

A - 1

Cost Comparison of Manufacturer Unit Dose Acquisition Versus Internal Repackaging in a Large Tertiary Teaching Hospital

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Administrative/Practice Management
Not previously presented

Background: In 2004, the Food and Drug Administration ruled that all human prescription drug products, biological products and OTC products must contain a bar code on the label. In the hospital setting, most medications are dispensed in unit-dose packages which contain a label with medication information and a barcode. However, not all medications are available as unit-dose through the manufacturer, requiring some medications to be purchased in bulk and be repackaged.

Objective: The objective of this study was to review the top 30 medications by cost currently purchased as unit-dose and evaluate if it would be more cost effective to purchase these medications in bulk and repackage it internally at St. Luke's Episcopal Hospital (SLEH).

Method(s): The top 30 medications based on overall cost were extracted from purchase data from January 1, 2010 to December 14, 2010. Each medication was matched to the least expensive bulk bottle available through McKesson or a secondary vendor and the cost per repackaged unit was calculated. The per unit labor cost was calculated and added to the bulk per unit cost for the total repackaging cost and a price delta was then calculated. **Results:** Overall, the results of this analysis found that there was \$24,103 in cost savings by switching eight unit-dose medications to bulk bottle purchases and repackage internally. However, for the majority of medications evaluated, repackaging is not a cost-effective alternative.

Conclusion: SLEH should consider switching to bulk bottle purchases for the medications which generate cost savings and continue to purchase other medications evaluated as unit-dose.

Disclosure(s): The authors do not have any disclosures.

A - 2

Successful Reduction of Excessive Acetaminophen Administration

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Administrative Practice Management
Not previously presented

Background: Acetaminophen continues to be widely used for its analgesic-antipyretic properties, and is present in many prescription and non-prescription products. Acetaminophen consumption exceeding 4000 mg daily is generally not recommended, with lower doses often recommended for patients with liver disease. The ability to monitor actual acetaminophen consumption in the hospital was implemented.

Objectives: To describe the successful implementation of a program to monitor acetaminophen consumption to inpatients at St. Luke's Episcopal Hospital.

Method(s) or Procedures(s): The Department of Pharmacy has used warnings with medication entries in patient medication administration records and order sets to remind staff of the recommended daily maximum of acetaminophen. In 2004, the hospital instituted a program in which all orders for hydrocodone/acetaminophen combinations were converted to products containing lower amounts of acetaminophen. Education was provided to nurses, physicians and pharmacists regarding acetaminophen toxicity. The latest strategy was the development

of a calculator within the electronic record to determine when a patient reached 4000mg within a 24hr period; an alert was then sent to the nurse and attending physician.

Result(s): Before education, an average of 19.3 acetaminophen alerts fired daily for an average 5.2 patients. Post-education, the average daily alerts reduced to 10.5, involving 2.1 patients. Ten months after activating the alerts for nurse caregivers and physicians, the average daily alerts fell to 4.6, and the number of patients involved fell to 1.4.

Conclusion(s): Calculations and alerts from the electronic record to nursing and medical staff have dramatically reduced the daily acetaminophen consumption in the inpatient setting.

Disclosure(s): None to disclose

A - 3

Assessing the impact of a Central Order Entry department in a hospital system

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Pharmacist: Administrative/Practice Management

Not previously presented

Background: The Baptist Health System in San Antonio Texas is a five-hospital, for-profit system and part of the Vanguard Company. Previously, each hospital pharmacy functioned independently in the typical chaotic work environment one would expect. The pharmacists faced excessive interruptions including phone calls, technician management and order clarifications, thus becoming distracted from focused order entry. This process created significant challenges with accuracy in profiling physician orders, profiling turnaround time, and the ability to impact ongoing patient therapy through clinical interventions.

Objective: To decrease profiling error rate, decrease turnaround time and improve clinical therapy without an increase in overall cost.

Method: All aspects of pharmacist operations were evaluated and, in an effort to meet the stated objectives, one Central Order Entry (COE) department was established to provide patient profiling for the five hospitals in the system. This isolated order entry environment provides a quiet, interruption-free atmosphere allowing a more focused order entry process and a more thorough clinical therapy review.

Results: Data collected during the first six months of operations was compared to the same data six months prior to the establishment of the COE department. Results showed:

- Profiling errors decreased by 83%;
- Turnaround profiling time for STAT orders decreased from 12 minutes to 3.5 minutes; (71%)
- Turnaround profiling time for routine orders decreased from 47 minutes to 22 minutes; (53%)
- Clinical interventions during profiling increased from 212 to 1288 per month. (83%)

Conclusion: The establishment of a single central order entry department within a multi-hospital system successfully increased accuracy and speed of order entry while enhancing opportunity for clinical interventions, ultimately resulting in increased patient safety, better patient outcomes and improved satisfaction among physicians and nursing staff.

A - 4

Medication formulary management in a large, multihospital system

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This poster has not been previously presented

Background – Collaboration among physicians, pharmacists and hospital administrators is necessary in order to effectively maintain a medication formulary which is evidence-based and promotes cost-effective prescribing. Memorial Hermann is a large not-for-profit health care system which serves the Houston Metroplex area and consists of eleven hospitals. Each hospital offers a similar range of services, maintain their own pharmacy and therapeutics (P and T) committee and follow a non-employee physician model.

Objective(s) – The goal in developing a system-wide medication formulary includes alignment of clinical practices and services between facilities, and incorporates evidence-based therapeutic protocols to help ensure safe and effective drug therapy while maintaining fiscal responsibility.

Method(s) or Procedure(s) – The system-wide P and T is comprised of service line subcommittees. Each subcommittee is chaired by a physician specialist and its members include physicians representing each campus, a lead clinical pharmacist and service line administrators. The committee reviews physician requests for revisions to the medication formulary and develops guidelines for use of formulary agents.

Result(s) – Through the system management of the medication formulary the amount of non-formulary prescribing has been reduced to less than one percent of doses dispensed. There are common approval protocols with patient selection criteria for the use of high risk medications and common guidelines.

Conclusion(s) – The system-wide P and T committee has unified clinical practice and services across Memorial Hermann thus providing consistent high-quality patient care. Pharmacists play an integral part in the development and implementation of all evidence-based therapeutic protocols involving medication use.

Disclosure(s) – None

A - 5

The impact of prebuilt medication order sentences on medication dosing regimens
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Poster Category: Administrative/Practice Management

Background: MH Katy Hospital is a 142 bed community hospital within an 11 hospital system, and is one of the first in the system to become completely integrated electronically. Physicians and nurses operate within Care4 while pharmacists operate within the Pharmacy Information System (PhIS). Electronic integration allowed the facility to implement computerized physician order entry (CPOE). Although this improves communication across disciplines, it may potentially increase the risk of errors. The bioavailability of many medications is affected by administration with or without food. The question was thus proposed whether medication administration times were prebuilt to the optimized dosing regimen to provide maximum efficacy.

Objective(s): To verify if: medication order sentences are prebuilt appropriately in PhIS; medication order sentences are prebuilt appropriately in Care4; orders crossing over from Care4 affect pre-built orders in PhIS.

Method: A retrospective review of the top 200 drugs was performed. A literature search was conducted to determine whether the bioavailability was affected by administration with food. The prebuilt medication order sentences were evaluated in PhIS to determine whether they would default to the optimal dosing time. The same was done in Care4. Lastly, the cross over from Care4 to PhIS was tested to see which order sentence would supersede.

Results: One-hundred and fifty-four medication orders were selected for review. Results will follow.

Conclusions: PHIS IT team was contacted and changes were implemented at the system level. The outcome was a collaborative effort to maximize medication efficacy and improve patient care following implementation of changes to prebuilt order sentences.

Disclosures: Authors do not have any affiliation or financial interest in an external organization that relates to this presentation

A - 6

Improving influenza immunization rate in the hospital setting through declination form
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Poster Category: Administrative/Practice Management

Background: The Joint Commission and the CDC have been working to increase vaccination rates of healthcare providers. Despite having free vaccine available to all employees and roving carts to facilitate access to vaccines, the rate at TIRR Memorial Hermann had stalled at about fifty percent. Published research indicated the use of mandatory declination forms improved vaccination rates in other institutional settings. In addition, though pharmacists have increased their involvement in vaccination activities and advocacy in the community setting, the role of pharmacists in vaccinations in the institutional setting is less defined.

Objective(s) – Evaluate the effectiveness of requiring all employees participate in the influenza prevention program through the use of combination consent and declination form.

Method(s) or Procedure(s) – A combination consent and declination form was designed. Leadership was engaged to establish accountability with managers to have all employees complete the form. Education was conducted to focus on the patient safety aspect of getting vaccinated. Pharmacists were engaged in the education, administration, and provision of the vaccine.

Result(s) – The overall vaccination rate was increased from 53% to 78% of employees who work at least once a month.

Conclusion(s) – The engagement of leadership, a consistent message to all employees, and limited time program allowed the hospital to meet the vaccination goals. The participation of the pharmacists assisted in expanding the availability outside the occupational health services.

Disclosure(s) – Nothing to disclose

A - 7

Improving Predictable Medication Availability At Acute Care Hospital Facilities By Comparing Medication Delivery Times And Electronic Medication Request (MR) Times

Purpose: The purpose of measuring the Predictability Ratio (PR) is to identify the availability of medication in the automated dispensing system when the clinician goes to obtain the medication at the administration time. An electronic medication request (MR) is generated when a medication is not available for administration on the patient care units. Collecting and graphing the number of MRs for 10 hospitals provided a visual gauge of when medications were not available relative to peak medication administration times. Comparing the new order and refill delivery times with the volume of MRs per hour suggested that the timeliness of medication deliveries into automated dispensing cabinets (ADCs) needed to be adjusted.

Methods: The variables used to create the Medication Predictability Model was total number of new medication loaded divided by total number of stocks outs, plus interim doses sent to the unit by pharmacy. In the equation, the stock out and interim doses are indirectly proportional to medications loaded in the ADC. The PR number is an indicator of predictability for ordered medications available in the automated dispensing cabinets (ADCs) at the appropriate time. In conjunction, a nursing satisfaction survey was conducted randomly to assess nurse's opinion on the availability of medications when needed. Pharmacy Technicians deliver medications approximately 1-2 hours after a batch report is printed. Batch refill deliveries are timed to coincide with lull times in nurses' activity at ADCs. Comparing the proximity of medication delivery times with peak MR times allowed for the experimental shift of new order delivery times, in an attempt to reduce the number of MRs.

Results: The PR results for the Memorial Hermann hospitals were directly proportional to the nursing satisfaction survey. As the PR number decreased so did the nursing satisfaction rate in regards to availability of medications on the nursing unit. After shifting the new load times only at Memorial Hermann Southwest, MR numbers decreased, improving predictability of medication availability at high-volume med-pass times and producing fewer delays during peak administration times.

Conclusions: The PR formula measures the likelihood of the availability of medication in the ADC. There is a correlation between PR and nursing satisfaction. By shifting the new order delivery times to 30-60 minutes earlier, Memorial Hermann Southwest decreased their MR numbers and increased the efficiency of the pharmacy and nursing staff.

A - 8

Assessing the impact of establishing a central order entry area in the Baptist Health System

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Pharmacist: Administrative/Practice Management

Not previously presented

Background: Interruptions and high work load can slow down order review and entry, increase errors, and reduce clinical intervention reporting. Baptist Health System established a central order entry (COE) area in an office setting on July 12, 2010. Pharmacist positions were reallocated from the hospitals to the COE area to make the project budget neutral. COE pharmacists focused on order review and entry and were not bothered by phone calls and product checking.

Objective: To assess the impact of establishing a COE area on the profiling turnaround time, the medication profiling error rate, and the clinical intervention rate.

Methods: Data on the profiling turnaround time, the medication profiling error rate, and the clinical intervention rate were retrospectively collected and analyzed. Data from January 1, 2010 to July 11, 2010 was compared with data from July 12, 2010 to December 31, 2010.

Results: The profiling turnaround time for stat orders decreased from an average of 12.0 minutes to an average of 8.1 minutes (33%; $p=0.39$), and for routine orders from an average of 47.3 minutes to an average of 28.0 minutes (41%; $p<0.001$). The medication profiling error rate decreased from 1.6% of orders to 0.3% of orders (81%; $p<0.02$). The clinical intervention rate increased from 9.5 interventions per 10,000 orders to 33.3 interventions per 10,000 orders (251%; $p<0.001$).

Conclusions: After establishing a COE area at Baptist Health system we observed significant decreases in the profiling turnaround time and the medication profiling error rate, and an increase in the clinical intervention rate.

A - 9

Expansion of Clinical Pharmacy Services in an Acute Care 252-Bed Medical Center.

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Poster Category: Administrative/Practice Management

Background: The American Society of Health-System Pharmacist (ASHP) National Survey of Pharmacy Practice in Hospital Settings has described pharmacy practice models facilitating response to healthcare reform. However, developing and implementing the ideal pharmacy practice model in hospital settings still remains a challenge for managers and directors nationwide, leading to a blend of models. The Department of Pharmacy Services developed and implemented a blended pharmacy practice model to expand clinical pharmacy services in an acute care 252-bed medical center. St. David's South Austin Medical Center is a member of St. David's HealthCare and offers a comprehensive and nationally recognized cardiac program, a fully renovated maternity unit with Level I and Level II nurseries and a thriving 24-hour emergency department.

Objective: To describe how the expansion of clinical pharmacy services was achieved in an acute care 252-bed medical center.

Methods or Procedures: Prior to the development and implementation of a blended pharmacy practice model, the pharmacy department provided few clinical pharmacy services and inconsistent levels of care from day to evening and overnight shifts, with a mixed decentralized and centralized model.

Results: After the model change in February 2010, the expansion of clinical pharmacy services included automatic therapeutic substitution, renal dosing, IVPO Conversions, heparin weight-based, anticoagulation monitoring and pharmacokinetic dosing protocols initiated by pharmacists 24 hours per day, seven days per week.

Conclusion: The development and implementation of a blended pharmacy practice model allowed for the expansion and delivery of clinical pharmacy services in an acute care 252-bed medical center.

Disclosure: Raquel A. Garcia, Manager - Department of Pharmacy Services, St. David's HealthCare South Austin Medical Center, 901 West Ben White Blvd, Austin, TX 78704 has nothing to disclose.

C - 10

Effects of Pharmacist Drug Regimen Reviews on Physicians' Compliance with Recommended Laboratory Monitoring Criteria for Psychotropic Medications at a State Supported Living Center

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Clinical

Background: Many individuals that reside in state supported living centers for the developmental disabled and/or mentally impaired can be placed on a myriad of psychotropic medications to treat their disturbances. Appropriate and timely laboratory tests must be performed on all psychotropic medications to determine therapeutic levels for effectiveness and identify toxicities.

Objective: The objective of this study is to determine if a pharmacist performing quarterly drug regimen reviews at a state supported living center can improve the compliance rate as it relates to meeting laboratory monitoring parameters for psychotropic medications.

Method(s): All necessary documents/forms were submitted to the Texas Department of State Health Services Mental Health and Mental Retardation Research Administration Institutional Review Board #2 in Austin, Texas for review and approval. A retrospective chart review was performed on 50 residents at the Lufkin State Supported

Living Center with an Axis I diagnosis of a psychotic disorder, bipolar disorder, or autism and Axis II diagnosis of mental retardation.

Preliminary Result(s): The performance of a quarterly drug regimen review by a pharmacist increased the likelihood of appropriate labs being done for individuals on psychotropic medications. From the fifty charts that were reviewed residents who received the pharmacists' reviews (25%) had appropriate labs performed.

Conclusion(s): The results of this chart review will determine if pharmacist recommendations for appropriate laboratory monitoring of psychotropic medications can be instrumental in assessing for effectiveness of psychotropic medication therapy and avoiding the development adverse drug events or potential toxicities.

Disclosure(s): Member of the TSHP Education Affairs Council

C - 11

Phenytoin Medication Use Evaluation

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Clinical

Not previously presented

Background: Medication-use evaluation (MUE) is a performance improvement method that focuses on evaluating and improving medication use processes with the goal of optimal patient outcomes. Therapeutic drug monitoring of certain medications, in particular anticonvulsants, is essential to optimizing patient care and preventing and reducing seizures. The frequency of patient transfers from the Dallas County Jail (DCJ) to Parkland Hospital due to seizures has increased over time. The average cost for one patient ER transfer and transportation from DCJ to Parkland Hospital due to seizures is about \$400.

Objective: The purpose of this MUE is to evaluate phenytoin therapeutic drug monitoring in patients receiving phenytoin therapy for seizure disorders in the Dallas County Jail.

Methods: Information was gathered via a retrospective chart review utilizing the DCJ electronic medical records (PEARL and EMERALD). A list of patients receiving phenytoin was generated and evaluated for the timeframe of February 2010 to August 2010. Patients from the generated patient list were randomly selected utilizing a random numbers table using Graphpad software. A total of 192 patients were assessed for several factors including days from book in at the DCJ to phenytoin start date, days until phenytoin level ordered after starting phenytoin, and the number of hospitalizations that occurred due to seizures in patients receiving phenytoin therapy.

Results: Outcome results remain under investigation, with data collection and evaluation currently being conducted.

Conclusions: Outcome results remain under investigation, with data collection and evaluation currently being conducted.

Disclosures: BG Mitchell has nothing to disclose. B Ojeda has nothing to disclose, JL Nelson has nothing to disclose. EM Porsa has nothing to disclose.

C - 12

Clinical Appropriateness and Cost Effectiveness of Empiric and Definitive Therapy

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Pharmacist Clinical

Previously presented at the 45th Annual American Society of Health-System Pharmacists Midyear Clinical Meeting & Exhibition. Anaheim CA. Dec 6, 2010

Background: Daptomycin has its primary place in therapy as treatment of documented methicillin-resistant *Staphylococcus aureus* (MRSA) and Enterococcus infections. The daily cost of daptomycin therapy recently increased to one of the highest among antibiotics used at our institution.

Objectives: The purpose of this medication use evaluation was to determine appropriateness of use and cost-effectiveness of daptomycin.

Methods: IRB approved a retrospective chart review of patients receiving daptomycin between January and September 2009.

Results: Patients (n=31) were 61±14.7 years of age and 61% were male. Of 12 patients receiving daptomycin empirically, it was deemed clinically appropriate for 10 patients (83%) of which 6 were deemed cost-effective. Thirteen patients received daptomycin for definitive treatment of culture-confirmed pathogens and all were deemed clinically appropriate and cost-effective. Six patients receiving daptomycin based on previous history had risk factors for gram positive organisms. Daptomycin use was deemed clinically appropriate for all six and deemed cost-effective in two cases (33%). All patients received daptomycin at either four or six mg/kg/day. Patients received 930 total days of daptomycin therapy of which, 702 days (75%) were considered cost effective treatment. At an average cost of \$220 per day of therapy, \$204,600 was spent on daptomycin treatment.

Conclusion: Although the majority of daptomycin use was considered clinically appropriate, vancomycin or a beta-lactam therapy could have been employed in one-fourth of the cases. Had vancomycin been employed in our cost-ineffective daptomycin cases, we could have realized a savings of \$41,952 based on the highest dosage range for vancomycin.

Disclosure(s):

ES Martin is Vice President Pharmacy Services at Scott & White Memorial Hospital and Clinics. SH Dzierba, PharmD Candidate, University of Florida College of Pharmacy is currently employed as a Medical Outcomes Specialist for Pfizer Inc. His involvement in this project was part of clinical practice requirements for the Pharmacy Doctoral program at the University Of Florida College Of Pharmacy. V Huang is a PharmD Candidate at University of Texas at Austin College of Pharmacy and has nothing to disclose. MF Wiseman and CP Le are PharmD Candidates at Texas Tech School of Pharmacy and have nothing to disclose.

C - 13

Analysis of clostridium difficile infections in the medical intensive care unit

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Purpose. According to the 2010 Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA) Clinical Practice Guidelines for *Clostridium Difficile* Infection (CDI) in Adults, *Clostridium Difficile* (*C. difficile*) is the most common cause of infectious diarrhea in the healthcare setting. Due to the increasing morbidity and mortality rates, CDI is a major public health concern and strategies to identify additional CDI risk factors, optimize therapy, and prevent CDI are essential. The purpose of this research study is to investigate the risk factors for developing CDI, analyze the clinical impact of oral versus intravenous treatment options, length of therapy, single versus combination therapy, alternative treatment options, and assess the implications in patient outcomes.

Methods. The study was approved by the Veterans Affairs North Texas Health Care System Institutional Review Board. The health system's Computerized Patient Record System will be used to retrospectively review patient medical records from 2007-2009. All patients at least 18 years of age in the VANTHCS with a definitive diagnosis of *C. difficile* from January 2007 to December 2009 are included in the study. Exclusion criteria include patients without a *C. difficile* diagnosis or who did not receive treatment for *C. difficile*. The following data will be collected: age, gender, ethnicity, antibiotic usage history, time to resolution of diarrhea, antibiotics used for treatment of CDI (mono therapy vs. combination therapy), stool culture results, past medical history, and recurrence rates.

Results. Research in progress.

C - 14

Efficacy review of pre-mixed oxytocin versus made-on-demand oxytocin in induction and augmentation of labor

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Poster Category: Clinical

Background: Oxytocin (Pitocin[®]) is an oxytocic agent that stimulates uterine contractions. It is used to induce and/or augment labor and to reduce post-partum bleeding. Oxytocin is available as a pre-mixed preparation with Lactated Ringers (LR) from an outsourced compounding manufacturing facility, with 30-day stability. Alternatively, it can be made-on-demand in the pharmacy with the same concentration as the premixed. Both products contain 20 units of oxytocin in one liter of LR. The question was asked by physicians if there is a potential decrease in potency of the pre-mixed Pitocin when compared with made-on-demand preparations.

Objective(s): To determine if there is an effect on the duration of labor when using standard pre-mixed oxytocin versus made-on-demand oxytocin in the induction or augmentation of labor.

Method: A retrospective review of all documented births within a 90 day period in the labor and delivery unit was conducted. Patients who did not receive oxytocin for induction or augmentation of labor were excluded. Duration of labor was calculated and the following considered: number of pregnancies and births (Gravida/Para); gestational age; method of delivery; birth weight; Misoprostol (Cytotec[®]) use and time of oxytocin administration. Data was analyzed to determine if significant differences appeared between the two preparations.

Results: Seven-hundred and twenty-three patients were reviewed. Additional results are pending.

Conclusions: Pending.

Disclosures: The authors do not have any affiliation with or financial interest in an external organization that relates to this presentation.

C - 15

Evaluation and Standardization of Sedation in Intensive Care Unit Patients

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Poster category: Clinical

Previously presented at the ASHP Midyear conference December, 2010

Primary Author has no disclosures

Background

Appropriate levels of sedation are difficult to obtain without the use of a sedation assessment tool. The Ramsay scale is a widely accepted method for evaluating sedation in ventilated patients. The objective of this quality

assurance study is to evaluate the appropriateness of sedation in ventilated ICU patients in the absence of such a tool. This will be followed by implementation of the Ramsay scale to standardize sedation assessment in the ICU.

Objectives

Determine the appropriateness of ICU sedation among ventilated patients in the absence of a standard assessment tool

Implement a standard ICU sedation assessment tool (Ramsay scale)

Compare the appropriateness of sedation before and after standardization

Methods

Prior to initiation of this study, approval from the Institutional Review Board was granted. Beginning December 10, 2010 and ending January 31, 2011 primary researchers performed a daily sedation assessment in ventilated patients while keeping the primary nurses blinded to prevent bias. After completion of the initial assessment, all ICU nurses will undergo training to learn how to use the Ramsay scale. After this training period, nurses will remain blinded as the primary researchers will continue to monitor sedation to assess nurse compliance with the sedation scale implementation. Patients under the age of 18 will be excluded along with patients with severe head trauma or patients requiring neuromuscular blockers. The following data will be collected: patient age, diagnosis, number of days on ventilator, Ramsay score, sedatives used, and dose of sedative used. All data will be collected without the use of patient identifiers to maintain confidentiality. Average Ramsay score will be calculated. Data collected will be reviewed by a team consisting of two pharmacists and one Intensivist. Reviewers will assess the appropriateness of sedation used in correspondence to Ramsay score before and after implementation of standardization.

C - 16

Utilization of Sickle Cell Admission Order Set

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Clinical

Not previously presented

Background: Sickle cell disease is a complex hematologic condition, with pain being the most common symptom warranting hospitalization. Current literature provides evidence that pain associated with sickle cell anemia is often undertreated or poorly managed. In an effort to provide a more comprehensive treatment plan and to decrease length-of-stay (LOS) for this patient population, a sickle cell admission order set was created.

Objectives: The primary objective of this study was to evaluate the utilization of the sickle cell order set, quantify intravenous (IV) and oral pain medications administered, and assess pain management orders in relation to LOS.

Methods: This study was a retrospective analysis of patients admitted with a diagnosis of sickle cell crisis and/or anemia from July 1, 2009 to June 30, 2010.

Results: A total of 231 patient visits were included. Twenty-four of those with use of the order set on admission. LOS with use of the order set was reduced by one day (5.83 vs. 6.77 days). Patients with orders for patient controlled analgesia (PCA) as part of initial pain management had LOS decreased by one day (5.67 vs. 6.9). The use of 'as needed' medications or oral medications by day 4 appeared to have little effect on LOS.

Conclusions: Because of the low use of the sickle cell order set on admission, comparisons between use and lack of use are limited. However, LOS with use of the order set was reduced by approximately one day, showing a trend towards decreased hospital stay with adequate pain control.

Disclosures: All authors have nothing to disclose.

C - 17

Place In Therapy: A Retrospective Chart Evaluation of Pioglitazone

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Clinical Study

ASHP Midyear, Anaheim, California 12/2010

Background: Pioglitazone is the only available thiazolidinedione for treatment of diabetes mellitus at Harris County Hospital District (HCHD) which consists of 3 hospitals and 12 community clinics and remains the most prescribed prior authorization drug at the county. The addition of rosiglitazone to the FDA Risk Evaluation and Mitigation Strategy (REMS) program necessitated an evaluation of the efficacy of pioglitazone and its adverse effect profile. Objectives: The primary aim was to determine efficacy of pioglitazone therapy through reduction in A1C. The secondary aim was to determine the frequency of cardiovascular events in patients with a history of pioglitazone therapy.

Methods: A retrospective review was conducted of patients 18 and older who received pioglitazone between January 2007 and October 2010. Patients needed to have been on pioglitazone for a minimum of 24 months for inclusion. Baseline demographics along with cardiovascular risk factors, doses, A1C and adverse effect information were collected.

Results: For the 324 patients studied, results indicated a 1.07%, 0.92%, 0.93% mean reduction from baseline A1C at 3-6, 7-9, and 10-12 months respectively. Approximately, 10.81% of patients were hospitalized for cardiovascular-related events after initiation of pioglitazone therapy.

Conclusion: Pioglitazone effectively decreased A1C by 0.5 to 1% in patients with type two diabetes. Although there was a high incidence of hospitalization for cardiovascular events, these hospitalizations could not be attributed to their pioglitazone therapy as the patients had significant cardiovascular comorbidities.

Disclosure: Ketal Patel: Nothing to disclose, Uche Anadu Ndefo: Nothing to disclose; Harris County Hospital District Pharmacoeconomics and Formulary Management Team: Nothing to disclose.

C - 18

Intensive insulin therapy versus conventional glucose management postoperatively in cardiac surgery patients

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Category: Clinical

Background: Glycemic control in postoperative cardiac surgery patients has shown to decrease sternal wound infection, renal failure and overall mortality. The target blood sugar range for cardiac surgery patients is still not clearly defined due to conflicting results from clinical trials. Society of Thoracic surgery published guidelines regarding blood glucose management during cardiac surgery, recommending maintenance of blood glucose <180 mg/dl. Our blood glucose target for cardiac surgery patients was changed to <180 mg/dl from 80 – 110 mg/dl following the guidelines recommendation.

Objective: The objective of this study is to compare the outcomes of postoperative intensive insulin therapy versus conventional glucose management in cardiac surgery patients.

Method: Retrospective chart review 6 months before and after the change in the blood glucose target. The

primary outcomes are mortality, sternal infection, renal failure, and duration of mechanical ventilation within 30 days after surgery. Secondary outcomes are length of stay in the ICU and hospital. Hypoglycemia events will be measured to determine safety.

Results and Conclusion: Data analysis currently in progress

Disclosure: Nothing to disclose

C - 19

A Retrospective Analysis of a Pharmacy-Managed Vancomycin Dosing Protocol in a Community Hospital

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Clinical category

Not previously presented

Background: South Austin Medical Center instituted a pharmacy-managed vancomycin dosing protocol where all patients initiated on vancomycin therapy are automatically enrolled in the service. Pharmacists are able to make alterations to vancomycin therapy independently of discussing changes with physicians. Pharmacists monitor vancomycin troughs, indication, laboratory parameters, determine dose adjustments, and order labs as clinically indicated.

Objective: To determine the impact of a pharmacist-based vancomycin dosing and monitoring protocol compared to the previous physician prescribing practice for vancomycin. This will be measured by comparing the percentage of patients achieving their trough goal between two patient groups. A secondary objective is to measure the amount of patients that demonstrate a clinical cure based on current guidelines.

Method: Retrospective chart reviews comparing patients receiving vancomycin therapy prior to the pharmacy-managed vancomycin dosing protocol (November 2009) and after the initiation of the protocol (November 2010). ESRD and dialysis patients will be excluded from the analysis. Descriptive statistics will be performed.

Data Collection and Results: Currently in progress.

Conclusion: We anticipate that a pharmacy-managed vancomycin dosing protocol will achieve earlier, and more vancomycin troughs that meet goal.

Disclosures: None

C - 20

Impact of an ED Pharmacist on the Appropriate Dosing of Medications During Rapid Sequence Intubation

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Clinical

Background: Our facility staffs a clinical pharmacist in the emergency department (ED) daily between the hours of 2:30 pm through 11:00 pm. During this time, the pharmacist is responsible for performing medication reconciliation, reviewing physician orders for appropriateness, and monitoring medications given for safety and efficacy.

Objectives: The purpose of this study is to examine the impact of a pharmacist on the appropriate dosing of medications frequently used during a rapid sequence intubation (RSI) procedure in the emergency department.

Methods: Patients were eligible for a retrospective chart review if they were intubated in the emergency department between the months of July 1, 2010 through December 31, 2010. Data for the control group was collected from patients that were intubated during the times where there was no ED pharmacist coverage. Data collection for cases and controls included baseline patient characteristics and medications administered during RSI. Medication dosages were evaluated for appropriateness and efficacy.

Results: In progress.

Conclusions: In progress.

Disclosures: Nothing to disclose.

C - 21

Improving Severe Sepsis Outcomes: Cost and Time to First Antibiotic Dose

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Practitioner Clinical

Not previously presented

Objective To determine the effect of an empiric antimicrobial guide on clinical and economic outcomes related to severe sepsis.

Methods A total of 119 patients were identified between November 2008 and October 2009. The patients were divided into two groups for evaluation, a control group (n = 67) prior to using an antimicrobial guide and an interventional group who were treated in the post-implementation period (n = 52). The primary end points were overall hospital length of stay (LOS), time to antimicrobial agent, total cost, and mortality.

Results The LOS of stay in the hospital was significantly lower in the group who had a sepsis specific antimicrobial protocol (8 days vs. 12 days in the control group). Time to first dose of antimicrobial agent was significantly less 1.77 hours versus vs. 14.9 hours; P = 0.002. Mortality and LOS in the intensive care unit were not significantly different. Total cost of stay was reduced by 30% and the mean variable cost was reduced by \$2831.

Conclusion An empiric antimicrobial guide specific for severe sepsis is associated with reduced LOS, a significantly earlier time to first dose antibiotic, and significantly lower total and variable hospital costs.

E - 22

Pharmacists Using Modern Technology in Rural VA Communities

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Practitioner Education

Not previously prevented

Background: The VA Medical Center at Dallas is involved in the process of acquiring all the Community Based Outpatient Clinics (CBOCs) and other facilities within the North Texas VA Area for anticoagulation services. A total of 7 CBOCs and 2 facilities are going to be acquired which is approximately 1100 patients. This initiative was established to facilitate more consistent care for all patients on warfarin, minimize patients lost to follow up, and prevent adverse events. New patients at our clinic are required to have warfarin education and documentation in their charts. Similar education requirements were to be followed for CBOC patients which is challenging due to the distance patients had to travel.

Objective: To provide multiple group education sessions to VA patients at remote sites through Vtel video conferencing.

Methods: Vtel allows both parties participating in group education to dial into each other's conference rooms at their respective sites. Both parties are also able to see each other through television monitors and communicate via teleconference system. Afterwards, patients consulted for an appointment will have labs collected at their respective sites and are followed up via telephone within 24 hours.

Results and Conclusions: To date, more than 125 CBOC patients have received warfarin group education via Vtel successfully which decreased the amount of time spent on the initial visit for education and orientation. Vtel has positively impacted our clinic practice to better serve veterans in rural communities. Additional data collection and results are in progress.

Disclosures: Nothing to disclose

E- 23

Texas Colleges of Pharmacy Smoking Cessation Initiative

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Student Education

Previously presented at the 45th Annual American Society of Health-System Pharmacists Midyear Clinical Meeting & Exhibition. Anaheim, CA. Dec 6, 2010

Background: Tobacco use and dependence is described as the most important public health issue of our time. Student pharmacists have opportunities to provide impactful smoking cessation initiatives through community service projects.

Objectives: The objective of this project was to implement a statewide smoking cessation initiative in cooperation with Texas Colleges of Pharmacy.

Method(s) or Procedure(s): In collaboration with pharmaceutical industry, education seminars on smoking cessation was provided to participating colleges of pharmacy in Texas. Pharmacy doctoral candidates were trained on four primary programs: Know Your Health Smoking Cessation Toolkit, Beat the Pack workshops, American Cancer Society FreshStart tobacco cessation program, and information on implementing a hospital smoking cessation protocol.

This concept of smoking cessation education was first introduced to the Texas Society of Health System Pharmacists (TSHP) student chapter presidents and president-elects at the annual meeting in April 2010. Follow-up outreach occurred in September 2010 during a TSHP meeting. Students were given overviews of the various training program materials and structure.

Result(s): All six colleges of pharmacy in Texas were approached with education initiative and follow up contacts were made. Sample materials provided for all four forms of smoking cessation training helped students identify appropriate community service projects.

Conclusion(s): Student pharmacists have opportunities to provide impactful smoking cessation initiatives through community service projects utilizing four primary programs: Know Your Health Smoking Cessation Toolkit, Beat the Pack workshops, American Cancer Society FreshStart tobacco cessation program, and information on implementing a hospital smoking cessation protocol.

Disclosure(s): SH Dzierba, PharmD Candidate, University of Florida College of Pharmacy is currently employed as a Medical Outcomes Specialist for Pfizer Inc. His involvement in this project was part of clinical practice requirements for the Pharmacy Doctoral program at the University of Florida, College of Pharmacy. BA Bamgbade

is a PharmD Candidate at University of Texas at Austin and has nothing to disclose. MF Wiseman and CP Le are PharmD Candidates at Texas Tech School of Pharmacy and have nothing to disclose.

E - 24

Nursing Home Administrators' Perspectives on the GRACE (Growing Respect and Care for the Elderly) Program: an Introductory Pharmacy Practice Experience

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Presenting Author: CC Villarreal

Educational Category

Not previously presented

Background: The GRACE Program was designed for pairs of P3 students to visit nursing home residents over a six-week period to review resident's chart, evaluate and identify drug therapy issues, and interact with consultant pharmacists and staff at nursing homes.

Objectives: The first objective of the program was to evaluate the resident's drug therapy. Given that this was the first implementation of the Grace IPPE Program, the second objective was to evaluate nursing home administrators' perspective of the program.

Methods: Administrators (n=10) completed an anonymous, 14-question paper survey. The response rate was 80%. Statistics were calculated by SPSS.

Results: The administrators reported that both their facility and residents received a great benefit from the students' involvement (4.38 and 4.62 out of 5, respectively). Importantly, the facilities interest to work with pharmacy students significantly increased ($p < 0.03$) over the six-week period. Further, administrators indicated that the GRACE program was an excellent experience for pharmacy students (4.62 out of 5), noting a significant increase in their ability to review charts, make recommendations to a physician with the help of a consultant pharmacist, and interact with residents ($p < 0.007$, $p < 0.021$ and $p < 0.048$, respectively.)

Conclusions: Administrators of the nursing homes involved in the GRACE program indicated overwhelmingly that pharmacy students provided value-added services by assisting the facility in identifying and addressing drug therapy concerns, thereby improving their residents' drug therapy management. An additional benefit of this program was the opportunity for students to experience both field and clinical practice with a geriatric population.

Disclosure(s): CC Villarreal is the instructor for the GRACE Program and IPPE Coordinator for the University of the Incarnate Word Feik School of Pharmacy. JT Copeland is Assistant Dean of Experiential Programs at the University of the Incarnate Word Feik School of Pharmacy. DF Maize is Associate Dean of Academic Programs at the University of the Incarnate Word Feik School of Pharmacy.

E - 25

Benefits of Precepting Hospital / Health-System Pharmacy Interns

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Presenting Author: JT Copeland

Educational Category

Not previously presented

Background: The Accreditation Council for Pharmacy Education (ACPE) requires Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice Experience (APPE) in a hospital / health-system. Although preceptors and hospitals / health-systems benefit, student placement is challenging.

Objectives: Develop a brochure to help communicate with identified preceptors and hospitals / health-systems the benefits of precepting pharmacy interns and to encourage increased hospital / health-system participation.

Methods: A prototype brochure was created by the office of experiential programs in accordance with ACPE requirements and Texas State Board of Pharmacy (TSBP) regulations and presented to a hospital / health-system preceptor focus group (pharmacy administrators, clinical directors, staff pharmacists, faculty). Discussions resulted in revisions. The revised brochure is being distributed to preceptors and hospitals / health-systems.

Results: A brochure containing a list of potential student activities designed to help communicate benefits to preceptors and hospitals / health-systems was developed. Activities include: perform QM/QA projects, answer DI questions, write reports (DUR, ADR, P&T), review drug recalls, inventory management, review drug use protocols, provide discharge counseling, assist in IV to PO switch, clarify prescriber orders, provide in-services, obtain patient medication histories, review lab values, document interventions, perform calculations, write drug monographs, and create a safety newsletter.

Conclusion: The activity list contained in the brochure meets ACPE's requirements for IPPE and APPE, follows the Texas State Board of Pharmacy's regulations, and helps communicate benefits of precepting pharmacy interns to preceptors and hospitals / health-systems. The number of opportunities will be monitored.

Disclosure: Faculty – UIW

E - 26

Review of the Newly Released Guidelines for the Treatment of Methicillin-Resistant Staphylococcus Aureus Infections

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Educational Poster

Not Previously Presented

Background: Asthma is a chronic disease characterized by exacerbations that can be life-threatening. Written asthma action plans (WAAPs) include steps for patients to follow when they experience symptoms of an asthma exacerbation. According to the National Asthma Education and Prevention Program (NAEPP), providers should give WAAPs to patients as part of their asthma management. The asthma action plan can serve as a compliance tool for asthma control and can help to decrease the severity of exacerbations, when monitored by a healthcare provider. Effectiveness of a WAAP relies on the patient's ability to understand the written material on the plan. Appropriate use of an action plan may be hindered by low literacy and unfamiliarity with the written English language.

Objective: To determine whether Hispanic patients with low literacy are able to comprehend the National Heart, Lung, and Blood Institute's (NHLBI) recommended written asthma action plan. A WAAP specific to the patient's education level and language will be implemented.

Methods: A preliminary survey will be conducted to determine whether Hispanic patients with low literacy can understand and use the NHLBI-recommended WAAP. The tailored WAAP will be developed in commonly used everyday Spanish based on the established need for such a tool. Patients will be surveyed to determine which action plan they prefer.

Disclosure: The author has nothing to disclose.

References:

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E - 27

Redesign of a PGY-1 Pharmacy Residency from a Single-Site to a Multi-Site Program

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Practitioner: Education

Not previously presented

Background: The Baptist Medical Center PGY-1 Pharmacy Residency Program was a single-site program primarily structured as a longitudinal learning experience.

Objective: The goal was to completely redesign and rebuild the residency as a multi-site program with both rotational and longitudinal learning experiences and to utilize all the resources within the Baptist Health System, which includes 5 hospitals and 7 primary care clinics.

Methods: A core group of required rotational and longitudinal learning experiences that could be offered was determined. A curriculum map was developed to link each learning experience to one or more of the 6 required educational outcomes for a PGY-1 pharmacy residency. A list of preceptors for all the learning experiences was created and included 21 pharmacists across the 5 hospitals. All new rotation syllabi, self-assessment and evaluation forms, tracking tools, promotional materials, and an annual schedule and residency manual were developed.

Results: All 5 hospitals are being used for rotations and weekend pharmacy staffing. The clinics will be used for a rotation in primary care after clinical faculty members are placed. Residents are engaged in a mix of operational, clinical, and academic activities during the rotations. Biweekly clinical program meetings are being used for staff development as clinicians and as preceptors, and this group of clinical pharmacists, regional clinical coordinators, and the vice president of pharmacy are now the residency advisory council.

Conclusions: The redesigned residency involves more pharmacists and provides residents with additional learning opportunities so they are better prepared to practice hospital pharmacy upon graduation.

Disclosure: The author has nothing to disclose.

E - 100

Sepsis in Adult Leukemia Patients

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Background: Sepsis is estimated to affect 16.8% of the cancer population with hematologic malignancies leading to significant mortality. Systemic inflammatory response syndrome (SIRS) consists of (fever, leukocytosis,

leucopenia, tachycardia, and tachypnea) and the presence of two or more criteria with infection, constitutes sepsis. Earlier recognition of the systemic inflammatory response syndrome by clinicians is thought to possibly reduce the mortality among those with leukemia.

Objective: To increase earlier recognition of SIRS and consequent sepsis, severe sepsis, and septic shock by 20% with educational intervention among 65 nurses on the leukemia units at a major cancer center.

Methodology: A multidisciplinary team of clinical pharmacists, APNS and a merit team nurse from ICU and leukemia developed and presented an educational program to nurses on the leukemia units to support proposed changes in practice. Pre-test and post-tests were used to determine nurses' knowledge prior to and after the educational intervention.

Results: Analysis of pre and post-test scores revealed 42% increase in recognition of SIRS, sepsis, severe sepsis and septic shock. Post in-service awareness of the sepsis algorithm was 97%.

Conclusion: Our project showed the need for on-going healthcare provider education to recognize the SIRS symptoms early which may save lives and reduce costs of healthcare. The education and training tools our group developed will be implemented as new orientation and annual competency for nursing staff. Nursing Sepsis Algorithm and order set draft for early recognition and management of septic patients has been developed for planned implementation at the institutional level at our cancer center.

Disclosure: Sonia Mathews is a member of TSHP Educational Council. The other authors have nothing to disclose.

E - 102

Analysis of Experiential Education Courses Upon Student Grade Point Average

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Presenting Author: JT Copeland

Educational Category

Not previously presented

Background: A student's final grade point average (GPA) is determined by classroom, laboratory, and experiential education. Students completed 7 APPEs equaling 36 credit hours on an A, B, C, F grade scale. APPEs are precepted by full-time and adjunct faculty.

Objectives: Determine the impact of Advanced Pharmacy Practice Experience (APPE) grades upon classroom and laboratory GPA and differences between full-time and adjunct faculty.

Methods: Combined classroom and laboratory GPAs were compared with APPE GPAs. APPE GPAs by full-time and adjunct faculty were compared.

Results: The average classroom and laboratory GPA for 68 students was 3.32 compared to a 3.78 APPE GPA (Community = 3.91; Patient Care = 3.89; Hospital = 3.88; Non-Patient Care = 3.83; Ambulatory = 3.62; Acute/General Medicine = 3.60) on a 4.0 scale. The 3 elective APPE GPAs (patient care and non-patient care = 3.86) was higher than the 4 required APPE (Community, Hospital, Ambulatory, and Acute/General Medicine = 3.75). APPE decreased 7 GPAs, increased 59, and did not alter 2. Faculty precepted 43 acute/general medicine APPEs (3.47 GPA) compared to 26 by adjunct faculty (3.73 GPA). Faculty precepted 44 ambulatory APPEs (3.55 GPA) compared to 24 by adjunct faculty (3.75 GPA). Adjunct faculty precept Community and Hospital APPEs.

Conclusion: Data collected serves as a baseline for necessary future monitoring. If a trend is evident, there may be opportunities for targeted preceptor education. If this is a trend, there may be increased demand for adjunct faculty precepted APPEs compared to full-time faculty precepted APPEs.

Disclosure: Faculty – University of the Incarnate Word

L - 28

Impact of Pharmacist Driven Interventions on Antibiotic Usage in an Inpatient Physical Rehabilitation Hospital

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Practitioner Leadership

Not previously presented

Background: Memorial Hermann Rehabilitation Hospital – Katy is a 35 bed inpatient facility that provides care to patients suffering from impaired physical functioning. The hospital was acquired by the Memorial Hermann System in August 2010. A pharmacist was not involved in clinical recommendations or chart reviews prior to the acquisition. Currently, a pharmacist is available on site Monday through Friday. Over usage of antibiotics, inappropriate antibiotic selection and treatment due to inappropriate screening for hospital acquired infections has been observed. A pharmacist's involvement in the care of patients is anticipated to positively impact cost and affect appropriate antibiotic selection and treatment of infections.

Objective(s): To determine current prescribing patterns of antibiotics. To evaluate the impact of a pharmacist on appropriate antibiotic prescribing. To assess cost-savings from pharmacist driven interventions.

Method(s): A concurrent chart review was conducted from 12/13/2010 to 12/24/2010, without active pharmacist interventions. A second chart review was conducted from 1/3/2011 to 1/28/2011, with active pharmacist driven interventions. The data collected included diagnosis, culture and lab results, diagnostics, antibiotic prescribed, duration of therapy, and cost of therapy.

Result(s): The preliminary analysis shows the most common diagnosis is urinary tract infection (UTI) (70%) and the percentage of inappropriately treated UTIs is 50% when the pharmacist did not have any intervention.

Conclusion(s): Pending final analysis

Disclosure(s): Authors have nothing to disclose

L - 29

Pharmacy Key to Core Measures Compliance

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Leadership category

Background

NHQM core measures are evidence-based processes that demonstrate high-quality patient outcomes when consistently applied. Because all categories of core measures have one or more requirements pertaining to medications, pharmacy has a key leadership role in the multi-disciplinary approach to concurrent management of core measures patients.

Objectives

The purpose of the project was to improve overall core measures compliance to 95% or greater, to increase participation of pharmacy and other disciplines in patient care, and to engage all disciplines in actively taking responsibility for management of core measures compliance as a best practice initiative.

Methods

Pharmacy created comprehensive reports summarizing core measures-related medications for all inpatients.

Other disciplines, such as laboratory and imaging, were asked to provide similar source data from their own specialties. A white board was installed for recording the data and for tracking real-time compliance with patient-specific measures. A multidisciplinary, collaborative team convened daily to review the board and discuss the measures.

Results

The first month of the project resulted in 100% compliance in all core measure areas. By the end of the first quarter of the project, core measures compliance had improved to 96.7% (an improvement of almost 19%).

Conclusion

Pharmacy and other ancillary departments own data and perform tasks important for core measures compliance. The project resulted in improved communication around all quality of care issues, served as a successful pilot for a multidisciplinary approach to future quality initiatives, and improved professional satisfaction among all clinical staff with their contributions to patient care.

Disclosure

None

L - 30

Technician Leadership

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OBJECTIVE: The goal was to recognize leadership, commitment and accountability at a level other than directors and managers (Technician level) and how it embodies the mission and goals of Seton Family of Hospitals as a high reliability organization through 200% accountability, community service and education, and patient, personal and peer safety.

METHODS: We created a committee comprised primarily of technicians to plan and organize pharmacy week activities in our healthcare system. The committee chair was responsible for delegating projects, coordinating meetings and ensuring that everything was in order.

RESULTS: The committee planned many community service activities such as, providing information on the VIAL OF LIFE, and handing out assembled vials. The theme for Pharmacy Week 2010 was "In the Pharmacy we go Green"; and based on the theme, we made educational posters and handed out valuable information regarding proper medication disposal to keep dangerous and harmful medications out of our water supply and environment. In addition, we also had glucose and blood pressure screenings along with handout information in both Spanish and English.

CONCLUSION: The universal satisfaction of accomplishment by all participants and recognition by all levels of leadership within Pharmacy across a ten-hospital network system. In addition, a stronger commitment and accountability was felt at the level of the staff due to the pharmacy week activities.

L - 31

Tetanus, reduced Diphtheria, and acellular Pertussis Prophylaxis in the Emergency Department

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Practitioner Leadership

Not previously presented

Background: The Advisory Committee on Immunization Practices (ACIP) recently recommended maintaining current standards for tetanus and diphtheria prevention. Additionally, ACIP recommended guidelines for vaccination with tetanus, reduced diphtheria, and acellular pertussis (Tdap) to reduce pertussis morbidity among adults and transmission of pertussis to infants and in healthcare settings. An opportunity exists for clinical pharmacists in the Emergency Department (ED) to lead the implementation of these guidelines.

Objectives: The primary objective was to evaluate the appropriateness of tetanus toxoid (Tt), tetanus and reduced diphtheria (Td), and Tdap orders in the ED. The secondary objective was to assess the percentage of adverse drug events (ADEs) involving these vaccinations.

Methods: A retrospective chart review was conducted at Ben Taub General Hospital in Houston, Texas from April-September 2010. Patients ≥ 17 years of age with physician orders for Tt, Td, or Tdap were included. Interventions incorporated beginning in June 2010 included operational changes and educational in-services for ED nurses, faculty, resident physicians, and pharmacy staff.

Results: In April and May 2010, the percentages of appropriate orders were 18.6% and 24.3% respectively, and the percentages of ADEs were 59.3% and 61.1% respectively. Over the next few months, operational changes to enhance the medication ordering process and educational in-services were implemented. Thereafter, the percentages of appropriate orders and ADEs for September 2010 were 69.5% and 29.3% respectively.

Conclusion: An ED clinical pharmacist's lead in implementing vaccination guidelines for Td and Tdap resulted in a three-fold increase of appropriate orders and decreased ADEs by one-half.

Disclosures: KR Patel, DP Laine, PA Patel, SP Mahale, AT Brown, and GB Buehler have nothing to disclose.

L - 32

A Patient-Centered Pharmacy Practice Model of Care in an Acute Rehabilitation Hospital
LM Cuellar, SE Lake-Wallace, SM Loughlin, DA Pandya, DM Crow, TS George
Leadership

Background: TIRR Memorial Hermann is a 119 bed acute rehabilitation hospital specializing in the rehabilitation of patients with catastrophic neurological diagnoses including stroke, traumatic brain injury and spinal cord injury. The success of rehabilitation relies on the expertise of medical personnel and genuine collaboration between team members.

Objectives: Establish a pharmacy practice model that integrates clinical, operational, and educational activities in order to support comprehensive patient-centered care and the hospital's commitment to education and research.

Methods: TIRR pharmacists provide all aspects of collaborative patient care including influencing patients' pharmacotherapy outcomes, education of patients and staff, and supporting research endeavors. Dedicated pharmacotherapy rounds with physicians were established along with protocol based therapy management. Patient, family, nursing and physician education occurs regularly. Hospital is a site for interns and residents. Visible pharmacy leadership is maintained in the hospital.

Results: Patient outcomes were measured via MUEs, pharmacist interventions, and patient feedback. A physician survey revealed a high degree of satisfaction. The Physical Therapy Residency program actively sought out TIRR pharmacists for didactic pharmacotherapy lectures. Several pharmacists were nominated or received recognition awards within the system and hospital this past year.

Conclusion: The TIRR model is a breakaway from traditional pharmacy practice which is either geared towards operational functions or with silos of focus. Pharmacists spend 50% of their time in clinical duties and 50% in leadership and operations functions. This demarcation makes TIRR pharmacy an effective contributor to the hospital's mission: "to create the best possible clinical outcomes with exceptional care experiences."

Disclosures: None

L - 33

Conceptual Models for Visualizing Health System Pharmacy Practice, Management, and Leadership (Purcell's Pyramids)

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Practitioner: Leadership

Not previously presented

Background: Medication management across the continuum of care is exceptionally complicated and convoluted. Visual images translated onto paper can help with communicating concepts and driving key points home.

Objective: Develop conceptual models that can be used to portray and teach important aspects of health system pharmacy practice, management, and leadership to students, residents, and practitioners.

Methods: Seven models were constructed following significant pontification and philosophizing with peers and personal reflection on past experiences. The models were meant to illustrate many aspects of pharmacy practice, management, and leadership.

Results: Figure 1 emphasizes the foundation for building a world class pharmacy department is pharmacy operations, quality improvement, and patient safety. Figure 2 highlights the multifaceted environment that comprises the pharmacy management milieu in which managers must function. Figure 3 demonstrates the large number of elements involved with the medication management system. Figure 4 outlines the important steps that must be taken when implementing technology in the medication use process. Figure 5 displays how evidence-based medicine is incorporated into patient care. Figure 6 shows the sequential things that must be addressed to engage and satisfy pharmacy staff. Figure 7 depicts how pharmacy staff supports nursing and medical staff as we all provide outstanding service to our patients.

Conclusions: Hopefully these conceptual models of pharmacy practice, management, and leadership will give ideas and stimulate thinking of other pharmacy managers and academicians for how to best communicate, educate, and engage students, residents, and practitioners as well as to build a world class pharmacy department.

Disclosure: The author has nothing to disclose.

R - 34

Weight based vancomycin dosing for coronary artery bypass graft patients

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Resident Category

Not previously presented

Background: Surgical site infections (SSI) are a devastating consequence for patients undergoing cardiovascular surgery. The primary prevention method for SSI is antimicrobial prophylaxis, although optimal dosing of prophylaxis is debatable. In 2007, the standard 1 gram dose of vancomycin for cardiovascular surgical prophylaxis was changed to a 20 mg/kg dose based on actual body weight at the study institution.

Objective: The purpose of this study was to assess the rates of SSI before and after the introduction of weight-based dosing of vancomycin for cardiovascular surgical prophylaxis.

Methods: This was a cohort study of patients undergoing coronary artery bypass graft surgery (CABG) between 2005 and 2010. Annual rates of sternal wound infections and leg infections were assessed before and after implementation of weight-based dosing by infection control practitioners.

Results: During the study period, 3576 patients underwent CABG. Of these patients, 178 (4.9%) developed sternal wound infections and 43 (1.2%) developed leg wound infections. The annual rate of sternal wound infections decreased from 5.5 infections per 100 surgeries in 2006 to 3.3 infections per 100 surgeries in 2010. Rates of deep sternal wound infections decreased from 2.4 infections per 100 surgeries to 0.76 infections per 100 surgeries in 2010. The rate of leg wound infections was unchanged during the time period.

Conclusion: Weight-based vancomycin dosing at 20 mg/kg was associated with a reduction in the incidence of sternal wound infections.

Disclosures: AB Sevin, Michaud, F Zabaneh, M Price, and LO Gentry have nothing to disclose. KW Garey receives research support from Merck and Cubist Pharmaceuticals.

R - 35

Evaluation of Basal Insulin Therapeutic Interchange Program in a Large Multi-Hospital System

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Resident/Fellow/Post-graduate

Not previously presented

Background: Memorial Hermann Healthcare System is composed of 10 acute care hospitals of which 7 have initiated a therapeutic interchange protocol to substitute insulin glargine to insulin detemir. Available data currently suggests conversion from insulin glargine to insulin detemir can be associated with significant cost savings while still providing similar efficacy and safety.

Objective: The purpose of this evaluation is to describe the efficacy and safety of a therapeutic interchange from insulin glargine to insulin detemir in a large multi-hospital system.

Methods: This was a retrospective evaluation of the efficacy and safety of basal insulin therapy pre- and post-implementation of a therapeutic interchange protocol throughout a large multi-hospital system. The pre-interchange patient population was comprised of patients who received insulin glargine before and during hospitalization during a two month period prior to the initiation of therapeutic interchange. The post-interchange patient population consisted of patients who received insulin glargine previous to admission and had orders to continue insulin glargine during hospitalization during a two month period subsequent to interchange implementation. Post-interchange patients were converted unit-for-unit from insulin glargine to insulin detemir. Patients who only received only one dose of basal insulin during hospitalization were excluded from this evaluation.

Results and Conclusions: to be presented at time of meeting.

Disclosure: A Liem has nothing to disclose. P Peymann has nothing to disclose. WP Flowers has nothing to disclose.

R - 36

Discharge Medication Counseling For Heart Failure Patients Provided by Pharmacist Interns

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Resident/Fellow/Post-Graduate

Not previously presented

Background: Studies have shown that optimal management of heart failure (HF) requires an interdisciplinary health care approach involving patients, physicians, nurses, and pharmacists. Ideally, HF patients should be educated on their disease state, proper medication utilization, the importance of self-management, the need to adhere to strict life style modifications, and recognizing exacerbations. However, few hospitals have the manpower to provide extensive HF education and discharge medication counseling.

Objectives: Pilot a project to provide pharmacist intern-directed HF health education and medication counseling to patients admitted with heart failure. We postulate that having pharmacist interns provide additional one-on-one education will be viewed as helpful by the patient in their medication understanding and responsibilities for self-management.

Methods: This pilot project was developed over several phases. The initial phase consisted of preparing the HF materials for the patients and the pharmacist interns. Then, all participating pharmacist interns were trained and oriented to the program. They reviewed the established HF materials, watched a counseling session provided by a pharmacist, and completed a pre-assessment over HF. Patients admitted to Family Medicine teams were verbally consented to participate in this program. The participants received a 15-30 minute counseling session. They were also offered a follow-up phone call 10-14 days after discharge. Patient's satisfaction with the project and whether the session has improved their understanding of HF management were assessed. The intern's HF knowledge before and after participating in the project was also assessed.

Results: Pending

Conclusion: Pending

Disclosure: AT Nguyen has nothing to disclose. J Wahawisan has nothing to disclose. C Farris has nothing to disclose. C Molina has nothing to disclose. T Berry has nothing to disclose. E Martin has nothing to disclose.

R - 37

Implementation of Lean Methodology at Ben Taub General Hospital Inpatient Pharmacy and its Effects on Sterile Pharmaceutical Compounding Process

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Resident/Fellow/Post-Graduate Category

Not previously presented

Background: Intravenous (IV) drug wastage accounts for 24.2% of the total IV medications dispensed within Ben Taub General Hospital's inpatient pharmacy. For the 2010 fiscal year, approximately \$239,000 was estimated to be lost due to wastage of these medications. Performance improvement strategies such as lean methodology help various organizations improve productivity and inventory management. This methodology was adopted at Ben Taub General Hospital to reduce inventory, decrease pharmaceutical waste and improve technician workflow.

Objective(s): The implementation of lean methodology in Ben Taub General Hospital's (BTGHs) inpatient pharmacy was studied as well as its effects on the sterile pharmaceutical compounding process.

Method(s): The study was conducted in three phases: 1) collection of three weeks worth of IV wastage for baseline data, 2) the increase in batch frequencies from one to three times per day, and 3) reconciliation of continuous and titratable IV drips.

Result(s): The pharmacy department implemented a budget-neutral workflow by adopting lean methodology leading to a reduction of 16.6% of total IV medications dispensed. This change of 69% in IV waste translated to an annual cost savings of approximately \$155,000. Included in the cost savings was a 0.7 reduction in technician full

time equivalents (FTEs) used for preparation and distribution of the IV medications. Ongoing efforts should help mediate an even greater cost savings with respect to IV wastage.

Conclusion(s): Based on the preliminary data, lean methodology adopted at BTGH helped reduce inventory, decrease the amount of pharmaceutical waste and improved technician workflow. This was attributed to the increase of IV batch preparation times.

Disclosure(s): A Shah-Mohammadi, L Gokhman, SG Gautreaux, VI Nwabeke, and RK Roux have nothing to disclose.

R - 38

Bevacizumab Medication Use Evaluation

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Resident/fellow/post-graduate

Not Previously Presented

Background: Bevacizumab (Avastin®) is FDA approved for colorectal, lung, glioblastoma, breast and renal cell cancers. It demonstrates activity in gynecologic malignancies. Recently, the FDA recommended withdrawing the breast cancer indication because bevacizumab did not prolong overall survival or sufficiently slow disease progression.

Objective: Review utilization of bevacizumab in breast, gynecologic, and brain cancers.

Methods: Retrospective chart review of patients from January 1, 2010 to December 31, 2010.

Results: Nine breast cancer patients received bevacizumab; eight with metastatic disease and one with locally advanced disease. Combination chemotherapy included single agent paclitaxel (n=4), navelbine (n=2), carboplatin (n=1), nab-paclitaxel (n=1), and carboplatin/paclitaxel (n=1). Bevacizumab was administered as first-line therapy in 3 patients, second-line therapy in 4 patients, and third-line therapy in 1 patient. Outcomes in breast cancer patients included disease progression (n=6), stable disease (n=1), and partial response (n=1). Therapy was discontinued in one patient due to a thromboembolic event. Eleven gynecologic oncology patients received bevacizumab. The average number of cycles for ovarian and endometrial cancer patients was 7 cycles (range 3-14) and 4 cycles (range 3-6) respectively. Of the 8 ovarian cancer patients, 6 patients had disease progression and 1 patient discontinued therapy due to a thromboembolic event. All three endometrial cancer patients had progressive disease. Two patients with recurrent anaplastic astrocytoma received bevacizumab. Adverse events were reported in 32% of all patients (n=7); hypertension (n=3); proteinuria (n=2) and thromboembolic events (n=2).

Conclusions: Conclusions cannot be made due to the limited number of patients. Practice patterns will be discussed and prospectively reviewed.

Disclosures: A Williams, W Chaney, have nothing to disclose.

R - 39

Pilot study on the effect of multi-disciplinary discharge counseling on systolic heart failure readmissions in south Texas

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Resident Category

Previously Presented: Midyear 2010, Anaheim, California

Background: Heart failure is a major cause of morbidity and mortality and is a leading cause of hospital admission. At Valley Baptist Medical Center, the heart failure readmission rate is estimated to be 22%. Studies show that the leading causes of readmission are non-compliance with treatment regimens, including diet and medications, leading to symptom exacerbation.

Objective: To evaluate the effect of pharmacist-driven patient counseling on heart failure readmission rates.

Methods: Patients were eligible to participate if they had a prior history of heart failure or four or more hospitalizations for any reason in the preceding five years. Patients were excluded if they were admitted without symptoms of heart failure, had a left-ventricular ejection fraction >45%, were admitted with mildly symptomatic heart failure, had a planned discharge to a nursing home, long-term care facility, or to another acute care facility, or were receiving dialysis. A retrospective group was identified based on patients admitted with a principal diagnosis of heart failure. Prospective patients received a pre-discharge counseling session including information on disease characteristics, symptoms, the role of medications, and methods to enhance diet and medication compliance. A follow-up phone call is made within 5 days of discharge. Patients were monitored for readmission within 30 days of discharge.

Results: Retrospective findings include a 30-day readmission rate of 24.2% in one quarter (n=33), and an average time to first readmission of 9.9 (± 10) days. The prospective arm is in progress.

Conclusions: In progress.

Disclosures: AE Andalcio, A Amaya-Diaz, and V Arizmendi have nothing to disclose

R - 40

Assessment of Appropriate Epoetin Alfa in Inpatient Non-dialysis Patients

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45th ASHP Midyear Clinical Meeting, Anaheim, 12/08/2010

Background: Other institutions have shown an improvement in recombinant human erythropoietin (rHuEPO) appropriate utilization and cost containment through implementation of a rHuEPO management program. Epoetin alfa was ranked as the third highest expenditure in our pharmacy budget. Furthermore, secondary to several safety concerns, the FDA has mandated that all institutions dispensing rHuEPO be in compliance with the REMS program.

Objectives: To determine if implementing a rHuEPO management program at our institution is advantageous and to implement the FDA requirements for the REMS program. To evaluate the impact of implementation of a rHuEPO management program at our institution if warranted.

Methods: A baseline medication-use evaluation (MUE) of epoetin alfa was conducted using a retrospective chart review for all eligible patients from September 1, 2009 through July 2010. Subsequently, a rHuEPO management program was implemented. The program required completion of a mandatory order form for all non-dialysis epoetin alpha orders in conjunction with documents and records for compliance with the ESA APPRISE Oncology Program. Multidisciplinary education regarding the form and the ESA APPRISE program was provided to the hospital staff. A medication-use evaluation will be conducted to evaluate the impact of these interventions.

Results (Preliminary): Ninety-eight patient cases were reviewed for the baseline MUE. Of these ninety-eight patients, 59% of the epoetin alfa usage was appropriate per indication and 48% of patients prescribed epoetin alfa received the appropriate dosing per our institutions' approved guidelines. Additional data collection and results are in progress.

Conclusion: Pending data analysis

Disclosures: AE Ryan has nothing to disclose. JC Smith has nothing to disclose. Y Lin has nothing to disclose. YO Tasnif has nothing to disclose.

R - 41

Clinical and Economic Evaluation of a Diabetes Medication Management Program: 2 year Program Update

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Resident/Fellow/Post-Graduate

To be presented at ISPOR; Baltimore, MD; 05/21/2011

Background: A central Texas health plan implemented a pharmacist-led diabetes medication management program (MMP) offering co-pay waivers for diabetes related medications and supplies.

Objectives: To assess medication adherence, diabetic control and healthcare costs between patients enrolled in the MMP vs. matched control patients.

Methods: Patients were enrolled in the MMP if they had baseline A1C levels > 7.5% and three years of continuous enrollment throughout the study period ("rolling" enrollment from 7/06-12/08). The enrollees and controls were matched 1:1 by age, gender, baseline A1C, and Charlson comorbidity index (CCI). A1C and adherence (Medication Possession Ratio (MPR)) were measured one year before and two years after implementation. A difference in difference analysis used paired *t*-tests to compare changes in MPR and A1C. Healthcare costs were analyzed by year, group, types of service, diabetes-related and all-cause claims.

Results: Average A1C decreased by 0.8 in controls and 1.5 in MMP patients; the difference between groups was statistically significant ($P<0.01$). Both groups declined in MPR for oral antidiabetic drugs (MMP:10% vs. Control:19%); the difference between the groups was statistically significant ($P=0.009$). After two years, the average per member per month (PMPM) costs increased by 16% and 36% in MMP and control groups. Inpatient costs appeared to be the greatest difference between the two groups, decreasing by 38% in the MMP group and increasing by 159% in the control group.

Conclusions: The MMP showed improved patient clinical and adherence measures. Although two-year PMPM costs increased, the difference in inpatient costs indicates a potential for longterm savings.

Disclosure: B Gorsh is the PGY1 outcomes research fellow for the Novartis/Scott&White/University of Texas Outcomes Research Fellowship. Y Kim is the PGY2 outcomes research fellow for the Novartis/Scott&White/University of Texas Outcomes Research Fellowship. K Prasla has nothing to disclose. P Godley has nothing to disclose. T Tabor has nothing to disclose. J Chaddick has nothing to disclose.

R - 42

Antibiotic usage patterns in patients with a positive culture for Acinetobacter species.

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Previously presented at ASHP Midyear Clinical Meeting, Anaheim, CA, December 2010 (New information being presented)

Background: *Acinetobacter* species are becoming increasingly resistant to available antibiotic therapy. Recommendations for treatment are inconsistent and unclear in current literature. Appropriate utilization of antibiotics is of extreme importance to avoid further resistance as current alternative treatment options are progressively more toxic, expensive, or non-existent.

Objective: To describe antibiotic usage patterns and outcomes in patients with a positive culture for *Acinetobacter* species.

Methods: Prior to commencement, this study was submitted to and received approval from the Institutional Review Board. Electronic medical records were used to identify patients with a positive culture for *Acinetobacter* species over one year at three hospitals within the Memorial Hermann (MH) Healthcare System, including teaching and community hospitals: Katy (MHKY), Southwest (MHSW), and TIRR MH. The following data was collected for analysis: baseline demographics, culture characteristics, antibiotic use, length of stay, readmission rates, and mortality. All data was maintained in a confidential manner in a Microsoft Excel and Access database for analysis.

Results: A total of 126 patients with positive cultures for *Acinetobacter* were identified, with 55 patients (7 from MHKY, 38 from MHSW, and 10 from TIRR MH) included in the final analysis. Overall, 7 patients (13%) were initially treated empirically with susceptible antibiotics. Once culture susceptibilities were available, 30 patients (54.5%) were switched to a susceptible antibiotic if necessary within the first 3 days. Six patients (10.9%) were switched more than 3 days later, while 17 patients (31.9%) were never treated with susceptible antibiotics throughout their admission. Further analysis is currently pending.

Conclusion: Pending.

Disclosure: The authors of this study have nothing to disclose.

R - 43

Assessment of Treatment Patterns and Patient Outcomes Pre- Versus Post-Implementation of a Severity-Based Clostridium difficile Infection (CDI) Treatment Policy

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Not previously presented

Background: National guidelines recommend oral vancomycin for severe CDI based on results from recent clinical trials demonstrating improved clinical outcomes. However, real-world data to support these clinical trials are scant.

Objectives: To compare treatment patterns and patient outcomes of those treated for CDI before and after implementation of a severity-based CDI treatment policy at a tertiary, teaching hospital.

Methods: This retrospective, observational study included adult patients with a positive *Clostridium difficile* toxin before and after implementation of a policy where patients with severe CDI given metronidazole were switched to oral vancomycin unless contraindicated. Patients were stratified according to disease severity using a modified published severity score. Treatment patterns based on CDI severity, refractory CDI, and inpatient mortality were assessed.

Results: A total of 256 patients aged 66 ± 17 (mean \pm SD) years (52% female) with CDI were evaluated (pre-implementation: n=144; post-implementation: n=112). Use of oral vancomycin for severe CDI increased significantly from 14% pre-policy (n=8) to 91% post-policy (n=48) implementation ($p < 0.0001$). Refractory disease in patients with severe CDI significantly decreased pre-policy (37%) to post-policy (15%) implementation ($p = 0.035$). In-patient mortality in patients with severe CDI significantly decreased from the pre-implementation (15%) to the

post-implementation (3%) period ($p=0.0008$). No significant differences were noted among patients with mild/moderate CDI.

Conclusions: A severity-based CDI treatment policy at a tertiary, teaching hospital increased the use of oral vancomycin and was associated with improved patient outcomes.

Disclosures: CGM Jardin, F Le, ND Beyda, and HR Palmer – nothing to disclose, KW Garey – research support from Salix Pharmaceuticals and Merck, Inc.

R - 44

Pilot study of the \$4 pharmacy program at a community retail setting

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Student

Previously Presented at American Pharmacists Association, Seattle WA March 25, 2011

Objectives: This pilot survey was conducted to determine the demographics and purchase patterns of patients utilizing the \$4 program at a community retail pharmacy setting.

Methods: Pharmacy patrons were given a self administered 21 question questionnaire as part of a performance improvement program for the pharmacy. Data on demographics, drugs purchased, and amount spend, were collected and analyzed.

Results: A total of 60 pharmacy customers were approached, and 54 (90%) consented to take the survey. Sixty-one percent of the participants was between the age of 41 to 62, with 52% of them female. Fifty percent (27/54) of the participants were participating in the \$4 program, of which 23 patients had some sort of health insurance. In term of utilization, 85% of those patients were buying between 1-3 medications, through the program. The most commonly bought medication category from the generics program was heart health/blood pressure medicine at 31%, followed by cholesterol lowering medications at 13%. A majority of the patients (81%) heard of the program initially through their pharmacist (74%) or physician (7%), respectively. All participants spent less than \$50 on their \$4 program prescriptions on a monthly basis.

Conclusion: This pilot study illustrated that a majority of the patients were aware of the program. However, the program is only utilized by 50% of the study participants, with the majority having some insurance coverage already. It appears that the \$4dollar program is assisting the underinsured population, rather than the uninsured population. Further research is needed to validate these findings.

Disclosures: C. Green is a Masters Degree Student at UT School of Public Health. She submits this abstract as results from a pilot study of prescription assistance program usage in retail pharmacies which was used as part of a practicum experience. LS Lal will be presenting this poster at the American Pharmacists Association conference March 25, 2011 however no new information will be updated on the poster. C. Green, LS Lal and P. Rosenau have nothing to disclose.

R - 45

Evaluation of timing and obstacles of initiating enteral feeds in critically ill patients

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Resident Poster

Poster Category: Nutrition

Poster not previously presented

Background: It is recommended by the American Society of Parenteral and Enteral Nutrition to begin enteral nutrition (EN) within 24-48 hours in eligible patients following intensive care unit (ICU) admission. Research has shown starting feeding early is associated with decreased release of inflammatory mediators and gut permeability, which translates clinically in decreased infection, mortality, and hospital length of stay (LOS). However, fewer than 50% of eligible patients receive EN within this recommended time period.

Objectives: To evaluate the timing and obstacles of initiating EN within 24-48 hours of admission to the ICU and if initiation of early EN impacts infection, hospital length of stay, and mortality.

Methods: This was a retrospective cohort study of all hospitalized ICU patients at St. Luke's Episcopal Hospital (SLEH) during a one month period. Patients were assessed for: timing and contraindications for initiating EN, infection, LOS, and adverse events.

Results: This study identified 125 patients who remained in the ICU for >48 hours, of which 29(23%) received EN, 5(4%) received total parenteral nutrition, and 88 (70%) received oral diets. Twenty (69%) patients received EN within 48 hours of admission to the ICU. Nutrition was delayed in 18 (15%) patients, primarily due to hemodynamic instability. The most common adverse event leading to discontinuation of EN was risk for aspiration.

Conclusions: The majority of patients at SLEH appropriately received EN within 48 hours of admission to the ICU. Reduced rates of infection, hospital LOS and mortality were unable to be assessed due to the small study population.

Disclosures: None

R - 46

Retrospective Analysis Evaluating Dyslipidemia Management of High-Risk Patients in a Managed Care Organization
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Not previously presented

Background: Between January 2006 and June 2009, over 17,000 adult Scott & White Health Plan (SWHP) patients were identified as having an initial abnormal lipid panel. Few patients (16%) filled a prescription for a lipid-lowering agent. Given that pharmacologic therapy is recommended in high-risk patients, further information would be beneficial in identifying areas for improvement.

Objectives: Primary objectives are to identify high-risk, continuously enrolled SWHP patients with persistent abnormal lipid panels, describe pharmacologic management for these patients, and analyze prescribing patterns and incidence of CHD events.

Methods: Retrospective analysis of pharmacy claims and medical records for subjects, 18-64 years, with an initial abnormal panel and SWHP continuous enrollment for at least twelve months during the study period. Adherence will be calculated using the medication possession ratio. Charts of treated and untreated patients who have not achieved treatment goals by three month follow-up will be evaluated.

Results: Preliminary results: Only 6,600 (38%) patients were identified as high-risk with the presence of CHD or risk equivalents. Surprisingly, few patients (14%) filled a prescription for a lipid-lowering agent. For initial therapy, the majority of patients received monotherapy (90%) which generally was a statin. Furthermore, only 26% of patients (27% treated and 73% untreated) had a three month follow-up lab panel drawn. Less than half of the treated (34%) and untreated patients (45%) had an increase in their lipid panel values or did not meet their primary goal of therapy.

Conclusion: The study is ongoing and conclusions will be determined after complete data assessment.

Disclosure: C Molina has nothing to disclose. BA Browne has nothing to disclose. MI Edwards has nothing to disclose. P Murray has nothing to disclose. K Prasla has nothing to disclose. JJ Rohack has nothing to disclose.

R - 47

Utilization Review of Erythropoiesis-Stimulating Agents (ESAs) in a Hospital Setting: Evaluating Appropriateness and Prescribing Patterns

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American Society of Health System Pharmacists (ASHP) Mid-Year Clinical Meeting, Anaheim, California. Dec 2010

Background: Erythropoiesis-stimulating agents (ESAs) are synthetic derivatives of recombinant human erythropoietin products similar to endogenous erythropoietin that facilitate proliferation and maturation of red blood cells. According to various studies and the prescribing package inserts, ESAs are associated with increased tumor progression in cancer patients as well as increased mortality secondary to cardiovascular and thromboembolic events. Because of these findings, the ESA package inserts were updated with black box warnings to reflect safety issues with higher target hemoglobin levels and the potential for thromboembolic events and cancer recurrences.

Objectives: The primary objective is to ascertain the appropriateness of ESA prescribing and use in accordance to FDA recommendations set forth in the package insert with regard to dosing, initiation, indication, hemoglobin outcomes, and monitoring.

Methods: This study is a retrospective observational cohort study of patients greater than 18 years of age who have received ESA therapy while hospitalized during the study period from August 1, 2008 to October 1, 2010. Data will be collected from electronic medical records using a customized data collection tool. Data collected will include baseline demographic data, laboratory values (hemoglobin and iron studies), history of thromboembolic events, indication for use, prescribing physician subspecialty, dosing, number of transfusions, hemoglobin at time of ESA administration, and percent increase in hemoglobin levels. Descriptive statistics will be used to characterize ESA use according to the FDA approved labeling.

Results: Pending

Conclusion: Pending

Disclosure: I Reveles has nothing to disclose. JD Herrington has nothing to disclose.

R - 48

Prealbumin as a Marker for Nitrogen Balance in Surgical Oncology Patients

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Poster Category: Resident

Poster not previously presented

Background

Serum prealbumin has long been used as a marker of nutritional status. However, prealbumin is a negative acute phase reactant influenced by a number of non-nutritional-related factors including surgery, infection and cancer. An increasing prealbumin has been correlated with a positive nitrogen balance in general surgery patients

receiving parenteral nutrition (PN) with 88% specificity and 70% sensitivity. To date, no trial has evaluated the effect of concurrent cancer and surgery on the value of prealbumin in predicting nitrogen balance.

Objective

The goal of this study is to evaluate the role of prealbumin in predicting a positive nitrogen balance in an adult surgical oncology population.

Methods

This study is a concurrent retrospective design of post-operative patients (≥ 19 years of age) identified by the nutrition support service who have received PN for ≥ 5 days, have a baseline and follow-up prealbumin measured, and a 24-hour urinary urea nitrogen (performed between days 5-10 of PN). Exclusion criteria include anuric renal failure, Child-Pugh Class C liver failure, pregnancy, and corticosteroid use. Prealbumin will be correlated to nitrogen balance, measuring sensitivity, specificity and negative and positive predictive values. Information will be collected regarding patient demographics, vital signs, measured energy expenditure via indirect calorimetry, and presence or absence of metastatic cancer.

Results

Research in progress.

Conclusion

Research in progress.

Disclosure

Jacob Hall: Nothing to disclose

Sharla Tajchman: Nothing to disclose

Paul Mansfield: Nothing to disclose

Todd Canada: Nothing to disclose

R - 49

Retrospective Analysis of Utilization of Daptomycin

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Resident/fellow/post-graduate

Not previously presented

Background: Daptomycin is approved by the FDA for the treatment of complicated skin and skin structure infections and *S. aureus* bacteremia. Daptomycin's antimicrobial spectrum, lack of serum drug concentration monitoring, and once daily dosing makes it an ideal antibiotic for inpatient and outpatient use, but unfortunately predisposes the antibiotic to overuse and possible microbial resistance.

Objectives: To evaluate daptomycin utilization at Parkland Health & Hospital System after formulary addition in December 2009.

Methods: A retrospective chart review was performed one year pre and post formulary addition. Hospitalized and ambulatory patients who received one dose of daptomycin were included. Twenty-five patients from each year were randomly selected. Data collection included: demographics, daptomycin dose and indication, cultures/sensitivities, infectious diseases (ID) approval, prior vancomycin use, creatinine, creatine phosphokinase, duration of therapy and concurrent statin use. SAS (ver 9.2) was used for analysis.

Results: Nineteen charts have been reviewed to date. The most common indication for daptomycin in 2009 was bacteremia, compared with bacteremia and osteomyelitis in 2010 (50% vs 33.3% and

33.3%). ID consults were less frequent in 2009 when daptomycin was used than in 2010 (70% vs 88.9%). Daptomycin was approved by ID 100% of the time both years. More patients received vancomycin in 2009 prior to daptomycin than in 2010 (90% vs. 66.7%).

Conclusions: More services are consulting ID when using daptomycin after formulary addition. The indications for daptomycin have shifted to include more osteomyelitis patients. Based on these preliminary results it appears daptomycin is being used appropriately.

Disclosures: JN McNulty, KS Alvarez, CL Zoellner, and T Cooper have nothing to disclose.

R - 50

Safety of postnatal systemic hydrocortisone in prevention of chronic lung disease

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Category: Resident

Background:

Chronic lung disease (CLD) is a common cause of death in premature babies. Historically, dexamethasone has been used early in life to prevent CLD, but evidence suggests that the risks may outweigh the benefits. Risks of dexamethasone include growth inhibition, hyperglycemia, and gastrointestinal perforation. Hydrocortisone has a lower incidence of side effects, but little evidence supports its use in CLD. Currently, hydrocortisone is used with caution in more severe cases in the neonatal intensive care unit at Santa Rosa.

Objective:

The purpose of this study is to assess safety of hydrocortisone use in neonatal patients at risk for CLD.

Methods:

Both groups included fifty babies born at <29 weeks gestational age. The steroid group included patients who received hydrocortisone in the first 14 days of life and no other systemic corticosteroids in the first 30 days of life. The control group included babies who did not receive systemic corticosteroids in the first 30 days of life.

Results:

At discharge, patients tended to be older in the steroid group versus control (146 days vs 84 days). Growth-rate was also higher in the steroid group (2.73% increase per day vs 2.14%). The steroid group had a higher incidence of CLD (44% vs 36%) and a higher incidence of insulin use (46% vs 10%).

Conclusions:

Hydrocortisone does not significantly inhibit growth but is correlated with increased use of insulin. Although benefit was not demonstrated in this study, results may have been skewed by the differences in patient populations.

Disclosures: none

R - 51

Outpatient Utilization of Oral Voriconazole at a Large County Hospital

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Resident/Fellow-Post Graduate

Background

Parkland Health and Hospital system (PHHS) is a county hospital organization that provides quality care to under-privileged residents of Dallas County. In order to continue to provide quality care, it is imperative that the use of high cost medications be evaluated for appropriateness in therapy. Voriconazole tablets were ranked as one of the top 50 ambulatory medication expenditures at PHHS for fiscal year 2010, totaling \$178,448. Voriconazole is a second-generation, broad-spectrum, triazole antifungal agent currently approved for the treatment of invasive aspergillosis, scedosporiosis, fusariosis, candidemia in non-neutropenic patients, and esophageal candidiasis. Voriconazole is usually well-tolerated; however, drug interactions and cost of therapy often limit its use. At PHHS, voriconazole is restricted to Infectious Diseases to help ensure proper utilization of this drug. In addition, PHHS participates in a pharmaceutical patient assistance program for voriconazole which facilitates cost effective care for indigent patients.

Objectives

To determine if outpatient prescribing of oral voriconazole meets the current PHHS formulary restriction and opportunities to obtain voriconazole from the pharmaceutical patient assistance program were maximized.

Methods

Twenty two patients filled an outpatient prescription for oral voriconazole from June 1, 2010 to December 31, 2010. Computerized medical records were reviewed to determine appropriateness of use based on formulary restrictions. Data collection included prescribing physician, Infectious Diseases approval, indication, culture and sensitivities, dosing, laboratory monitoring including therapeutic drug monitoring, other antifungal therapies utilized, drug interactions and patient funding status.

Results/Conclusions

Data analysis currently in progress.

Disclosures

All authors of this poster have nothing to disclose

R - 0

State of Stewardship, Stewardship in Acute Care Hospitals
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Resident/Fellow-Post graduate Poster

Background: Since the 2007 release of Antimicrobial Stewardship (ASP) guidelines, interest in stewardship has continued to grow. In the literature, there are accounts of stewardship success in academic medical centers, but data is lacking in regards to community hospitals.

Objective: The purpose of this study was to administer a survey to pharmacists involved in ASP in order to better understand ASP at acute care hospitals and identify factors that may predict why certain hospitals are able to successfully initiate ASP.

Methods: This nationwide survey of pharmacists in the United States was conducted in February 2011 via email to targeted infectious disease (ID) audiences through the American College of Clinical Pharmacy (ACCP) ID-PRN and Society of Infectious Diseases (SIDP) listserv as well as Cardinal Health Pharmacy Solutions affiliated hospitals. Data collected included: stewardship personnel, practice site, presence and elements of stewardship programs, and impediments to stewardship. The survey also collected data on types of outcome measures used and antibiotics targeted. Programs will be categorized and stratified based on their level of implementation of the guidelines and success. Variables that predict hospitals with successful stewardship will be calculated based on survey responses using univariate and multivariate regression analysis.

Results: Data is currently being collected, and results will be presented.

Conclusions: The results of this survey will hopefully fill a gap in knowledge about challenges and success of stewardship in community hospitals and how community hospitals compare to academic medical centers.

Disclosures: Nothing to disclose.

R - 53

Evaluation of a methadone weaning protocol in pediatric critical care patients.

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Resident Category

Not previously presented.

Background: Patients in the critical care units are often administered opioids for sedation or to reduce anxiety and pain. Patients on long-term opioid therapy may develop physical dependence to opioids and must be weaned to prevent opioid withdrawal. Opioid weaning protocols often use methadone due to its long half-life and good oral bioavailability. Methadone opioid weaning protocol use was encouraged at CHRISTUS Santa Rosa Children's Hospital beginning in August in response to a possible methadone overdose with a non-protocol methadone weaning order. The methadone weaning protocol has not been retrospectively evaluated by the pharmacy, thus the effectiveness is unknown.

Objective: To evaluate the effectiveness of a methadone weaning protocol at CHRISTUS Santa Rosa Children's Hospital.

Methods: This retrospective review took place at CHRISTUS Santa Rosa Children's Hospital, a pediatric teaching institution located in downtown San Antonio Texas. The participants were identified by using a Meditech search for methadone usage during August 1, 2010 to December 31, 2010, limiting results to patients on the pediatric intensive care unit (PICU) surgical and medical floors. The individual orders were evaluated with Pyxis Connect for a methadone weaning protocol. If the patient's methadone was part of the weaning protocol, they were included in the data. Meditech was then used to evaluate medication usage during the time period, and data collected regarding the use of any rescue doses indicating over or under dosing of methadone.

Results/Conclusions: Results and conclusions pending.

Disclosures: None.

R - 54

Impact of Pharmacist-Managed Warfarin Consult Service on Acute and Outpatient Outcomes

Compared to the Standard Care

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ASHP Midyear, Anaheim, California, December 10, 2010

Background: Warfarin is a commonly prescribed medication for the prevention and treatment of thromboembolic events. The FDA's Adverse Event Reporting System indicates that warfarin ranks higher than most drugs in the number of serious adverse events (SAEs). Opportunities exist for pharmacists to optimize International Normalized Ratio (INR) control and decrease anticoagulation SAEs.

Objective(s): The primary objective is to compare the percentage of supratherapeutic INRs during hospital stay with a pharmacist-managed inpatient warfarin consult service versus the standard of care. Secondary objectives

include INRs within therapeutic range at first follow-up appointment and number of anticoagulation SAEs within 30-days post-discharge.

Method(s): A retrospective chart review was conducted at Ben Taub and Lyndon Baines Johnson General Hospitals. Hospitalized patients ≥ 18 years old who received warfarin and had at least one INR were included. Pregnant women, patients lost to follow-up, and patients with supratherapeutic INR at the time of consult were excluded. The data was analyzed utilizing chi-square test.

Result(s): The percentage of supratherapeutic INRs during hospital stay for pharmacist-managed versus standard of care was 12% and 17% respectively ($p=0.315$). The percentage of INRs within therapeutic range at first appointment visit was 33.8% and 32.8% respectively ($p=0.900$). Anticoagulation SAEs within 30-days post-discharge were seen in both groups.

Conclusion(s): The difference in outcomes between the percentages of supratherapeutic INRs during hospital stay of pharmacist-managed warfarin consult service compared to the standard of care failed to reach a statistical significance. Further studies are warranted to display the utility of the consult service.

Disclosure(s): KA Aquino, SC Ruppelt, OO Eshleman, and TM Harrell have nothing to disclose.

R - 55

Therapeutic duplication errors in geriatric patients upon readmission to a tertiary medical center

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Resident Category

Not previously presented

Background: Adverse drug events (ADE) are the most common adverse events for hospitalized patients. Medication reconciliation can assist in reducing ADE, including duplication errors. Geriatric patients have complex pharmacotherapy regimens and are at high risk for medication errors.

Objectives: This study's objective is to evaluate duplications in therapy for geriatric patients who are admitted and readmitted to St. Luke's Episcopal Hospital.

Methods: This retrospective analysis reviewed geriatric patients admitted, discharged, and readmitted from home within 30 days from January to June 2010. Medication histories and discharge summaries from initial admission and readmission were evaluated for changes in therapy, including duplications. Duplications were defined as two drugs in the same Lexi-Comp[®] pharmacologic category that did not have a clear therapeutic indication for duplication.

Results: Of 75 patients analyzed, 19% had duplications on their initial medication history, 12% on their discharge medication list, and 12% on their readmission medication history. Patients with duplications on their initial or readmission medication history were more likely to be admitted and readmitted to the ICU. Duplications in therapy were associated with an increased mean ICU length of stay (LOS) from 4.5 to 13.7 days and increased mean overall LOS from 8.8 to 11.9 days. Upon readmission, 44% of patients had restarted home medications that were previously discontinued. Restarting medications was associated with a longer mean ICU LOS and overall LOS.

Conclusions: Geriatric patients are at risk for duplications in therapy, which are associated with a longer ICU LOS and overall LOS. Pharmacists should be active in medication reconciliation and prevention of therapeutic duplications.

Disclosures: LR Biehle has nothing to disclose. KS Putney and CP Frost reside on the TSHP R&E Foundation Poster Review Committee.

R - 56

Evaluation of Impact of Pharmacists' Clinical Interventions on Treating Severe *Clostridium difficile* Infection in Hospitalized Adult Patients

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Not previously presented

Background: *Clostridium difficile* infection (CDI) is the most commonly diagnosed cause of infectious disease in hospitalized patients and may present with major complications such as septic shock and death. Until recently antibiotic selection for treating severe disease was controversial due to the concern for developing vancomycin-resistant enterococcus (VRE). In May 2010, updated clinical practice guidelines from SHEA/IDSA were released that recommended oral vancomycin over metronidazole for severe disease.

Objective: To evaluate the impact of pharmacists' interventions using the updated guidelines to treat severe CDI in an acute tertiary care hospital in San Antonio from Oct 2010—Feb 2011.

Methods: A standard order set was created to assist in classifying severity of illness based on the Zar score and guide treatment choices. All adult hospitalized patients ≥ 18 years of age diagnosed with CDI were evaluated concurrently. Clinical information used to calculate the Zar scores and antibiotic therapy were collected from the hospital electronic databases.

Results: A total of 129 CDI positive patients were evaluated, and 53% of the patients (N=69) were classified as having severe disease. For severe CDI, 30% (21/69) received oral vancomycin initially. After pharmacists' interventions, 70% (48/69) were treated with either oral vancomycin or combination therapy of vancomycin and metronidazole. Those patient who received vancomycin as their final treatment had an overall mortality rate of 3.1% (2/65), compared to those treated with metronidazole had an overall mortality of 4.7% (3/64).

Conclusion: Pharmacists' interventions resulted in improved management of severe CDI consistent with the new SHEA/IDSA guidelines.

Disclosure: The authors have nothing to disclose.

R - 57

Outcomes associated with a pilot involving aspects of a patient-centered pharmacy practice model

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Not previously presented

Background: In order to improve pharmacy services provided at St. Luke's Episcopal Hospital (SLEH), a patient-centered pharmacy practice model was proposed to optimize pharmacist involvement throughout the medication use process as direct patient care providers.

Objective: To compare outcomes associated with the current practice model to outcomes of a pilot with two different pharmacist-provided services.

Methods: This is a retrospective analysis of a two-arm, A and B, pharmacist pilot conducted for 10 days in January 2011 from 7AM to 11PM Monday - Friday. Arm A incorporated a 100% order verification process by pharmacists to provide additional time for completion of clinical activities. Arm B incorporated pharmacist order entry and clinical

activities. Each arm had decreased pharmacist-to-patient ratio as compared to the current practice model. Quantitative measures included: total composite positive endpoints, % discharge counseling, % medication reconciliation, orders entered per hour, and documented interventions. Qualitative measures included satisfaction surveys and verbal feedback provided by leadership.

Results: Piloted floors experienced a three-fold difference in documented interventions with a total cost savings of \$97,000(Arm A) and \$41,000(Arm B) as compared to pre-pilot floors, \$1,300 and \$11,000, respectively. Discharge counseling was performed on 37%(Arm A) and 72%(Arm B) of patients on pilot floors as compared to the pre-pilot floors which were 0%. Medication reconciliation was 100% compliant in Arms A and B as compared to 90% pre-pilot.

Conclusions: Results from the pilot were positive and will be used in the development of future steps needed for full implementation and creation of a new pharmacy practice model.

Disclosure(s): LA Haines, KS Putney, DA Varkey, PR Pitman and KW Garey have nothing to disclose.

R - 58

An Evaluation of Pediatric Antibiotic Dosing Errors in the Community Setting

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Resident Category

Not previously presented

Background: The pediatric patient population is at increased risk for medication errors due to a complex medication use process. Both inpatient and outpatient pediatric studies identify medication dosing errors as a primary cause of adverse events. Antibiotics account for the majority of medications prescribed in children and are frequently encountered in pediatric error reports. Inappropriate antibiotic use negatively affects both patient outcomes and health system costs.

Objectives: To assess the dose appropriateness of pediatric antibiotic prescriptions dispensed in a community setting based on indication, weight, and age and to determine the occurrence and type of antibiotic dosing errors.

Methods: This retrospective analysis is an initial study used to assess the need for a pediatric antibiotic dosing tool and intervention guide for health plan pharmacists practicing in a community setting. 500 antibiotic prescriptions dispensed to pediatric patients between August 1, 2009-July 31st, 2010 will be identified using prescription claims. Prescribed doses will be calculated and assessed using patient weight, age, and antibiotic indication obtained from the electronic medical record. Dosing errors will be defined as below or above the recommended daily dose, total milligrams per day exceeding adult dose maximums, and antibiotics prescribed for viral upper respiratory infections.

Results: Pending

Conclusion: The study is ongoing and conclusions will be determined after complete data assessment. These results will identify trends within SWHP to assess the need for a clinical intervention tool as well as design future investigations.

Disclosures: LM Usinger has nothing to disclose. G Gowan has nothing to disclose. TA Tabor has nothing to disclose.

R - 59

IMPACT OF PRESCRIBER EDUCATION ON THE USE OF HIGH-RISK IN THE ELDERLY

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Not Previously presented

Background: Certain drugs have been identified which pose an increased risk of harm in older adults. The use of these high-risk medications in the elderly is monitored as part of the annual Healthcare Effectiveness Data and Information Set (HEDIS) measures.

Objectives: Decrease use of medications determined by HEDIS to be high-risk in elderly through provider education tools.

Methods: Prescribers of HEDIS defined high-risk medications in Medicare Part D members aged 65 years and older will be identified from prescription drug claims. Physicians targeted will receive an interventional educational piece published by the Texas Medical Foundation (TMF) via mail that lists drug classes and examples of specific drugs which may be inappropriate for use in the elderly. All physicians will also receive a copy of the educational material from TMF as a supplement in therapeutic interchange packets. A three, six, and twelve month analysis will be measured post-intervention. The impact of the provider education tool on prescribing habits will be assessed by statistically comparing the post intervention high-risk drug claim rates to the baseline rate in 2009.

Results: Preliminary analyses indicate percentage of members with at least one high risk medication was 14.86% , 20.42% , and 28.61% for three month, six month, and twelve post-intervention, respectively. The percentage of members with at least two high risk medications three month, six month, and twelve month post educational mailing was 2.41% , 3.80% , and 7.26% respectively.

Conclusion: The study is ongoing and further conclusions will be determined after complete data assessment.

Disclosures: The authors have nothing to disclose.

R - 60

The Effects of Intravenous Ascorbic Acid on Vasopressor Requirements in Critically Ill Patients with Septic Shock
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Resident Poster Category
Not previously presented

Background: Ascorbic acid has multiple physiologic functions, which include restoration of endothelial lining, free radical scavenging, decreasing histamine-mediated capillary leakage, and cofactor activity during endogenous catecholamine synthesis. Exogenously administered ascorbic acid could potentially benefit patients with septic shock by decreasing vasopressor requirements via these mechanisms. Possible safety concerns associated with ascorbic acid administration include nephrolithiasis and acute kidney injury via the development of calcium oxalate crystalluria.

Objectives: Primary: To evaluate whether supplementation with intravenous ascorbic acid is associated with decreased vasopressor requirements in critically ill patients with septic shock. Secondary: To determine whether intravenous ascorbic acid is associated with an increased incidence of acute kidney injury.

Methods: A retrospective chart review will be conducted in patients ≥ 19 years old with a diagnosis of septic shock admitted to the ICU at UT MD Anderson Cancer Center from September 1, 2007 to September 30, 2010. Patients will be excluded if they are pregnant or have withdrawal of care within 24 hours of vasopressor initiation. Total time on intravenous continuous infusion vasopressor(s) will be compared between patients who received and patients who did not receive intravenous ascorbic acid. Other data points collected from the electronic medical

record will include patient demographics, baseline vital signs and laboratory data, concomitant medications, APACHE II score, primary site(s) of infection and causative organism(s), and survival to vasopressor discontinuation/ICU discharge.

Results/Conclusion: Data collection in progress. The study group consists of 71 patients prior to exclusion.

Disclosures: The authors of this study have nothing to disclose.

R - 61

Evaluation of Inhaled Epoprostenol in the Management of Pediatric Pulmonary Arterial Hypertension

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Resident/Fellow/Post-Graduate

Not previously presented

Background: Inhaled epoprostenol therapy for pulmonary arterial hypertension, while not FDA approved for pediatric patients, is utilized in an attempt to avoid systemic vasodilation and decreases in systemic blood pressure.

Objectives: The purpose of this study is to evaluate the clinical course and efficacy of treatment for inhaled epoprostenol in pediatric patients at The Children's Hospital at Scott & White.

Methods: This is a retrospective chart review of patients at The Children's Hospital at Scott & White receiving inhaled epoprostenol from January 1, 2009 to January 1, 2011. The medical records will be used to determine diagnosis, dosing, effect on oxygenation, transition to intravenous epoprostenol, and alternative therapies administered. Inclusion criteria are patients aged 18 years or younger treated with inhaled epoprostenol. Exclusion criteria are patients transferred to another facility preventing follow-up.

Results: Seven patients were identified using charge codes for epoprostenol and diluent. Two patients were excluded due to transfer and two were eliminated for not receiving epoprostenol. Three patients' charts were reviewed for diagnosis, dosing, effect on oxygenation, transition to intravenous epoprostenol, and alternative therapies. Diagnoses included persistent pulmonary hypertension of the newborn, severe pulmonary hypertension, and acute respiratory failure. Dosing was variable and improvement in oxygenation was demonstrated; however, adjustments in concurrent therapies complicate the clinical picture. One patient received intravenous epoprostenol prior to inhalation therapy.

Conclusion: The information obtained in this review is being used to guide the development of an institutional treatment protocol including dosing recommendations, monitoring parameters, and a pre-printed order set.

Disclosure: ML Miller has nothing to disclose. CC Wright has nothing to disclose. AI Chavez has nothing to disclose.

R - 62

Examination of Antifungal Exposure and Persistent Candidemia Isolate Susceptibility

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Not previously presented

Background: The incidence of persistent candidemia (PC) has been reported to be upwards of 35%. Little is known about the significance of PC, and available literature evaluating PC is plagued by small sample sizes and

inconsistent definitions of PC. Since many of these studies included patients hospitalized before 2000, the impact of voriconazole and the echinocandins on the incidence and susceptibility of PC isolates is not represented in this data.

Objectives: The objective of this study is to compare the susceptibility profile of initial and PC isolates, as well the impact of antifungal treatment exposure on PC isolate susceptibility.

Methods: This is a retrospective chart review of hospitalized patients with candidemia admitted to St. Luke's Episcopal Hospital between January 1, 2006 and May 1, 2010. Microbiology and pharmacy databases will be used to collect information regarding species identification and susceptibility results, pertinent past medical history, clinical data, and antifungal utilization data.

Preliminary results: Twenty patients with PC have been reviewed. Overall, 50% of PC isolates had higher MICs to caspofungin compared to initial isolates (MIC₅₀ increased from 0.12 ug/mL to 0.5 ug/mL; MIC₉₀ increased 2 ug/mL to 8 ug/mL); 80% of these patients had been receiving treatment with an echinocandin. Thirty percent of PC isolates had higher MICs to fluconazole compared to initial isolates (MIC₅₀ increased from 2 ug/mL to 8 ug/mL; MIC₉₀ no change); 50% of these patients had been receiving treatment with fluconazole.

Conclusions: Preliminary findings suggest that PC isolates have higher echinocandin and fluconazole MICs compared to initial isolates.

Disclosures: ND Beyda has nothing to disclose. KW Garey has previously received funding from Merck and Co. HR Palmer has nothing to disclose.

R - 63

Evaluation of Blood Transfusion Requirements and Perioperative Tranexamic Acid Usage in Unilateral Total Knee Arthroplasty

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Resident/ Fellow-Post Graduate

Not previously presented

Background: Major orthopedic procedures are associated with excessive bleeding due to extensive incisions through bone structures and the activation of the fibrinolytic cascade. This blood loss results in post-operative anemia which can increase patient hospital stay and delay rehabilitation. Tranexamic acid (TXA) is an antifibrinolytic that acts by reversibly blocking the lysine binding sites on the plasminogen molecule and has proven to be beneficial in the reduction of blood loss in cardiac and other invasive procedures. Several studies have reported that administration of tranexamic acid in patients undergoing total knee arthroplasty (TKA) or total hip arthroplasty (THA) resulted in a reduction of post-operative blood loss. However, there is limited data on the effect of TXA on the overall blood transfusion requirements of these patients.

Objective: To determine whether the use of perioperative tranexamic acid can reduce the need for packed red blood cell (PRBC) transfusion in patients undergoing unilateral total knee replacement surgery.

Methods: This study was a retrospective chart review of patients who were undergoing unilateral total knee arthroplasty (TKA) between July 2009 and February 2010. Patients were excluded if preoperative and postoperative blood levels were not collected, if the patient had a known history of a venous thromboembolic event, or had a known coagulopathy (APTT or PT outside normal range) pre-operatively. Data collected included demographic data, baseline characteristics, preoperative and postoperative hemoglobin levels, length of stay, and transfusions requirements.

Results: Data collection is in progress

Disclosure: Nothing to disclose at this time

R - 64

Monitoring of Enoxaparin in Renal Insufficiency and End Stage Renal Disease (ESRD)

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Resident/Fellow/Post Graduate

Previously presented: 45th ASHP Midyear-Dec 8, 2010; Anaheim CA (New information being presented)

Background: Dosing adjustments of enoxaparin are recommended in patients with renal insufficiency, defined by a creatinine clearance (CrCl) less than 30 mL/min. The FDA recommends a dosing adjustment from 1 mg/kg every 12 hours to 1 mg/kg every 24 hours; however, there is little evidence to prove the sustained efficacy and decreased bleeding risk in these patients. Also, there are currently no recommendations on the dosing adjustment in patients with end-stage renal disease (ESRD) on dialysis. Studies assessing the monitoring parameter antifactor-Xa in patients with renal insufficiency and ESRD have shown varied results.

Objective: The objective of this study is to characterize the elimination pharmacokinetic properties of enoxaparin in patients with renal insufficiency and ESRD by evaluating antifactor-Xa levels.

Methods: This prospective, observational, descriptive study will evaluate antifactor-Xa levels in patients receiving therapeutic anticoagulation with enoxaparin 1 mg/kg every 24 hours with a CrCl less than 30 mL/min or receiving dialysis. Data will be evaluated to assess peak antifactor-Xa levels and the percentage of patients with therapeutic, sub-therapeutic, and supra-therapeutic levels. Data analysis will also be reviewed for a correlation between antifactor-Xa levels and creatinine clearance, age, dialysis, and rate of bleeding events.

Results and Conclusion: Data analysis currently in progress.

Disclosure: The authors of this study have nothing to disclose.

R - 65

Evaluation of bivalirudin hyper- and hypo-ACT responses in the setting of percutaneous coronary intervention

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Not previously presented

Background – Bivalirudin has emerged as a suitable alternative anticoagulant to unfractionated heparin and low molecular weight heparins to support percutaneous coronary interventions (PCI) in the management of coronary artery disease and acute coronary syndromes (ACS). In clinical trials bivalirudin dosing was standardized, and activated clotting time (ACT) did not influence dosing adjustments. The role of ACT monitoring of bivalirudin in PCI is not defined based on current practice guidelines.

Objective – The objective of this study was to evaluate clinical outcomes associated with bivalirudin hyper- and hypo-ACT responses in PCI.

Methods – The planned protocol screened all patients who received bivalirudin therapy and ACT monitoring during PCI in the cardiac catheterization laboratory from July 2009 to June 2010. The first ACT monitored 5 to 60 minutes after bivalirudin initiation was screened for inclusion. Values above 800 seconds and below 300 seconds were

included as hyper- and hypo-ACT responses respectively. Outcomes assessed include thrombotic and bleeding complications.

Results – There were 32 patients identified as hyper-responders and 20 patients identified as hypo-responders. There were no significant thrombotic or bleeding complications in the hyper-responder group. There was one (1/20, 5%) case of angiographically confirmed acute stent thrombosis immediately following the placement of five adjoining bare metal stents in the right coronary artery of a hypo-responder originally presenting with unstable angina.

Conclusions – Hyper-ACT responses to bivalirudin therapy in PCI were not associated with additional bleeding risk. Bivalirudin may not adequately protect hypo-ACT responders against thrombotic complications in PCI.

Disclosures – All authors have nothing to disclose.

R - 0

An Evaluation of Ambulatory Pain Control in Patients with Solid Tumor Malignancies

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Resident Category

Not previously presented

Background: Overall, poor control of pain in cancer patients can be attributed to lack of patient adherence, patient deficiencies in education, and clinicians under-characterizing the severity of pain. Pain is one of the most frequent symptoms of cancer. Clinicians must be proficient at qualifying, quantifying, and treating the pain symptoms. The most widely accepted treatment guidelines of cancer pain were developed by the World Health Organization (WHO). Randomized controlled trials have shown that implementing guidelines to assess pain and using evidence based decisions enhance pain outcomes.

Objective: To assess pain control, medication utilization, adherence to regimens, and frequency of hospital admissions for pain control in patients with solid tumor malignancies.

Method(s)/ Procedure(s): An electronic report of subjects older than 18 will be identified using the UMC database to identify those who have received pain management through the Southwest Cancer Treatment and Research Center UMC Health System. Inclusion criteria will include all subjects over the age of 18 followed by the Southwest Cancer Treatment and Research Center UMC Health System (UMC) between January 1, 2008 and December 31, 2010, diagnosed with the following solid tumors: lung, colorectal, head/neck, and breast.

Results(s): pending

Conclusion(s): pending

Disclosure(s): SM Villarreal has nothing to disclose. CF Seifert has nothing to disclose. E Cobos has nothing to disclose.

R - 67

The Impact of Antibiotic Choice and Patient Factors on Colorectal Surgical Infection Rate

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Not previously presented

Introduction:

Colorectal surgeries are complex and pose a high risk of post-operative infection when compared to other surgeries. A recent shift in standard preoperative antibiotics from a second generation cephalosporin (cefotetan) to a carbapenem (ertapenem) has occurred at Scott & White Memorial Hospital.

Objectives:

To retrospectively review the incidence of surgical site infections (SSIs) in elective colorectal surgery at Scott & White Memorial Hospital, and the impact of antibiotic choice and patient factors on clinical outcomes.

Methods:

This retrospective study evaluated Scott & White Memorial Hospital adult patients with elective colorectal surgeries from 2008-2010. SSIs were identified using the CDC definition and criteria. Patients were stratified based on type of surgery (open versus laparoscopic) and preoperative antibiotic used. Successful surgical prophylaxis was defined as no signs or symptoms of infection at the surgical site and no postoperative antibiotic use for abdominal infection within 4 weeks after surgery. Data collection will include demographics, indication and type of surgery, prophylactic antibiotics used, and incidence of SSIs. Patients who required emergent surgery, had spillage during surgery, received antibiotics before surgery, or had a bacterial infection at the time of surgery were excluded.

Results: Of the 312 patients evaluated, 128 patients were included in the study. Preliminary results show an overall infection rate of 20.3% (26/128). Patients who had open surgeries had a higher infection rate than laparoscopic surgeries (31.8% vs. 14.3%). Data collection is ongoing and further conclusions will be determined after complete data assessment.

Conclusion: Pending

Disclosure: S Rutherford has nothing to disclose, C Verheyden has nothing to disclose, J Drummond has nothing to disclose, S Dzierba is employed by Pfizer Inc as a Medical Outcomes Specialist, E Martin III has nothing to disclose, J Herrington has nothing to disclose, H Papaconstantinou has nothing to disclose

R - 68

Generic Dispensing Ratios and Mail-order Pharmacy Services for Health Plan Sponsors

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Resident

Background - There is no definitive assessment as to what potential cost differences exists between mail-order and community pharmacy services and how this translates into actual savings for plan sponsors. However, the cost-savings derived from mail-order services is questionable for plan sponsors. Due to the lack of research regarding use and payment patterns for medications between the two channels of distribution within a Pharmacy Benefits Manager (PBM), this study attempts to investigate the differences.

Objectives - To identify the top 20 highest expenditure therapeutic classes, determine differences between mail-order and community pharmacy by calculating the cost per day for plan sponsor and member for the top 20 maintenance therapeutic classes, and determine and compare the generic dispensing ratios (GDR) between the two channels for the top 20 maintenance therapeutic classes.

Methods - There were 13,989 health plan participants and 158,908 paid prescription claims via HCHD's third party administrator for fiscal year 2009. Descriptive analyses will identify the top 20 highest expenditure therapeutic classes. Pharmacy cost per day will be calculated for each drug in the top maintenance therapeutic classes for the member and sponsor and the cost per day differences will be compared between the two distribution channels. T-tests will be performed and an alpha level <0.05 will indicate statistical significance. Generic dispensing ratios

(GDR) will be compared between mail-order and community pharmacy for the top 20 maintenance therapeutic classes and chi-square analyses will be performed to determine any differences.

Results – N/A

Conclusion – N/A

Disclosure - SP Quadri, TM Nguyen, RK Roux have nothing to disclose

R - 69

Impact of computerized physician order entry on pharmacy productivity; a time in motion study

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Health System Pharmacy Administration Resident PGY2

Introduction

The rapid adoption of computer physician order entry (CPOE) by hospitals nationwide has forced pharmacy leadership to reexamine departmental workflow and utilization of labor at all stages of the medication use process. As order entry gives way to order verification, various assumptions of cost savings on pharmacy labor, medication turnaround time and CPOE's affect on the distributive and clinical function of pharmacists engaged in order processing have been put forth by hospital leadership and clinicians alike. Research within the healthcare literature point to unintended consequences associated with implementation of CPOE diffused throughout the healthcare system. This study attempts to measure the impact of CPOE on pharmacy productivity in a centralized pharmacy inpatient setting.

Methods

This study will be submitted Memorial Hermann's IRB prior to deployment. The study will be conducted at 2 of Memorial Hermann's inpatient pharmacy departments, at separate hospital facilities, both utilizing a centralized pharmacy practice model. The hospitals will be chosen based on like characteristics. A control hospital, void of physician order entry, will be compared to one with near full CPOE implementation. A time in motion study will be performed to measure the impact of CPOE on pharmacist assigned to the hospital's centralized order processing team. Observers will follow individual pharmacist recording time required to perform tasks pursuant to the order entry/verification process. The aggregate tasks will be consolidated into 4 major categories: distributive, clinical, administrative and non productivity. Comparative analysis will be done to detect any statistically significant differences.

R - 70

Evaluation of an Inpatient Psychiatric Hospital Physician Education Program and Adherence to American Diabetes Association Practice Recommendations

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Resident/Fellow/Post-Graduate

Not previously presented in current form

Background: Psychiatric patients with diabetes are traditionally an underserved, under-assessed, and undertreated population. Decreased quality of health care has resulted in increased mortality from natural causes including cardiovascular disease and diabetes in patients with psychiatric diagnoses.

Objectives: The objective of this project is to evaluate adherence to American Diabetes Association (ADA) practice recommendations for treatment and monitoring of diabetes at baseline and following a physician education program in an inpatient psychiatric hospital.

Method(s) or Procedure(s): The physician education program included a 30 minute PowerPoint presentation based on the ADA 2010 Standards of Care recommendations for assessment and treatment of diabetes, presented to Austin State Hospital (ASH) medical staff. Electronic grouped order sets for diabetic patients were created and implemented with laminated treatment reminders distributed to the medical staff. Patients meeting the inclusion criteria and admitted and discharged during the 90 days prior to and following the physician education program will be included in the study. The primary outcome is the percent change from baseline in the monitoring of hemoglobin A1cs on admission following the implementation of the physician education program.

Results: In progress

Conclusion: In progress

Disclosures: RL Koffarnus, LM Mican, DA Lopez, and S Ryu have nothing to disclose. J Barner sits on the IRB committee at The University of Texas at Austin.

R - 71

Susceptibility of *Candida* species in patients with candidemia

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Poster Category: Resident/Fellow-Post Graduate

Background

Candida species are the most common pathogen responsible for fungemia among inpatients. Reportedly 33%-55% of candidemia episodes occur in intensive care units with mortality rates up to 71%.

Objective

To examine causative species in candidemia and assess trends and patterns of *Candida* susceptibility to echinocandins and azoles.

Methods

This was a retrospective cohort study in candidemia patients Sep 2006- Jul 2009. Demographics, *Candida* species, and antifungal minimal inhibitory concentrations (MICs) were recorded. *Candida* infections were categorized as initial or repeat infection, and monthly MICs were calculated.

Results

A total of 428 cases of candidemia were identified, with an average of 12 ± 4.7 cases per month. The most common causes of initial candidemia were *C. albicans* (38%), *C. glabrata* (33%), and *C. parapsilosis* (14%). Of the 428 cases, 102 were repeat infections. The most common causes of repeat candidemia were *C. glabrata* (54%), *C. albicans* (24%), and *C. parapsilosis* (11%). Susceptibility of caspofungin (MIC₅₀ range 0.0625-0.5 mcg/ml) and fluconazole (MIC₅₀ range 0.625-64 mcg/ml) did not change significantly over time. However, in repeat infections, decreased susceptibility of *C. glabrata* to caspofungin (MIC₉₀ increased from 0.25 mcg/ml in initial infections to 8 mcg/ml in repeat infections) and *C. albicans* to fluconazole (MIC₉₀ increased from 1 mcg/ml in initial infections to 8 mcg/ml in repeat infections) were observed.

Conclusions

C. albicans was the most prevalent pathogen in initial candidemia, but *C. glabrata* was the predominant species in repeat infections. Decreased susceptibility to fluconazole and caspofungin was observed among *Candida* species in repeat bloodstream infections.

Disclosures

Kevin W. Garey - Merck

R - 97

Evaluating and Assessing the Use of Stress Ulcer Prophylaxis in the Adult Intensive Care Unit: Clinical Pharmacy-Driven Initiative.

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Background: The use of stress ulcer prophylaxis (SUP) in the Intensive Care Unit (ICU) is a common phenomenon. The American Society of Health System Pharmacist (ASHP) has guidelines to assist practitioners with appropriateness in the use of medications for SUP. Studies show a lack of adherence to these guidelines. Clinical pharmacist involvement may improve compliance with guidelines.

Objectives: To determine the use and appropriateness of SUP in the adult ICU based on ASHP guidelines without clinical pharmacist involvement, focusing on appropriateness/need in ICU and upon discharge from ICU/hospital, patient safety and outcomes.

Methods: Consecutive two months follow up and review of patients admitted to the ICU in a private hospital in San Antonio. Patients reviewed from SICU, MICU and CCU at least 20 years old. Follow up data not limited to at risk indicators, GI bleed, secondary risk indicators, ICU/SUP, ICU/hospital discharge on SUP.

Results: Follow up revealed inappropriate prophylaxis per guidelines (59.3% in one, 51.7% in the other). The rate of inappropriate SUP upon ICU discharge was 57.1% in one month and 77.1% in the other.

Conclusion: Collaboration of clinical pharmacists with a multidisciplinary team may improve the appropriate use of SUP throughout hospital stay.

Disclosure: None.

R - 98

Evaluation of Nephrotoxicity in Patients Receiving Vancomycin and Piperacillin/Tazobactam

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Robert Plemmons MD, Juhee Song, PhD, Mahesh Kotagi, PharmD Candidate

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Introduction: Nephrotoxicity is a well established adverse event resulting from administration of intravenous antibiotics. Previous studies indicate vancomycin and beta lactam antibiotics, such as piperacillin/tazobactam, cause interstitial nephritis. With combination therapy use of vancomycin and piperacillin/tazobactam an increase in nephrotoxicity has been observed. However, the incidence of nephrotoxicity with concomitant therapy has yet to be studied.

Rationale: This evaluation will investigate the nephrotoxicity incidence in patients who are on both vancomycin and piperacillin/tazobactam compared to the incidence of nephrotoxicity of each agent alone. It is hypothesized that a trend towards increased nephrotoxicity will be seen in the combination antibiotic arm.

Methods: The records of 300 patients over the age of 18 who have skin and soft tissue infections from January 1, 2000 till November 1, 2010 will be examined. Patients who were treated with vancomycin and/or piperacillin/tazobactam will be further reviewed for nephrotoxicity, an increase in the patients' serum creatinine by 0.5 mg/dl or 50% increase from baseline. A total sample size of 300 (100 in each group) achieves at least 99% power to detect an effect size of 0.275 (that corresponds to rates of 5%, 15%, and 30%) using 2 degrees of freedom Chi-Square Test with a significance level of 0.05.

Results: Preliminary results have been collected on 246 patients, as the study is ongoing.

Conclusion: This study is ongoing and further conclusions will be determined after data assessment is completed.

Disclosures: The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

R - 72

Recognition of Severe Sepsis and Adherence to the Surviving Sepsis Campaign Resuscitation Bundle

Recommendations for Patients in the ED

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Resident

Not previously presented

Background: Severe sepsis and septic shock are among the top ICD-9 primary diagnoses at our facility and are increasing worldwide with combined mortality rates of 30-50%. Early goal-directed therapy has shown to reduce mortality according to the Surviving Sepsis Campaign. Standardized order sets facilitate timely execution of interventions.

Objective: Objectives are to: 1) assess treatment practices for patients presenting to the emergency department (ED) with severe sepsis and/or septic shock, 2) identify current treatment gaps in comparison to recommendations of the Severe Sepsis Resuscitation Bundle, and 3) develop a system-wide severe sepsis/septic shock order set.

Methods: This retrospective study analyzed data from emergency adult severe sepsis/septic shock patients and was approved by the institutional review board prior to data collection. Preliminary data of initial treatment in the ED was presented to an ED sepsis quality improvement subcommittee.

Results: Out of 48 patients, 77% had blood cultures obtained before antibiotic administration, 83% received antibiotics within 3 hours of arrival, and 31% had serum lactate measured in the ED. Suspected sources of infections were evenly spread among pulmonary, urinary, and undocumented sources of infection. The most frequently prescribed initial antibiotic therapies included ceftriaxone, levofloxacin, and piperacillin/tazobactam.

Conclusions: Data reflects that the recommended interventions per the Severe Sepsis Resuscitation Bundle are executed in most patients at the Methodist Hospital ED. A standardized, comprehensive screening tool and order set for severe sepsis/septic shock will improve survival and facilitate reaching a goal of 100% of patients receiving timely interventions.

Disclosure: The authors have nothing to disclose

R - 73

Diabetes Medication Management Program: Impact of Pharmacists on Management of Oral Hypoglycemic Medications

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Not previously presented

BACKGROUND

In 2006, Scott and White Health Plan began offering a member benefit for uncontrolled diabetic patients called the Medication Management Program (MMP). The MMP consists of two components, monthly visits with a pharmacist at no cost to the patient and copay waivers for diabetic medications and supplies. During these visits pharmacists educate patients on proper diabetes management and can initiate or adjust drug therapy by

coordinating with physicians. Despite similar medication adherence rates, a previous study found that the A1c for patients in the MMP was improved to a significantly greater degree after 1 year of follow-up when compared to matched controls receiving usual care (-10.6% vs. -6.3%, p=0.048), and a significant difference was sustained after 2 years of follow-up.

OBJECTIVE

The purpose of this study is to determine if the difference in A1c between the MMP and control group may be attributable to factors in oral hypoglycemic medication management or patient self-management.

METHODS

For this retrospective comparative analysis, the health plan membership database, electronic medical records, pharmacy claims, and databases used to document patient visits will be used to assess: average change in A1c from baseline to 2 years, number of oral hypoglycemic medications per patient at baseline and 2 years, number of oral medication dose titrations per patient, maximum dosage achieved for individual oral agents, number of new diabetes medications initiated in each patient, persistence based on refill patterns, test strip utilization, disease management problems identified, interventions made, and results documented.

RESULTS

In progress.

CONCLUSIONS

In progress.

DISCLOSURES

ML Cunningham – No disclosures

HN Miller – No disclosures

PJ Godley – No disclosures

K Prasla – No disclosures

B Gorsh – PGY1 Outcomes Research Fellow with the Novartis / Scott & White Health Plan / The University of Texas at Austin Outcomes Research Fellowship

R - 79

Gram Negative Bacilli Pneumonia After Lung Transplantation: Etiology And Susceptibilities

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Student

Not previously presented

Background: Literature regarding pneumonia in lung transplant recipients is limited, although studies regarding infections in lung transplant recipients agree that pneumonia rates remain high in this population. There are no recent studies analyzing strategies employed to treat gram-negative bacilli (GNB)-confirmed pneumonia in lung transplant recipients.

Objective: Evaluate etiology and antibiotic susceptibilities of bronchoalveolar lavage (BAL)-confirmed GNB pneumonia in lung transplant recipients.

Methods: A retrospective analysis was conducted on lung transplant recipients (6/2006-11/2010) with BAL-confirmed pneumonia. Pneumonia was defined as a positive BAL culture with $\geq 10^4$ colony-forming units (CFU)/mL of GNB and either clinical or radiographic evidence of pneumonia.

Results: Ninety-two cases of pneumonia were identified in 48 lung transplant recipients. The most frequently identified GNB were *Pseudomonas aeruginosa* (n=60, 58.3%), *Escherichia coli* (n=11, 10.7%), *Enterobacter cloacae* (n=7, 6.8%), and *Klebsiella* spp. (n=6, 5.8%). Of GNB tested, 85.4% (82/96 isolates) were susceptible to piperacillin/tazobactam (P/T) and 80.2% (81/101 isolates) to cefepime. Of *P. aeruginosa* isolates, 88.3% were susceptible to P/T and 90% to cefepime. Addition of ciprofloxacin to either P/T or cefepime increased overall susceptibility to 91.7%, while addition of tobramycin to either P/T or cefepime increased overall susceptibility to 96.7%.

Conclusion: In this cohort, *P. aeruginosa* was the predominant GNB cause of pneumonia. P/T and cefepime offered similar susceptibilities. Regarding empiric therapy for *P. aeruginosa*, tobramycin appeared to offer improved antimicrobial coverage vs. ciprofloxacin.

Disclosures: None

R - 0

Prevalence and Appropriateness of Therapeutic Drug Monitoring in the Ambulatory Setting

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ASHP Midyear Clinical Meeting, Anaheim, CA, December 10, 2010

Background: Therapeutic drug monitoring [TDM] is utilized to optimize therapy with medications exhibiting pharmacokinetic variability. Ideally, TDM is performed when toxicity, noncompliance, or unsatisfactory response is suspected.

Objectives: To evaluate the percentage of patients who receive appropriate TDM, to assess interventions made when drug levels are reported, and to determine whether a lack of appropriate TDM contributes to adverse drug events.

Methods: A retrospective review was conducted of 200 patients prescribed carbamazepine, digoxin, lithium, phenobarbital, phenytoin, primidone, theophylline, and valproic acid. Demographic information, patient encounters, drug levels, and medication histories were collected.

Results: 200 patients were proportionally randomized to eight drug groups: 43% phenytoin, 22% carbamazepine, 21% digoxin, 5% lithium, 4% phenobarbital, 2.5% theophylline, 1.5% primidone, and 1% valproic acid. Initial drug levels were obtained in 78% of patients, with 16% obtained at the appropriate time. Of those levels, 65% were non-therapeutic with interventions made 7% of the time. Dose changes occurred for 34% of the patients, with drug levels obtained 44% of the time. Of those levels, 37% were non-therapeutic with interventions made 36% of the time. Toxicity and reduced efficacy was reported in 7% and 38% of patients respectively. Drug levels were obtained in 43% of patients with toxicity and in 52% of patients with decreased efficacy.

Conclusion: Adequate and appropriate TDM does not occur consistently in the ambulatory setting. Education regarding proper drug concentration obtainment, analysis, and subsequent therapy intervention is essential to decrease adverse drug events and improve patient outcomes as cost-effectively as possible.

Disclosures: KK Icenhower, MR Green, and LM Challen have nothing to disclose.

R - 0

Implementation of Early Goal Directed Therapy in the Emergency Center at a Cancer Institution

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Presented at: Celebrating Improvement Program, MD Anderson October 2010. Clinical Safety and Effectiveness Conference, Austin Hilton, November 2010.

Background: Severe sepsis and septic shock can be devastating conditions if not recognized and managed early. More data has emerged that supports the use of early goal-directed therapy (EGDT) in the emergency department prior to ICU admission.

Objectives: The purpose of this investigation is to evaluate the impact of a standardized sepsis order set and algorithm to improve compliance with EGDT on 28-day mortality.

Methods: Patients identified as having severe sepsis or septic shock between June 1, 2007 and September 6, 2010 will be reviewed. A standardized order set and algorithm along with provider education was implemented on March 1, 2010. The primary outcome will be 28-day mortality. Secondary outcomes include measurement of lactic acid and urine output, adequacy and timing of empiric antibiotic therapy, and length of stay.

Results: The before and after implementation groups contained 102 and 112 patients respectively. The 28-day mortality dropped from 39% to 26% ($p = 0.037$). Time to measurement of lactic acid dropped from 10.36 to 6.34 hours. Measurement of urine output increased from 34% to 50%. Adequacy of initial antibiotics increased from 64% to 70%. Average time to first antibiotic increased from 1.2 to 1.3 hours. ICU length of stay decreased from 5.35 to 3.47 days and total hospital length of stay decreased from 13.34 to 11.92 days.

Conclusions: Implementation of a standardized sepsis order set and algorithm to improve compliance with EGDT in a cancer patient population improved mortality and length of stay.

Disclosures: the authors have nothing to disclose

R - 101

Impact of medication therapy on emergency department throughput: opportunities for enhanced pharmacy services

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Previously presented at ASHP Midyear in Anaheim, CA, December 7, 2010

Background: Prompt patient throughput in the Emergency Department (ED) improves timely access to care, patient satisfaction, and quality of care. While having ED-based pharmacist has been shown to improve patient safety, quality of care, and the cost effectiveness of medication therapy, very little information exists about the potential for improved patient throughput.

Objectives: This descriptive study is designed to identify specific areas of our medication use process where an ED-based pharmacist might expedite appropriate medication therapy to improve patient throughput.

Methods: Data collection forms were distributed to Emergency Department staff and central pharmacy staff to allow documentation of medication therapy-related delays in patient care. The following data were collected: patient status, time order was written, time order was transmitted to pharmacy, time medication was delivered from pharmacy, time medication was received in the Emergency Department, medication ordered, estimated length of delay, contributing factors, and perceived consequences of delay.

Results: Data collection finished on February 21, 2011, and data analysis is currently ongoing. A total of 175 orders from the ED were collected in the two week period, with 28 medication delays reported by the ED staff. Data forms will be analyzed to develop a timeline of events for each incident and to identify potential root causes.

Conclusion: Compiled data will be used to characterize the current medication use process for our emergency department patients and to identify areas where enhanced pharmacy services may speed appropriate patient care.

Disclosures: The authors of this study have nothing to disclose.

R - 0

Diabetic ketoacidosis (DKA) in type 1 and type 2 diabetes mellitus: a population study in South Texas

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Resident Category

ASHP Midyear Clinical Meeting, Anaheim California, 2010

Background: Diabetic ketoacidosis is a serious acute complication of diabetes which continues to be a significant cause of morbidity and mortality in spite of recent major advances. DKA was once thought to occur in patients with type 1 diabetes and rarely in patients with type 2 diabetes.

Objective: The primary research question is to observe the rates of DKA in patients with type 1 and type 2 diabetes mellitus that are admitted to the CHRISTUS Spohn Health System in Corpus Christi, TX and describe their clinical and metabolic features.

Methods: This study is a retrospective analysis of charted data on patients that were admitted to CHRISTUS Spohn hospitals in Corpus Christi for DKA between June 1, 2009 and June 30, 2010. Patient demographics, clinical and biochemical characteristics of patients with DKA will be evaluated.

Results: A total of 200 patients fit the inclusion criteria for presentation with DKA in the type 1 and type 2 diabetes categories. A large number of patients that present with DKA in South Texas are not patients with type 1 diabetes, but rather type 2 diabetes. The triggering factor for DKA in most cases was non-compliance with insulin.

Conclusion: The results conclude that a large portion of patients that present to the CHRISTUS Spohn health system are patients with type 2 diabetes. This data could be useful as a pilot for another study that possibly prospective, that looks at the treatment of patients with type 2 diabetes and DKA and its long term management.

Disclosure: Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Beau Baker: Nothing to disclose. Lisa Prather: Nothing to disclose. Christopher Miller: Nothing to disclose.

R - 0

Evaluating Treatment of Uncomplicated Cystitis and Pyelonephritis

John M. Marbach III, Pharm.D.

PGY-1 Pharmacy Resident

Background: *Escherichia coli* causes clinically significant infections that are usually susceptible to most antibiotics including fluoroquinolones, broad-spectrum beta-lactams, and aminoglycosides.

Objective: This retrospective study was initiated as part of the ongoing antibiotic stewardship program to determine if uncomplicated urinary tract infections and pyelonephritis were being treated appropriately.

Methods: We evaluated all female patients discharged for a private healthcare system in San Antonio, Tx, from January 2010 – June 2010 with positive urine cultures for *Escherichia coli* and a diagnosis of uncomplicated urinary tract infections and pyelonephritis. Patients drug therapy was evaluated based on reported sensitivities, and the

1999 IDSA uncomplicated cystitis and pyelonephritis treatment guidelines, and if fluoroquinolones were being used appropriately at this private health system.

Results: The results showed that our healthcare system is appropriately prescribing antibiotics 84.2 % of the time in patients with uncomplicated cystitis, and 97.6 % of the time for patients diagnosed with pyelonephritis.

Conclusion: The results indicate that this private healthcare system is using antibiotics appropriately based on the 1999 IDSA guidelines, and adjustment of antibiotic therapy based on culture and sensitivity data in pyelonephritis. However, there seems to be room for some improvement in antibiotic stewardship in patients diagnosed with uncomplicated cystitis. Further data should be collected as part of the antibiotic stewardship program at this healthcare system.

Disclosure: None.

S - 74

Review of Revisions to the 2010 American Heart Association (AHA) Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC)

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Student Category

Not previously presented

Background: The American Heart Association (AHA) has not made revisions to the guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiovascular care (ECC) since 2005. In October 2010, the new guidelines were published in AHA's *Circulation*.

Objectives: The objective of this poster is to summarize the revisions to the guidelines for CPR and ECC with an emphasis on adult basic life support (BLS).

Method(s): The revisions to AHA's CPR and ECC guidelines were reviewed and will be summarized on the poster. The adult BLS algorithm has been simplified to encourage compression-only CPR for untrained rescuers, initiation of chest compressions before rescue breaths (C-A-B rather than A-B-C), and an increase in the depth of compression to 2 inches for adults.

Result(s): Not Applicable.

Conclusion(s): Cardiopulmonary resuscitation and emergency cardiovascular care help save lives each year. It is important for healthcare professionals to be aware of the latest revisions to the guidelines to ensure optimal outcomes in emergency situations.

Disclosure(s): The authors have nothing to disclose.

S - 75

Salacia herb: A Natural Diabetes Remedy... In A Cup of Tea!

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Pharmacy Student Poster

Not previously presented.

Background: With rising costs of healthcare in the US, greater trends of self-medicating and patients' quest for natural therapies with minimal side effects, herbal medications are demanding greater investigation particularly

for the treatment of chronic disease states. Salacia tea, originating from Indian Ayurvedic medicine, has shown glucose lowering effects as an alpha glucosidase inhibitor.

Objectives: The objective of this poster is to evaluate research on Salacia's pharmacology and efficacy in cellular, animal and human studies. Additionally, a comparison of the side effects of Salacia versus conventional medications for diabetes and potential patient counseling recommendations will be explored to prevent drug-herb interactions, therapeutic duplications, and toxicity.

Methods: Pubmed was used to identify recent cellular, animal, and clinical trials for Salacia. Using Lexicomp and the Natural Medicines Database monograph for Salacia, an adverse effects table was created to compare Salacia with other medications for diabetes. Patient counseling tips for pharmacists were also compiled.

Results: Cellular studies reveal various active components that exceed the efficacy of acarbose and miglitol and propose additional mechanisms by which the salacinol class produces glycemic control. In diabetic rat models, the effects of Salacia on reducing obesity gives this herb a distinct advantage over medications for diabetes that cause weight gain. Furthermore, numerous randomized double-blinded studies have shown lower post-prandial glucose and insulin levels in patients.

Conclusion: Currently, large scale clinical trials to establish a valid safety profile for this nutraceutical are essential. Pharmacists can perform crucial clinical interventions for patient care through herbal education and research initiatives.

Disclosures: Author has no disclosures.

S - 76

Pharmacist Preceptors' View on the Usefulness of Five Drug Information Resources

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Student Category

Not previously presented

Background: Access to drug information resources for pharmacist preceptors is often based on practice site. Pharmacists frequently request subscriptions to resources as a reward for precepting students on rotation.

Objective: Identify which drug information resources pharmacist preceptors find very useful based on their practice site.

Methods: Pharmacist preceptors affiliated with the University of the Incarnate Word Feik School of Pharmacy were requested, via email, to participate in a survey on drug information resources. Preceptors had approximately 4 weeks to complete the online survey assessing the degree of usefulness of 5 electronic drug information resources (Clinical Pharmacology, Lexicomp Online, Micromedex, UpToDate, and Facts and Comparisons eAnswers). The study design was approved by the Institutional Review Board, and the data collected were void of personal identifiers. The data were analyzed using Chi-square with an alpha of 0.05.

Results: Ninety-five of approximately 400 pharmacist preceptors completed the survey. Practice sites for the preceptors who answered the survey included the following: hospital/acute care/general medicine (45%), community (24%), and ambulatory/other (31%). Each preceptor category reported similar proportions of the 5 drug resources available at their practice sites. However, more community preceptors found Clinical Pharmacology very useful (94.1%) compared to hospital/acute care/general medicine (58.6%) and ambulatory/other (50.0%, $p=0.014$). There were no significant differences among the pharmacist preceptor categories in the usefulness of the remaining resources.

Conclusions: Significantly more community pharmacist preceptors find Clinical Pharmacology very useful compared to the other practice sites. Providing subscriptions to this resource may serve as an incentive to precept pharmacy students.

Disclosures: Nothing to disclose.

S - 77

Prevalence of *mexX* over-expression and hypermutation in pan-aminoglycoside resistant *Pseudomonas aeruginosa* bloodstream isolates

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Student Poster Category

Not previously presented

Background: *Pseudomonas aeruginosa* (PA) is a Gram-negative bacterium commonly implicated in serious nosocomial infections. The multidrug-resistant (MDR) phenotype seen in PA can be mediated by multiple resistance mechanisms including efflux pump over-expression and hypermutation. Aminoglycosides (AG) are often used as a last resort to combat MDR PA but resistance to these agents is emerging.

Objective: The prevalence of *mexX* over-expression and hypermutation were examined in pan-AG resistant bloodstream isolates of PA.

Methods: All bloodstream PA isolates from 2005 to 2009 were screened for pan-AG resistance. The clonality of the selected pan-AG isolates was assessed by rep-PCR. Amikacin MICs were assessed by E-test method on MHA plates with and without efflux pump inhibitor (MC 207110). Over-expression of *mexX* (defined as $\geq 5\times$ difference in expression relative to PAO1) was assessed by quantitative RT-PCR. PAO1 and PAO1 Δ *mexZ* were used as controls. Hypermutation (defined as mutation frequency $>20\times$ compared to PAO1) was examined by plating ten-fold serial dilutions of overnight cultures on MHA plates with and without 300 μ g/mL rifampin. The colonies were counted after 48 hours of incubation. PAO1 and PAO1 Δ *mutS* were used as controls.

Results: Of the 364 isolates screened, ten were pan-AG resistant; eight were available for investigation. Over-expression of *mexX* was found in 3 isolates (37.5% prevalence). Two of those isolates were also hypermutable (25% prevalence).

Conclusion: Over-expression of *mexX* and hypermutation were found in pan-AG resistant PA bloodstream isolates. Knockout studies and sequencing of the regulator genes for *mexX* expression are ongoing.

Disclosures: CG Brioso is a pharmacy student at UHCOP and she has nothing to disclose. R. Singh has nothing to disclose, KT Chang has nothing to disclose. EB Hirsch has nothing to disclose. VH Tam has nothing to disclose.

S - 78

Improving Communication in the ICU

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Student

Not previously presented

Background: Inadequate communication among health care teams can lead to life threatening mistakes in critically ill patients. The use of a patient ICU goal sheet can improve communication between health care providers and help the team clearly identify goals of care, decrease errors, and shorten length of stay.

Objective: The purpose of this study was to evaluate the satisfaction of the MICU nursing staff with the current level of communication between nurses and physicians. The study goal was to see if modification of the MICU goal sheet, based on nursing input, would improve nursing satisfaction with the communication between nurses and physicians.

Methods: Nurses were surveyed about the quality of communication between nurses and physicians. They were then presented a lecture describing the impact and the benefits of the use of a goal sheet. Nursing input was then taken to develop a new goal sheet. They were re-surveyed two weeks later for their opinions after implementation of the modified goal sheet. Some areas assessed in the pre and post survey were rating communication and the level of understanding of the goal sheet, and its effect on communication and patient care.

Results: An increased rating in communication between nurses and physicians was reported as well as an improvement in understanding the goals of care. Nurses gained a better perception of the goal sheet and reported an increase in compliance.

Conclusion: Implementing an ICU patient daily goal sheet, with nursing input, and goal sheet education can improve communication between health care providers.

Disclosures: None to disclose.

S - 80

Dabigatran: A New Alternative to Warfarin?

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Student Poster

Not previously submitted

Background: Pradaxa[®] (dabigatran etexilate) is an oral direct thrombin inhibitor newly approved for the prevention of stroke in patients with non-valvular atrial fibrillation.

Objective: The objective of this poster is to describe the role of dabigatran for the prevention of stroke in patients with atrial fibrillation and in the treatment of venous thromboembolism. The benefits and shortcomings of dabigatran versus warfarin in the management of thrombotic disorders will also be reviewed.

Methods: Literature search was conducted to analyze recent data regarding the efficacy, safety and cost-effectiveness of dabigatran compared to warfarin. Current prescribing information is summarized.

Results: Results from “Dabigatran versus warfarin in patients with atrial fibrillation (RE-LY Trial)” and “Dabigatran versus warfarin in the treatment of acute venous thromboembolism (RE-COVER Trial)” will be evaluated to compare the efficacy and safety of dabigatran versus warfarin. Cost-effectiveness of dabigatran will also be assessed by summarizing the results of “Cost-effectiveness of dabigatran compared with warfarin for stroke prevention in atrial fibrillation.”

Conclusions: Dabigatran, a newly approved oral direct thrombin inhibitor, maintains similar efficacy and safety profiles and improves patient and prescriber quality of care as compared to warfarin. At this time, dabigatran is not a complete alternative to warfarin; warfarin has a wider range of indications, necessitating more research to be conducted to establish the value of dabigatran in other indications.

Disclosures: The authors have nothing to disclose.

S - 81

Texas Society of Health-System Pharmacists (TSHP): Student Section Executive Committee

J. Priest, A. Ritter, M. Bui, G. Burgess, A. Desai, A. Fowler, N. Fry, S. Fuller, T. Krause, T. Nichols, K. Nwogu, D. Ortiz, S. Pourali, M. Powell, T. Sledge, G. Smith, C. Tan, L. Thurman, K. Weatherspoon
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Student Section Executive Committee, Austin, Texas
Student Poster
Previously presented: ASHP Midyear, Anaheim, California, 2010

Background: The Student Section Executive Committee (SSEC) was approved by the TSHP Board of Directors in 1997, but it was not until the 1998-1999 academic year that the SSEC became an official council. The council originally consisted of representatives from Student Society chapters of the University of Texas, Texas Tech University, University of Houston, and Texas Southern University Colleges of Pharmacy. Today the council consists of representatives from all six Texas Student Society chapters, a Chair, and a Vice Chair, all of whom are appointed by the TSHP President-Elect, based on each student's Curriculum Vitae and letter of intent.

Objectives: The objective of this poster is to explain the role of the SSEC and provide information and contacts to seminar attendees.

Result(s): Not Applicable.

Conclusion(s): Over the past ten years, the SSEC has been able to foster leadership, collaboration, and involvement among pharmacy students across Texas. In the near future, the SSEC intends to develop new programs that focus on areas such as smoking cessation and lobbying at Pharmacy Day at the Capitol. The SSEC looks forward to further growth and development, and continuing to serve as a voice for students.

Disclosure(s): None of the authors have anything to disclose.

S - 82

Antibiotic and Antiviral Awareness: A State-wide Education Initiative to Decrease Antibiotic Resistance
J. Priest, A. Ritter, M. Bui, G. Burgess, A. Desai, A. Fowler, N. Fry, S. Fuller, T. Krause, T. Nichols, K. Nwogu, D. Ortiz, S. Pourali, M. Powell, T. Sledge, G. Smith, C. Tan, L. Thurman, K. Weatherspoon
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Student Poster
Previously presented: ASHP Midyear, Anaheim, California, 2010

Background: Healthcare facilities and communities have been witnessing an increasing trend in multi-drug-resistant infections. As a result, healthcare providers must become more proactive in educating lay people about the consequences of antibiotic resistance to help combat this dangerous trend. Through a state-wide initiative conducted over the past three years, we have educated local communities on appropriate utilization of antibiotics to prevent antibiotic resistance and the spread of infection. We have also promoted preventative strategies like vaccinations and proper handwashing.

Objectives: The objective of this poster is to educate seminar attendees about our methods for educating our communities on the consequences of antibiotic resistance as well as the steps they can take to prevent resistance and the spread of infection. Additionally, we are targeting awareness of the H1N1 and seasonal flu and encouraging the use of vaccinations as a means for prevention.

Result(s): Not Applicable.

Conclusion(s): All healthcare professionals should be aware of the consequences of antibiotic resistance. To further reinforce pharmacists' roles as advocates for proper medication use, we should take the initiative to educate our communities on simple ways by which they can actively prevent infection and decrease antibiotic

resistance. Furthermore, it is vital to promote awareness of the H1N1 and seasonal flu vaccinations to combat the spread of these infections in our communities.

Disclosure(s): None of the authors have anything to disclose.

S - 83

Evaluation of the Fluorinated Water Intake Among Rio Grande Valley Residents

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Student Poster Category

Background—In January 2011 the US Department of Health and Human Services (HHS) and the US Environmental Protection Agency (EPA) released a statement proposing a new fluoride level for US drinking water of 0.7 mg/L replacing the old recommendation of 0.7-1.2 mg/L. The proposed level will provide the health benefits of fluorinated water in preventing dental carries and decrease the harm caused by fluoride overexposure. Fluorosis may develop in people, particularly children, who are exposed to too much fluoride.

Objective—To determine the source of drinking water and to evaluate fluorinated water consumption for Rio Grande Valley residents.

Methods—Patients and staff of Dr Juan Aguilera's Medical Practice at the Mission, McAllen, Edinburg, Weslaco, and Pharr clinics were surveyed anonymously in English or Spanish during January 31, 2011 to February 11, 2011.

Results—Tap water was fluorinated water available from one of the local water supply companies. Of the 133 people surveyed 96 never drank tap water, 30 drank tap water some of the time, 4 drank tap water most of the time, and 3 drank tap water all the time. All 133 people drank purified water and only four people drank fluorinated purified water.

Conclusion—The majority of the people surveyed did not drink tap water and got their drinking water from other sources. Residents of the Rio Grande Valley might get their fluoride from other fluorinated products or may not be getting adequate fluoride and may need supplementation, but more research is needed in this field.

Disclosure—J. Malacara, L. Aguilera, A.B. Guerrero have no conflicts of interest or financial information to disclose.

S - 84

The Institute of Medicine's Recommendations for Vitamin D Supplementation

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Student

Not previously presented

Background: In 1997, the Institute of Medicine (IOM) published guidelines for the daily intake of Vitamin D, based on the maintenance of bone health and other calcium-related conditions. Over the past decade, Vitamin D has been the subject of a wide array of studies, linking it to prevention of many other conditions including heart disease, diabetes, dementia, arthritis, and Parkinson's disease. This research led health practitioners to monitor Vitamin D levels in patients more closely and, often times, resulted in Vitamin D supplementation. Although guidelines are updated on average every two to five years, it was not until November 2010 that the IOM updated the clinical guidelines for Vitamin D intake.

Objectives: The objective of this poster is to provide information to pharmacy practitioners and seminar attendees about the new recommendations for Vitamin D supplementation. The IOM's reasoning for limiting the recommendations to supplementation to maintain bone health will be presented.

Methods: Information from the IOM will be provided to help pharmacy practitioners and attendees understand the critical changes in the Vitamin D Guidelines, and why they were recommended.

Results: Not applicable

Conclusion (s): While many studies associate Vitamin D deficiency with other disease states, the IOM did not consider the results from any of these as significant enough to warrant guidelines for daily intake of vitamin D for anything but maintenance of bone health. The IOM recommended increased daily doses of vitamin D to maintain bone health.

Disclosure: LG Garcia has nothing to disclose.

S - 85

Review of the Newly Released Guidelines for the Treatment of Methicillin-Resistant *Staphylococcus Aureus* Infections

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Student Poster

Not previously submitted

Background: The Infectious Diseases Society of America (IDSA) recently released its first guidelines for the treatment of methicillin-resistant *Staphylococcus aureus* (MRSA). The guidelines are published in the February 1 issue of *Clinical Infectious Diseases*.

Objective: The objective of this poster is to summarize the recommendations for the management of various clinical syndromes associated with MRSA from the IDSA's 2010 Clinical Practice Guidelines.

Methods: The recommendations in the IDSA's "Clinical Practice Guidelines by the Infectious Diseases Society of America for the Treatment of Methicillin-Resistant *Staphylococcus Aureus* Infections in Adults and Children" were reviewed and will be summarized on the poster: IDSA provides management of the most common infections encountered including skin and soft tissue infections (SSTIs), recurrent SSTIs, bacteremia, infective endocarditis, pneumonia, bone and joint infections, and central nervous system infections. IDSA also addresses the use of vancomycin susceptibility testing in regards to guiding therapy, as well as dosing and monitoring of vancomycin. The guidelines also offer alternative therapies when vancomycin treatment failure arises due to decrease susceptibility.

Results: Not applicable.

Conclusions: The IDSA guidelines are intended to aid practitioners in their selection of antibiotics for the management of this highly prevalent infection. As current treatment varies widely, it is beneficial for pharmacy practitioners and students to be aware of these new guidelines.

Disclosures: The author has nothing to disclose.

S - 86

Role of Hyperglycemia in Infections in Non-diabetics

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Student Poster Category

Not previously presented

Background: Hyperglycemia is a marker for disease severity and increased mortality. In non-diabetic patients, hyperglycemia has been associated with prolonged infections and increased ICU stay. Elevated blood glucose levels interfere with the host's immune response to infection by reducing the inflammatory response, leading to decreased killing of bacteria. With the high prevalence of resistant bacterial infections along with the absence of new antimicrobial agents, identifying and controlling risk factors for mortality is becoming more important.

Objective(s): The objective of this poster is to describe the clinical association between hyperglycemia and infectious disease progression and offer evidence on the need for further research in finding new therapeutic targets.

Method(s) or Procedure(s): A Medline literature search was conducted on studies focusing on the association between elevated glucose levels and influence on outcomes in infectious diseases. Studies included in this review will demonstrate the impact of hyperglycemia in non-diabetic patients, the benefit of normalizing glucose levels, and will discuss the appropriate tools to assess continued glucose monitoring.

Result(s): Not applicable.

Conclusion(s): Finding alternate therapeutic targets is a necessity in the treatment and control of resistant infections. In non-diabetic patients, hyperglycemia is positively correlated with increased mortality and thus may serve as a new target for treating infectious resistant strains. Further research into this area is needed to find a useful treatment regimen.

Disclosure(s): The author has nothing to disclose.

S - 0

Gram Negative Bacilli Pneumonia After Lung Transplantation: Etiology and Susceptibilities

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Not previously presented

Background: Literature regarding pneumonia in lung transplant recipients is limited, although studies regarding infections in lung transplant recipients agree that pneumonia rates remain high in this population. There are no recent studies analyzing strategies employed to treat gram-negative bacilli (GNB)-confirmed pneumonia in lung transplant recipients.

Objective: Evaluate etiology and antibiotic susceptibilities of bronchoalveolar lavage (BAL)-confirmed GNB pneumonia in lung transplant recipients.

Methods: A retrospective analysis was conducted on lung transplant recipients (6/2006-11/2010) with BAL-confirmed pneumonia. Pneumonia was defined as a positive BAL culture with $\geq 10^4$ colony-forming units (CFU)/mL of GNB and either clinical or radiographic evidence of pneumonia.

Results: Ninety-two cases of pneumonia were identified in 48 lung transplant recipients. The most frequently identified GNB were *Pseudomonas aeruginosa* (n=60, 58.3%), *Escherichia coli* (n=11, 10.7%), *Enterobacter cloacae* (n=7, 6.8%), and *Klebsiella* spp. (n=6, 5.8%). Of GNB tested, 85.4% (82/96 isolates) were susceptible to piperacillin/tazobactam (P/T) and 80.2% (81/101 isolates) to cefepime. Of *P. aeruginosa* isolates, 88.3% were susceptible to P/T and 90% to cefepime. Addition of ciprofloxacin to either P/T or cefepime increased overall

susceptibility to 91.7%, while addition of tobramycin to either P/T or cefepime increased overall susceptibility to 96.7%.

Conclusion: In this cohort, *P. aeruginosa* was the predominant GNB cause of pneumonia. P/T and cefepime offered similar susceptibilities. Regarding empiric therapy for *P. aeruginosa*, tobramycin appeared to offer improved antimicrobial coverage vs. ciprofloxacin.

Disclosures: None

S - 88

Mental Health Matters

Taylor Nichols

ABSTRACT

The University of Incarnate Word Student Society of Health-System Pharmacists (UIW-SSHP) seeks to bring awareness to the importance of diagnosis and treatment of mental health disorders. The “Mental Health Matters” program educates the San Antonio community on signs and symptoms, diagnosis, and treatment of common mental health disorders. We also provide guidance and resources for further assistance should patients request it

UIW-SSHP worked in conjunction with the University of Texas Health Science Center of San Antonio Cancer Therapy and Research Center (UTHSCSA CTCRC) to target depression in patients suffering from various forms of cancer. While our organization chose to focus on depression in the previous year, we intend to highlight a different mental health disorder each year. We provided patients with educational materials created by UIW-SSHP student pharmacists, while discussing the stigmas and falsehoods surrounding mental health afflictions.

As a result of this program, we provided meaningful interaction with patients suffering from situational depression attributed to their cancer diagnosis. Additionally, student pharmacists encouraged patients to be open and communicative with health care providers concerning their depression. Resources for mental health information were supplied to staff and patients. We reached approximately 20 patients in the UTHSCSA CTCRC over the course of one day. In the future, we intend to increase the interaction with patients by presenting an educational seminar and counseling session at a state hospital facility that specializes in psychiatric patients.

S - 89

Review of the Centers for Disease Control and Prevention (CDC) updated recommendations for the 23-Valent pneumococcal polysaccharide vaccine (PPSV23).

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Student Poster

Previously Submitted – ASHP Midyear Clinical Meeting, Anaheim CA, 12/6/2010

Background: Invasive pneumococcal disease is readily prevented in those adults who receive the 23-valent pneumococcal polysaccharide vaccine (PPSV23). Since the updates in September 2010, the population of those recommended to receive the vaccine has both expanded and contracted.

Objectives: The objective of this presentation is to bring to light those updated recommendations made by the CDC, and to add to the pharmacist’s pneumococcal vaccine knowledge in order to educate the public and provide a modernized level of service.

Methods: The revisions to the CDC’s “Updated Recommendations for Prevention of Invasive Pneumococcal Disease Among Adults Using the 23-Valent Pneumococcal Polysaccharide Vaccine (PPSV23)” were reviewed. The CDC has made extensive changes to specific populations that should and should not receive the 23-valent pneumococcal vaccine. This is the first update since 1997. The CDC now recommends that adult (age 19-64)

smokers and those with asthma receive the PPSV23 vaccine. The CDC also updated the recommendations for Native Alaska and American Indians under the age of 65 in the guidelines this year.

Results: Not applicable.

Conclusion: The recommendations for preventing pneumococcal disease with the PPSV23 vaccine have been revised. Pharmacy practitioners and students can advance the science of pharmacy by being able to correctly identify those specific candidates that are eligible for the pneumococcal vaccine. This will further the prevention of pneumococcal disease in the population.

Disclosures: The author has nothing to disclose.

S - 90

ADAPT: Attacking Diabetes and Preventing it Together

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Background: The prevalence of diabetes in South Texas continues to rise at a rate much higher than the national average. Attacking Diabetes and Preventing it Together (ADAPT) is a patient-centered, educational program intended for patients who are at risk of, currently affected by, or have interest in learning about diabetes.

Objective: To prepare students in providing direct patient care by allowing them to practice medication therapy management and educate patients on relevant public health topics; and to achieve a significant measurable outcome in diabetes patients' current disease state and improve medication safety through continued medication use education.

Methods: Patients and students attend a 1-hour program lasting 6 weeks focusing on different aspects of diabetes care. Health care professionals as well as chapter students give presentations to patients on topics including nutrition, exercise, monitoring, and medications. Patients are given a survey at the beginning and again at the end of the program allowing them to assess their knowledge in different areas of diabetes care.

Conclusion: This program provides an opportunity for students to take an active role in the prevention and education of diabetes in the surrounding communities of South Texas. In addition, ADAPT will reassure the role of pharmacists as a source of diabetes knowledge, care, and medication management.

Disclosure: Authors have nothing to disclose.

S - 91

Systemic Absorption of Vancomycin Following Oral Administration in a Patient with *Clostridium Difficile* Colitis and Renal Insufficiency

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Student

Not previously presented

Objective-To report a case of systemic absorption of vancomycin following oral administration in a patient with *Clostridium difficile* colitis and acute renal insufficiency.

Introduction-Vancomycin and metronidazole are both treatment options for *Clostridium difficile* infections, however vancomycin has been shown to be more effective in severe and complicated infections. It is generally

assumed that oral vancomycin is not absorbed systemically and therefore serum concentrations do not need to be monitored.

Case Report-A 76 year-old female was treated for a severe *Clostridium difficile* infection with metronidazole 500 mg per nasogastric (NG) tube every 6 hours and vancomycin 250 mg per NG tube every 6 hours. After five days of vancomycin administration, a vancomycin level was found to be 8.6 µg/mL. Her serum creatinine that day was 3.8 mg/dL.

Discussion-*C. difficile* produces toxins that lead to cytoskeletal changes and compromise the gastrointestinal tract. There have been previous reports of absorption of oral vancomycin in patients with *C. difficile* and with or without renal insufficiency. However, most reports of patients receiving 250 mg every 6 hours did not reach close to a therapeutic level.

Implications-Current *C. difficile* guidelines suggest monitoring trough serum levels in oral vancomycin administration if the patient has renal failure and is receiving at least 2 grams per day. Our patient was only receiving 250 mg every 6 hours and the serum vancomycin concentration reached 8.6 µg/mL. Clinicians should be cognizant of the possibility of vancomycin absorption following oral administration in a patient with colitis, and subsequent accumulation with renal insufficiency.

Disclosures-SJ VerShaw has nothing to disclose. KM Shea has nothing to disclose. JN Barnes has nothing to disclose.

S - 92

The Relationship Between Economic Hardship and Medication Non-Adherence

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Student

Not previously presented

Background: Low medication adherence rates provoke adverse events, raise healthcare costs, and lead to poorer health outcomes. Importantly, changes in an individual's financial status may play a significant role in medication non-adherence.

Objective: This poster aims to better characterize economic predictors of non-adherence in an effort to develop more effective approaches to increasing medication adherence.

Methods: 915 Detroit households were asked about their employment status, loan delinquency, and their medication adherence. The sample consisted of 50% Blacks and 50% non-Blacks to discern any racial differences in medication adherence. Data were weighted to achieve representation of the area and to adjust for non-response. Tests for significance were chi-square tests and $p < .05$ indicated significance.

Results: In bivariate analyses, 22.01% of prescription-users with delinquent loans skipped or split doses to save money. In contrast, 8.44% of prescription-users without loans and 9.51% on schedule with their loans skipped or split doses, a significant difference. Among those who were laid off or not working, 28.68% and 12.30%, respectively, skipped or split doses whereas 5.58% with no layoffs skipped or split doses.

Conclusions: Loan delinquency and layoff history each individually predicted pill-splitting behavior and are important considerations in approaching poor medication adherence. Wage reduction alone did not predict non-adherence behavior. This suggests that lifestyle and behavioral changes in response to serious economic strain and employment changes may instigate medication non-adherence. The lack of differential findings among gender and racial groups suggests that healthcare disparities in those groups may be financial rather than cultural in nature.

Disclosure(s): RC Wong, SA Burgard, and TA Castelli have nothing to disclose.

S - 93

Pharmacokinetics of Propofol in Obese Rats

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Background: According to National Health and Nutrition Examination Survey (NHANES), children having a body mass index (BMI) greater than 95th percentile are considered obese. The incidence of childhood obesity in Texas is higher than the national average by 20-23% in 4th to 8th graders, especially in the minority ethnic groups. Obese population has a larger increase in fat masses than lean masses in the body. This affects the apparent volume of distribution of lipophilic drugs such as propofol. Propofol is a sedative hypnotic agent commonly used to induce unconsciousness for surgery. It has a very high oil/water coefficient of 4715. The effects of body fat on propofol kinetics in adult have been studied; however, little is known about the effects in children. Children handle drugs and chemicals different pharmacokinetically from adults. Pharmacokinetic parameters such as clearance and volume of distribution may vary with age and the body size.

Objective: This project aims to characterize the impact of obesity on the pharmacokinetics of propofol in animal models.

Methods: Genetically obese Zucker rats were used as the animal model, using Sprague-Dawley lean rats as the reference. Jugular Vein Cannulation (JVC) was performed on both obese and lean rats. Blood samples were collected at different time points after 10-min intravenous infusion of propofol. Plasma concentrations of propofol were analyzed by a validated HPLC assay. Pharmacokinetic parameters were derived by the compartmental analysis, using WinNonlin, version 3.3.

Results: The propofol pharmacokinetics fitted 2-compartment model. The blood concentrations declined rapidly during the first half hour after the infusion, and the rate of reduction then slowed down for the rest of the time of collection. The distribution and elimination half-lives were shorter in obese (0.3 and 30.7 min) than in lean rats (0.3 and 72.7 min) on the same dose/body weight basis

Conclusion: This preliminary data demonstrated the impact of obesity on propofol pharmacokinetics in obese rats, and future works are warranted in Zucker lean rats and in obese pediatric population.

Disclosure(s): None

S - 96

Medication Safety in Elementary Children

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Institution: Texas Tech University Health Sciences Center, Abilene, Texas

Poster Category: Student

Background – According to the Centers for Disease Control and Prevention (CDC), over 80% of emergency department visits among children under the age of 12 are due to children taking medication on their own. Recently, there has been much discussion about implementing medication safety programs to prevent future problems and bring awareness to the public. Our program targets elementary school children because of the minimal number of programs available for this age group.

Objective(s) – To develop and implement an educational program for elementary aged children. The program focuses on educating children on who a pharmacist is, the role of a pharmacist, safe medication use, and the poison control center.

Method(s) or Procedure(s) – Questionnaires are provided pre- and post-program to assess baseline knowledge and the effectiveness of our program. In addition, a candy versus pill experiment is performed in order to determine if the children can easily distinguish the difference between medication and candy. The program consists of a variety of activities that target different ages, specifically, coloring, puppet shows, and discussion.

Result(s) – Based on last year's experience, the children at St. John's Episcopal elementary school in Abilene had a strong foundation on medication safety and the poison control center. Results from this year are not currently available but will be available upon poster submission.

Conclusion(s) – While this particular endeavor is a promising start to educating children about medication safety, more programs are needed in order to reach other populations, including children in different socioeconomic classes, teenagers, and parents.

Disclosure(s) – none of the authors have anything to disclose

T - 95

Anticoagulation Therapy~Simple to enunciate; Simple to achieve with the help of technicians.

L.A. Grabos, M Sifuentes

Abstract:

My background with Anticoagulation Therapy started in July 2008' with Central Veterans HealthCare System. The name established in Arkansas was called Medication Management/Coumadin Clinic in Arkansas having approximately 1200 patients. I was transferred in October 2009' to North Texas Veterans Healthcare System currently with Protime Clinic having 3200 patients. The Clinic has 7 Pharmacist, 2 nurses, 3 clinic pharmacy technicians and 3 MAS clerks. Patients are all scheduled per PT/INR results daily. Nursing phone lab are 35 scheduled patients overbooked daily, Pharmacy phone lab are 70 overbooked daily and Face to Face patients are scheduled from 8:00am thru 1500pm overbooked occasionally. I will write an overview of the clinic and technicians responsibilities along with including our goals for the future. I will include what specific requirements to get the Clinical Pharmacy Technician position. I will include a flow chart showing what happens to an INR once it is reported. There will be information concerning clinical pharmacy technician's requirements to call therapeutic patients. The following will answer does INR come out on a list? Does the pharmacist review INR first and then assign to technician? What do we do with information retrieved from patient about missed dose, starting new medication, bleeding, etc? How do we enter the information? Do we write a note? Do we have a template? What information do we include in our note? Does a pharmacist cosign the note? Show/display an example of a note. How it is decided we manage therapeutic patients and patients with new start medications. The results are all based on working with team members and patient care. In conclusion the technician is learning, organizing and efficiently understanding warfarin therapy, along with helping providers in clinic providing excellent care for patients in a timely manner.

T - 94

The Role of the Pharmacy Technician in an Outpatient Pharmacy Anticoagulation Clinic

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VA North Texas Health Care System (VANTHCS) Protime Clinic, Dallas, Texas

Technician

Not Previously presented

Background: The Protime Clinic at VANTHCS was established about 15 years ago, but 10 years ago it switched over to pharmacy management. The purpose of the Protime Clinic is to provide monitoring of patients receiving oral anticoagulation therapy with warfarin, and to provide education about issues related to anticoagulant therapy. There are three Clinical Pharmacy Technicians to assist the Advanced Practice Pharmacists (APP) by gathering data of patients as per established protocols and refer patients to the APP/Protime clinic provider when necessary.

Objective(s): To emphasize the varied job functions of the Clinical Pharmacy Technician. Pharmacy Technicians spend the majority of the time performing documentation, patient interviews, record keeping, patient scheduling, reinforcement education, and administrative duties in addition to the traditional technician tasks of refilling warfarin medication in a timely manner.

Method(s) or Procedure(s): I will give examples of the VA Pharmacy Technician responsibilities in these categories: Identifying Drug Interactions with Warfarin; Identifying the Effects of Diet (Vit K rich foods), Alcohol & Tobacco Use on INR; Telephone Monitoring of Patients; Other Responsibilities & Administrative Duties.

Result(s): Having specially trained Pharmacy Technicians allows the AP Pharmacists to focus on protocol review, maintaining patients within the recommended therapeutic range according to the indication, making recommendations for peri-operative management of anticoagulation, communication with Primary Care Physicians and other staff.

Conclusion(s): Working as a Protime Clinic Pharmacy Technician requires specific skills, extensive training and experience. Our medical center established knowledgeable and accredited Pharmacy Technicians to be a successful part of the anticoagulation clinic team.

Disclosure: Maria Sifuentes has nothing to disclose.

T - 99

A Retrospective Analysis From a Pharmacist-Managed Diabetes Medication Management Program on Insulin Utilization and Outcomes.

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Category: Resident

Anticipated presentation at APhA 2011 Annual Conference in Seattle, WA on 3/25 – 3/28/2011

Background: The objectives of this presentation are to discuss the impact of adherence to insulin therapy in patients with diabetes within a diabetes medication management program (MMP) setting compared to patients under usual care setting. In 2006, Scott and White Health Plan implemented a pharmacist managed MMP, which provides co-pay waivers for eligible diabetic beneficiaries. A longitudinal pre/post study evaluating the MMP compared to control group concluded that MMP significantly improved A1c levels; however, medication adherence rates did not significantly improve.

Objective: Different factors are being assessed determine whether or not a difference in A1c levels is observed between the two study groups. This study is a retrospective analysis of patients enrolled in the program with two-years worth of data. Outcomes include the comparison of baseline and endpoint within each group: adherence to insulin via prescription claims, HbA1C, regimen changes, characterization of insulin use, hospitalizations, outpatient utilization, and emergency room visits.

Methods: Characterization of insulin regimens, insulin-related drug therapy problems, and insulin dose titrations will be evaluated by use of patient chart information and other available study data. Measure adherence and persistence of insulin in each study group based on their refill pattern with at least a refill within each day supply by use of prescription claims data. Evaluation of insulin-related drug therapy problems within each study group and evaluate costs associated with these problems, including hypo- or hyperglycemic events, documented via hospital visits, outpatient visits, or emergency room visits.

Results: Currently in progress.

Conclusions: Currently in progress.

Disclosures: Boris Gorsh, PGY1 Outcomes Research Fellow with the Novartis/Scott&White/University of Texas Outcomes Research Fellowship

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