Managing Medication-Related Problems through Continuous Medication Monitoring

Amber M. Goedken[a], Sharon Huang[a], Randal P. McDonough[b], Michael J. Deninger[b], William R. Doucette[a]

[a]College of Pharmacy, University of Iowa [b]Towncrest Pharmacy, Iowa City, IA

Background

- Medication-related problems (MRP) may develop during treatment
- Prospective drug utilization review by pharmacists is designed to detect medication-related problems prior to dispensing, but not all states require it for refills or for all patients - Documentation is not typically required
- **Continuous Medication Monitoring (CoMM)** has pharmacists review each new and refill medication being dispensed, address any problem identified, and document the problem and actions taken

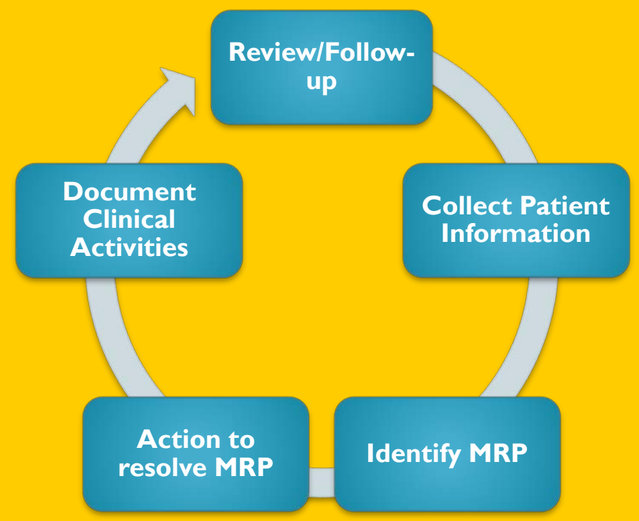
Objective

Describe medication-related problems identified through Continuous Medication Monitoring and describe drug classes involved in medication-related problems at one community pharmacy

Design, Data and Variables

- Retrospective descriptive study of a single independent community pharmacy in Iowa filling approximately 1,600 prescriptions per week
- Clinical records were used to describe medication-related problems and involved drug classes over 12 months of CoMM (April 1, 2014 - March 31, 2015)
- Dispensing records were used to determine patient age, sex, and medication count
- Pharmacists explicitly labeled 95% of problems as nonadherence, therapeutic duplication, drug-drug interaction, high-risk medication for patient ≥65 years old, or new prescription needed due to rescheduling of controlled substance.
- Research team labeled remaining problems
- Drug class for each medication was determined from two-digit level Generic Product Identifier code

Continuous Medication Monitoring



Data Analyses

- Patient characteristics were summarized for all study patients and four patient subgroups: <65 years old, ≥65 years old, <8 medications, and ≥8 medications
- Distribution of types of medication-related problems was produced for all patients and each subgroup
- Drug classes involved in medication-related problems were characterized for each type of problem
- The University of Iowa IRB determined the project did *not* meet the regulatory definition of human subjects research

This study was funded in part by the
Community Pharmacy Foundation

Table 1. Patient Characteristics and Types of Medication-Related Problems

	Total	<65 years	≥65 years	<8 medications	≥8 medications
PATIENTS (N)	1,566	726	838	680	872
Mean age, years (SD)	63.5 (19.8)	47.0 (15.7)	77.8 (8.9)	59.8 (19.8)	66.6 (19.1)
Female	53.9%	50.4%	56.9%	50.0%	57.0%
Mean medication count (SD)	9.9 (6.6)	8.7 (6.2)	10.9 (6.7)	4.5 (1.8)	14.1 (5.8)
MEDICATION-RELATED PROBLEMS (N)	8,439	3,260	5,174	1,692	6,731
Nonadherence	63.2%	68.3%	60.0%	71.9%	61.1%
Therapeutic duplication	22.3%	21.4%	22.9%	20.1%	22.9%
Drug-drug interaction	6.3%	4.5%	7.5%	1.2%	7.6%
Other	3.3%	3.3%	3.2%	3.4%	3.1%
High-risk medication	2.7%	0.1%	4.4%	1.7%	3.0%
New prescription needed	2.2%	2.4%	2.1%	1.7%	2.3%

Table 2. Drug Classes Involved

Drug Class	Nonadherence	Therapeutic duplication	Drug-drug interaction
CNS & analgesic	26.0%	34.5%	19.6%
Cardio-vascular	12.9%	38.8%	15.1%
Anti-infective	14.1%	6.9%	18.9%
Respiratory	8.6%	4.5%	1.3%
Other	38.4%	15.3%	45.1%

Findings

- CoMM is an approach pharmacists can use to fulfill their adherence management role
- Timely management of medication-related problems in community pharmacies can be enhanced by provision of CoMM in addition to medication therapy management services
- CoMM complements payers' claims-based approach to managing medication-related problems
- Limitations are single pharmacy and categorization of medication-related problems does not match categories typically found in the literature
- Further study needed to evaluate CoMM in other community pharmacies