

## Case Report

# Opportunities for Medication Review and Reconciliation by a Clinical Pharmacist to Prevent Drug-Related Hospital Re-Admissions: Evidence from a Case Series in Sri Lanka

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## Abstract

Medication review by a clinical pharmacist improves quality use of medicines in patients by identifying, reducing and preventing drug related problems and hospital re-admissions. This service is new to Sri Lanka. We present two cases from a non-randomized controlled trial conducted in a tertiary care hospital in Sri Lanka. The first case is from the control group where no clinical pharmacist was engaged and the next case is from the intervention group. The first case was a drug related hospital re-admission because of missing medicines in the discharge prescription and the second case was a re-admission which was prevented by the intervention of a ward pharmacist by performing a clinical medication review of the prescription.

Key words: Pharmacist, Medication review, Re-admission

## Introduction

Medication reconciliation and reviewing of the patient's medicines regularly are the most important role of a clinical pharmacist. Medication reconciliation is defined as "the process of obtaining an up-to-date, complete accurate medication list of all prescribed, non-prescribed medications a patient has been on before admitting to the hospital and has been compared with physician's admission, transfer, and/or discharge orders and, has recognized any discrepancies including deletions, additions or changes that

has been done to the medication list, which would be communicated to the prescribers and the changes would be documented".(1) Numerous past studies from world have shown that clinical pharmacist-led medication reconciliation at the time of admission and at discharge could reduce these unintentional medication discrepancies and hospital admissions. (2,3,4,5)

Medication review has been defined as "a structured, critical examination of a patient's medicines with the objective of reaching an agreement with the patient about treatment,



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optimising the impact of medicines, minimising the number of medication – related problems and reducing waste”.(6) This helps to improve the quality, safety, efficacy of the treatment and to promote rational use of medicines.

In Sri Lankan hospitals, the pharmacists are confined to medication dispensing, storage and inventory control but not engaged in patient management in the wards. Clinical pharmacy services in public sector hospitals in Sri Lanka is still in its infancy. The two cases presented in this paper highlights the need and significance of clinical pharmacy services for reducing medication errors and hospital re-admissions in Sri Lanka.

### Case 1

A 70 year old woman with a past history of diabetes mellitus, hyperlipidemia, hypertension, hypothyroidism and ischemic heart disease was admitted with a two week history of fever, productive cough and shortness of breath. She was diagnosed with an acute lower respiratory tract infection. On admission her previous oral hypoglycemic drugs (metformin 500 mg three times a day and tolbutamide 750 mg three times a day) were withheld as she was started on soluble insulin 18 units three times a day. At discharge, her random capillary blood glucose level was recorded as 332 mg/dL. Soluble insulin was stopped at discharge, but the previous oral hypoglycemic drugs were not restarted. The discharge prescription did not have any hypoglycaemic agents. Two weeks after the discharge, the patient was re-admitted to the hospital with high fasting blood glucose (330 mg/dL) and signs of diabetic ketoacidosis.

### Case 2

A 72 year old man with hypertension, ischemic heart disease and bladder outflow obstruction had been recently investigated for melena. This time the patient was admitted to the medical ward for blood transfusion. On admission blood his pressure was normal (130/90mmHg). He was on atenolol 25 mg once a day, enalapril 5 mg two times a day, enteric coated aspirin 75 mg nocte, clopidogrel 75 mg nocte, pantoprazole 40 mg twice a day, alprazolam 0.25 mg nocte, isosorbide mononitrate (ISMN) sustained release 60 mg twice a day, atorvastatin 40 mg nocte, nicorandil 10 mg twice a day, glyceryl trinitrate (GTN) SOS and tamsulosin 0.4 mg nocte. When taking the medication history from the patient, the pharmacist identified that the patient was on domperidone 10 mg twice a day during the previous one month period without any indication. This was discussed with a senior registrar and as patient did not have any complaint of nausea or vomiting the drug was discontinued. The patient's medicine container had two different brands of ISMN and he did not know that the two were branded generics of the same drug, and had consumed both. The pharmacist educated the patient and asked him to use only one brand. At discharge his two antihypertensives (atenolol and enalapril), tamsulosin and GTN were not reconciled on the discharge prescription. This was directed to the doctor and corrected. The corrected discharge prescription read enalapril 50 mg instead of 5 mg which was discussed with the doctor and corrected.

### Discussion

Re-admissions to hospital is a common incident and it increases the healthcare cost. (2,7-8) According to the Medicare Payment

Advisory Commission in USA, the annual healthcare cost for potentially preventable re-admissions was about \$12 billion in USA. (8) World literature has shown a reduction in hospital re-admissions when a pharmacist performed a medication reconciliation process at discharge. (2-5)

However, the involvement of pharmacist for patients' medication management together with other healthcare professionals is minimal in Sri Lanka. Still the pharmacists' duties and responsibilities are confined to medication dispensing and compounding.

These two cases demonstrate that there are opportunities for clinical medication review and reconciliation by a clinical pharmacist during hospital stay of a patient which is likely to reduce the rate of drug-related re-admissions. As demonstrated by Case 1, the most likely cause for readmission would be non-reconciliation of hypoglycaemic agents at discharge that led to subsequent hyperglycaemia. The reason for missing the oral hypoglycaemic drugs in the discharge prescription was likely to be overseen according to the existing system in Sri Lanka, but a formal medication review and reconciliation procedure by a pharmacist could have been prevented this incident.

The second case was from the intervention group where the patient received medication review, reconciliation and education from a ward pharmacist in addition to the standard care. The pharmacist was able to identify non-reconciled medicines (atenolol, enalapril, GTN and tamsulosin) which would have resulted in a drug-related re-admission.

This case further highlights the importance of medication review by a pharmacist as it helps to identify and correct patient's poor

knowledge on the two ISMN brands and the unnecessary administration of domperidone. There was a prescription error in the enalapril dose, but this could have been identified by the dispensing pharmacist at the pharmacy, as a dose of enalapril 50 mg is an obvious error. However if the prescription was illegible, even an obvious error could be missed. Had it not been for the ward pharmacy services, a potential drug related readmission could have occurred. E.g. If the brand confusion regarding ISMN continued patient could have been hypotensive.

The above two cases highlight the opportunities available for a ward-based clinical pharmacist to work as a member of the multidisciplinary healthcare team making important contributions towards optimizing patient care.

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