ASHP BEST PRACTICES AWARD In Health-System Pharmacy

Implementing a Comprehensive Emergency Department Pharmacist Program (EDPP)

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Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation:

Authors of this project have nothing to disclose.

Introduction

Institution

Veterans Affairs San Diego Healthcare System
- 238-bed tertiary care medical center
- Five off-site community based clinics
- Two veteran centers in the greater San Diego area

Identified Needs in the Emergency Department (ED)
- Address Joint Commission mandate for prospective medication order review
- Provide consistent medication reconciliation and patient counseling
- Improve pass-down communication during admissions
- Assure medication accountability and proper documentation for administered doses
- Optimize proper formulary management and cost containment
- Improve patient safety by identifying
  - Potential adverse drug reactions (ADR)
  - Allergies
  - Drug interactions

Description of the Program

Finding a Solution
- Funding for four full-time pharmacists was approved contingent on demonstrating that identified needs were met within one year at a cost savings
- Pharmacists were placed on 12-hour shifts to provide 24-hour, 7-days-a-week coverage
- Responsibilities included both inpatient and ED specific duties
- Documentation tools and note templates were created to record
  - Pharmacist-driven interventions
  - Medication reconciliation activities
  - Patient counseling interactions
- A new software program (Inpatient Medications for Outpatients - IMO) for ordering and documenting medications administered in the ED was implemented
- An electronic alert system was created to notify primary providers of changes in medication therapy or labs that needed to be ordered for follow-up
- Emergency Department Pharmacy Program (EDPP) specific pagers, work stations, and email groups were created
- Automated medication dispensing units were placed in the ED with an expanded ward stock list specifically for pneumonia, upper GI bleed, stroke, nausea, and agitation

Description of the Program *(continued)*

- Key objectives were identified for pharmacist interventions
  - Decrease medication errors due to
    - Improper dosing
    - Improper drug selection
    - Lack of screening for potential allergies and adverse drug reactions
  - Decrease polypharmacy associated with multiple ED visits
  - Document all patient interactions and assure consistency of medication reconciliation, including any follow-up needed with primary care providers

Figure 1 - Documentation Card for the EDPP

Patient / Provider / Medication Interventions

Pharmacist Name: _____
Date: _____

Patient Interventions: Code blue, ADR, allergy, toxicology
Provider Interventions: Drug information, order clarification, duplicative therapy, initiate/discontinue therapy, DDI, in-service/training
Medication Interventions: PRN indication, order correction (dose, frequency, selection, etc), renal/hepatic dose adjustment, formulary substitution

Intervention:	Approximate time spent: Issues:	Notes:
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  - Facilitate communication between ED staff, inpatient staff, and primary care providers
  - Identify opportunities to decrease medication costs by monitoring for appropriate formulary decisions
  - Incorporate pharmacy as an integral member of a multidisciplinary team in the ED to optimize patient care

Experience with the Program

- EDPP was launched September 4, 2007
- Data collection phase was set at 6 months
- Ongoing interdisciplinary meetings were held to troubleshoot issues and concerns
- 7598 medication reconciliation encounters were documented
  - Average time spent per encounter was 5.08 (± 3.47) minutes
  - Average number of prescriptions per counseling session was 1.92 (± 1.29)

Experience with the Program *(continued)*

- 9568 pharmacist-initiated clinical interventions were documented
  - 668 interventions resulted in direct cost avoidance
  - 1984 interventions were directly associated with correction of medication orders
  - 185 interventions prevented or documented drug allergies or adverse drug reactions
- An estimated 7% of all interventions resulted in prevention of serious patient harm, resulting in a cost avoidance of $845,592

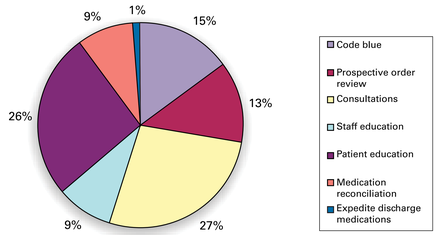
Table 1 - Estimated Potential Cost Avoidance with Adjusted 2008 Values Based on Pharmacist Intervention

Type of Recommendation/Intervention	N	Adjusted Average Cost Avoided per Recommendation*† ($)	Total Cost Avoided ($)
Drug Interaction	29	1,963	56,928
Drug allergy prevention or management	9	1,638	14,749
Dosage or frequency adjustment	198	1,415	280,363
Untreated diagnosis	57	1,318	75,139
Adverse drug event prevention or management	265	1,308	346,807
Drug not indicated	75	862	64,720
Duplication of therapy	35	196	6,883
Total cost avoidance (6 months)			$ 845,592
Total cost avoidance (12 months)			$ 1,691,184

* Adjusted for 2008 values (based on a consumer price index inflation rate of 19.19%.
† Values were based on 6 month time period.
Lee AJ, Boro MS, Knapp KK et al. Clinical and economic outcomes of pharmacist recommendations in a Veterans Affairs medical center. *Am J Health-Syst Pharm.* 2002; 59:2070-7.

- ED staff satisfaction survey demonstrated an overall satisfaction score of 97.9%
- Greatest benefits were identified as
  - Prospective medication order review
  - Drug information consultations
  - Patient counseling

Figure 2 - The Primary Role of the ED Pharmacist as Perceived by the ED Staff



Discussion

- Identified objectives for the EDPP were achieved within 6 months of implementation
- Prospective medication order review, medication reconciliation, and patient counseling were consistently documented with a cost to benefit ratio of 1:2.7
- An ED rotation was added for PGY1 general practice and PGY2 critical care specialty residents
- Future plans include offering an elective rotation for students and implementing a PGY2 ED specialty residency program
- Unanticipated benefits
  - Decreased patient wait times
  - Shifted workload from inpatient and outpatient pharmacy staff to ED pharmacists for expedited processing of ED orders and patient counseling
  - Reduced response time for code blue in the ED area by pharmacy service
  - Improved relationships between pharmacy and nursing and medical staff
  - Assisted in meeting medical center goals for community acquired pneumonia and sepsis
  - Provided immediate consultation services for drug information and dosing
  - Improved ED workflow for patient triage and treatment

Conclusion

Implementation of an EDPP improved the quality of patient care and patient safety while conferring a projected avoidance of $1,691,184 annually to the VASDHS. Identified goals of the project were achieved and included addressing prospective order review, medication reconciliation, pass-down communication, drug accountability, and formulary management. Based on the cost benefit and improvements made by the EDPP, this program has proven to be an invaluable asset to the pharmacy service and medical center.