.
- Develop override policy allowing schedulers to create appointment slots while maintaining as close as possible to the design of the optimal template to increase the appointment scheduling robustness.
- Develop an appointment tracking system providing a visual on how patients were scheduled in a 10-day span to assist schedulers for patient placement and overbooking medical necessity and inevitable preference.

RESULTS

The work is extending to other Mayo infusion centers. The results for Rochester campus (45 chairs and average 150 visits) are:

- Smoothed number of chemo chairs utilized throughout the day for a more predictable, balanced, and safer workload for nurses consistently around 40 patients throughout a day
- Reduced patient time in a chair by 15% allowing for chair utilization to drop from 75% to 60%
- Increased chemotherapy volume by 6.4% (increased patient access to care)
- Increased chemo-related productivity by 6.7% (20% higher than comparable external benchmark)

- Delayed chemotherapy unit facility expansion at least five years
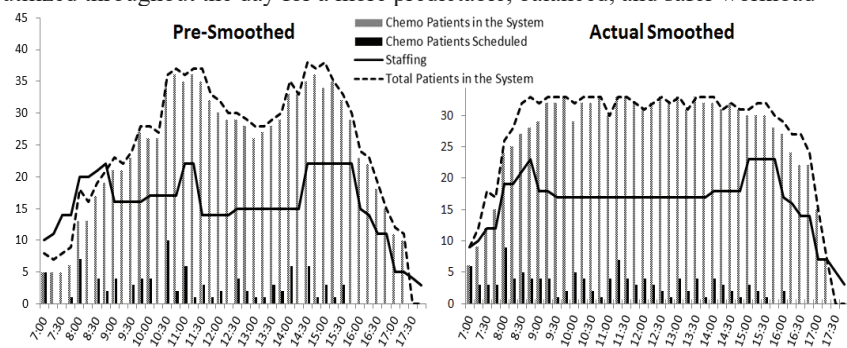
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MAYO CLINIC

Increasing Hospital Bed Capacity by Optimizing Outpatient Surgical Discharges

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Background: Optimizing patient flow is an increasingly prevalent operational management issue in the era of healthcare industry consolidation and declining reimbursement. Perhaps the greatest challenge in patient flow is the lack of vacant hospital beds, which contributes to Emergency Department boarding (i.e. crowding); a national epidemic increasing patients' length of stay, morbidity, and mortality. Further, hospital capacity and safety issues are exacerbated by a significant growth in surgical volumes and the number of outpatient surgical cases that transition into inpatient hospital beds. In addition, the *Outpatient Prospective Payment System (OPPS)* bundles payments for surgical procedures that do not appear on the annual Centers for Medicare and Medicaid Services (CMS) *Inpatient Only Surgery List.* The result is non-reimbursable hospital stays. With the number of overflow patients growing, a thriving surgical practice, and no additional beds available in the near future, a solution was needed for Mayo Clinic in Arizona.

Objective: Increase hospital bed capacity by optimizing same-day outpatient surgical discharges through the development of a quality improvement program that evaluated all outpatients-in-a-bed.

Planning/Research Methods: Six Sigma and Lean principles were used throughout this project, following the DMAIC framework (define, measure, analyze, improve, control). Having clearly defined (**D**MAIC) the challenge, a multi-disciplinary workgroup was formed to measure and guide this work. This group was comprised of administrators, physicians, finance analysts, internal quality consultants, care managers, and nurses. Data was gathered including the total inpatient census as well as the number of outpatients-in-a-bed; the measurement phase of the project (D**M**AIC). The patients were sorted by type of procedure as well as surgical service. The program then began to analyze (DM**A**IC) all surgical outpatients who stayed in a hospital bed overnight. Through this analysis, the team identified several opportunities to safely improve the number of surgical outpatients discharged the same day after their surgical procedure that was not on the inpatient-only surgery list (i.e. outpatients-in-a-bed). With the help of the workgroup, several best practices and opportunities for improvement were developed (DMA**I**C).

Implementation Methods: To help diffuse the process improvement across the organization, the workgroup developed an implementation 'toolkit' that could be easily customized and shared with all departments and hospital locations. The intervention safely increases the ratio of surgical outpatients who are discharged home versus those who stay overnight in a bed.

The toolkit included:
- Suggested patient education materials for outpatient surgery
- Time-of-day scheduling best practices
- In-person or remote follow-up best practices (e.g. post-operative day number one to assure safety)
- Enhanced recovery best practices
- Home and supportive services opportunities
- Procedure-specific recommendations

For further efficiency, standardization, and ease of use during this implementation phase (DMA**I**C) the workgroup also created a communication plan for practice department and division leaders. Leadership from the work-group provided initial information electronically to department and division physician and administrative (dyad) leaders. Next, we met with those leaders through a series of committee, department/division and one-on-one meetings to build awareness and support. For dissemination within department and divisions, dyad leaders were supplied with a set of slides to educate their department/division, an educational PDF document with key messages, data for their department/division (including by individual surgeon), the toolkit for safely improving their outpatient-in-a-bed ratio, and the accountability methods that would be used. The accountability for these practice leaders (a key component of the Control phase in our DMAI**C** process improvement methodology) was in the form of a transparent quarterly report on the rates of outpatients-in-a-bed and readmission by department/division, by individual surgeon, and by individual type of operation sorted by surgeon. Education was conducted outlining CMS's Inpatient Only Surgical List as well as the OPPS.

Results: Across the hospital, outpatients in a bed decreased from 4.0% of total census in 2015 (n= Total Census: 66,434; OP in Bed: 2625) to 3.3% by 2017 (n= Total Census 73,716; OP in Bed: 2454). By November 2018 YTD, outpatients in a bed made up only 2.7% of total census (n=71,059); a significant hospital-wide improvement. Some departments saw greater individual improvements. For example, in 2014, 36.0% of ankle, foot, hip, leg, shoulder, and arm orthopedic surgery outpatients-in-a-bed were being admitted; by the end of 2017 only 5.5% were admitted.

Conclusions: Surgical outpatients-in-a-bed provide an opportunity for optimization of patient flow within healthcare facilities. With appropriate education and tools, surgical practices can significantly and safely improve the rate of same-day discharges of surgical outpatients-in-a-bed.

MAYO CLINIC

Increasing Surgical Yield through Improved Medical Practice Access: A Gynecology Example

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Background: The Department of Medical & Surgical Gynecology at Mayo Clinic in Arizona provides comprehensive gynecologic care inclusive of medical gynecology, urogynecology, gynecologic oncology, and surgical gynecology. In early 2017, a sharp decline in scheduled surgical patient appointments and surgical volume was noted. This was in follow-up to similar decreases in volume noted in mid-2016, though end of year volume had rebounded slightly. This decreased volume was unexpected and unexplained, resulting in decreased financial performance and surgical yield, as well as dissatisfied surgeons. In contrast to such decreases in surgical volume, the medical gynecology team did not experience such decline, and volume remained strong and consistent with time to next available medical gynecology consult averaging 2+ weeks.

Objective: To increase volume of scheduled patient appointments and surgical volume within the department. Primary metrics of success include increased volume of scheduled patient appointments per month (booked appointments) and increased surgical cases per month, meanwhile ensuring continued strength in Press Ganey® patient satisfaction scores by maintaining or improving overall assessment satisfaction score.

Planning/Research Methods: Administrative and physician leaders engaged in a comprehensive review and analysis to determine variables that may have contributed to decreased volume and implement a solution to return practice to expected volume and enable growth. Activities included:

- Engaging key stakeholders and resources (physicians, patients, revenue cycle, finance, provider relations, marketing, and the Central Appointment Office) to understand current volume decline, financial impact, patient waitlists, scheduling patterns, and market activities/changes that may have resulted in changes in patient volume and referrals.
- In analyzing declining referral volumes by provider, unfilled consult appointment rates, booked appointments, surgical case volume, and variability between medical and surgical gynecology volumes, key results and insights were arranged into 4 general themes: (1) increased competition in the market was driving surgical referrals to other outside surgical centers, (2) surgical volume and case yield had decreased, despite consistent demand and volume within the medical gynecology practice, (3) total number of surgical cases per month and surgical yield was directly related to booked appointments by month, inclusive of medical gynecology appointments, and (4) patients and referring providers continue to value accessibility to routine gynecologic care, even in a tertiary care center such as Mayo Clinic. In prioritizing interventions available to address these themes, expansion of access to medical gynecology appointments for patients was selected as having the most potential impact, while also addressing other challenges identified simultaneously.

Interventions Implemented: Beginning May 2017, clinic calendars of all providers within the department, inclusive of surgeons, were opened to medical gynecology appointments and patients. While a hierarchy remained in place, such that surgeons' calendars were first filled with surgical consults, if appointment slots were not filled with such volume 2 weeks prior to calendar date, the calendar was opened for all medical gynecology patients, as well. Additionally, physician assistant (PA) calendars were also opened to medical gynecology volume to increase capacity, resulting in pre- and post-operative volume shifting to surgical fellows' calendars primarily. This added significant incremental capacity for medical gynecology volume, including calendars of 2 full-time PAs, 6 consulting surgeons, and 4 surgical fellows.

Results: Total volume of booked appointments within the department and surgical cases per month were tracked pre-intervention (January 2016 through April 2017) and post-intervention (May 2017 through September 2018), to observe trends and impact of such intervention. These results and impact are largely transferrable to other combined medical and surgical practices, demonstrating the key impact that medical practices have in surgical case yield.

Department of Medical & Surgical Gynecology: Booked Appointments and Surgical Cases Per Month

- Results showed a 21.54% increase in booked appointments per month (average of 610 per month pre-intervention and 742 per month post-intervention)
- Surgical cases per month increased 10.77% overall (average of 80 cases per month pre-intervention and 88 cases per month post-intervention). Greatest number of cases per month pre-intervention was noted at 98 vs. 113 cases per month maximum post-intervention
- Patient satisfaction was positively impacted, as evidenced by an average 2% increase in the overall assessment section of the Press Ganey® survey (89th percentile score for 12 months pre-intervention vs. 91st percentile score for the 12 months post-intervention)
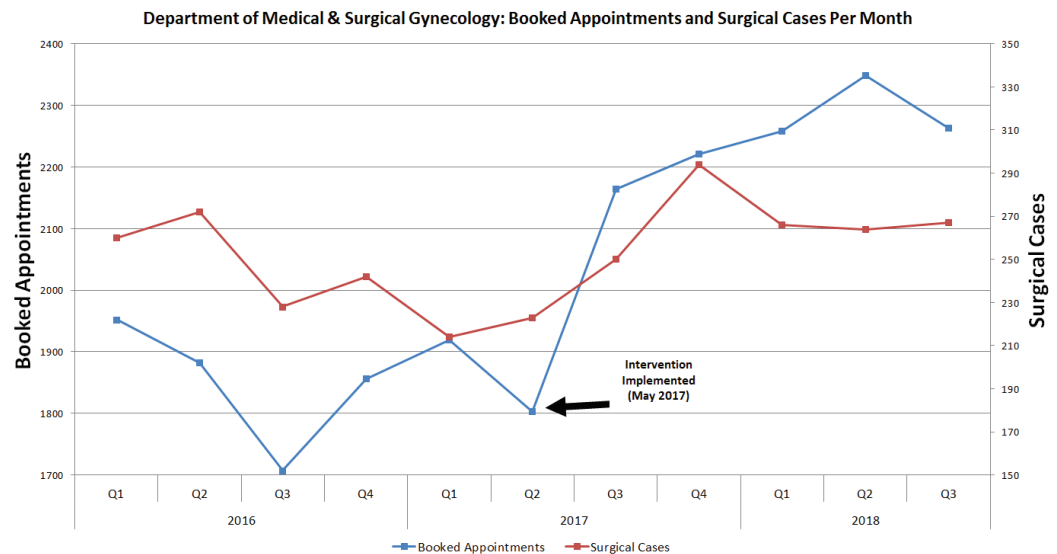
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Reducing Clerical Burden by Optimizing Patient Communication

Authors: Lindsey Lehman, M.P.H, M.H.A, Eileen Anderson, M.A., Stephen Fischer, M.H.S.A.

Background: As healthcare continues to move toward alternative care platforms, patient adoption of online portal communication has steadily increased. Now, more than ever, providers and care teams are more easily accessible to address patient questions and concerns. Many organizations continue to encourage portal usage to decrease unnecessary visits and improve access. However, this has shifted clerical burden, increased non-visit care time, and contributed to provider burnout. Many patient questions or concerns are clerical in nature and do not require input from a provider. By implementing a systematic approach to triaging patient portal messages, it is possible to meet patient expectations for timely access to information, without increasing clerical burden for providers.

Objective: Reduce provider clerical burden through implementation of a triage mechanism for patient portal communication. Triage messages appropriately to the correct role to prevent unnecessary inter-team communication (touches) and allow individuals to work to the top of licensure/role. Ensure consistency by having a dedicated resource pool managing the initial triage of patient portal communication.

Planning/Research Methods: An interdisciplinary team (including providers and supervisors from each allied health team) was established to focus on improving patient – to – provider communication. Pre (N=149) and post (N=117) implementation survey data was collected to assess satisfaction of providers and allied health staff members. One week's worth of portal messages were also collected pre (N=440) and post (N=545) implementation to identify and assess potential triage workflows (pre) and impact of interventions (post).

Implementation Methods: A multifaceted strategy was developed that included: 1) Dedicated, full-time medical secretary resource to triage messages; 2) Standardized triage algorithm to assist in directing messages to the right person on first attempt, decrease unnecessary hand-offs between care team members, and reduce workflow variability amongst the practice; and 3) Prepared responses to ensure message content, questions, and general patient communication were presented to providers in a routine manner to increase efficiency and eliminate unnecessary clerical work.

Results:

Key Indicators
- Decreased messages sent to providers from 57% to 49%.
- Decreased the average number of touches per message by 15%.
- Increased triage accuracy (routed to right person the first time) from 37% to 83%.

Supporting Data
- 75% of responding staff felt that management of portal messages was working well – a 13% increase from the pre-intervention survey taken in 2017.
- 81% of messages were responded to within 48 business hours.
- 95% of messages triaged to providers were appropriate and resolved by providers.
- This success was achieved even with a 24% increase in weekly portal messages.

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MAYO CLINIC

Utilizing Flexible Scheduling & Team-Based Care to Improve Operational Performance in a Pain Medicine Practice

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Background
Faced with long wait times for appointments, low Advanced Practice Provider (APP) utilization, low patient satisfaction scores, Allied Health (AH) staff turnover, and a negative operating margin, the Department of Pain Medicine undertook significant practice redesign efforts to address long-term issues in the department.

Program Objectives
1. Improve patient satisfaction by reducing procedural wait times
2. Improve staff satisfaction by changing AH staff schedules and developing a care team approach to patient care
3. Achieve break-even operating margin
4. Increase utilization of APPs

Planning Methods
Practice leadership reviewed Press Ganey scores and free text comments to identify patient satisfaction improvement opportunities. Common themes identified from 2017 scores included dissatisfaction with seeing multiple providers and long wait times for both office visits and procedures. AH staff expressed similar dissatisfaction working with multiple providers, noting the difficulty to care for patients. The department decided to move towards a care team model, in which each physician was paired with an APP and Registered Nurse (RN) to care for a panel of patients. AH staff had expressed interest in transitioning to four ten-hour shifts from the traditional five eight-hour shifts. While the shift to ten-hour clinical days did not align with provider preferences, a financial analysis indicated that the department could realize gains in net operating income if incremental AH staff were hired to support extended procedural days and the care team model.

Implementation Methods
1. Care Team Model Implementation
    a. Developed patient information cards explaining the care team model, the department emphasized the care model through Medical Secretary and AH staff scripting, and managed patient expectations through physician communication of APP and physician involvement.
    b. Hired one incremental RN and one incremental Licensed Practical Nurse (LPN) to support the care team model.
    c. Reinforced the care team model by scheduling patient visits with members of the care team.
2. Clinic Template Redesign
    a. Increased the number of operating room starts by two per month, which remain unassigned until two weeks prior to meet real-time demand of OR procedures.
    b. Reduced the number of return visits by 30% and increased consults by 50% on physician templates.
3. Increased Procedural Availability
    a. Increased procedural slots on average by 30% per week using longer AH staff shifts and updated physician templates.

Results
The Department of Pain Medicine experienced top box score increases across several patient satisfaction score categories compared to prior quarters (Overall Assessment – 69.5% to 82.1%; Access – 60.0% to 70.3%; Moving through Your Visit – 56% to 75.4%; Nurse/Assistant – 74.2% to 88.6%). December year-to-date gross revenue and net revenue increased by 28% and 26%, respectively year-over-year; net operating income increased 367% year-over-year, surpassing the break-even margin target. APP calendar utilization increased from 69% (January 2018– May 2018) to 81% (June 2018– October 2018; Mayo Clinic Florida implemented Epic in mid-October 2018). Patient access to procedures improved to within two weeks from four weeks previously, while only increasing wait times for consults by 10%. Staff satisfaction was not measured directly before or after implementation of these redesign efforts. However, anecdotal feedback from staff is positive; the care team model streamlines communication between providers and enables more efficient care of patients.

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A Multidisciplinary Team Approach to Reducing Readmission Rates

Renee Jones, MS; Elissa Yaw, APRN, CNP; Jordan Coffey, MBA, MHA, MA; Sarah Yeakel, MBA, MHA; John Stulak, MD

Background

Reducing early postoperative readmissions is of keen interest to Hospital Administrators, both to improve the quality of care and reduce costs. As a result of higher-than-desired readmission rates for coronary artery bypass grafting (CABG) procedures, the Department of Cardiovascular Surgery at the Mayo Clinic launched a review of readmission causes and implemented interventions to reduce readmissions in this patient population.

Objective

The objective was to reduce 30-day unplanned CABG readmissions by 20% within a 6-month period.

Planning/Research Methods

The department formed a multi-disciplinary team comprised of physicians, advanced practice providers, healthcare systems engineers, and administrators to define the goals, objectives, and methods.

- Utilized DMAIC (Define, Measure, Analyze, Improve, and Control) framework.
- Performed a root cause analysis for a cohort of post-CABG readmissions during the identified time-period to determine the most prevalent reasons for 30-day all-cause readmissions within the population.
- Identified the three most common causes for readmission: 1) infection, 2) heart failure/effusion, and 3) clotting (deep vein thrombosis (DVT) and stroke).
- Collected baseline data on average time to readmission, patient follow-up compliance, and the rate of contact between post-CABG patients and the cardiovascular surgery care team.
- Conducted a best-practice review, highlighting the importance of post-discharge follow-up in reducing readmission rate.
- Reviewed inpatient and discharge protocols and identified opportunities to improve adherence to DVT prophylaxis.

Interventions Implemented

- Implemented a process to support compliance with inpatient protocols for postoperative DVT prophylaxis.
- Assigned a provider to identify and contact a cohort of post-discharge patients within one week of discharge.
- Engaged key stakeholders to endorse the interventions.

Results

- Reduced overall readmissions by 22%.
- Decreased readmissions in each category identified in the root-cause analysis: infection (by 50%), heart failure (by 100%), and DVT (by 100%).
- Increased compliance with postoperative DVT prophylaxis standards from 20% at baseline to 66% within the pilot group.
- Increased postoperative follow-up visits by 78%.
- Calculated an estimated 13 readmissions would have been avoided had these interventions been in place for the pre-pilot patients.

Lessons Learned

- Involvement of stakeholders from a range of disciplines (clinical and administrative) allowed for a broader view of the issue.
- A comprehensive review of clinical data was critical to accurately identify the reasons for readmission as well as to develop and implement appropriate interventions.
- Offering options for postoperative follow-up (i.e., phone call, in-person, or video visits) increased patient postoperative follow-up rate, representing a model that may be easily replicated in other practice areas.

Next Steps

- Proceed with implemented interventions for complete calendar year and conduct full data analysis.
- Implement a post-discharge call triage process to allow patients to reach an appropriate member of the care team if they have concerns before or after their follow-up visit.
- Improve hand-off and coordination with outside providers and facilities to identify patients who had received postoperative follow-up visits.
- Evaluate other peri- and postoperative protocols to further improve root cause factors for readmissions.
- Share the lessons learned and the methods developed through this project to surgical procedures and practice areas beyond the CABG patient population.

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Title: Adopting a Tiered Huddle System to Empower Broad Based Action

Authors: LTC Donald Sexton, FACHE; MAJ Brent Hayward; MAJ Armando Generoso; CPT Joshua Moser

Background: Experts suggest that highly reliable performance can be achieved through collective mindfulness—a collective behavioral capability to discover and correct preventable errors and adapt to unexpected events. In light of this, hospitals often organize their (team-level) high reliability strategies around the TeamSTEPPS methodology. This framework enables team communication, mutual support, and a shared mental models in order to identify and respond to unanticipated events. Few studies have shown the use of these strategies to improve communication across teams throughout the hospital.

Objective: Our Tiered Huddle System was deliberately designed using the TeamSTEPPS concepts to facilitate intraorganizational communication and collaboration. The system allows information to flow up from the clinic (Tier 1) to the Department/Service (Tier 2) and then to the Hospital's daily operations brief (Tier 3). This way of organizing allows our hospital to quickly identify organizational risks, respond with a multidisciplinary approach, and provide feedback across the system. It also provides transparency of issues and empowers staff to get engaged at the front-line.

Planning/Research Methods: The Tiered Huddle System began with the development of unit/department level safety huddles with a defined template and then section level huddles were added culminating in the addition of the hospital level huddle. There is a focus on key performance metrics which consists of a small set of defined performance indicators. Foundational to these indicators is a focus on unexpected outcomes occurring in the past 24 hours, predictions of any known concerns for the next 24 hours, and requests for assistance. There is a deliberate focus on two-way communication where managers spend some time communicating to staff, but staff are encouraged to raise issues and concerns to management (elevate risk).

Implementation Methods: The rollout occurred with the assistance and mentoring from the TeamSTEPPS master trainers. There was an intentional effort to protect schedules from 7:30 to 9:30 AM to allow maximum participation in the tiered huddles. There are no key meetings or expectations placed on staff during this protected time. This brief and multi-disciplinary approach allows full worker participation, engagement, and collaboration. The communication of concerns/issues is tracked on a daily tracker and the feedback is completed immediately on some issues that pertain to that day and other issues are followed up on the following day and daily until resolution. Tracking and trending of any safety, infection control or patient safety events or concerns are communicated through a "Safety Focus of the Week" which helps to quickly educate staff regarding specific, real-time patient safety trends as needed.

Results: The most impressive result of the Tiered Huddle System has been the significant increase in reporting of Patient Safety Reports (PSRs). Prior to implementation of the Tiered Huddle System, the average number of PSRs reported were 77 per month. The average after implementation rose to 1495 PSRs per month. The No Harm reporting increased from an average of 43 PSRs/month to an average of 72 PSRs/month after implementation. System-level safety concerns (that touch more than one area) get immediate executive-level focus and priority. There has also been a significant increase in collaboration and a decrease in turnaround time for issue resolution since implementing the Tiered Huddle System. Our staff have begun to express gratitude publically for assistance/help received which has led to increased morale and promoting a safety culture. Because of this robust communication structure, the unit level huddle (Tier 1) is now expanding into Lean Daily Management and visual management boards.

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Establishing an Opioid Stewardship Program to Reduce Opioid Prescriptions

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Background

Opioid prescriptions increased from 76 million in 1991 to 207 million in 2013. In October of 2016, the Surgeon General released a report which stated that 20 million Americans suffer from a form of addiction; opioid use in America is generally recognized as an epidemic with approximately 42,000 deaths from opioid drug overdoses in 2016. In order to address this issue locally, Mayo Clinic formed the Opioid Stewardship Program in 2016, with the goal of decreasing opioid prescriptions.

Objective

The project objectives were to:
- Reduce the overall volume of opioid prescription drugs for patients at Mayo Clinic.
- Update and increase compliance of opioid prescribing guidelines for chronic and acute pain.
- Develop opioid education resources for patients and staff members.
- Establish a patient screening tool to assist care teams in evaluating risk factors for substance abuse and opioid related complications.

Planning/Research Methods

An opioid stewardship team was formed and comprised of: surgeons, multi-specialty provider teams, patient educators, administrators, pharmacists, quality staff, process engineers, and researchers. In order to establish a baseline, the team conducted a research study on opioid consumption by patients undergoing surgical procedures. Data from the baseline study was used to verify current best practice guideline appropriateness and identify variation in prescribing practices.

Implementation Methods

A robust Opioid Stewardship Program was established at all sites across 5 states. Staff tools and patient resources were created and shared via the organization's internal and external websites. These included: acute, chronic, and specialty prescribing guidelines; opioid risk tools to determine appropriateness of prescribing guidelines; electronic health record (EHR) practice tool for patient screening; training modules to fulfill individual state continuing medical education requirements; opioid action plan tool to assist in recording patient encounters; and patient education materials. A structured roll-out plan was implemented using a variety of tactics to maximize awareness and availability of resources for care teams and patients.

Results

A 2018 study was conducted comparing pre and post-guideline implementation for 25 elective surgical procedures. The pre-implementation data, from 2016, and post-implementation data, from August to December 2017, indicated a reduction in the opioid prescription volume. For total knee and total hip replacement surgeries, there was a 50% reduction in median opioid prescription quantity and a 38% increase in opioid guideline compliance after 6 months.

Lessons Learned

A comprehensive team with a systematic approach proved to be effective. The approach included developing specific opioid prescribing guidelines and a compliance tracking process, and providing education resources to patients and staff.

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Goal-directed Achievements through Geographic Location (GAGL)

Authors: Gene Richie, R.N. M.H.A., Andrew Keimig, M.B.A., Greg Coltvet, M.B.A., Jennifer Cowart, M.D., Rachel Botella, APRN, M. Caroline Burton, M.D.

Background: The rising Medicare population, Value Based Purchasing models, and future implementation of Medicare Spending per Beneficiary modeling are forcing organizations to consider highly efficient quality methods for delivering inpatient appropriate care without complication.   Co-locating same service line patients on the same unit can provide value to the organization through efficiencies gained related to teamwork, resource management and services provided in a consistent manner.

Objectives
1. Increase efficiency with staff resource allocation to geographically designated work areas seen through a variety of quality and financial measures.
2. Positively impact the patient experience given a multidisciplinary team-based model, providing consistent quality interventions, resulting in appropriate disposition of the patients.
3. Support institutional initiatives to drive down observed-to-expected mortality, lower the readmission rate, decrease the average length of stay for a defined population, and reduce the cost per case through mindful ordering of procedures and testing.

Planning and Research Methods: Hospital Internal Medicine service patients were targeted to occupy a newly opening unit, allowing this pilot with minimal overall impact to the hospital infrastructure. Planning a daily multidisciplinary rounding process required commitment from several key services to set up the process for success. This work was sponsored by the Readmissions Subcommittee where multiple stakeholders had input on designing the pilot. Daily rounds would be hosted by the inpatient Case Manager, last between 15 -20 minutes, and focus on discharge planning, specifically addressing individual patient needs that were preventing discharge. A rounding program was developed using Microsoft Access for use in the process. Additional data points were collected through EHR interfacing using a data warehouse. To assess impact, the team planned on conducting monthly assessment to determine effectiveness by comparing patients geographically located on the selected inpatient unit compared to Hospital Internal Medicine patients on other units with respect to primary diagnosis, length of stay, 30-day readmission rate and adverse events such as cardiac/respiratory arrests (code blue) events and inpatient mortality.

Implementation Methods: The project was executed over a six month period beginning in January 2017. The multidisciplinary GAGL rounds were hardwired to begin at 10 AM daily Monday – Friday including a case manager, nursing team leader, hospitalist physicians and nurse practitioners, pharmacist, physical therapist or occupational therapy and dietician. The case manager lead rounds daily in a standardized pre-defined fashion discussing patient needs, discharge barriers, home health needs, and post discharge support. Findings were documented in the created database and priority action items communicated to the members of the team and nursing staff using internal communication methods, most often within 15-30 minutes of completion of the rounding process, allowing for focused work to facilitate patient discharge

Results: Six-hundred and twenty patients met inclusion criteria. 213 (34%) patients were admitted to the selected unit while 407 (66%) patients were admitted to other hospital units. Patients in both groups were similar with respect to age [68 (55, 80) vs 69 (55, 79), p=0.891], female gender [116 (54.5), p=0.272].
Patients admitted to the selected hospital unit had a shorter LOS [3.17 days vs. 4.18 days, p=0.01] fewer RRT/Code blue events [2 (0.9%) vs. 15 (3.7%), p=0.047] and fewer risk events [20 (9.4%) vs. 70 (17.2%), p=0.009]. Lower 30-day readmissions occurred in the cohort admitted to the selected hospital unit; however the difference did not reach statistical significance [20(9.4%) vs 50(12.3%), p=0.28]. A significant difference in the number of avoidable days between the two groups studies (p=0.92) was not appreciated. Plans for further dissemination of this rounding technique are planned for implementation following development of a more robust rounding data management tool.

Next Steps: The Access Database was converted in MIDAS (Mayo Clinic's quality database) and plans are in place to implement this on additional units in the first half of 2019. With Mayo Clinic's transition to Epic, an enterprise workgroup has formed to identify how to build a similar tool within Epic.

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Human Trafficking: A Hospital Systems' Call to Action and Their Response

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Purpose

Human trafficking is a modern day slavery and involves the use of force, fraud or coercion to obtain some type of labor or commercial sex act. It is a $150 billion global industry that robs 25 million people around the world of their freedom" states Polaris, a nonprofit organization dedicated to preventing human trafficking. The group calls for greater awareness of community and strong partnership from health care professionals to address the growing problem of adults and children working against their will. In addition, with Houston, Texas so close to the Mexico border and an international hub for travel, the need for a strategy to address is further compounded.

Strategy and Implementation

At the beginning of 2018, the Houston Methodist Hospital System had no policy, nor awareness for Human Trafficking in Houston, Texas, but the impetus was very strongly present to address. To meet this call to action, Houston Methodist Hospital System developed a 5 pronged approach to meet the need.

Interjection of General Employee Awareness

A pre assessment showed that neither clinical nor nonclinical employees soundly realized that our patients could be victims, let alone did they know what to do if a potential victim was identified. To stimulate awareness the establishment of a formal Human Trafficking Committee and a National Slavery and Human Trafficking Day was planned for the hospital system, including booths from various organizations that work with victims of human trafficking in order to give employees a chance to ask questions and get involved.

Development of Policy

The Human Trafficking Committee's first step after bolstering general awareness was to then create a policy for the masses to reference in their quest. In August, the CEO of the system underscored the importance of this committee's efforts on awareness and policy generation by emailing all employees about the undertaking. Referencing works by others in the community, such as AHA and other hospitals in the Texas Medical Center with who collaborations were underway, an internal policy was drafted and presented for approval with unveiling as part of the National Slavery and Human Trafficking Day in January 2019.

Established of Guidelines

After a policy was drafted, it was necessary to provide in more comprehensive guidelines around how to identify a victim and what to do from that point forward. For example, there may be a negative and powerful psychological dependency that a victim may have on captors that are in attendance with the patient seeking care. Situations such as this need clear instructions on how to handle with the safety of all in mind. Thus, the guidance descriptive enough to address was established.

Development of Focused Education and Action Steps

With a policy and guidelines in hand, the next step is to address gaps in the education of all employees of Houston Methodist Hospitals around the topic of Human Trafficking. Healthcare professionals must be trained in how to recognize a potential victim and what to do once a potential victim is recognized. This training is team approach with social work, security, chaplains, housekeepers, nurses and doctors working together.

Institution of Community Partnerships

To ensure that up to date information and resources are in place for usage by the rescuer and the victim, the establishment of concrete partnerships in the community are of utmost importance. Victims, once identified, will need support mechanisms to help the individual(s) get out and get reestablish themselves on good footing beyond the hospital setting (i.e. housing, education/job, legal assistance, healthcare assistance). If not done, then there is high probability that the victim will slip back into the human trafficking system that although not desired, is what gives them the basic life needs required. To this end, Houston Medical Center has developed the Human Trafficking Consortium to develop networks with others working with Human Trafficking victims.

Evaluation/Outcomes

In the last year, much has been accomplished at the Houston Methodist Hospital System. A Human Trafficking Committee has been established, a policy designed, unveiled and adopted at a National Slavery and Human Trafficking Day planned for the hospital system. In August, the CEO of the system underscored the importance of this committee's efforts on awareness and policy generation by emailing all employees about the undertaking, which led to high volumes emails inquiring about the committee and Human Trafficking internally. Externally, local news stations and community papers have interviewed the Human Trafficking committee members, which has led to further advocacy of the issue. One positive that came of this, in particular, is an alignment with the Human Trafficking Consortium in the Houston Medical Center. This committee is a network of healthcare providers, community recovery resources and legal support mechanisms aimed at breaking the chain of human trafficking. Houston Methodist Hospital has also met several times with the American Hospital Association (AHA) to further both parties' knowledge resources sharing training tools and references to expedite the educational focus at the hospital and for the AHA membership at large. At Houston Methodist, a learning module for hospital employees system-wide on human trafficking will be rolled out with the annual competency trainings in that all staff must complete. In terms of the strengthening of resources already established, further efforts are planned in 2019 to broaden the list of available legal support and shelters referenced in the area and developing further means to meet needs around long term psychiatric care. In order to be successful long term and keep victims free from returning to their negative environments, it is critical that individuals are set up to care for themselves and their dependents mentally, physically and financially.

Implications for Practice

Human Trafficking is both a criminal act as well as a human rights violation. It affects us locally, nationally and world-wide. It affects every age, race, and religion. It affects us as an organization and as individuals. There are many that can take this one step further and say that they or someone they know too have had experience in this realm. Because of its ability to touch everyone, it is the onus of healthcare workers to take advantage of the singular opportunity to change someone's life. The call to action is for others to tread either at our shoulder or in our footfall to accomplish the same objectives at their respective sites. All humans are valuable and all humans are accountable for ensuring that value is self-preserved.

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Objective:
Enhancing physician wellness has emerged as a cornerstone initiative for hospitals around the country. Following the deployment of an institution-wide wellness survey in 2017, the Brigham and Women's Hospital and Physicians Organization sought to identify physician-led initiatives for driving physician engagement and enhancing physician wellness. The goal of the Brigham-To-Table Initiative was to encourage and inspire Brigham Health physicians to connect with one of the most valuable assets of the institution: their colleagues. By emphasizing connections among physicians across the institution, participants would reestablish and reinvigorate their professional careers by reinforcing the reasons for choosing a career in medicine, draw inspiration from the cultivation of meaningful peer relationships, and be reminded of the importance the organization places on physician wellness and human capital.

Planning/Research Methods:
The Brigham-To-Table Initiative was built on a model launched at Harvard College titled "Classroom to Table" (https://oue.fas.harvard.edu/classroom-table). In order to foster academic engagement and personal connection, the Classroom to Table initiative covered meals at local restaurants for groups, comprised of faculty members and students in their courses. The events allow for enriching conversations and for personal connections to be fostered in an ambiance independent of the cost considerations for a nice meal. We envisioned building a similar program for physicians, with central administrative support allowing for effective intra- and interdepartmental meals to take place.

A dedicated Brigham-To-Table website was built as a central platform for the initiative. Groups of physicians were able to arrange times and dates for meals that were covered by the initiative funding and direct billed to the institution. To foster interconnectedness between and across individuals at Brigham Health, fixed group compositions would be promoted as follows: (a) groups of 3-5 Brigham physicians within a single department; (b) groups of 6-8 Brigham physicians, drawing upon at least 2 clinical departments. Specific restaurants in the local and surrounding areas were contacted in advance to ensure the ability to bill directly to the hospital source of funds and to allow faculty members to partake in meals in the surrounding neighborhoods and communities of the institution. In order to ensure the initiative would help to reduce burnout and increase professional fulfillment, each meal came with a mini "assignment", ideally best completed after ordering food while waiting for the meal. Such assignments were "conversation starters" and meant to combat the burnout domains -- emotional exhaustion, depersonalization, and reduced personal accomplishment.

Implementation Methods:
Local restaurants in the area willing were contacted and invited to participate in this initiative. A mechanism for invoicing each establishment was secured by the project coordinators. The dedicated website for scheduling meals was built, and the program was promoted through word-of-mouth and hospital based communication channels. Following a "soft-launch" with two groups trialing the meal initiative, the initiative was opened to all physicians at the organization. Project coordinators facilitated physician reservations and delivery of guiding question assignments to participating restaurants ahead of meals. Additionally, all participating faculty were emailed a pre-meal survey to gauge markers of physician engagement and burnout. Following successful completion of meals, a post-meal survey was also distributed to all participants. The initiative ran from June 2018 – September 2018, at which time data were analyzed by project faculty. A $30,000 budget was secured for the 10 week pilot program.

Results:
16 local restaurants participated in the initiative and several more approached us about participating after hearing about the program's success. Over 70 physician meals were completed during the ten week pilot initiative. Nearly 300 physicians from the organization participated in Brigham to Table meals during this time. Pre- (n=113) and post-meal (n=200) surveys were collected and analyzed. Data for physician happiness and emotional exhaustion demonstrated changes following the meal. The percentage of physicians agreeing with the statement "I feel happy at work" increased from 34% on the pre-meal survey to 44% on the post-meal surveys. Similarly, greater percentages of physician respondents endorsed "I do not feel emotionally exhausted at work" (12% pre-meal versus 22% post-meal). Data on self-reported burnout did not change based on this single intervention. Free-text comments received in post-meal surveys were overwhelmingly positive (95% of all responses) including statements affirming the initiative's impact on personal and professional goals, building group camaraderie, and developing a meaningful sense of caring for other individuals in the group. Overall, we believe our initiative represents a successful, scalable pilot program with the ability to impact physician engagement and wellness by building upon meal-based, out-of-hospital interactions in the local community.

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AIR FORCE MEDICINE

TRUSTED CARE, ANYWHERE

Journey to High Reliability Healthcare:
Infusing Trusted Care Principles, Safety Behaviors and Improvement Tools to Bring "Joy in Work"

Authors
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Background
In 2015, the Air Force Medical Service (AFMS) launched its journey toward becoming a high reliability organization (HRO), termed "Trusted Care." Over the past four years, the AFMS has diligently striven to create a psychologically safe environment, promote safety/reliability behaviors, and equip "every Airman" to be a problem solver. The AFMS designed a pilot to leverage its ever-increasing safety knowledge, skills and abilities with a focus on staff burnout. Burnout has been attributed to lower staff health, increased staff turnover, increased medical errors, and lower quality and patient satisfaction.

Objective
The aim was to create a framework using Trusted Care principles, briefs/huddles, improvement science/boards, rounding and collaboratives to ultimately reduce burnout, improve staff satisfaction and enhance teamwork.

Planning/Research Methods
From September 2017 to May 2018, seven military treatment facilities (MTFs), from various Air Force Major Commands (MAJCOMs), were selected to participate in the AFMS Joy In Work (JIW) pilot. Of these facilities, Family Health Clinics (FHC) at each site were targeted because of FHC enterprise-wide trends of decreased staff satisfaction and retention rates. The pilot timeframe was selected to avoid personnel changeover months.

Implementation Methods
The seven Air Force Family Health Clinics, of various sizes, used the following tools and approaches to assess and improve staff burnout, satisfaction and teamwork:

- Dr. Mark Linzer's "Mini Z Burnout Survey" (Modified): This survey captured staff burnout, staff satisfaction, chaos in the work center and teamwork during the pilot. The modified survey required respondents to answer a single-item burnout question to self-determine burnout level. It also provided an opportunity to discuss burnout and its affects.
- Institute for Healthcare Improvement's (IHI) "What Matters to You?" (Modified): This approach was used to identify "crazy makers" processes and systems that contribute to job dissatisfaction ultimately depleting one's joy in work. This discussion-based approach is a simple, yet profound, way to foster conversation about what matters to the frontline workers and shared-decision making.
- Stephen Covey's "Circle of Concern/Influence" (Modified): This tactic was used to determine if the clinic had "control", "influence" or neither "control or influence" to determine what to target for improvement. Those items they controlled were then prioritized using a LEAN PICK chart methodology to determine what to improve.
- Lean Six Sigma Tools: Continues process improvement boards and other Lean tools were used to create problem statements, determine root causes, identify countermeasures and track progress. Daily huddles and leader rounding were also extremely important to the success of the improvement effort.

Staff satisfaction was measured periodically (daily/weekly) throughout the pilot, and patient satisfaction was tracked pre-, during, and post-event. To assist in capturing real-time feedback, a one-page patient satisfaction sheet was created for clinics to administer shortly after implementing the improvement effort. This helped to ensure that the improvement effort was positively impacting both staff and patients. Improvement data was tracked monthly and a bi-weekly collaborative was initiated with the seven clinics to discuss results, share ideas and ask questions.

Results
Of pre-intervention respondents (n =240), 45% met the criteria for burnout (clinic data ranged from 17-66%). The initial results established that burnout did not differ by sex, rank, or clinical role. Of post-intervention respondents (n=251), 39% met the indicated criteria for burnout upon re-administering the Mini Z survey (p=0.32). Job satisfaction improved 8% (p=0.08) and patient satisfaction increased in 4 of 7 clinics. Team efficiency improved from "good" to "optimal" by 9% (p=0.02). Data also showed that of those who indicated their environment was "chaotic" on the Mini Z burnout inventory, 86% of them met burnout criteria. At the end of the pilot, those who indicated their environment was "chaotic" decreased from 13% to 5% (p=0.002).

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Title

Standard Operating Process for Evaluation and Development of New Clinical Partnership Activities

Authors

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Objective of Program

UK HealthCare, the medical center of the University of Kentucky, provides specialty clinical care at more than 30 unique sites through partnerships with community physicians and hospitals. As new partnership opportunities developed, UK HealthCare did not have a standard process to review, prioritize and launch new clinical services. The lack of process resulted in low coordination among departments, long project implementation lead times, and varying degrees of implementation success. Following a high visibility partnership failure, a multi-disciplinary team initiated a project to develop a standard operating process to evaluate, develop and implement new clinical partnership activities. Goals of the process included improvement in stakeholder engagement, standardization of project selection, and prioritization and standardization in project implementation.

Planning/Research Methods

In July 2009, interviews were completed with 12 clinical department chairs and faculty engaged in off-site clinical activity. Interviews identified concerns with reimbursement processes, access to contracting resources and insurance coverage, lack of organizational support and declining physician satisfaction. In Jan. 2014, an executive sponsor was identified and an outreach analyst was recruited. An internal team of stakeholders including clinical leaders, administrators, strategists, financial analysts, compliance and contracting professionals were engaged to identify process milestones and define gaps in service development. The result was development of a standard operating process with five steps including: (1) project identification, (2) strategic assessment, (3) business case and operational review, (4) initiative approval and (5) implementation and reporting. Interdisciplinary teams were launched to meet on bi-weekly and monthly intervals to drive process review and implementation. The standard operating process launched throughout the UK HealthCare enterprise in Nov. 2015.

Implementation Methods

A total of 158 new clinical partnership activities have been initiated or completed process review from Nov. 2015 to Dec. 2018. The resulting outcomes are depicted in table at left. In June 2018, 20 qualitative interviews were completed with project sponsors and functional team leads engaged in the process including clinical leaders and administrators.

Description	Unique Projects	% of Total
Approved, Completed Implementation	44	28%
Approved, Not Implemented	6	4%
Not Approved, Activity Declined	24	15%
Currently Under Process Review	34	21%
Activity On Hold	12	8%
No Longer Pursuing Activity (Issue/Change)	38	24%
Total	158	100%

*Process status as of 1/02/2019

Results

Qualitative interviews resulted in identification of shared themes.

- Process viewed by all project sponsors as having value, even those who thought the process was slow
- The analyst team assigned to support/review projects seamlessly turned into an implementation team; this was viewed as extremely valuable
- The process wasn't clear to project sponsors; resulting in development of additional communication materials and templates to be shared at presentation
- Functional groups viewed least positively included legal and contracting; findings led to addition of staff and engagement
- Formal outcome measures were rarely defined for new activities prior to implementation; finding led to refinement of process
- The process led to more internal collaboration; compliance and legal now meeting regularly to review services; nursing and IT assigned dedicated service resources

In FY2018, UK HealthCare physicians completed 22,205 outpatient visits at clinical care partnership sites in Kentucky, an increase from FY2017 of 20,060 outpatient visits. Implementation of the operating process provides standardization to successfully select and prioritize new clinical partnership activities. Development of the process led to addition of shared resources to drive activity implementation. As a regional referral center, it is our mission to strengthen local health care while remaining a resource for high acuity care.

Note: Poster to outline standard outreach assessment process, standard process templates and interdisciplinary teams.

Electronic Health Record Optimization in the Department of Neurology

Authors: Kim K. Klauer, MBA; Aaron J. Biedermann, MBA; Karen Helfinstine, MA; Alison Larson, MHA; and James Bower, M.D

Background: Mayo Clinic recently implemented a new Electronic Health Record (EHR). The EHR replaced several legacy EHR systems and brought all Mayo Clinic locations, including community and academic medical centers, under one EHR. Although one EHR integrates complex systems, the increasing documentation demands placed on providers contribute to burnout. The implementation included changes in how patients are referred, scheduling of appointments, documentation of patient exams, staff-to-staff communication about patients, patient-to-staff communication, ordering tests, medications, and downstream referrals. The Department of Neurology in Rochester, MN, is comprised of a large outpatient and inpatient clinical practice as well as diagnostic and procedural areas. Due to the complexity of all that needed to be learned with this new system, the Department of Neurology saw a need to assemble a multidisciplinary team to assist in efforts of optimizing this new EHR post-implementation.

Objective: Implement an EHR optimization team in the Department of Neurology with the following goals:
- Identify current continuing deficiencies/challenges with the new system.
- Optimize functionality and workflows.
- Develop and disseminate best practices for provider documentation and order standardization.
- Partner with areas that frequently refer to optimize workflows (i.e. Neurosurgery, Radiology, PMR).
- Establish accurate and appropriate visit coding.

Planning: The Department of Neurology is comprised of 160 providers (physicians, advanced practice providers, fellows, and residents) across a variety of locations. A physician and administrative partner led the EHR optimization efforts. During the implementation of the EHR, a proportionate number of providers and allied health staff were assigned as super users. The super users were responsible for assisting staff with navigating the EHR, providing at-the-elbow support, and teaching tips and tricks in how to most efficiently use the system. Neurology capitalized on these super users post-implementation and developed an EHR Optimization Executive Committee and EHR Optimization Team. The Executive Committee is comprised of physicians representing specific areas of the practice (i.e. outpatient, inpatient, pediatrics, labs) along with operations managers representing the allied health staff. The EHR Optimization Team is comprised of physicians, medical secretaries, scheduling staff, nursing, and lab technicians. In addition, there is an EHR trainer and clinical informatics specialist on the team.

Intervention Implemented (Initial 6 months):
- Through observations and solicited feedback, the team prioritized and reviewed 150+ action items.
- Topics were reviewed weekly and categorized by the Medical Director and Operations Manager.
- Change requests were submitted for break/fix issues, high patient safety concerns, and build optimization.
- Short videos (12) were developed to show steps of challenging workflows such as prolonged visit codes.
- EHR weekly tips emailed to all staff across the enterprise encompassing 20 topics.
- Department web site enhanced to include links to weekly tips, quick reference guides and videos.

Results:

Providers Feedback Survey (n=52) Results

Question	% Agree
Education provided by the optimization team has increased provider understanding of EHR.	89%
Providers feel their feedback related to EHR has been acted on by optimization team.	60%
Providers believe the team had a positive impact on functionality and efficiency.	75%

Activity Metrics

Videos	Total Views	Impact
12 educational videos	1,176	22 – 243 range in views per video
Prolonged Visit/Billing Code	243	65% increase in compliance

Lessons Learned:
- Need to sustain the increased resources post implementation for EHR optimization.
- Include stakeholders from all sites to allow for education and standardization.
- Accommodate learning preferences through multi-modal communication and training tools.
- Engaged providers are integral to meaningful optimization success and reduced burnout.

Next Steps:
- Use information to create an individual provider proficiency assessment tool and training plan
- Focus EHR optimization team efforts to address increased clerical burden for providers

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NURSING and HEALTHCARE LEADERSHIP
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Safety-Net Patients Use Mobile Health Devices for Self-Care Management, and Clinicians See Value in Mobile Health Tools to Improve Healthcare Quality: Patient and Provider Findings

Authors: Sharon S. Laing, PhD, Jason M. Muncy & Peter L. Wangigi

Background: Mobile health technologies (mHealth) like smartphones and mobile health apps can improve patient engagement, care access, and quality of care. Evaluations of patient mHealth practices and healthcare providers' insights about the value of digital healthcare tools for patient care, can inform efforts to support cost-effective and quality care.

Objective: This quantitative and qualitative study evaluated community health center (CHC) patients' mHealth practices, and healthcare providers' (HCPs) perceptions of the value of these tools in care delivery. Questions guiding this research were: (1) To what extent are safety-net patients using mHealth tools for healthcare management? (2) What are healthcare providers' perceptions of the value of mHealth tools to support patient care?

Planning and Research Methods: A multidisciplinary team of psychologists and healthcare specialists designed the study. Researchers partnered with HealthPoint Community Health Centers, a community-supported health system in Western Washington that offers comprehensive health services to low-resource patients. HealthPoint permitted access to patients and healthcare providers, and onsite data were collected from September 2014 to November 2016.

Implementation Methods: Patient data: N=103 patients completed a 47-item questionnaire; they were asked whether they used: smartphones for wellness, medical apps and health apps. Patients received a $10 gift certificate for participation. Healthcare provider data: N= 20 HCPs comprising primary care physicians, medical assistants, behavioral health specialists, nurses and social workers engaged in two 60-minute focus group sessions. Respondents were offered a $75 gift certificate; responses were audiotaped and transcribed.
Data Analysis: Quantitative: Patient survey responses were analyzed using STATA/IC Version 14.2 (StataCorp LLC, College Station, TX). Qualitative: Transcripts from HCP interviews were reviewed. *Codewords* (words used more than 2x in a narrative) were identified and recorded on three separate trials. Codewords with similar information were grouped into *codeword* clusters and *themes* derived based on a single idea from codeword clusters.

Results: Patient and provider results demonstrate the potential value of mHealth tools to patient quality of care
Patients: Safety-net patients actively use mobile health devices to advance self-care health management
- 83% accessed online health information with 34% doing so weekly
- 47% used mobile apps for preventive care including calorie counting, step counting and meditation
- 54% used medical apps including prescription refills, medication reminders and health status tracking
Providers: HCP responses to three questions below, show perceived value of mobile technology in patient care
Q#1: How do you perceive mobile technology and how can it improve patient care?
- Providers agreed that having patients record daily health information can improve accuracy of health status recording, and enable them to implement personalized treatment plans for their patients
- *"We missed something completely and so let's take a look at that so that I can tailor my treatment more to the day-to-day of what that person is just bringing on the day they see me."*
Q#2: What is the role of mobile technology in increasing access for diverse communities
- Providers stressed the value of mobile health technologies in building trust and improving communication among diverse patient populations
- *"Again, just having that conversation and rapport and that dual goal-setting of building goals together and (discuss) how can things work with your goals."*
Q#3: How can a mHealth Clinical Practice Guide help in your work with patients?
- Providers saw a strong potential for a mHealth clinical practice guide to effectively engage and educate patients by improving bidirectional information exchanges between patient and provider.
- *"…especially if it is something that we're (hoping) to use in our practice with just as much information as possible. I can make sure it is a good fit for that patient so that I can help make a decision if it is helpful."*
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