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# Assessing the Accuracy and Quality of Medication History Collection: Effect of Implementation of Electronic Health Record

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acute chest syndrome (6%). Eighty-six percent of patients had at least one FDA-identified risk factor. The most common risk factors included concurrent use of other QTc prolonging medications (58%), age (46%), underlying cardiac disease (28%) and baseline QTc prolongation (24%). Of 27 patients receiving azithromycin therapy without continuous telemetry monitoring, 18 patients (67%) had baseline QTc obtained and repeat EKGs were obtained only in five of these patients after azithromycin initiation. The remaining nine patients had no baseline and repeat EKGs obtained. Compliance rate with institution QTc monitoring guideline was 22% among patients initiated on azithromycin.
**CONCLUSION:** Azithromycin was frequently initiated in high-risk patients and inadequately monitored. Institutions should seek to optimize data reporting within the electronic medical record to identify patients at high-risk for QTc prolongation at the time of order-entry in order to enhance medication safety.

**249. Pharmacist versus physician conducted medication reconciliation on an internal medicine service at an urban teaching hospital.** *Michael J. Gonyeau, BS, Pharm PharmD, BCPS, FCCP*[1], EmilyHeath, B.S., Pharm.D.[2]; (1) Northeastern University School of Pharmacy, Boston, MA (2) Sarasota, FL
**PURPOSE:** Previously published studies have shown positive impact of pharmacists on identifying discrepancies in the medication reconciliation (MedRec) process upon hospital admission. Specific medications are more prone to error, providing an opportunity where pharmacists may be influential on patient care during healthcare transitions.
**METHODS:** A prospective study was conducted in patients ≥18 to compare pharmacist (or pharmacy student) vs. physician performed MedRec on general medicine inpatient service at a 760 bed tertiary care hospital during a 3 month period in 2012. Pharmacist MedRec entailed patient interview, contacting outpatient pharmacies/PCP offices and review of electronic medical record (EMR) compared to physician standard of care including patient interview and EMR review. Discrepancies were discussed with admitting physicians and regimens clarified/altered. Discrepancy types included Rx-drug omission, non-Rx drug omission, incorrect dose, incorrect frequency, patient non-adherence: dose change, patient non-adherence: frequency, and patient non-adherence: self-discontinuation. A severity of error grade was assigned to each discrepancy based on NCC MERP categorization method for medication errors.
**RESULTS:** A total of 306 patients were enrolled in the study (age: 59.43 ± 18.63, 42% male) and 1580 discrepancies identified (5.16 + /- 17.46/patient), with a trend toward increasing discrepancies observed in patients with 6–10 medications. The most common discrepancies identified were patient non-adherence: self-discontinued (n=597; 37.78%) and prescription drug omission (n=593; 37.53%). The most common severity score category assigned was F (n=609; 38.54%). Most discrepancies were identified in the drug class "Rx-other" (n=699; 44.24%). Cardiovascular agents accounted for 295 (18.67%) discrepancies. Medications most likely to reveal discrepancies included aspirin and albuterol, while medications with the fewest discrepancies included non-prescription gastrointestinal agents and non-prescription non-opioid analgesics.
**CONCLUSION:** Pharmacy-directed medication reconciliation may have a substantial impact on the clarity of outpatient medication regimens, adherence, and quality of care in hospitalized patients. Many of the discrepancies identified could result in significant morbidity and mortality.

**250. Creation and implementation of a web-based home-grown pharmacy intervention system using Microsoft SharePoint®.** *Adam B. Woolley, Pharm.D., BCPS*[1], Maria Scarlatos, BS[1], Shawn Saunders, PharmD[2]; (1) School of Pharmacy, Northeastern University, Boston, MA (2) VA Boston Healthcare System, West Roxbury, MA
**PURPOSE:** To develop a pharmacy intervention database in compliance with strict security standards that is easy to create, use, manage and update without unnecessary resource expenditures.
**METHODS:** A committee was formed to evaluate several third party web-based intervention programs and determine which best fit the needs of the pharmacy department. After weighing several factors, the decision was ultimately made to build a home-grown web-based intervention database, utilizing Microsoft SharePoint®. A small task force developed the intervention database, and training was provided to the pharmacy department regarding how to use the system.
**RESULTS:** Intervention fields were created and customized for institution-specific optimization. View options were restricted to protect employee privacy, and the database was set up on the intranet to meet institutional standards for protected health information (PHI). The system has the ability to trigger customized emails to specific members of the pharmacy department in order to assist with hand-offs. The intervention database also generates reports through utilization of an Excel®Pivot Table.
**CONCLUSION:** Microsoft SharePoint® allows the pharmacy department to utilize an intervention tracking service at no additional expense. The system can be replicated because this software is already widely available at all VA medical centers as well as many other institutions. The system is easy to create and use,is sustainable, and can be customized to service goals in real-time. Further assessment of the intervention database is needed to evaluate pharmacist perception of the system as well as to analyze documented interventions.

**251. Innovative use of prescription cancellation data to improve patient safety and efficiency within a mail order pharmacy.** *Carrie Nolan, PharmD*, George Dooling, PharmD, Gia Leonetti, PharmD Candidate, Michael Sutherland, PharmD; VA SW CMOP, Tucson, AZ
**PURPOSE:** Prescription cancellation by pharmacists at the Department of Veterans Affairs Southwest Consolidated Mail Outpatient Pharmacy (VA SW CMOP) can cause delays in service to veterans and duplicate work for both the CMOP and VA medical centers (VAMCs). In this study, prescription cancellation data was aggregated in a structured format and reported to VAMCs in order to bring prescriber attention to preventable problems with prescriptions and increase the efficiency of the mail order system by reducing the number of prescription cancellations.
**METHODS:** Every month VAMCs serviced by the SW CMOP received a site progress chart showing the total number of monthly cancels over time, a progress chart with the top three reasons for site cancellation, and a cancellation rate chart comparing the different VAMCs. Decrease in average prescription cancellation rate was analyzed using a t-test.
**RESULTS:** Over a one year period (January 2012 to December 2012), the average number of prescription cancellations among all VAMCs fell from 48.8 cancels per 10,000 fills to 37.5 cancels per 10,000 fills. This represents a 23% decrease in the overall cancellation rate to VAMCs (p=0.006).
**CONCLUSION:** By providing benchmark data to the VAMCs for analysis, CMOP is able to play a more active role in promoting patient safety and improving the efficiency of mail order service.

**252. Assessing the accuracy and quality of medication history collection: effect of implementation of electronic health record.** *Kena Lanham, PharmD, BCPS*[1], Lindsay Saum, PharmD, BCPS, CGP[2], David Reeves, PharmD, BCOP, Colleen Scherer, PharmD, MPA, BCPS, Beth Johnston, PharmD, BCPS[1], Anthony Antonopoulos, RPh MBA, Suellyn Sorensen, PharmD, BCPS[1]; (1) Department of Pharmacy, Saint Vincent Hospital, Indianapolis, IN (2) Department of Pharmacy Practice, Butler University, Indianapolis, IN
**PURPOSE:** We hypothesized that pharmacy staff auditing of previously recorded admission medication histories will identify significant and potential medication errors, and that implementation

of an electronic medical record [EMR] will not improve the quantity of discrepancies or the quality of admission medication histories, despite showing Joint Commission and Heart Failure Core Measure compliance.
**METHODS:** At our institution, medication reconciliation is completed at the time of admission through collaboration with prescribers and nursing staff. A pharmacy medication reconciliation team is utilized on the cardiac step down unit and employs pharmacy technicians to obtain an accurate and complete medication history. This history is verified by a pharmacist, compared to the initial medication history and inpatient medication orders. Identified discrepancies are reconciled with a licensed prescriber. A retrospective evaluation assessed the discrepancies identified by the pharmacy team medication history audits, as well as audits completed by clinical pharmacists on other hospital units, and compared the quantity of discrepancies before and after EMR implementation.
**RESULTS:** With support provided by the pharmacy team, medication reconciliation completion was 82% pre-EMR implementation and increased to 91% immediately post-EMR implementation; Core Measure compliance has remained above 90%. The average number of medication omissions per patient upon admission medication reconciliation was 0.55 pre-EMR implementation and increased to 2.32 post-EMR implementation. The average number of incorrect drugs/patient upon admission medication reconciliation 0.16 (pre) and 0.61 (post); and incorrect doses/patient was 0.32 (pre) and increased to 0.63 (post).
**CONCLUSION:** Despite showing medication reconciliation and core measure compliance with the implementation of EMR, our data shows discrepancies between the medication lists collected as a routine part of admission and those lists collected via the pharmacy team audit. In fact, more errors were identified after EMR implementation. The pharmacy team's activities should be continued and even expanded in order to prevent future discrepancies.

**253. The positive impact of a med Rec ED pharmacist on medication management in patients admitted to a hospitalists' service.** *Anthony Intintoli, MD, FACP, FHM*[1], Anna Dushenkov, Pharm D, BCPS[2], Sanu Koshy-Varghese, Pharm D[3], William Hendricks, RPh[4], Jack Mateyunas, RPh[5]; (1) Huntington Hospital NSLIJ HS (2) Pharmacy, Huntington Hospital NS LIJ HS (3) Emergency Department/Pharmacy, Huntington Hospital NSLIJ HS (4) Pharmacy, Huntington Hospital NSLIJ HS (5) Huntington Hospital NS LIJ HS
**PURPOSE:** TJC recognizes medication reconciliation, known as "med rec", as a critical step in medication therapy management that affects patient outcomes through continuum of care. Eighty five percent of admission errors originate from inaccurate medication histories that could lead to the increased risk of preventable ADEs (pADEs). We hypothesized that teaming a full time ED pharmacist dedicated exclusively to med rec (EMRP) with the hospitalists' admitting service can substantially reduce pADEs thereby improving patient care.
**METHODS:** This was a six month (October 2012 – April 2013) observational case study. An EMRP performed medication reconciliations on patients admitted to hospitalists' service during the peak hours of ED volume. Patients admitted by hospitalists but not seen by the EMRP over the same period of time served as the control group. The impact was assessed for: medication history accuracy, delays in medication administration due to med rec discrepancies, cost avoidance associated with pADEs, and admitting hospitalist's time savings.
**RESULTS:** The EMRP performed an average of 1,600 interventions per month. Ninety percent reduction in medication history inaccuracies and 97% decrease in delays in medication administration were achieved within the first two months. Seventy three interventions were identified as high potential to cause patient's harm with an estimated cost avoidance of $860,816/year. The EMRP has saved up to 2.25 hours of admitting hospitalist's time per shift.
**CONCLUSION:** The implementation of a dedicated EMRP has substantially decreased medication history inaccuracies and streamlined the medication therapy management. There was also a considerable time savings for the hospitalists' admitting service that might allow to increase the admitting hospitalists' productivity and efficiency, and contribute to ED throughout. These accomplishments can ultimately translate into improved institution's performance and reduced liability.

## Other

**254. A collaborative effort to develop clinical pharmacy services and Advanced Pharmacy Practice Experience (APPE) student exchange programs in Ethiopia and China.** *Golden Peters, Pharm.D., BCPS*[1], Shin-YuLee, Pharm.D[2], KennethSchafermeyer, Ph.D.[3]; (1) Saint Louis College of Pharmacy, Saint Louis, MO (2) Pharmacy Practice Division, Saint Louis College of Pharmacy, Saint Louis, MO (3) Pharmacy Administration, Saint Louis College of Pharmacy, Saint Louis, MO
**PURPOSE:** An initial visit was conducted to Mekelle, Ethiopia and Shanghai, China to discuss potential opportunities for collaboration between the St. Louis College of Pharmacy (STLCOP) and Mekelle University College of Health Sciences (CHS) School of Pharmacy (SOP) and Fudan University School of Pharmacy (SOP).
**METHODS:** One STLCOP faculty member each visited Mekelle University CHS SOP and Fudan University SOP in Spring of 2013. Discussions with current clinical pharmacists and faculty members centered around ways for further clinical pharmacy development, and parameters for implementing APPE student exchange programs.
**RESULTS:** Major outcomes identified as shared points of interest include: establishing a faculty exchange/sharing program, Advanced Pharmacy Practice Experience (APPE) rotation sites for students and a distance learning/educational series between STLCOP and the two schools of pharmacy. Basic clinical pharmacy services have been established with the associated hospitals near the SOPs. Services currently involve daily hospital rounds involving pharmacists and students. Cultural activities at Fudan University help round out APPE student experiences which include observing practices of traditional Chinese medicine (herbal medicine, coining, cupping, acupuncture) at hospital based integrative medicine clinic.
**CONCLUSION:** This is a prime example of how US clinical pharmacy skills can be greatly utilized to advance global health initiatives. Based upon the relationships between these international pharmacy schools, there are plans for STLCOP APPE students and faculty members to return to Mekelle and Fudan University to further develop the relationships by increasing integration of interdisciplinary care teams in more specialized medical units. This will enhance both the quality of patient care provided and the educational experience for nursing, medical, and pharmacy students, and medical residents. One major limitation associated with this discussion is that only one School of Pharmacy was visited in each country, and may not be fully representative of the other Schools of Pharmacy in those countries.

**255. A clinical decision support system facilitates appropriate prescribing and monitoring of epoetin alfa in the inpatient setting.** *Danny McNatty, Pharm.D., MHA, BCPS*, Ephu Yip, Pharm.D., Denise Erickson, Pharm.D., BCPS; Banner Health, Phoenix, AZ
**PURPOSE:** A clinical decision support system (CDSS) that restricts orders for epoetin alfa (EPO) to appropriate indications and encourages patient monitoring will align use of this agent with evidence-based practice.
**METHODS:** A CDSS consistent with guideline and manufacturer recommendations for use of epoetin alfa was recently implemented. A pre-post analysis of patients who received EPO at one of three facilities between August 1, 2011 – October 31, 2011 (pre-CDSS) and August 1, 2012 – October 31, 2012 (post-CDSS) was performed. Indication for EPO, hemoglobin, ferritin, and orders for iron supplementation were collected for each patient. Indication for use, administration when contraindicated for