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ORIGINAL ARTICLE

# Drug therapy problems identification by clinical pharmacists in a private hospital in Kuwait

*Identification de problèmes médicamenteux par des pharmaciens cliniciens dans un hôpital privé au Koweït*

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## KEYWORDS

Clinical pharmacy services;  
Clinical pharmacist;  
Drug therapy problems;  
Pharmacist interventions;  
Direct patient care;  
Kuwait

## Summary

**Objectives.** – To report the types and frequency of drug therapy problems (DTPs) identified and the physician acceptance of the clinical pharmacist interventions in a private hospital in Kuwait.

**Methods.** – A retrospective cross-sectional study was conducted on 3500 patients admitted to the hospital between December 2010 and April 2013. A structured approach was used to identify DTPs and recommend interventions. Data were analyzed using MAXQDA version 11.

**Key findings.** – A total of 670 DTPs were identified and recommendations were proposed to treating physicians for each DTP. Overdosage was the most frequently identified drug therapy problem (30.8%), followed by low dosage (17.6%), unnecessary drug therapy (17.3%), need for additional drug therapy (11.6%), and need for different drug product (11.6%). The drug classes most frequently involved were anti-infectives (36.9%), analgesics (25.2%), and gastrointestinal agents (15.5%). More than two-third of the interventions (67.5%) were accepted and implemented by physicians. The most frequently accepted interventions were related to non-adherence, adverse drug reaction, monitoring parameters, inappropriate dosage, and need for additional drug therapy.

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**Conclusion.** — The current findings expand the existing body of data by reporting on pharmacist recommendations of identified DTPs and importantly, their high rate of acceptance and implementation by the treating physician. These results could serve as a springboard to support further development and implementation of clinical pharmacy services in other healthcare settings in Kuwait.

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## MOTS CLÉS

Services de pharmacie clinique ; Pharmacien clinicien ; Problèmes médicamenteux ; Interventions de pharmacien ; Soins directs ; Koweït

## Résumé

**Objectif.** — Décrire les types et fréquences des problèmes médicamenteux (PM) identifiés et le taux d'acceptation par les médecins des interventions du pharmacien clinicien dans un hôpital privé au Koweït.

**Matériels et méthodes.** — Une étude transversale rétrospective a été réalisée sur 3500 patients admis à l'hôpital entre décembre 2010 et avril 2013. Une approche structurée a été utilisée pour identifier les PM et recommander des interventions. Les données ont été analysées à l'aide de MAXQDA version 11.

**Résultats.** — Au total, 670 PM ont été identifiés et des recommandations ont été proposées aux médecins. Le surdosage était le problème le plus fréquemment identifié (30,8 %), suivi du sous-dosage (17,6 %), d'un médicament non-indiqué (17,3 %), du besoin d'un médicament supplémentaire (11,6 %), ou d'un médicament différent (11,6 %). Les classes de médicaments les plus fréquemment impliquées étaient les anti-infectieux (36,9 %), les analgésiques (25,2 %) et les agents gastro-intestinaux (15,5 %). Plus des deux tiers des interventions (67,5 %) ont été acceptées et appliquées par les médecins. Les interventions les plus fréquemment acceptées étaient liées à une non-observance, à un effet indésirable, à une surveillance de suivi, à un dosage inapproprié et au besoin d'un médicament supplémentaire.

**Conclusion.** — Les résultats de cette étude viennent s'ajouter à l'ensemble des données existantes en décrivant les recommandations des pharmaciens sur les PM identifiés et, surtout, le taux élevé d'acceptation de ces recommandations par les médecins. Ces résultats pourraient servir de tremplin pour aider au développement et la mise en place de services de pharmacie clinique dans d'autres établissements de santé au Koweït.

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## Introduction

Pharmacy profession has evolved dramatically over the past century from traditional roles such as medication compounding and dispensing to a highly regulated field focused on direct patient care. The practice of clinical pharmacy embraces the philosophy of pharmaceutical care, which plays a pivotal role in promoting the safe and effective use of medications to prevent medication errors, improving the quality of patient care, and disseminating drug information and education to patients and health care providers [1,2].

A medication error, as defined by the National Coordinating Council for Medication Error Reporting and Prevention (NCC-MERP), is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education;

monitoring; and use [3]. Several classifications are used to report and classify medication errors; in this article, medication errors are classified using the Strand et al. classification, this classification uses the term "drug-therapy problem" (DTP); this concept generally refers to a system approach, including problems in the whole drug therapy chain, from the patient's perspective. This classification evaluates pharmacists' activities in their daily provision of pharmaceutical care [4,5].

Several studies have demonstrated the value of clinical pharmacist recommendations in hospital settings in North America and Europe, which include decreased drug therapy problems (DTPs), reduced rates of hospital readmissions (up to 80%) and emergency room visits (up to 47%) [2,6–10]. However, there is a paucity of data documenting the impact of clinical pharmacists' recommendations in hospitals in developing countries. Few studies from countries in the Middle East have shown that including clinical pharmacists in hospital rounds is associated with improved identification of DTPs and effective recommendations that resulted in prevention of medication errors,

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