Improving Compliance with Guidelines on Group B Streptococcal Sepsis Prophylaxis during Unscheduled Cesareans

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Problem
The objective of this project was to assess whether there has been an improvement in compliance with prophylaxis for GBS.

Baseline Measurement
In 2013, compliance with the American College of Obstetrics and Gynecology (the College) guidelines for Group B streptococcus (GBS) prophylaxis was 69.6% at our institution. In non-compliant cases, 80% were due to lack of antibiotics.

Design
After the first assessment, improving GBS prophylaxis was emphasized during an Obstetrics and Gynecology Section meeting, but no formal education was provided. Retrospective review of GBS positive women confirmed at term gestation (37-39 weeks), who delivered via unscheduled cesarean from October 2014 to March 2015 was performed. Women were included if spontaneous rupture of membranes or active labor was documented prior to delivery. Compliance was determined based on evidence of appropriate antibiotics for GBS according to the College guidelines.

Results
Of 43 patients reviewed, 31 met inclusion criteria. The majority of women 38 weeks gestation (45.2%, n=14). Rectovaginal swab confirmed GBS positive status in 24 (77.4%) cases. The majority of women delivered via primary cesarean (54.8%, n=17). Out of 31 cases, 26 (83.9%) were compliant with the College guidelines on GBS prophylaxis. Of the non-compliant cases, 4 of the 5 (80%) were due to no evidence of antibiotics being administered for GBS. There were 3 (9.7%) cases in which antibiotics were not given for surgical prophylaxis.

Conclusions
Adherence to GBS prophylaxis guidelines improved since 2013, but failing to administer any antibiotics continues to be the primary reason for non-compliance.

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Problem
More than one-third of Americans are pre-diabetic. Among these individuals, diabetes can be prevented through programs like the YMCA's Diabetes Prevention Program (DPP), which is devoted to enhancing healthy lifestyles through diet and exercise. The goal of this project is to prevent the onset of diabetes in patients at the KUSM-W Internal Medicine clinics and to compare costs associated with the DPP versus pharmacotherapy for weight loss.

Baseline Measurement
Our QI team used principles of six sigma and DMAIC (define, measure, analyze, improve and control) cycle. Our team consisted of internal medicine residents and KU-W medical students in the Population Health in Practice course. Costs from a payer's perspective were calculated using weight loss data from the YMCA's DPP published trial and from a recent meta-analysis of pharmacotherapy with generic phentermine and topiramate.

Design
Students conducted pre-intervention chart review. Workflow was created to screen patients meeting USPSTF criteria (≥ 18 years of ages 40 to 70 years with BMI ≥ 25). If pre-diabetic, the patient was educated about the DPP and offered a referral. The internal medicine residents received a 10-minute presentation about the program. Instructional posters were located in each exam rooms for resident referral. We encouraged residents to enroll patients at subsequent resident meetings.

Results
Between July 2015 - March 2016, 261 patients were screened. Of those screened, 104 met the criteria and were given information about the DPP. 38 patients were directed to the program. 12 patients enrolled in program. Currently, all 12 are continuing the program. The average percent of classes attended by the participants is 74% and the average percent weight loss is 4.1%. Using previously published data, cost-effective analysis shows that among compliant patients, the DPP yields an average of 12 total pounds of weight loss at a cost of $426, while generic phentermine and topiramate yields and average of 22 pounds of weight loss at a cost of $6462.

Conclusions
In promoting cost effective care, our goal is to prevent the onset of diabetes in pre-diabetic patients at KU clinics through lifestyle modifications. The YMCA’s Diabetes Prevention Program helps to achieve this objective. Data obtained from this project indicates that the YMCA’s DPP program emphasized value based care by encouraging lifestyle modification for the prevention of diabetes in patients at risk.

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Medication Reduction in Long-Term Care Patients
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Problem
Inappropriate medicine use and polypharmacy are common problems in the elderly. This quality improvement project identified and attempted to reduce inappropriate medicine use in long-term care patients at one long-term care facility.

Baseline Measurement
Review of medications for 43 long-term care patients revealed an average number of 10 medications (range 4-18) scheduled, an average of 5 medications (range 4-18) prescribed as needed, and a total combined average of 15 medications (range 8-24) per patient.

Design
The attending physician reviewed the medication list of each patient to determine inappropriate medicine use and/or medication doses that could be reduced.

Results
In 43 patients, the total number of medications discontinued was 100 with an additional 3 medicines whose doses were decreased. Fifty-one non-prescription medications were discontinued. The average number of medications discontinued per patient was 2 (range 0-6). Nine patients had an increase in a medication dose. No significant differences in medicine use or reduction were revealed by age, gender, or primary diagnosis.

Conclusions
Polypharmacy is common in elderly patients with multiple co-morbidities. Frequent review of medication use by the attending physician is necessary to reduce inappropriate medications and adjust doses over time as necessary. Medication review likely will reduce costs and enhance quality care to patients.

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Pharmacist Recommendations Can Decrease Use of High Risk Medications
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Problem
Inappropriate medicine use and polypharmacy are common problems in the elderly. High risk medications are potentially harmful to persons 65 years and older due to adverse events such as falls, confusion, sedation, low blood sugar, and heart and kidney problems. This quality improvement project used pharmacist medication reviews to identify trends in high risk medication use and ways to decrease them in a long-term care facility.

Baseline Measurement
Review of pharmacy records indicated that 16.9% of long-term care patients in one facility routinely were prescribed high risk medications. In one quarter, pharmacists performed 294 medication regimen reviews on 135 patients and made 109 recommendations for changes to physicians.

Design
Based on the pharmacy review of medications, physician responses to the recommendations were tracked.

Results
From March 2015 through June 2016, high risk medication use fell to 4.7%. Physicians responded to pharmacist recommendations only 75% of the time. The most frequent recommendations included polypharmacy (27%), duration/indication evaluation (16%), gradual dose reduction (11%), and monitoring (11%).

Conclusions
Polypharmacy is common in elderly patients in a long-term care facility. High risk medication use can be reduced by pharmacy medicine regimen reviews and physician action on pharmacy recommendations. However, a large percentage of pharmacy recommendations receive no response. Frequent review of medication use by the attending physician is necessary to reduce inappropriate medications and adjust doses over time as necessary. Medication review likely will reduce costs and enhance quality care to patients.

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AAP Kansas Chapter Led QI Project To Train Physicians On QI Methodology And Improve HPV Vaccination Rates Throughout Kansas
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Problem
In the US, Kansas ranks low in human papillomavirus (HPV) vaccination initiation rates. The aim was to increase HPV vaccination series initiation rates by 10% over a three month period.

Baseline Measurement
Baseline rate of HPV vaccine initiation documented in the chart by age 13 was 57.9% (n=76 patients).

Design
A leadership team was established within the American Academy of Pediatrics Kansas Chapter including a project administrator, project manager, and a physician champion. Pediatric physicians throughout Kansas were recruited through statewide web-based newsletters. Educational materials (webinars) were created that included education on quality improvement (QI) methods, HPV vaccination, and Strong Provider Recommendation. Within their practices, physicians identified an improvement team and selected a physician project leader. Improvement teams met monthly during the project and were required to participate in three webinars. Participants implemented two rapid Plan Do Study Act (PDSA) process improvement cycles within their practice using Strong Provider Recommendation. Monthly, practices sampled 10 eligible patients age 11-12 years seen in their practice to estimate percentage of patients who had documentation that HPV vaccine initiation was given by age 13. Physicians received Maintenance of Certification (MOC) credit for participating.

Results
Seventeen physicians representing eight clinic practices participated. Following two PDSA cycles, the rate of HPV initiation documentation increased to 72.9% (n=96 patients). All physicians completed project requirements and received MOC credit.

Conclusions
A statewide QI project with administrative, technical, and clinical support was successful in educating and engaging physicians to implement QI in their clinical practice and increasing the HPV vaccination series initiation rates.

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Bone Health Improvement Protocol
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Problem
Fracture prevention from low energy trauma can decrease morbidity and mortality to patients. There are no current protocols in place to guide patients or providers in improving bone health.

Baseline Measurement
There is currently no protocol or efforts in place to prevent secondary fragility fractures. Therefore, no patients being admitted for fragility fractures are being placed into the bone health protocol.

Design
A multidisciplinary team was created to design a protocol that could be implemented in an inpatient setting. A literature review was conducted to evaluate potential barriers and efficacious methods of protocol design. Literature was also reviewed for treatment goals in patients who sustained low energy traumatic fractures.

Results
The bone health improvement protocol has been developed. Any patient over the age of 50 who sustains a fracture from low energy trauma defined as a fall from standing or less is placed into the protocol. These patients receive education, a prescription for high dose vitamin D therapy, and laboratory testing to determine the etiology of the metabolic bone disease. After a patient is discharged from the inpatient setting, they would follow up with their primary care provider for further management of their metabolic bone disease.

Conclusions
We strongly recommend that this protocol be implemented for prevention of secondary fragility fracture.

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A Standardized Approach to Chronic Pain
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Problem
No standardized approach to the management of chronic pain.

Design
A protocol including the development of screens for mental health and substance abuse along with templated visits, yearly and random urine drug screens was implemented. Patients within the residency, 18-65 years old and who were on opiates longer than 3 months without history of cancer were selected to participate. A chart review to analyze for documented drug screens, a chronic pain visit within the last 6 months as well as a signed pain medication agreement was performed before and after implementation. Physician surveys to analyze provider knowledge and comfort in prescribing opiates was collected before and after. The period of implementation was September 1, 2015 - July 1, 2016.

Results
In the chart review of 40 charts, post-implementation data showed a 23% increase in urine drug screens being collected, an 18% increase in pain medication agreements being signed, and an 8% drop in documented chronic pain appointments performed within the last 6 months. The provider surveys showed a 4.5% increase in provider comfort in prescribing opiates to a patient inherited from another provider, a 19% increase in the comfort level of providers being able to appropriately assess a patient's risk for opiate abuse, and a 16% increase in provider comfort in assessing a patient's functional benefit from chronic opiate use.

Conclusions
Smoky Hill now has a new protocol in place that has improved chronic pain documentation as well as physician knowledge and comfort in providing care to those on chronic pain medications.

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Assessing Barriers in Recommending and Providing Human Papillomavirus (HPV) Vaccination
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Problem
To identify deficiencies in provider and staff knowledge regarding the HPV vaccine and attitudes regarding confidence and efficacy of recommending HPV vaccination.

Baseline Measurement
Among clinic patients ages 11-18, 28% of females and 21% of males have completed the HPV vaccine series.

Design
Participants in this cross-sectional study included nurses, residents and faculty in a residency family practice clinic. Participants were asked to complete a survey assessing knowledge, attitudes, and behaviors regarding the HPV vaccine and efficacy of a strong provider recommendation.

Results
A total of 71 surveys were collected. Eighty-eight percent of providers and staff stated they recommend the HPV vaccine. However, only 74% believed they could influence a parent’s vaccination decision, and only 39% felt confident overcoming parental concerns regarding vaccine safety. Only 22% of providers and staff reported recommending the vaccine at acute or follow up visits, compared to 79% who recommended the HPV vaccine at well visits. The most common reported barrier to recommending the HPV vaccine was lack of time. Other barriers were lack of a reminder and parental resistance to vaccination. Compared to faculty or nurses, residents were more likely to identify correctly that the most common reason adolescents are unvaccinated is lack of a strong recommendation (73% vs. 37%, p = 0.003), and residents were more likely to feel confident addressing parents’ concerns (60% vs. 25%, p < 0.01).

Conclusions
More education is needed for providers and staff regarding the efficacy of strong recommendations for the HPV vaccine, as well as strategies to overcome parental concerns with confidence.

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Acute Traumatic Femur Fracture Treatment Protocol for Multidisciplinary Teams
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Problem
Extensive research has been performed in an effort to optimize the treatment algorithms in patients with acute femur fractures in respect to measuring adequate patient resuscitation, ordering optimal imaging, timing of surgery, and management of concomitant injuries. Currently there is, however, no standardized management guideline in place at our institution for multidisciplinary teams (emergency department staff, trauma staff, and orthopedic staff) to guide the treatment of acute traumatic femur fractures in either isolation or poly-traumatized patient.

Baseline Measurement
To establish an appropriate protocol for multidisciplinary teams to use in the management of patients with acute traumatic femur fractures (isolation or poly-traumatized).

Design
Using current peer-reviewed literature and other institutional algorithms, a treatment protocol for femur fractures was designed for multidisciplinary teams (emergency department staff, trauma staff, and orthopedic staff) to guide the treatment of acute traumatic femur fractures. Education of a multidisciplinary team of emergency department staff, trauma staff, and orthopedic staff will be necessary to implement these interventions. The initial primary outcome to be measured is the adherence to this pathway in a prospective group of patients.

Results
A treatment protocol for acute traumatic femur fractures for multidisciplinary teams was designed. Treatment decisions involving trending lactate, patient resuscitation, the decision to proceed with definitive fixation or damage control orthopedics, as well as, the timing of such interventions were determined by this new protocol.

Conclusions
With this new protocol, we should standardize optimal care of acute femur fractures among our multidisciplinary teams. This management guideline should help improve the quality of patient care.

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Improving Safe Opioid Prescribing Practices in Patients with Chronic Non-Malignant Pain
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Problem
In 2016, the CDC released an evidence-based guideline to improve the safety of prescribing opioids for chronic non-malignant pain. We present an analysis of our clinic's adherence to selected measures before and after implementation of a new workflow.

Baseline Measurement
We identified 95 patients prescribed opioids for chronic non-malignant pain who had seen their primary doctor in the past month. Manual chart review showed documentation of UDS alone, prescription drug monitoring program (PDMP, or KTRACS), or both within 6 months was present in 40%, 39%, and 26% respectively.

Design
Dedicated pain management office visits were required every three months for refilling of opioids. UDS and PDMP were instructed to be current within 6 months. Documentation of this was to be centralized in a secure folder system.

Results
After 9 months, of 25 patients who had seen their primary doctor in the previous month, documentation trended higher to 60%, 56%, and 48% for UDS alone, PDMP alone, or both, respectively. Analysis was run again 3 months later after frequent reminders of the new workflow had ceased, and documentation had fallen back to baseline levels.

Conclusions
Centralization of prescription monitoring documentation in chronic opioid patients initially resulted in improvements in compliance, however once compliance reminders decreased, levels fell back to baseline. Centralization has the potential to better equip physicians to safely prescribe chronic opioids if needed, though frequent reminders may be needed. Additional items that remain to be centralized include the documentation of opioid contracts, the offering of physical treatment modalities, and screening for mental illness and substance-abuse.

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**Procalcitonin Guided Antibiotics in Sepsis: A Rapid Review to Guide Clinical Quality Improvement**  
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**Problem**  
Early antimicrobial therapy for severe sepsis and septic shock is associated with decreased mortality. However, overuse of antibiotics is also problematic. Procalcitonin (PCT) is a biomarker proposed for guiding antibiotic therapy. 'Rapid reviews' of studies are increasingly used to underpin decisions for population health when evidence has not been clarified.

**Baseline Measurement**  
Currently, hospitals in Wichita do not incorporate PCT into treatment algorithms for sepsis. The aim of this project is to use a rapid review to determine the best role for PCT in septic patients in the absence of an adequate, published review.

**Design**  
We executed a rapid review based on a grand rounds presented by one of our resident physicians using methods at http://openmetaanalysis.github.io.

**Results**  
We found significantly shorter duration of antibiotics with PCT-guided therapy. Meta-regression found significant influence of the duration of antibiotics in the control group and how early the PCT algorithm was invoked. However, substantial heterogeneity remained after meta-regression. GRADE profile assesses quality of evidence as low.

**Conclusions**  
Low quality evidence suggests that PCT-guided therapy may aid antimicrobial stewardship without change in mortality. However, given the heterogeneity of the studies, applying PCT-guided algorithms universally remains controversial. In addition, the correlation of benefit with duration of antibiotics in the control groups suggests benefit is focused in either hospitals with sicker patients or lesser antibiotic stewardship. This rapid review suggests that PCT-guided algorithms may play a role in guiding antibiotic therapy in our hospitals if current duration of antibiotics is over 6.5 days. However, data is heterogenous and further studies are needed.
**Problem**
Patients’ understanding of their health condition and treatment have been linked to self-care and medication adherence. Screening tools and educational handouts at the point of care aid patient understanding. The purpose of this study was to determine whether development of an easily accessible electronic folder on clinic laptops would improve physician access to and use of behavioral health handouts and screening tools at the point of care.

**Baseline Measurement**
Residents and faculty at Wesley Family Medicine Residency twice completed an online survey. The initial survey gathered data on use of behavioral health handouts and screening tools in patient care; desire to use such resources; and perceived barriers/solutions. A follow-up survey was administered two months after creation of the electronic folder.

**Design**
Electronic folders were produced for screening tools and handouts categorized by common behavioral health disorders. The folders were made accessible to all physicians in the residency clinic via a shared network drive on clinic laptops. Handouts were chosen by behavioral health staff based on ease of use for physicians and patients.

**Results**
The initial and follow-up surveys were completed by 25 and 19 respondents respectively. The initial survey indicated that 78% of respondents had chosen not to give a handout they wanted to give three or more times. That number decreased to 21% of respondents in the follow-up survey.

**Conclusions**
Developing a common electronic folder of screening tools and handouts holds promise for reducing barriers to the use of behavioral health resources. Next steps could include involving nurses and accounting for handout reading level.