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RESEARCH NOTES

Impact of pharmacist identification of medication-related problems in a nontraditional long-term care pharmacy

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ABSTRACT

Objectives: To characterize the most common medication-related problems and interventions and to evaluate the acceptance rates of pharmacist identification of medication-related problems through percent acceptance rates of interventions in a nontraditional long-term care pharmacy.

Methods: A retrospective chart review of long-term care pharmacy patients 18 years of age or older was used to evaluate pharmacist interventions from January 2014 to August 2016. Data collection included the date and type of intervention, patient demographic information (age, sex), drug class involved, physician provider type (primary care or specialist), intervention outcome, and resolution type. Accepted and rejected interventions were reviewed and classified based on Hepler and Strand's 8 medication-related problems: untreated indications, improper drug selection, subtherapeutic dosage, failure to receive medication, overdosage, adverse drug reactions, drug interactions, and medication use without indication. Data were analyzed with the use of descriptive statistics.

Results: Four hundred seventeen interventions were documented over 18 months, approximately 13 interventions per month. Prescribers accepted 47% of interventions and rejected 29%. The remaining 24% of interventions did not have a response from the prescriber. Of the medication-related problems, "untreated indication" and "overdosage" were the most commonly intervened with and accepted interventions. Regarding drug class, pharmacists made the most interventions regarding immunizations (41%), diabetes medications (11%), cholesterol medications (10%), and hypertension medications (7%).

Conclusion: Pharmacists are improving the care of patients living in small group homes through various types of recommendations regarding complex disease states, such as diabetes, hyperlipidemia, and hypertension, further complicated by mental illness. With almost one-half of all recommendations accepted by prescribers, pharmacists consistently provided recommendations to improve care.

Long-term care (LTC) pharmacies provide services to patients over an extended period of time.[1] With 70% of the elderly population requiring LTC services, LTC pharmacies are commonly equated with nursing homes and the elderly.[1] However, some nontraditional LTC pharmacies have expanded this definition to include all patients, regardless of age, requiring long-term services.[1] For example, these patients may include those with chronic illnesses, intellectual disabilities, or behavioral health issues. Pharmacists and the patient care services they provide, such as medication therapy management, medication synchronization, and routine immunizations, are a key and integral part of LTC pharmacies.

There is little information available to quantify the impact of pharmacists' interventions, particularly regarding small group homes and the care provided in them. In a 2003 observational study of a Dutch residential home, pharmacists completed chart reviews for elderly patients and quantified their interventions.[2] However, that study, as with many others, focused on an older population, which is vastly different than the patient population in our research. Furthermore, there are even fewer data about the interventions made within a population with multiple chronic illnesses compounded with

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mental illness. With close to 1 million people living in other assisted living facilities,[3] this large population warrants further research, so that the health care team, and specifically pharmacists and pharmacies, can best serve them.

Therefore, in a nontraditional long-term care pharmacy, we sought to quantify the number of pharmacist-based interventions while also determining which drug-related problems and diseases commonly require intervention.

Objectives

The objectives of this study were to characterize the most common medication-related problems and interventions and to evaluate the acceptance rates of pharmacist identification of medication–related problems through percent acceptance rates of interventions in a non traditional LTC pharmacy.

Methods

Study design and study period

This study was a retrospective chart review of pharmacist interventions made from January 2014 to August 2016.

Setting

Bremo Pharmacies is an independent pharmacy located in Richmond, Virginia, which is composed of three stores: Bremo Pharmacy, Bremo Long-Term Care Pharmacy, and Bremo Pharmacy at Henrico Doctors' Hospital. Bremo Long-Term Care Pharmacy is a nontraditional LTC pharmacy that serves approximately 200 smaller group homes and approximately 12 assisted living facilities by filling their medications through a synchronization program, performing regular chart reviews for select homes, providing medication therapy management, and administering routine immunizations. Unique to this LTC pharmacy, there is a high population of patients with intellectual disabilities and behavioral health issues, along with other complex disease states, requiring a higher level of care.

Patient selection

Patients who were at least 18 years of age or older and using the Bremo LTC pharmacy were included in this study. Patients included those living in Virginia Department of Social Services assisted living facilities, Virginia Department of Health intermediate care facilities, and Department of Behavioral Health and Developmental Services group homes.

Chart review

The Bremo LTC pharmacy uses a workflow management system that allows the pharmacy to receive, manage, and organize patient records, forms, and prescriptions. In this system, pharmacist-based interventions are organized based on clinical interventions and if they are accepted or rejected. The medication-related problems that were identified include dosing appropriateness, drug-drug interactions, interpreting laboratory values, and identifying gaps in therapy. After identifying potential medication-related problems, pharmacists contacted providers, primarily via fax, and provided suggested interventions.

Recommendations that required prior authorization or required prescription clarification were excluded from review. Both accepted and rejected interventions recorded within the "clinical interventions" category of the workflow system were reviewed and organized based on specific categories. The following categorical data were collected for each clinical intervention: drug class, provider type (primary care or specialist), date and type of identified medication-related problem (derived from Hepler and Strand's 8 medication-related problems[4]), recommendation uptake, and recommendation categories (Table 1). Demographic data were collected, including sex and age.

Analysis

Data were analyzed using descriptive statistics, such as means and percentages. This study was approved and exempted by the Virginia Commonwealth University Institutional Review Board.

Results

From January 2014 to August 2016, pharmacists documented 956 recommendations. Once exclusion criteria were applied, pharmacists documented 417 clinical interventions (average of 13 per month) for 190 patients, 43% of whom were female and 57% male. Both female and male patients had an average age of 56 years.

Of the 417 interventions, prescribers accepted 47% of interventions and rejected 29%. The remaining 24% of interventions did not have a response from the prescriber. For those interventions that were accepted, 77% of the total interventions were to initiate a new therapy, 9% of total interventions were to discontinue a medication, and the

Table 1
Medication-related problems: data collection organization

Identified problem	Recommendation uptake	Recommendation categories
● Untreated indication ● Improper drug selection ● Subtherapeutic dosage ● Failure to receive medication	● Accepted by prescriber ● Rejected by prescriber ● No response by prescriber	● Accepted ○ New therapy initiated ○ Medication discontinuation ○ Dose or regimen change to current therapy
● Overdosage ● Adverse drug reaction		● Rejected ○ Reviewed without changes
● Drug interactions ● Lack of efficacy ● Medication use without indication		● No response ○ No response after 3 fax attempts