



**DEPARTMENT OF MEDICINE**

**QUALITY IMPROVEMENT AND  
PATIENT SAFETY COMMITTEE  
POSTER SESSION  
ABSTRACTS**

November 27, 2012



Weill Cornell Medical College

┌ New York-Presbyterian Hospital  
└ Weill Cornell Medical Center

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November 27, 2012

The Quality Improvement Patient Safety Committee (QIPS) was organized in 2010 as part of the Department of Medicine's Quality and Patient Safety organization. In conjunction with the Quality and Professional Review Committee, the QIPS committee works to support and promote the department's and New York-Presbyterian/Weill Cornell Medical College's dedication to providing high value, high quality care to our patients by establishing a reliable, safe healthcare environment.

The QIPS committee is dedicated to the pursuit of proactive improvement initiatives and the promotion of scholarly activity in quality and patient safety. Members include representatives from the Divisions, internal medicine residency program, and the Division of Medical Nursing.

This poster forum illustrates our department's support for quality improvement efforts that are clinically relevant to improving the care of our patients.

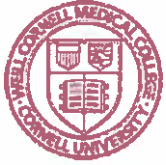
Thank you for your support.

A handwritten signature in blue ink that reads "Andrew I. Schafer".

Andrew I. Schafer, MD  
Chairman, Department of Medicine

A handwritten signature in black ink that reads "B. Reilly".

Brendan Reilly, MD  
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## ***“High impact fracture protocol on the Medical Orthopedic Trauma Service (MOTS)”***

Eva Flores, MD

### ***Statement of the problem***

Hip fractures lend themselves to a systematic approach in patient care that may reduce complications and practice variability. MOTS is a co-managed service between Orthopedics and Medicine where numerous staff, who may not all be familiar with the routine care of these patients, rotate through the service. Practice variability was hypothesized to occur in timely removal of foley catheters, appropriate & timely use of oral pain medications and LOS. Some of these factors are monitored in hospitals nationally and reported publicly in the form of SCIP care measures and HCAHPS surveys.

### ***Aim of the Project***

To study if the implementation of a simple bedside protocol on a specific patient population can improve clinical aspects of patient care—pain scores, UTI rates—or metrics like LOS.

### ***Intervention***

A visual bedside “Patient Protocol” was created and used daily on bedside rounds as a communication tool involving the multidisciplinary team (RN, PA, MD, SW, PT/OT). It highlighted key daily goals that, when performed, would systematize certain aspects of care, thus hopefully moving the patient through an uncomplicated hospital stay and timely discharge.

### ***Measurement***

Utilized AMALGA data base for urinalysis data (then manually verified with urine culture results) and LOS data. Utilized Press Ganey Online for pain data, taken as surrogate for pain control.

### ***Results***

The implementation of a visual bedside “patient protocol” along with coordinated and consistent team education is effective in improving pain control scores and reducing LOS. Urinalysis data was small, a negative trend was noted.

### ***Implications***

A simple bedside tool can facilitate communication and improve patient outcomes. However, executing a project that involves multiple disciplines is challenging and requires intensive education and open collaboration from all members in a multidisciplinary team. Ongoing periodic practice reminder sessions are necessary for the success and longevity of a project.

## ***Creating a Quality Dashboard for WCIMA***

Fran Ganz-Lord, MD

### ***Statement of the problem***

Despite the changing face of healthcare, providers have had limited experience with tools aimed at population management. Physicians are committed to the best possible health outcomes for their patients, but they do not have access to practice wide, provider, or patient level data that can identify gaps in care and allow for systematic improvements.

### ***Aim of the Project***

To create and distribute a quality dashboard with clinically meaningful metrics to providers at Weill Cornell Internal Medical Associates (WCIMA). This dashboard will be used for population management analysis, targeted patient and provider interventions, and for internal medicine resident education.

### ***Measurements***

Monthly reports containing data entered into EPIC (the outpatient EHR) were developed for the following metrics: Tobacco cessation counseling, COPD management (use of PFTs, pneumonia and flu vaccines), asthma management (use of peak flow recordings, pneumonia and flu vaccines), breast cancer screening with mammography, control of blood pressure in patients with hypertension, screening for obesity, colon cancer screening with colonoscopy, screening for HIV, and diabetes (multiple care metrics involved).

### ***Results***

A quality dashboard was created. Overall, WCIMA performs favorably versus national standards (when available) but opportunities for improvement exist. Targeted interventions based on this dashboard are being developed and the best way to distribute this information to providers is being investigated. Decisions about which metrics to show and how to make that information available will be made. Second year residents are already using these reports as part of their quality curriculum.

### ***Implications***

Population, provider and patient level data is exceptionally informative but is only a stepping stone to improvements in care delivery. There needs to be subsequent root cause analysis of where and why gaps in care exist. Interventions to improve these metrics will be evaluated with continued analysis of the reports.

## ***Using Computer Order Sets to Improve Inpatient Glycemic Control***

Naina Sinha Gregory, MD; Jane Seley DNP, MPH; Ya-Lin Chiu

### ***Background***

It is estimated that one-third of inpatients have known diabetes or hyperglycemia during hospitalization.

The appropriate initiation and titration of insulin therapy is an ongoing challenge and it is unknown if a computer based insulin algorithm would improve inpatient glycemic management.

### ***Aim***

The implementation of an insulin order set would decrease the rate of hypoglycemia and improve inpatient glycemic control. Our aim is to evaluate the safety and efficacy of a comprehensive insulin order set in the inpatient computer-based provider order entry (CPOE).

### ***Methods***

*Sample:* All the adult inpatient units that utilize subcutaneous insulin at New York Presbyterian Hospital/Weill Cornell Campus.

*Method of data collection:* Laboratory Point of Care Testing reports are analyzed on a monthly basis.

*Description of the intervention:* Five comprehensive subcutaneous insulin order sets were launched on November 1, 2010. Insulin dosing was based on patient's weight and expected sensitivity to insulin. Each Insulin Order Set Auto-Calculates Insulin Dose. There are 5 dosing levels: Low, Medium, High, Poor Intake (Less than 50% of tray) or NPO.

*Metrics used/Outcomes measured:* Rates of hypoglycemia and hyperglycemia from January to October 2010 were compared to the same period in 2011 to evaluate the safety and efficacy of the order set.

### ***Results***

The percentage of hypoglycemia was significantly reduced from 2010 to 2011. The percentage of patients in target decreased from 2010 to 2011. This was associated with an increase in patients with BG>200 mg/dL.

### ***Discussion***

The use of an insulin order set may result in increased patient safety due to decreased rates of hypoglycemia. The increased rates of hyperglycemia may indicate the need for incorporating titration of insulin dosing into the order set. Next steps would include creation of auto-calculation for dose increases depending on glucose values to be added to next generation of order set.

***A Standardized Approach to the Education and Assessment of Central Venous Catheter Placement Improves Quality of Insertion and Resident Knowledge of the Procedure***

Kirana Gudi MD, Kapil Rajwani MD, Cathy Jalali PhD, David Berlin MD, Oren Friedman MD, and Lia Logio MD

***Rationale***

Internal Medicine Residents frequently perform Central Venous Catheterization, but studies have shown that many residents are uncomfortable performing the procedure, and complication rates are directly correlated with experience. Additionally, National Patient Safety measures are looking at the rates of Central Line-Associated Blood Stream Infections, and this is directly correlated with sterile central line insertions. Our project was designed to evaluate our residents' current practice of central line insertion and begin a detailed central line educational initiative.

***Methods***

PGY-2 Residents in March and April were assessed for their baseline knowledge of as well as confidence and skill in the placement of Internal Jugular Central Venous Catheters with a written exam and assessment of insertion of a central line into a simulation model by two critical care attendings. These residents then watched a demonstration of the proper technique for insertion of a central venous catheter and then had the opportunity to practice this technique with attending feedback. After this, the resident completed a post-intervention written exam and demonstration of central line insertion.

***Results***

Ten residents were assessed over an eight week period. The majority of residents (70%) learned their current practice of central line placement from a PGY2 resident and most had completed at least 6 lines at the time of assessment. The average score on the pre-simulation knowledge assessment test was 37.5%. The checklist assessment of the residents improved post-simulation from 14.4/22 to 19.7/22 ( $p < 0.002$ ). There was also a statistically significant increase in the confidence of the residents' use of ultrasound during central line placement and their confidence in the procedure overall ( $p < 0.04$  and  $p < 0.0008$ ).

***Conclusions and Future***

Our simulation module improved confidence in and quality of the central line insertion. We have developed a simulation curriculum which incorporates our teaching strategy and are now looking at the long-term retention of this educational approach.

## ***The CARE Project***

Saraswati Iobst, MD; Riya George, BS; Yvette Rolon, LCSW, ACSW; Kristin Muzina, LCSW; Katherine Salib, MA; Michelle Unterbrink, BA; Carol DeJesus, LCSW, CCM

### ***Statement of the problem***

High utilizers present a challenge to the healthcare system, epitomizing the dilemma that has become the cornerstone of the healthcare debate: exorbitant medical costs without improvement in health care outcomes. General systems-based initiatives to decrease preventable readmissions only partially address the needs of this population. The literature shows that successful interventions are individualized to each patient's medical and psychosocial needs and are best created by a multidisciplinary team that conducts case-by-case assessments of unmet needs and barriers to care.

### ***Aim of project***

Our aim is to improve the healthcare of high utilizers through a multidisciplinary-based pilot project by identifying modifiable factors that contribute to frequent hospital admissions and to develop individualized interventions for each patient, targeting barriers to care and unmet needs in order to decrease annual inpatient admissions and ED visits.

### ***Intervention***

We have created a multidisciplinary high utilizer task force (the CARE Team). Key collaborators include leaders in the Division of Hospital Medicine, CIMA, the ED, and Social Work. Initial enrollment of 10 patients with 5 or more admissions will begin mid-December 2012. Initial assessments will include comprehensive chart reviews; patient, caregiver, and provider interviews; home visits; and self-assessments of health status and quality of life. The CARE Team will create an individualized care plan for each patient that will identify action items addressing healthcare goals, barriers to care, and other unmet needs.

### ***Results***

We conducted a hospital administrative database search to identify patients with 5 or more inpatient admissions from 7/2011-7/2012. Seventy-three patients were identified. Patients are eligible for enrollment if they have had at least 1 admission within the past 3 months and are an established CIMA patient and New York City resident. Fifty-seven patients were excluded, the majority (74%) because they were not CIMA patients. Sixteen patients are eligible for enrollment, which will begin in 12/2012. The average number of annual admissions and 30-day readmissions was 7.6 and 3.4, respectively. Preliminary data from chart reviews demonstrate that this patient population is diverse in terms of age, demographics, diagnoses, and utilization patterns of outpatient and ED resources.

### ***Implications***

New York-Presbyterian Hospital has a diverse hospital high utilizer population. Therefore, individualized, patient-centered interventions are needed to positively affect this patient population and decrease hospital admissions. The development of a multidisciplinary, individualized patient care program, such as the CARE Project, is critical to the development of effective and sustainable programs to improve healthcare utilization and health outcomes in this unique patient population.



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## ***Accuracy of Attending of Record Designations***

Jennifer I. Lee MD  
Division of Hospital Medicine

### ***Background***

Identification of Attending of Record (AOR) for discharged patients is a quality and safety issue. At Weill Cornell Medical Center (WCMC), AOR is manually entered into several fields throughout the electronic health record by various providers in different departments. The final AOR designation is documented by Clinical Documentation/Coding and Health Information Services on the attestation.

### ***Aim of Project***

The rate of AOR misattribution at WCMC is not well known. This study will help to define the scope of the problem and identify potential areas for improvement.

### ***Methods***

254 charts were reviewed independently by two researchers. Only patients discharged by hospitalists were included to allow verification of the discharge attending, our institutional definition of the AOR. Charts without attestations were excluded. An additional 61 charts were reviewed to assess consistency of the initial findings.

Attending information was recorded from the attending's discharge note, Designated Provider Order, "Attending" on Eagle, discharge summary, and the attestation. All fields were compared with the discharge note. If a discharge note was not found, the division's service schedule attending was used.

Results of the analysis were discussed with Clinical Documentation/Coding and Health Information Services.

### ***Results***

Based on both rounds of chart reviews, discrepancy between the attestation and discharge note was 34.7% and 34% respectively.

In first round chart review, 73.2% (186/254) had more than one AOR listed.

### ***Discussion***

The AOR misattribution rate is greater than 30% for the hospitalist-attended service.

Standardizing the process of AOR designation would improve accuracy of attribution.

- Multiple attending notes using generic templates (service attending, consult attendings) make accurate use of the discharge note challenging without prior knowledge of the service schedule.
- Pre-populating all AOR fields would help to eliminate the inconsistency noted in 73% of the charts due to human error.

## ***Utilization of Echocardiography in Patients with Moderate or Severe Aortic Stenosis or Mitral Regurgitation***

Mohammed Mehdi Premjee, Robert J. Kim, MD

### ***Background***

Aortic stenosis (AS) and mitral regurgitation (MR) are the two most commonly encountered valvular lesions that require close clinical and imaging follow-up in order to plan appropriately for surgical intervention.

### ***Aim/Measurement***

The aim of this study was to assess the prevalence of patients with moderate or severe valvular disease being followed in Cardiology and to determine whether use of echocardiography adhered to current guideline recommendations. Patients' charts from January to March 2011 were reviewed in Epic to determine use of echocardiography as well as symptoms, hospitalizations, valve surgeries, and death.

### ***Results***

Of 1765 consecutive patient visits, 179 unique patients were identified, 87 (48.6%) with severe and 92 (51.4%) with moderate valvular disease.

In total, 136 of 179 (75.9%) patients underwent a second echocardiogram (see Table 1.) Patients with or without a second echocardiogram did not differ with respect to age, number of patients >80 years of age, mean EF, or the presence of symptoms. Patients with a second echocardiogram were more likely to have severe valvular disease, undergo valve surgery, and had more follow-up visits.

Among patients with two echocardiograms, the median time between studies was 387 days, with 41.2% performed within 1 year. Patients reimaged less than a year later were more likely to be symptomatic, have severe valvular disease, be hospitalized for a cardiac cause, and undergo valve surgery (see Table 2.)

### ***Implications***

Our findings suggest that patients with significant valvular disease often have appropriate imaging; however 24.1% of patients did not have any subsequent imaging as recommended by current guidelines. Early imaging was most likely due to a change in status, however inappropriate use of echocardiography was not ascertained and a more thorough assessment of the appropriateness of cardiac imaging will require IT solutions including decision-support software to capture clinical reasoning.

## ***The Transition from Hospital to Home: Understanding the Nuts and Bolts of Hospital Discharge***

Sharda D. Ramsaroop, MD, Rouzi Shengelia, MD, M. Carrington Reid, MD, PhD, and Eugenia L. Siegler, MD  
Division of Geriatrics, Weill Cornell Medical College- New York Presbyterian Hospital

### ***Background***

The transition from hospital to home is a perilous time for older adults. One in 5 patients suffers an adverse event after discharge. Two-thirds of post-discharge adverse events are medication related. Patients with post-discharge medication discrepancies are twice as likely to be readmitted within 30 days. Hospital discharge remains a poorly understood, chaotic, and undervalued process. The first aim of this pilot project was to identify and describe all the participants, elements and workflow of the hospital discharge process. The second aim was to describe post discharge medication discrepancies.

### ***Methods***

This quality improvement study was conducted on the Acute Care for Elders (ACE) Unit and the geriatrics ambulatory care practice. Using time and motion methodology, a research assistant directly observed each member of the interdisciplinary team (e.g., nurses, social workers, physicians) during their daily activities. Observations were done in 2 to 4 hour time blocks from 2/1/12 to 3/31/12. Outcomes measured were discharge-related tasks and time to complete tasks. All established patients of the geriatrics ambulatory care practice, discharged from the ACE Unit, were given an appointment with the PI within two weeks of discharge. During this visit, medications were reconciled and discrepancies cataloged.

### ***Results***

Approximately, one hundred hours were spent observing discharge-related activities performed by physicians, physician assistants, nurses and social workers. Nurses spent an average of 3.32 minutes (1.45-5.45) educating patients/caregivers about medications at discharge and physician assistants spent 3.56 minutes (0.87-7.5). From 2/1/12 to 3/31/12, eleven discharged patients were seen in the ambulatory care practice for follow up. Five patients (45%) had one or more medication discrepancies between medications listed on the discharge summary and medications patients were taking. One patient was readmitted within 30 days of discharge.

### ***Discussion***

This pilot study provides a useful “snapshot” of our discharge process. These data will be used to identify points of intervention to improve the discharge process.

## ***Outpatient Parenteral Antibiotic Therapy (OPAT) Experience at NYP/WCMC***

Matthew Simon<sup>1,2</sup>, Riya George<sup>3</sup>, Stephen Wilson<sup>2,3</sup>, Laura Kirkman<sup>2,4</sup>

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### ***Introduction***

Outpatient parenteral antibiotic therapy (OPAT) is a safe and effective means of antibiotic administration for infections requiring prolonged treatment. However, the transition from hospital to home and with ongoing follow-up is a complex process requiring multi-disciplinary care coordination. The volume of OPAT patients at NYP/WCMC has more than doubled over the past 3 years. Anecdotal experience in our clinic and survey based studies suggest the OPAT process has serious potential for errors and adverse events and is an appropriate target for quality improvement efforts.

### ***Methods***

Retrospective chart review was performed on a total of 118 OPAT patients. 40 patients were randomly selected prior to 2012 to determine baseline data and compared to 78 OPAT patients discharged during an intervention period between January to April 2012. The intervention consisted of additional nurse practitioner support, with dedicated training and time for assistance with OPAT follow up. In addition, we targeted enhancing care coordination between the nurse practitioner and the inpatient ID consult team. A process was formalized for communication and documentation using the electronic medical record (EMR). An independent reviewer appraised the EMR and maintained an Excel database detailing weekly receipt of labs and documentation of response by both NP and ID fellow.

### ***Results***

The median amount of time on OPAT was 31 days with a range of 4-83 days. Labs were received more frequently during the intervention period 64% vs. 51% but remained suboptimal. Documentation by ID fellows and NPs also improved but did not reach goal. Placement in sub-acute rehab facility was the most frequent reason for missing labs, occurring 56% of the time.

### ***Conclusions***

This study of OPAT lab monitoring demonstrated that improvements to ensure quality and safety of OPAT patients at NYP/WCMC are needed. We propose a dedicated OPAT team, beyond part time assistance to fellows, is required to meet guidelines for care.

## ***Reducing Clinical Inertia in Management of Inpatients with Diabetes Mellitus or Hyperglycemia***

Chin Tang, MD

### ***Issue***

Glycemic control in hospitalized patients often falls on first-line providers with minimal guidance from attending physicians. Unfortunately, there is a degree of clinical inertia in managing blood sugars. In one study at a large academic medical center on a general medicine service, only 35% of patients who had an episode of hypo- or hyperglycemia had their diabetic regimens adjusted during the first 5 days of hospitalization. In another study, only 43% of housestaff felt “very comfortable” managing hyperglycemia. The aim of this project was to facilitate making adjustments to glycemic management by setting aside a portion of time and manpower to address glycemic issues.

### ***Assessment and Intervention***

For four weeks during the weekdays, glycemic control for patients on three of the six PA lists were reviewed with a hospitalist who was not otherwise involved in the care of these patients. Results of fingerstick testing were reviewed and recommendations regarding their glycemic regimen were offered. The PA could decide to enact these recommendations on their own or in consultation with the attending of record. The remaining three PA teams managed the glycemic regimens for their patients according to their usual routine.

Twenty-seven patients in the intervention group and 21 patients in the usual care group were studied. The groups were dissimilar at baseline. Adjustments in glycemic management were undertaken forty percent of the time in the intervention group and thirty percent of the time in the usual care group. There was greater implementation of appropriate care in the intervention group. Markers of glycemic control were not different between the two groups.

### ***Implications***

There is a lack of awareness amongst the PAs and attendings of the guidelines regarding inpatient glycemic control as put forth by various professional organizations as well as the Diabetes Care Council at NYPH-WCMC. Greater emphasis on following these guidelines should be encouraged.

## ***Data Collection to Track and Better Define the Complication Rate from Fiberoptic Bronchoscopy***

Division of Pulmonary and Critical Care Medicine  
Dana Zappetti, MD and Riya George, BS

### ***Background and Identification of the Problem***

There is a sparse literature on the complications associated with fiberoptic bronchoscopy. Because this is a diagnostic/therapeutic procedure and not one used for screening there is no widely recognized “acceptable” complication rate. Commonly identified complications are respiratory failure/arrest, hypoxemia, bleeding, and pneumothorax and cardiac arrhythmia. However, most studies involve patients with an average risk of bleeding and without pre-existing respiratory failure. While our group performs many average risk outpatient procedures which are logged and reviewed for complications there are many more bronchoscopy procedures performed daily on our intensive or acute care inpatient wards. Traditionally, these inpatient bronchoscopies are not monitored for complications and are performed on higher risk patients. Our aim has been to define the complication rate in all of our patients undergoing bronchoscopy.

### ***Method***

A bronchoscopy database that includes key demographic data, pre-procedure data risk data, procedure data and complications was created and is now required for all bronchoscopies performed regardless of location. This data is maintained in the RedCap database and utilizes predefined dropdown menus to eliminate free-texting and ambiguous reporting. Fellow and attending physicians have been trained in the data entry.

### ***Outcome Measures***

After review by the project leaders, the complications data will be presented monthly at our Divisional Quality meeting for discussion with the group. After six months time we will have a defined complication rate and can adjust pre-procedure parameters or selection qualification if the complication rate is higher than published rates or if the rate is deemed unacceptably high by the group.

### ***Implications and next steps***

Defining complications and incorporating the database entry into the group’s workflow proved challenging. The database is up and running and currently has 50 logged procedures. In addition to ensuring that the group’s bronchoscopy complication rate is acceptable, this project has the potential to define complication rates in varying and high-risk patient populations (i.e., stem cell transplant, acute respiratory distress syndrome). This data will contribute to the medical literature and potentially lead to funded, prospective, randomized trials of various interventions to reduce the complication rate during bronchoscopy.

## ***Apple iPads® Positively Impact Clinical Care in a Busy Outpatient Resident Practice***

Karl B. Bezak, MD; Jessica Furst, MD; Amanda Carmel, MD

Weill Cornell Internal Medicine Associates, New York - Presbyterian Hospital, Weill Cornell Medical Center

### ***Statement of Problem***

Time management and clinical efficiency are major challenges in outpatient medicine, particularly resident clinics. Though difficult to achieve, optimizing time available for each patient while in-office and while responding to post-visit concerns are crucial aspects of efficient care.

### ***Aim of Project***

To increase resident clinical efficiency at Weill Cornell Internal Medicine Associates (WCIMA) through the use of Apple iPads.

### ***Intervention***

As part of an internal medicine residency quality improvement project, six Internal Medicine residents volunteered from those rotating at WCIMA during March 2012 (2 interns, 2 junior residents, 2 senior residents). Each resident was loaned an iPad with Citrix software and access to the EPIC outpatient electronic medical record (EMR). Each participant was given a 15-minute tutorial on iPad operation and suggestions for efficient use in clinic. The residents utilized the iPad over a two-week period consisting of 10-12 half-day clinic sessions.

### ***Measurement***

Pre- and post-study data was collected by questionnaire. Questions addressed each resident's perceived clinical efficiency, access to information, ability to address patient clinical issues during each visit, and ability to address patient phone calls/messages. Attending perceptions of resident iPad use was also collected. Responses were recorded utilizing a Likert Scale. Data from five residents (one senior resident did not use the iPad) was analyzed and mean values were compared.

### ***Results***

Using iPads increased residents' overall self-assessed clinical efficiency, access to information, number of patient clinical issues addressed per visit, as well as improved ability to answer patient phone calls and messages in a timely manner.

### ***Implications***

While efficiency is challenging to measure, use of iPads improved care delivery in the outpatient setting and may be an important tool for helping residents with time management. Ultimately this could lead to improvements in quality of patient care and residents' satisfaction with their outpatient experience.



## ***Generic over Brand-name Proton Pump Inhibitors Prescribed at Hospital Discharge***

Bezak K, Eiss B, Igel L, Ryskina K, Zemedkun M, Daniyan T, Ferng T, Rotman S, West M, Chung A, Loden A, Waldman L, Wong C, Ayres E, Lin FS, Mark S, Bishop T, Lee JI

### ***Statement of the problem***

Proton pump inhibitors (PPIs) account for the third largest sales among drug classes in the United States. In 2010, esomeprazole (Nexium) alone accounted for \$2.6 billion in sales nationally. Studies have shown that generic PPIs are similarly effective at lower cost than a comparable brand-name drug.

At Weill Cornell Medical Center (WCMC), anecdotal evidence suggests that patients discharged from the general medicine service on a PPI are prescribed Nexium, the preferred PPI on hospital formulary.

### ***Aim of project***

We designed an intervention to decrease the proportion of new prescriptions of Nexium compared to generic omeprazole given to patients discharged from one general medicine unit by 40% over 4 weeks.

### ***Study Population***

General medicine patients admitted to Greenberg 5-North (5N) who:

1. Required a new PPI prescription on discharge AND
2. Were discharged from a 5N localized team (Med Green, Gold, Platinum)

Patients on PPIs before admission were excluded.

### ***Intervention***

We designed a multidisciplinary approach to remind and educate residents about their PPI prescribing patterns at discharge. This involved an educational session with team members and medication review by a pharmacist for eligible patients identified during interdisciplinary rounds.

### ***Metrics***

Discharge medication lists were reviewed before and after intervention. Cost savings were calculated using publicly available PPI cost data.

### ***Results***

In the pre-intervention period, Nexium accounted for 80% of new PPI prescriptions with a decrease to 40% at 2 weeks and 20% at 4 weeks post-intervention, exceeding our initial goal of a 40% reduction.

If extrapolated throughout our institution, this totals a potential net savings of over \$400,000 in healthcare dollars in one year.

### ***Conclusions***

In two months, residents successfully changed PPI prescribing patterns through a simple and effective multidisciplinary quality improvement initiative. The effect was sustainable at least 4 weeks post-intervention and represents significant cost savings to the health care system.

## ***Effectiveness of Reminder Letters on Improving Colon Cancer Screening in the Primary Care Setting***

Bhatia A, Bao G, Chavez R, Gingras L, Kersellius R, Eiss B, Carmel A

### ***Statement of problem***

Colon cancer screening has been proven to be effective at decreasing colon cancer morbidity and mortality. In spite of this, a substantial percentage of patients at Weill Cornell Internal Medical Associates (WCIMA) are not up-to-date with screening. While baseline screening rates of WCIMA patients is similar to national averages, many additional eligible WCIMA patients would benefit from screening.

### ***Aim***

We aimed to increase screening among resident patients ages 50-75 by 15% within 6 weeks by instituting a system of reminder letters. Given the short time frame, we also secondarily aimed to increase the number of patients who received at least a referral or appointment for colonoscopy.

### ***Intervention***

A list of resident patients who were not up to date with screening was generated automatically by the outpatient electronic health record (Epic) and supplemented by additional chart review. Approximately half of these patients (intervention group) were mailed reminder letters regarding screening, while the other half (control group) did not receive letters.

### ***Measurement***

Initial confirmatory chart review involved reviewing the health maintenance section, last three office visit notes, and procedures tab in Epic. These were reviewed again 6 weeks after the letters were sent for evidence of completed colonoscopy or new referral or appointment for colonoscopy.

### ***Results***

After 6 weeks, we did not find an increase in colonoscopy screening in the intervention group, although 5% of patients had either a referral or new appointment for colonoscopy. Notably, 34% of patients were up to date with screening but had not been documented on the health maintenance tab accurately.

### ***Implications***

Letters did not improve screening rates within 6 weeks, although the short time frame was likely a significant limitation. Future work could include re-assessment after an extended time period and if an effect is seen, the creation of an automated system to send letters to a larger population of patients.

## ***Optimizing Alphanumeric Paging on 5 Central***

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### ***Statement of the problem***

Miscommunication is a major preventable cause of medical error. Alphanumeric paging is preferred to numeric paging, having been shown to improve the quality and efficiency of communication among providers.

Anecdotally, alphanumeric paging is underused among nurses on the general medicine units at Weill Cornell Medical Center.

### ***Aim of project***

Our aim was to increase and improve the use of alphanumeric pages on one medicine unit by 50% in 8 weeks.

### ***Intervention***

During our quality improvement curriculum, we designed an educational initiative demonstrating optimal use of alphanumeric paging to daytime nurses on Greenberg 5-Central (5C) led by a nurse champion. This was later expanded to include nightshift nurses. Additionally, 5C computers and phones were tagged with reminders regarding optimal paging.

### ***Metrics***

We reviewed the paging logs of interns localized on 5C one week before and after our dayshift intervention. Pages were categorized as “optimal”, “suboptimal”, or “numeric-only”. We repeated our review 4 weeks later to assess sustainability and improvement following our nightshift intervention.

Nursing satisfaction was measured using pre- and post-intervention surveys.

### ***Results***

The use of “optimal” alphanumeric pages increased from 44% to 60% at 1 week and from 78% to 96% at 4 weeks post-intervention, resulting in an overall increase of 52% above pre-intervention baseline.

Following our pilot, 12 of 14 nurses (86%) agreed or strongly agreed that alphanumeric paging was more efficient than numeric paging. 71% (10 out of 14 nurses) felt that patient care would be improved with consistent use of alphanumeric paging.

### ***Conclusions***

In two months, we were able to successfully change the paging practices of nurses on one general medicine unit while improving the efficiency and quality of patient care as perceived by nurses.

A important finding was the inability to close the communication loop using the 1-way alphanumeric paging system currently in place. A future study implementing two-way pagers has the potential to further improve teamwork among nurses and physicians.

## ***Improving Direct Electrocardiogram Review by Residents***

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### ***Statement of the problem***

Routine daily electrocardiograms (ECGs) are ordered on hospitalized patients for monitoring purposes relevant to their clinical care. At Weill Cornell Medical Center, medicine residents sometimes await official ECG interpretations by cardiologists rather than conducting their own initial review, which could delay clinical care and create opportunity for adverse outcomes.

### ***Aim of project***

As part of an 8-week quality improvement curriculum, we designed an intervention to increase the percentage of routine daily ECGs reviewed by residents to >75% on one general medicine unit.

### ***Intervention***

Localized medical teams on Greenberg 5-West (5W) and 5-Central (5C) both received daily verbal reminders to review, sign and date all ECGs ordered that day.

Additionally, a workflow intervention was implemented only on 5W. Residents were paged by the unit clerk once completed ECGs were placed in a designated bin by ECG technicians. After preliminary data review, the intervention was supplemented by reinforcement from the 5W Patient Care Director and by placing a robust reminder on the ECG bin which also listed the residents' pager numbers.

### ***Metrics***

We identified patients who had routine ECGs ordered from daily electronic chart review and verified how many were signed and dated by direct visual verification.

### ***Results***

During our preliminary data collection period, none of the routine ECGs completed on 5C were signed by residents; 50% (1 of 2) were signed on 5W. Following our workflow modification, 40% (4/10) of the ECGs completed on 5C were signed as opposed to 100% (14/14) of ECGs completed on 5W.

### ***Conclusions***

Timely review of the routine ECGs by residents was improved when both educational and workflow interventions were coupled. Implementing a system that allows direct ECG scanning into the electronic chart once completed could further simplify the workflow.