MANAGEMENT INNOVATIONS XXIII

Poster Session

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The Congress on Healthcare Leadership has attracted over 4,000 healthcare executives for a number of years. Begun in 1958, attendees come from all parts of the United States, Canada, and from foreign nations to take examinations, participate in seminars, renew acquaintances and learn about managing healthcare organizations more effectively.

A special event, initiated in 1984, is the Management Innovations Poster Session. Executives, consultants and researchers present the new ideas and methods they have investigated and implemented in organizations, not only to share their successes with their colleagues, but also to obtain suggestions to further refine their innovations. ACHE applauds their initiative.

This document will serve to help those attending the Congress recall the ideas presented for possible implementation in their own organizations. In addition, all of the abstracts are available on ACHE’s website:

http://www.ache.org/PUBS/Research/mgmtinnovations.cfm

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METHODIST MEDICAL GROUP

‘Gaining Access and Efficiencies in Medical Group Practice Management’

Overview
In today’s healthcare environment, practices are challenged with the competing demands of patient access, wait times, patient satisfaction, and overall operational efficiency. In order to improve these issues, the Methodist Medical Group (MMG) has established an Access & Efficiency Program (A&E). Office based teams (consisting of front desk staff, nursing, lab, management and physicians) work on various projects such as improving patient cycle time, increasing access by tracking 3rd next available appointments, and implementing open access scheduling. Additionally, teams focus on decreasing no-show rates, improving office or clinical processes that cause system backlogs and other clinical quality issues.

Expanding upon cycle time and 3rd next available appointments referenced above. Cycle time measures what happens throughout the cycle of the patient visit from the time the patient checks in until the time the patient checks out. Third next available appointment tracking is used to measure access to physicians by patients. This data is calculated by counting on each schedule, the third next time a patient can be seen. Moving towards an open access concept has also proven to reduce no-show rates for patients.

Project Oversight/Support
The A&E Program consists of a full-time coordinator who works with 25 offices. Additionally, Thomas Feldman, FACHE, provides operational oversight for the program. He has over eleven years of healthcare management experience with the last eight in the area of physician group practice management. He currently serves as the top administrative person for the MMG, a 90+ physician hospital-owned multi-specialty group serving Central Illinois. His responsibilities include, but are not limited too; annual budgets for each location, capital planning, facilities management, strategic planning, and the administration of the physician compensation plan. Tom meets monthly with the A&E coordinator to provide input into the direction of the program and to discuss specific issues at varying locations. The MMG will see over 260,000 outpatient visits this year. Approximately half of the group is comprised of primary care. The group also includes cardiology, neurology, rehabilitation medicine, urgent care, rheumatology, psychiatry, hospitalists, and a 30 resident family practice residency.

Results
Using the A&E program we have many examples of increased productivity through our management of cycle times. Tracking the access of providers and the no-show rate allows us to measure the improvement in timeliness of follow up resulting in improved quality of care. Similarly the actions taken in ensuring that provider schedules remain busy provides for revenue enhancement at all locations.

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TITLE: Admission/Discharge/Transfer Management

OBJECTIVE OF PROGRAM:
- Minimize patient flow delays for admissions, discharges and transfers (ADT) within a complex, 623-bed quaternary referral medical center and children's hospital.
- Mitigate patient boarding in the ED and PACU.
- Enable staff to provide optimal bed availability and staff planning.
- Establish a real-time view of hospital-wide patient ADT.
- Develop system as a web-based application available on all hospital workstations.

PLANNING/RESEARCH METHODS:
- Assembled a multi-disciplinary team to develop program plans, goals and timeline.
- Developed “As-Is” analysis of existing patient flow to identify bottlenecks and gaps in the ADT process.
- Developed “To-Be” flows, based on industry best practices, to define ideal state of ADT processes which span the hospital-wide enterprise.
- Identified key time stamps from medTRACK bed management system and Hospital Activity Status Board to measure all ADT processes; manually collected other measurements as necessary.
- Established Key Performance Indicators (KPIs) to monitor ADT processes.

IMPLEMENTATION METHODS:
- Designed enterprise-wide processes for bed identification; patient intake (ED, direct admissions, PACU and in-house transfers); staff preplanning; discharge planning; discharge orders; change of shift; room turnover; meals and breaks scheduling; and transportation.
- Created paper-based manual process to test assumptions and to trial the program.
- Manually gathered necessary data and information for the system. All data and information elements were input and then distributed as a paper tool that would ultimately be replicated in the web-based application. This tool was used by all nursing units and the Admission/Transfer Center (Admitting).
- In parallel, built a web-based application.
- Tested web-based application on two inpatient units using Rapid Cycle Testing, multiple revisions and additional testing.
- Developed training and education programs for roll-out and “go-live,” deploying teaching mentors to assist on all nursing units and in the Admission/Transfer Center during roll-out process.

RESULTS:
- Capability of real-time monitoring of admissions, discharges and transfers by shift, by day and from any location with a computer.
- Color-coded system highlights delays that occur in patient’s arrival or departure compared to KPIs.
- Standardized processes and thresholds for taking action if KPIs are not met.
- Elimination of standard bed board meetings.
- **Bed Assignment to Patient Arrival** time decreased 39% [by 32 minutes, from 83 (Jul 04) to 51 (Nov 06)].
- **Discharge Criteria Met to Patient Departure** time decreased 44% [by 64 minutes, from 144 (July 04) to 80 (Nov 06)].
- **Patient Departure to Bed Ready** time decreased 28% [by 32 minutes, from 113 (July 04) to 81 (Nov 06)].
- **Average Length of Stay** decreased ½ day from 5.48 days in 2003 (pre-project) to 4.98 days in 2006, while **Average Daily Census** increased from 364 in 2004 to 391 in 2006.
Improving Access to Care Using an Interactive, Data-Driven Web Tool

Objective
The purpose of this project was to improve access to care and balance supply and demand for healthcare services by presenting informational and actionable metrics at the MTF, clinic, provider, and front-line manager levels. In addition, the delivery method, to the user, of this project consisted of an interactive, data-driven web tool.

Planning/Research Methods
The process of studying patient demand for services and the design of dynamic provider schedules to meet that ever-changing demand is complex, arduous, and continuous. To provide effective patient scheduling advice to our provider staff, administrative and clinical support staff need to master the inner workings of the Military Health System electronic health record system (aka, AHLTA/CHCS), which includes queuing, spooling, compiling standard reports, and running/synthesizing ad hocs. This analytical necessity consumes FTEs that could be spent on other tasks. Recommendations and general feedback were solicited from all potential users across the Air Force Medical Service (AFMS) to identify requirements, functionality, usability, and general interest.

Implementation Methods
AIM was designed specifically to take AHLTA/CHCS data and centrally perform analytical requirements thereby providing access management information and reports in a web-based, interactive environment at the click of a mouse.

Results
AIM is an information management system and force-multiplier. Its benefits have been realized through improved management of practices and managed care, cost savings, and most importantly, in the areas of patient satisfaction and access to care.

The following are several improvements related to the use of AIM:
- 39% improvement in routine access to care from January 2001 to October 2006 (60% to 83%)
  - 5% improvement in access to specialty care (90% to 95%)
- 8% increase in number of patients that would recommend their healthcare team to others from November 2004 to November 2006 (90% to 97%)
  - 2% increase in ease of making appointment (87% to 89%)
- Areas affected by Hurricanes Rita and Katrina
  - 5% increase in number of patients that felt the ease of making an appointment was ‘good’ or ‘outstanding’ from August 2005 to November 2006 (92% to 96%)
  - 2% increase that would recommend their healthcare team to others (95% to 97%)

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Program Objective
This project was launched in June 2006, and was one of the three (3) initiatives targeted to improve the overall patient flow for St. Luke’s Hospital – which is part of St. Luke’s Episcopal Health system (SLEHS). The initiative was launched to decrease the turnaround time associated with changing the bed status. Combined with low patient and family satisfaction, this initiative was identified as a top priority. The objective of the initiative was to redesign the current process and improve specific IT functions in order to:

- Significantly reduce the discrepancy between actual and system time discharges
- Increase patient throughput and reduce waste
- Reduce clerical functions performed by nursing staff
- Increase patient satisfaction
- Achieve significant cost savings

Planning/Research Methods
A cross-functional workgroup was assembled. However, the emphasis was placed on utilizing staff members who actually participated in the key related processes (people who did the work). This included Nurses, Unit Secretaries, Environmental Services and Transportation supervisors, Patient Access Services managers, and Operational Analysis staff. Using the current bed management Information Technology (IT) system, an analysis was conducted to identify, document, and provide opportunities for improvement. Benchmark data revealed the time discrepancy between when a patient was transported from the patient care unit vs. actual discharge time in the computer system, was over 60 minutes. By observing staff, and mapping key processes and workflows, this led to the identification of barriers and opportunities. A pilot program was conducted on six (6) patient care units, which consisted of having a centralized area where designated staff discharge patients in the IT system. The workgroup convened weekly to review progress, monitor results and gather feedback from all pilot departments.

Implementation Methods
Upon the successful completion of the pilot project’s initial phase, the effort was expanded to all patient care units. Final findings and recommendations were provided to the Steering Committee, which resulted in house-wide implementation. Patient Access Services staff assumed responsibility to discharge patients on a 24x7 basis.

Results
The results were immediate upon implementation of the redesigned processes and implemented improvements. These included:

- Reduced discrepancy between actual and system time discharges from 61 minutes to 12 minutes
- Reduced costs associated with waiting, movement, and processing. Estimated annual savings of $400,000
- Increased overall productivity and patient throughput
- Removed non-clinical clerical tasks from the patient care areas and allocated to more appropriate business areas.
Streamlining Managed Care Processes for Clinics in the Bavarian Region

Objectives:

• Streamline the billing process for the Military Health System in order to improve healthcare delivery for all beneficiaries in the Bavarian Region.
• Increase the efficiency of services by providing the most efficient medical records system for all users.
• Improve the billing system.
• Enhance cooperation between military and host nation medical clinics.

Creating a Host Nation Referral System and Improved Procedures:

With the guidance of the Deputy Commander for Administration, a team of representatives from TRICARE Europe, Sembach, Germany; Clinical Support (CSD) and Managed Care (MCD) Divisions first talked with the host nation providers about the planned cooperative system. USAMEDDAC then distributed market information to beneficiaries and providers in written and broadcast form in English and German, including 60-second information spots on the Armed Forces Network explaining how to access local medical care. Managed Care Staff was trained by Staff Assistance Visits (SAV) on how to process bills, and instructions were given to all facilities that rendered care to beneficiaries. In addition, the team developed a process for uploading patient information into TRIMS and reduced administrative time for seeing patients and processing bills. Providers were taught how to send bills directly to Wisconsin Physician System (WPS), a contracting agency, for payment.

Activities:

• Sending letters to over 38,000 beneficiaries in the Bavarian Region telling them how to access the services of host nation facilities.
• Providing pamphlets in the waiting rooms of each clinic that explained how to access host nation facility care.
• Giving instruction in both English and German to over 60 providers in host nation clinics used primarily for military beneficiary care.
• Giving providers passwords to the TRICARE system for sending bills to the TRICARE contractor at WPS and for checking the status of processed bills.

Results:

During the six months following the activities above, a review of progress suggested that SAVs helped to improve the process in the following ways:

• Schweinfurt and Wuerzburg Health Clinics processed over $3.3 million in aged bills.
• The SAV team built bridges to greater understanding between the Military Health System and host nation providers.
• Communication and efficiency was increased among military and local providers.
• Beneficiaries enjoyed an improved process for seeking care.

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An Electronic Clinical Reminder System
Improved Satisfaction and Quality While Decreasing Outpatient Visits and Subsequent Health Care Costs

Objective
The Clinical Reminder System is a tool that allowed us to achieve exceptional performance in the following areas:

1. Access
2. Identifying Individualized Patient Needs
3. Preventative Screening, Preventative Care and Health Education
4. Quality and Consistent Healthcare
5. Patient/Provider Satisfaction

Planning/Research Methods
An interdisciplinary team met weekly to assess results of external peer review audits and identified areas not meeting performance goals. The team utilized the Clinical Reminder System to develop mechanisms to communicate electronically across the health care system. The decision support provided by clinical reminders is context-sensitive and time-sensitive. This system is the VA’s preferred mechanism for implementing clinical practice guidelines.

Implementation Methods
An implementation team designed the needed reminders to alert the providers of the required follow-up and preventative care of each individual patient. Embedded into the clinical reminders are links to education information, consult requests and preventative screening information. A key advantage of the reminder system is that it streamlines the process and aids provider efficiency by automatically displaying pertinent information such as previous lab results and administered medications. Clinical reminders ensure consistent quality of care by reducing variation in practice, facilitating learning and optimizing provider accountability across the organization. Additional benefits include a decrease in operational costs by maximizing resources, provider time and outpatient visits. The clinical reminder system prompts the provider to address multiple patient care needs maximizing one clinic visit. The necessary care is provided at that time or the provider facilitates the coordination of that care through the consult and ordering functionality of the Clinical Reminder System.

Results
The Clinical Reminder System allowed the VA Salt Lake City Health Care System to achieve performance goals in the Cardiovascular Measures specifically related to Heart Failure and Ischemic Heart Disease, the Endocrine Measures specifically related to Blood Pressure Management, Infection Control Measures and the Measure for Tobacco Screening. Along with improved clinical outcomes, we saw an improvement in our patient satisfaction scores in both the inpatient and outpatient settings and our provider satisfaction scores increased while decreasing the number of patient visits to the health care system.

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A Model for Vision Alignment Between the Hospital and Private Practice Cardiologists

Objective:
In order to meet the financial needs and partnership desires of the hospital and private practice cardiologists, a lease opportunity for diagnostic catheterization was established for cath lab time and staffing in the hospital’s labs for a specified period of time weekly. Patients requiring intervention are converted to hospital inpatients. Specific aims include:
1. Discuss value of alignment of hospital and physician vision
2. Demonstrate the benefit of a leased lab partnership between the hospital and private practice cardiologists
3. Demonstrate positive impact on patient satisfaction

Planning / Research Methods:
A large group of cardiologists investigated building and opening a private heart hospital within the city. Negotiations continued among the physicians and the hospital considering alternative options for partnerships. Leasing lab time became a viable option.

Implementation Methods:
A leasing opportunity was established between the hospital catheterization lab and private practice cardiologists, eight hours per week, staffed utilizing hospital nurses and techs. Patients requiring only diagnostic procedures are billed as cardiology practice patients rather than hospital patients. Those who require intervention are taken from the lab to the cardiovascular pre-operative unit for preparation, education, discussion, consent for treatment, and admission to the hospital.

Results:
There have been zero adverse events related to this model of care. Physician satisfaction is high and support for the hospital is enhanced. Physicians who once considered building a specialty care hospital are now committed to our hospital as their needs are met in this model. Patient satisfaction is statistically significantly higher in this group than non-leased lab patients: Leased lab = 93.06% average vs. Non-leased lab patients = 89.10%, with leased lab patient results scoring higher on 29 of 32 indicators than non-leased lab patients. Paired t-test and 2 sample t-tests result in p = 0.00.

Implementing a partnership with private practices and the hospital-owned cath lab is mutually beneficial to the physicians (dependable lab time and staff, as well as convenience) and the hospital (dependable revenue stream and enhanced physician relationships). Patient satisfaction is significantly higher due to the continuity of care this staffing model allows and due to more extensive conversations with families.

Hospitals and private practice cardiologists can align their visions and experience mutual benefit through leasing options. With a careful practice model, not only are risks to the patient not increased, but the patients also experience a high degree of satisfaction as beneficiaries of this partnership.

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Increasing Patient Volume and Revenues through Paired
Marketing of Digital Mammograms and Mammography Comfort Aid

Objective/Overview

Jewish Hospital Medical Center East (JHMCE) sought to maximize its investment in digital mammography, while also utilizing additional revenue sources to help pay for the cost of going digital. It found that marketing digital mammograms and a mammography comfort aid (MammoPad breast cushion) together increased volume and revenues significantly.

Hospitals and their imaging centers can realize several clinical and competitive advantages from implementing digital mammography. Clinically, it improves diagnostic accuracy for certain patient populations; the images can be sent electronically via the Web; and digital images can be manipulated in ways that film images cannot. Competitively, digital mammography providers can market such differentiators as quicker exams and less likelihood patients will need to return for retakes. Many hospitals also adopt digital mammography to keep pace with business rivals. Digital equipment is considerably more costly than analog devices, however. While digital dramatically increases a hospital imaging center’s capacity, the marketing advantages of digital mammography alone are not likely to draw enough new patients to fully utilize the new capacity.

JHMCE, a large outpatient facility in Louisville, Ken., addressed this dilemma by adopting a mammography comfort aid for all patients presenting for mammography. A foam breast cushion applied to the mammography device, the aid significantly reduces discomfort for most women. The cushion helped solve the primary complaint -- the discomfort of the procedure –from women who avoid mammograms, while also helping JHMCE differentiate itself from its rivals. The paired advantages of the aid and digital were then marketed to JHMCE’s service area. JHMCE was the first center in its area to adopt the cushion.

Planning/Research Methods

JHMCE opened as a “next generation” facility in January 2003. Its competitors included two major hospitals and several nearby imaging providers. Its initial strong differentiator involved creating a spa-like atmosphere for patients, but management recognized that additional differentiators would be required. In late 2005, JHMCE representatives visited Tucson Breast Center (TBC) in Tucson, Ariz. and noted TBC’s use of the breast cushion. TBC’s marketing of the softer mammogram had attracted excellent press coverage, leading to significantly increased patient volume and revenues for screening mammograms and downstream procedures. JHMCE management agreed to test the cushion with patients, and adopt and market it if patient response was sufficiently positive.

Implementation

After a successful test, the cushion was adopted for use with all patients in October 2005. JHMCE then began marketing the combined benefits of digital mammograms and the cushion, utilizing -- among other efforts -- a press release, contacts with local media, local radio ads, print ads in local print media, and print materials and banners.

Results

Advertising and two local TV news programs aired segments on JHMCE, stimulating growth in patient volume and revenues. Increases in key positive indicators included:

**Daily patient volume:** Before marketing campaign: 15-18 patients/day. Current volume: 30 patients/day.
**Revenues:** Revenue for an eight-month period (January-August 2005) that preceded adoption of the cushion: $1.4 million. Revenue for an approximately eight-month period (October 2005-May 2006) following adoption of the cushion: $1.9 million. (Roughly $100,000 of increase is attributed to implementation of computer-aided-detection during latter eight-month period.)

**Pro forma:** A pro forma analysis that estimated gross revenue increases directly attributable to the cushion projects a revenue increase of $139,000 in 2007.

Volume and revenue growth have continued at JHMCE, even though several competitors have implemented digital mammography and the "softer mammogram."

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Patient Orientation as a tool to promote patient-centered care

**Objective of program**
The objective of New Patient Orientation is to present information regarding the programs and services provided at VA Northern Indiana Health Care System. The orientation includes a question and answer session that allows patients to speak one-on-one with healthcare professionals regarding upcoming appointments, prescription refills, billing, and administrative processes. Other objectives of New Patient Orientation include:

- Empowering patients to become more involved in managing their healthcare.
- Allowing clinical staff to focus more directly on patient health needs.
- Encouraging patient initiated communication with providers in a coordinated, efficient and effective manner.
- Increasing veteran compliance with their treatment, including keeping appointments and performing recommended preventive screenings.

**Implementation method**
A multidisciplinary team was formed comprised of representatives from pharmacy, billing, nursing, education, and medical administration. The team gathered the most frequently asked patient questions and incorporated the answers into the orientation program. A packet containing information on healthcare services and screening tests was also developed.

**Planning/research methods**
The New Patient Orientation program was determined to be a best practice within the healthcare system (VISN 11). To evaluate the effectiveness of New Patient Orientation, patients were separated into two groups, (1) patients who attended New Patient Orientation and (2) patients who did not attend. The two groups were compared for differences in:

1. No show rates
2. Colorectal Cancer screening rates
3. Patient satisfaction

**Results**

- 100% of patients who attended New Patient Orientation and met VA criteria for colorectal screenings were screened for colorectal cancer; compared with 60% of those who did not attend New Patient Orientation.
- Patients who attended New Patient Orientation had an appointment no show rate 30% lower than those who did not attend New Patient Orientation.
- Although patient satisfaction scores did not differ significantly between the groups, 99% of patient’s attending New Patient Orientation endorse the program as beneficial and effective.

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Reducing Labor Costs, Improving Labor Efficiency through Investment in Automated Laboratory Hardware and Software

Summary
Competition and modest reimbursements make it crucial for labs to control their labor costs, which often consume a majority of lab overhead. An enduring labor shortage of lab technologists also puts a premium on the efficient use of technologists’ time. The clinical laboratory at Oklahoma University Medical Center (OUMC) addressed these challenges by automating -- thereby reducing labor needs, equipping the lab to handle greater test volumes without adding staff, and improving both the quality of the lab’s work and working conditions.

Objective/Overview
OUMC’s clinical lab serves three facilities, has an annual budget of approximately $15 million, employs 209 people (including 60 in the core lab), and runs approximately 5 million lab tests per year. With an operation of such size, labor represents a major expense. Lab administration sought to determine if automating could reduce the lab’s labor needs, while optimizing the use of lab technologists’ skills and time.

With cost pressures, the technologist shortage, and soaring patient volumes in the emergency department plaguing OUMC, automation looked like a comprehensive solution to its challenges. Automation had proven to be cost-effective, produce reliable test results, and contribute to greater operational efficiency in labs worldwide. OUMC’s decisionmakers thus concluded that it made more sense to update laboratory instrumentation and software than search for patchwork solutions with legacy instruments. Because labor represents approximately 62% of the lab’s overhead expenses, it appeared that investing in automation would justify itself in an acceptable timeframe.

Implementation Methods: Automation + Process Redesign + Advanced Middleware
OUMC selected an automation vendor that led its industry in automation installations. The vendor assisted OUMC in redesigning its processes to maximize the value of its automation investment. OUMC wrung more value out of its investment by adding state-of-the-art middleware and electronic ordering to the automated instruments and track system connecting them, using Beckman Coulter (Brea, CA) equipment. The middleware had many capabilities beyond the lab’s laboratory information system, such as autovalidation of normal results and automatic retrieval of stored samples for add-on testing.

Results
- **Reduced staffing.** Automation of the lab’s chemistry operation eliminated 5 FTEs, at $60,000-$65,000 annual compensation (including benefits) per FTE. Staffing of the core lab dropped from 65 FTEs to 60 FTEs.
- **Near elimination of work-interrupting phone calls.** Of the 5 FTEs eliminated, 1.0 largely answered phone calls from clinicians inquiring about delayed test results. Automation has eliminated most such delays.
- **Greater volume with fewer staff.** Even as FTEs have been eliminated, the lab has absorbed a 35% increase in volume, including a 25% increase in outreach testing. In the pre-automation days, a 35% increase in volume would have required a significant increase in technologists, or about 15-18 additional FTEs.
- **Autovalidation of normal results.** Validation of normal results, which involves the vast majority of samples, underutilizes technologists’ skills. Now the system validates normal results without technologists’ involvement, freeing them to focus on tasks that do require their abilities.
- **Automation of add-on testing.** Previously, add-on tests required manual intervention at several levels, including collection of a new sample. Tests can now be ordered electronically and usually performed with the existing sample, which is placed on the automation line and tested – including results reporting – with minimal human involvement.
- **Elimination of stat testing.** Prior to automating, stat tests were performed manually because they required immediate attention. Today, automated result turnaround time is so fast that there is no reason for stat orders.

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State-of-the-Art PACS Reduces Radiology Costs and Improves Service to Physicians and Patients

Summary
At Haywood Regional Medical Center (HRMC), a 200-bed facility in western North Carolina, a PACS (DR Systems, San Diego, Calif.) was implemented and HRMC’s IT network was upgraded with several goals in mind: 1) reducing costs related to imaging and producing radiology reports; 2) improving service to referring physicians; 3) enhancing the efficiency of reading radiologists; and 4) improving clinical care. Metrics have established substantial gains in each of these areas.

Objective/Overview
Selecting the best PACS for the needs of a specific medical enterprise is a challenge. Beyond that, an institution needs to make sure its IT network can support the PACS’ features, and will be supported by physicians who will use the new system. Thus, HRMC’s PACS project was a multifaceted endeavor with significant technological and human dimensions. HRMC performs approximately 80,000 imaging studies per year.

Planning/Research Methods: One Project, Three Tracks
Executives and imaging services managers understood that the success of the PACS investment rested on several key tasks: 1) Convincing referring MDs and their offices to accept digital images instead of hard copy film, to save film-related costs; 2) getting radiologists’ full support in using the PACS’ automated reporting feature (including voice recognition), to save transcription costs and minimize turnaround time (TAT) for reports; 3) upgrading the IT network’s channels and switches so large digital imaging files could move more quickly through the system, to speed access to current and prior exams by radiologists.

Implementation Methods: PACS Supports MDs, and HRMC Supports PACS Better Piping
The PACS went live in August 2004. Referring doctors were shown that because of the PACS’ Web-distribution capabilities, they could immediately access both current and prior imaging studies from any Web-connected computer, meaning access was available even from their home or while traveling. This would make them more efficient and productive. It would also eliminate the problem of lost or misplaced hard copy film. HRMC’s campaign to persuade doctors to convert to digital images was so successful that today, very few referring physician offices still request film. HRMC also gained the requested cooperation from radiologists in adapting to automated reporting. Voice recognition is now used 100% of the time for all imaging modalities except mammography, which is not yet digital. This usage level far exceeds what most medical facilities have accomplished. In September 2005, HRMC upgraded its network from 10/100Mbps Ethernet to Gigabit Ethernet, replacing 52 CAT 5 cables lines with 74 CAT 6 cable lines. Switches that operated at 100mbs/half duplex and had 38 ports total were replaced by two Nortel gigabyte switches with 48 ports each, or 96 ports total. The upgrade enabled the institution to more fully take advantage of the PACS’ digital capabilities. In late 2006, HRMC installed a new digital archive system and interfaced it with the PACS to speed restoration times of archived imaging studies.

Results
Digital imaging cost savings. By becoming virtually filmless, HRMC is saving $75,000/yr. in film costs alone -- not counting additional savings in chemicals, processing, and labor costs.

Voice recognition savings. Prolific use of voice recognition saves HRMC $40,000/year in transcription costs.

Overall cost savings. Gross savings from PACS utilization = approx. $650,000/yr. (very conservative). Net savings (incl. depreciation and service) = $375,000/yr. (very conservative).

Return on investment. HRMC paid back its PACS investment in 22-23 mos., compared to its projection of 40 mos.

Service to referring physicians. Besides Web access of images and reports, HRMC has also pleased referring doctors with its rapid TAT for radiologists’ reports. Thanks to automated reporting and voice recognition, reports are ready in an average of 40 minutes from order to completion.

Service to radiologists. Restores from archives take only 1 second.

Improved care of patients. Near-immediate restore times, plus rapid TAT for reports, improve radiologist interpretation ability, make radiologists more efficient, and speed diagnosis and treatment of critically ill patients.

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Greening the Biohazardous Waste Stream

Objective

Hospitals routinely dispose 50-70% of their waste into the biohazardous waste stream, although a large portion of hospital waste is very similar to that of a hotel or office building: paper, plastics, and food waste. The Centers for Disease Control suggests that only 2-3% of hospital waste requires disposal as biohazardous waste. Proper handling of medical waste in the hospital setting is paramount to ensure public health and worker safety protection. Analysis of hospital waste management and disposal methods were required to facilitate improved waste segregation for cost and environmental effectiveness.

Planning/Research Methods for Waste Segregation

An audit completed at St. Luke’s Hospital in Cedar Rapids, IA determined 29% of total waste was disposed as biohazardous waste. A hospital-wide survey identified the need for enhancement of current training modules for clarification in definition of biohazardous waste. Enhanced waste disposal methods were required to facilitate waste segregation.

Implementing Waste Management

An online learning module, and a waste segregation and disposal guide were developed as a conscious reminder to “know where to throw.” This theme was incorporated in all waste segregation documents. Proper container placement and signage is vital for successful waste segregation. By unnecessarily locating biohazardous containers in patient rooms, patients and visitors with staff accidentally and unknowingly throw regular solid waste into biohazardous containers. All biohazardous containers were removed from non-critical patient care areas and hallways. Red bags were stored in patient rooms for the transportation of blood saturated biohazardous waste to centralized and isolated waste receptacles. The small signs located on the biohazardous containers were replaced with large font and bullet type format in color to facilitate ease of reading and understanding quickly.

Results

Reducing biohazardous waste has tremendous safety, environmental, and financial benefits. Improved biohazardous waste receptacle location will reduce exposure of patients, visitors, and associates of St. Luke’s to biohazardous waste, fostering a safer work environment. Biohazardous waste stream costs nearly 20 times more than that of regular municipal waste. The project impact was a 60% reduction in the biohazardous waste stream saving the hospital $40,000 per year, recycling additional materials, and reducing the quantity of biohazardous waste handled by employees to an average of 6947.8 lbs per month. The project success could easily be generalized to implement at other health systems.

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Program Objective
St. Luke’s Episcopal Health System launched its “Capture Your Care” initiative in May 2006 to increase the organization’s efficiency in capturing revenues for patient care services. Department audits revealed charge capture opportunities in excess of $8 million (net revenue) based on missed patient charges, a high volume of late charges, incomplete documentation, and other issues. As a result, this project was instituted to increase revenues among departments and avoid issues of compliance.

Planning/Research Methods
An internal task force was created to establish hospital-wide commitment towards charge capture and to design, implement, and oversee this project. Utilizing literature, staff interviews, and best practices from clinical units, a charge capture practice model was designed for St. Luke’s.

Implementation
Once best practice models were developed, the team communicated this information to key stakeholders across the organization. Interactive training sessions included didactic instruction and case studies. Instructors reviewed expectations for documenting clinical services, posting charges, and reconciling charges. In addition to the classroom training sessions, resource manuals were distributed and made available on the company’s Intranet for all employees and managers.

Upon the completion of this training, clinical units began evaluating their department operations and instituting changes to improve charge capture. Easy-to-read scorecards were shared with revenue-generating departments enabling them monitor their performance.

To ensure a sustainable infrastructure for these charge capture processes, a new department was established. Members of this department are responsible for training, implementing new charge capture processes across the health system, monitoring the timeliness of charge entry and reconciliation functions, coordinating chargemaster updates, and researching and leading the implementation of new regulatory changes within the system.

Results
Charge capture improvements are ongoing, yet multiple processes have been improved as a result of this initiative. Successes include the following:

- Increased organizational awareness about charge capture practices
- An annualized increase of $2 million in net revenue was achieved in the first six months of the project
- New infrastructure to monitor charge capture operations and quickly respond to regulatory changes
Lab Automation Speeds Information to Clinicians for Faster Clinical Decisionmaking, Reducing Patient Length-of-Stay

Summary
For financial reasons, many hospitals today seek to reduce patient length-of-stay (LOS). When hospitals are operating at or near capacity, reducing LOS frees up capacity for new admissions and hospital transfers and increases revenue opportunities (e.g. new Medicare DRG reimbursements – payments per case -- for new patients). John T. Mather Memorial Hospital (JTMMH), a 248-bed community hospital in Port Jefferson, N.Y., reduced LOS with a two-stage initiative: 1) implementing lab automation to reduce turnaround time (TAT) for lab results 2) hiring hospitalists who could use the faster results to make maximally efficient decisions regarding in-patients.

Objective/Overview
About 80 percent of the data that physicians rely on for medical decisions comes from the hospital lab. The lab thus plays a pivotal role in the hospital’s overall functioning and financial viability. Delayed lab results slow the diagnosis/treatment of patients, extending LOS. Besides direct financial consequences, reduced LOS can prevent patient logjams in the emergency department (ED) that result in operational inefficiencies throughout the institution; delayed care for critically ill patients; canceled surgeries; and diversion of patients to other institutions. Optimized LOS can also save or lessen the cost of brick-and-mortar expansion to add bed space.

JTMMH hoped to attack the LOS problem by hiring hospitalists, who can make clinical decisions more efficiently for inpatients than can their primary care physicians. But hospitalists can only function effectively if lab results are delivered to them in a reliably timely manner. JTMMH believed that its investment in lab automation would pay off in a successful hospitalist endeavor and therefore reduced LOS.

Planning/Research Methods: Process Improvement Before Automating
Mather began streamlining its processes in the years before lab automation systems were widely available or proven to be cost-effective. The project included an effort to reduce the number of human-performed steps as a means of both reducing errors and speeding TAT. When the value of the systems became apparent, lab management and executives began considering various automation options for JTMMH’s clinical labs.

Implementation Methods: Automation in Phases
JTMMH began automating its laboratory operation in 2000 ultimately automating all three phases of lab testing, and connecting the pre-analytic instruments, automated analyzers, and refrigerated stockyard with tracking using Beckman Coulter (Brea, CA) equipment. Chemistry and hematology processing were relocated so they could both be on the automation line. Advanced middleware, which made possible autovalidation of normal results and more efficient management of workflow, was added in 2001. The overall automation project was completed over six months.

Results
In a non-automated lab, TAT is limited by human work pace, human work variability, human errors, and insufficient staffing due to illness, time off, and the current technologist labor shortage. Automation and middleware have addressed all of these issues at JTMMH. Together, they work much faster than humans can, never tire, run virtually error-free, and turn out more reliable results than humans can. Examples of faster TAT include:
- **Troponin I.** Key test for determining whether patient has had a heart attack. Currently, TAT for troponin I is 42 minutes from verification to release to ED, 37 minutes less than before automation was implemented.
- **Basic metabolic panel (BMP).** Series of 8 tests used as a screening and monitoring tool. Average TAT for a BMP at JTMMH is now 56 minutes, down from 73 minutes.

The combination of rapid TAT via automation and efficient decisionmaking by hospitalists continues to improve patient flow, leading to reduced LOS. Between 2004 and 2005, hospital admissions increased by 315, from 11,775 to 12,090. Yet patient care days dropped by 2,372, from 79,808 in 2004 to 77,436 in 2005. The increased admissions boosted revenues by $1,575,000. (The hospitalist program began in mid-2005. JTMMH employs 7 hospitalists.) Other benefits of faster TAT include: The hospital’s ability to absorb a 100 percent increase in ED visits since 1996; improved compliance with regulatory and accreditation standards regarding patient safety; and pleasing ordering physicians, who are an important source of referrals.

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Columbia University, Department of Surgery
Management Programs
Bringing Advanced Care to the Community Setting

OBJECTIVE

The Columbia University Department of Surgery has partnered with 24 hospitals in 5 states to assist in the development of 27 programs that currently deliver advanced care to their communities. These relationships serve as a conduit for knowledge transfer from the Department of Surgery to our partner institutions. This engenders clinical growth and management expertise enabling our partners to provide specialized care normally available only at larger quaternary hospitals. Our partners can now differentiate themselves in their respective markets as providers of state-of-the-art surgical techniques and advanced care.

PLANNING METHODS

At the initiation of a partnership, the Columbia Management Team meets with administration, clinical leadership and medical personnel to discuss the program’s goals, objectives, ability to deliver state-of-the-art patient care and exceptional customer service to referring physicians. Columbia conducts a thorough program review which includes an assessment of current clinical leadership, market referral analysis and community needs assessment, evaluation of facility infrastructure, aging and succession planning of surgical staff, program’s business and clinical staff, workflow and clinical/nursing protocols for existing programs or those starting de novo.

IMPLEMENTATION METHODS

Once a partnership agreement is reached, Columbia and the partner institution work collaboratively to create strategies for new or existing programs. For new programs, we advise from the pre Certificate of Need and for existing programs we advise how to provide leadership development and/or transition to improve outcomes, and maximize efficiency.

Drawing upon our knowledge of the surgical community, we work closely with our partners to identify, recruit and match highly competent surgeons. Each surgeon recruited is given a Columbia faculty appointment. In addition to surgeon recruitment, the Department of Surgery assists in the recruitment of support personnel essential for the operation of the surgery program.

We have a clinical quality assessment database that continuously monitors clinical, financial, and operational activity. The review of clinical performance is part of the foundation for monitoring and improvement in patient outcomes. Our Quality Assurance Nurse provides ongoing oversight and support for the database. The database allows us establish a rigorous quality management process that allows us to respond to situations before they become problematic.

The Department provides partners with training and guidance in meeting their program needs as determined by the assessment. We conduct a full schedule of educational events, specialty conferences, regular meetings that include Grand Rounds, clinical workshops, morbidity and mortality conferences, protocols, training for surgeons and nursing staff, proctoring in surgical setting and 24/7 peer review of cases by Columbia Faculty.

Our partner institutions are invited to participate in the Department’s clinical trials and basic research which places them in the vanguard of new discoveries thus leading to expanded services and clinical leadership. We build clinically diverse programs that create organizational strengths. Clinically diverse programs and targeted marketing/communication initiatives build strong referral networks for our partners.

RESULTS

Partnership with the Columbia University Department of Surgery has produced the following outcomes:

- Recruitment of high caliber surgeons and clinical leaders who would not consider practicing at locations in the absence of an academic partner.
- Regulatory approval to initiate complex programs that could not otherwise proceed.
- Highly trained and academic oriented surgeons offering state-of-the-art techniques.
- Development of a broad local referral base and improved financial returns.
- Established succession planning for surgeons and program directors.
- Improved quality of services.
- Strengthened nurse and administrator education initiatives.
- Continued education for surgeons and training in advanced surgical techniques.
- Growth of clinical volume and discharges.

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Columbia University, Department of Surgery
In 2004, a severely injured Marine was admitted to the James A. Haley VA hospital. Using the Appreciative Inquiry (AI) 4-D model - Discover, Dream, Design and Deliver, clinicians soon DISCOVERed that his interest prior to serving his country was in Computer Science. His rehabilitation depended on finding a meaning for his life. This resulted in the first personal computer placed in a patient’s room. This computer was his connection to home, to his family and to his friends. These same clinicians started to DREAM. How can we provide this same service to all veterans and their families? An interdisciplinary committee was formed to DESIGN the first Internet Café in the VA healthcare system. The Defense Department and others began donating materials, and over a two year period “CafeVA” took shape. Several "top notch" blenders were donated for patients to choose from a number of milk shakes and smoothies. On November 1, 2006, “CafeVA” was DELIVERed to the severely injured service members, veterans and their families as a place to relax, eat, socialize and most importantly connect to home. Though patients can access Internet in their rooms, hospital staffers encourage them to use the cafe, where they can interact with others. Many use the café to e-mail their buddies in Iraq, tinker with their MySpace accounts or Google their favorite subjects. Doctors believe the contact with family and friends is just as important as the medical care these young patients receive. One of the main purposes for the computers is to help connect patients with the outside world but they also play a key role in the recovery process.

Specific goals of this program were: 1) If troops can blog and conduct video conferences from the battlefield, provide similar technology at the hospital for every patient; 2) Design an internet café, with a non-institutional atmosphere, that is self-sustaining through donated funds and volunteer labor; 3) Establish a café name, a café logo and café group activities for patients.

This innovative program engages the entire healthcare organization in discovering what works best for the patient and what inspires images for future program development.

“CafeVA” provides patients with a non-institutional place to interact, to use computers to research their interests and most importantly to heal by staying in touch with friends, family and comrades.

Patient Endorsements-

Alba Tanner, Injured in Iraq:
"It's very important, 'cause there's a lot of people that's worried about me, and that I want to talk to and that I get to talk to through the Internet."

Bruce Nitsche, Wounded Warrior Project:
"The wounded still want to stay in touch with their buddies back in the theatre. And the need for information is still there, and it's probably even greater today than it was when I was injured. But the wonderful thing about today's world is that it's readily available through the Internet."

Chris Malone, Wounded in Iraq:
"It's actually really good. It helps you keep updates on what your platoon's doing, 'cause I intend to go back to work."
IMPLEMENTATION OF PHARMACY CLINICAL DOCUMENTATION SOFTWARE TO IMPROVE MEDICATION THERAPY AND OUTCOMES

Elizabeth Stanberry, Pharm.D.; Donna L. Kyle, R.Ph., M.S.; Veronica Franklin, R.Ph.; Hayley Raymer, MHA/MBA

OBJECTIVES: Pharmacists play a critical role in the management of a patient’s drug therapy. They are an important line of defense against medication errors and adverse drug events. Documentation of a pharmacist’s clinical activities in a form that can be quantified and tracked has been problematic. Assigning a cost to the activity that is meaningful also presents a problem. Computer software developed by Pharmacy One Source offered the Michael E. DeBakey VA Medical Center (MEDVAMC) Pharmacy an opportunity to track clinical activities of pharmacists. This information provides quantitative evaluations of the work pharmacists do on a daily basis. It enables pharmacy management to describe cost savings that result from the prevention of medication errors and by monitoring drug therapy regimens.

PLANNING: Several software products are available commercially that provide this type of documentation. The MEDVAMC selected Pharmacy One Source (formerly Healthprolink) in September 2005. This internet-based software provided a flexible, secure mechanism to track the interventions. Super users were identified to provide training to all pharmacists.

IMPLEMENTATION METHODS: This internet-based software was customized to support local program needs. Definitions of clinical pharmacy activities were adjusted to reflect local practice. Preparation for use of the Pharmacy One Source software required training of the pharmacy staff. Pharmacists were trained to enter information in a standardized manner to help ensure that a search of the database would result in maximum retrievable data. Data collection focused on medication errors, adverse drug events, formulary usage, drug information and clinical interventions. Reports developed by Pharmacy One Source were utilized to obtain a global view of the data collected by the software. Customized reports were developed to drill down to determine the specific interventions and identify areas for overall improvement of patient care.

RESULTS: From January 2006 thru December 2006, 6,854 interventions, 19 adverse drug reactions, and 760 medication errors have been reported. Documented clinical interventions have saved the MEDVAMC approximately $400,000 over the past year. Limitations of the software include the time needed to input the interventions and maintaining a level of staff interest to continue with the documentation.

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Utilizing the Operational Index™ to Design a Strategic Plan for Smart Growth in Surgical Services

Randall, M., Venkatraman, G., Patel, N., VanMilligan, G., Larson, M.

Objective: Surgical services is the leading source of revenue in most hospitals and also amongst the most challenging to manage: operating and capital costs are high, technology is advancing rapidly, scheduling and throughput processes are exceedingly complex, and the margin for error is small. The Operational Index™ allows a surgical services department to identify their baseline operations and define a Smart Growth strategic plan to adopt innovations and enhance their effectiveness.

Planning/Research Methods: The Operational Index™ is a tool comprised of over 200 criteria related to innovation and effectiveness dimensions, with particular emphasis on operational practice, clinical practice and human capital investments. The criteria are based on best practice and have been vetted by surgeons and directors of perioperative services. The innovation criteria are weighted by level of utilization, while the effectiveness criteria are a relative weighting. Data are collected by a surgical services expert and the surgery leadership team. Once the analysis is completed, the department receives a profile of their current level of innovation (early adopter to consensus adopter to late adopter) and their current level of effectiveness (as a percentage).

Implementation Methods: The Operational Index™ Profile allows a surgery department team to develop a one to three year Smart Growth strategic plan that identifies the priorities for adoption of innovations; whether that is related to operational practice, clinical practice or human capital investments. The team is also able to plan for improved effectiveness within the surgical services delivery processes.

Results: Success is measured through a monthly scorecard of the key elements of the strategic plan and annual re-evaluation of progress in innovations and effectiveness through the Operational Index™. Initial results (n=11) demonstrate wide ranges in performance: Clinical Effectiveness 42-76%, Operations Effectiveness 47-76%, Human Capital Effectiveness 42-65%. Similarly, Innovation score ranges also suggest that the tool is sensitive to differences in organization adoption characteristics: Clinical Innovation 2.3-3.1, Operations Innovation 3.1-3.9, and Human Capital Innovation 2.0-3.9. Preliminary performance results include:

Human Capital Effectiveness: 33% of OR Medical Directors do not have monthly reviews with physicians to discuss performance and expectations.

Operations Effectiveness: 48% of OR scheduling blocks are released within 48 hrs prior to surgery.

Clinical Effectiveness: Effective glucose protocol utilization (in periop) is 44%.

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Process Improvement:  
A Way of Life, Not a New Program  

Objectives  
Since the mid-1990s, the Veterans Health Administration has succeeded in moving to the forefront as a provider of outstanding healthcare. In an environment impacted by significant medical care cost inflation and flat line budgets, healthcare systems may be tempted to reduce services. By adopting the philosophy of the Toyota Production System (TPS), the Samuel S. Stratton VA Medical Center has injected new excitement into its many continuous improvement practices, focusing all levels of staff on adding value and eliminating waste.  

Planning/Research Methods:  Build on What Works - Back to the Basics  
The VA medical center at Albany, New York has successfully implemented numerous improvements related to clinical quality, patient satisfaction and staff satisfaction. Rather than add a new “flavor of the month” program, the Stratton VA Medical Center moved to reinforce the Plan – Do – Study – Act process. By linking the philosophy of adding value and eliminating waste with the P-D-S-A cycle, the organization found a way to energize staff at all levels of the organization.  

Implementation:  Rapid Cycle Improvement  
By combining skills-based training and interactive executive leadership championship, the Stratton VA Medical Center has completed numerous rapid cycle improvements. Lean Thinking trainees participate in a day-and-a-half training that introduces the Seven Forms of Waste (transportation, inventory, motion, waiting, over-processing, overproduction, defects) and Five S’s (Straighten – Sort – Shine – Standardize - Sustain) of the Toyota Production System. In addition, trainees gain skill in the classroom at creating value stream maps through realistic and entertaining exercises (experiential learning). Having achieved a level of skill in using this new tool, students prepare a value stream map from their own work area, and this becomes the basis of a process improvement that they will carry out. Key to this training is the active involvement of the senior medical center leadership who open every session, are present to hear the reports of the value stream map, and personally follow up with each student at his or her work area.  

Results  
In the first ten months of training since February 2006, twenty-four improvement projects have been successfully implemented in both clinical and administrative areas. Course evaluations at the conclusion of the training session are overwhelmingly positive, and follow-up with the participants during and after projects reveals their continued excitement with using new approaches to solve old problems. Lean Thinking principles have been used to reduce new patient no-shows in the orthopedic clinic from 21% to less than 1%; the consult wait time for a behavioral health appointment from a community based clinic has been reduced by 50%; more and better space has been created for patient meals; and, patient transport processes to and from other hospitals in the community have been significantly improved.  

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Forecasting Nurse Staffing  
A Predictive Model to Maximize Return on Staffing Investment

Background and Significance
Nurse staffing is one of the largest single line items of a hospital expense budget. Nurse Leader accountability for maintaining staffing levels and budgetary allocation is critical to the organization’s patient satisfaction, clinical outcomes, and fiscal health. Appropriate utilization of staffing resources can positively impact total revenue, expenditures and the ability to manage patient volumes and acuity. Taking a broad approach to staffing by utilizing patient, financial, and staffing demographics, and drilling down to a until level, a predictive model can create a staffing plan that maximizes available resources and prevents staff burn-out, patient diversions, or un-staffed hospital beds.

Description
AMN Healthcare, a nation-wide supplemental healthcare staffing organization, developed a predictive model, with the assistance of a large consulting company. In the case study, a hospital supplied their clinical and financial data for analysis to determine how to best maximize the resources of core nursing staff, including float pools and overtime, as well as supplemental staff, if needed.

Objectives
• Create a staffing solution that predicts the appropriate mix of staffing relative to core, overtime and supplemental staff resource utilization.
• Address normal census fluctuation and patient acuity to create a staffing plan that balances the most effective use of all staffing resources, while controlling budgetary impact.

Results
The model presents a strategic staffing solution relative to patient type, core nurse availability and supplemental staffing during variable census periods. When the model was applied, 250 patients were eligible for recapture as a result of optimized staffing levels. The decrease in patient diversions translated into a positive net revenue recapture of $1.2 million, even after accounting for costs of the supplemental staff.

Conclusions
The nursing shortage requires diligent utilization of scarce resources. Combined with increasing patient admissions, it is imperative for hospital leaders to manage resources in a fiscally responsible environment. By using existing hospital data, a predictive model is available to create a hospital-wide nurse staffing plan that maximizes the contribution of core staff, float pools, overtime and supplemental resources. By combining the use of an economic forecasting model with flexible staffing resources during variable census periods, hospitals can maximize their return on staffing investment.

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