



INTRODUCTION

Evidence-based medicine (EBM) is the practice of incorporating current data to clinical decision making. It involves the combination of the clinician's ability and experience, together with the best clinical evidence obtained from research and studies¹. The clinical pharmacist has the potential of using science and skills, together with clinical experience and professional judgement to ensure the best outcome from medication therapy. Clinical pharmacy aids in delivering optimal therapy while minimising any risks associated with the administration of medicine².

AIMS

- To identify clinical pharmacy activities performed in a hospital scenario by clinical pharmacists.
- To determine the significance of clinical pharmacists in ten medical specialisation areas with a focus on pharmacists' intervention during medical rounds, pharmacist prescribing and medication risks.
- To propose recommendations which could be applied to the local setting.

METHOD

1. Clinical pharmacy services carried out by clinical pharmacists in various hospitals worldwide were identified.
2. An extensive online literature search was conducted in order to compile and analyse studies which demonstrate the impact of clinical pharmacist interventions in various medical specialisation areas.
3. Ten medical specialties were chosen in order to evaluate the role of the clinical pharmacist. These included: Accident and Emergency, Cancer and Palliative Care, Cardiology, Critical Care, Elderly Care, General Surgery, Paediatrics, Renal, Respiratory and Psychiatry.
4. Studies which met the inclusion criteria were analysed to establish if the presence of the clinical pharmacist contributed to a positive outcome, a

negative outcome or caused no effect on the patient or to the healthcare system.

5. Clinical pharmacy services and outcomes resulting due to the clinical pharmacists' interventions were documented.
6. A list of clinical pharmacy recommendations for the local setting was then compiled into nine sections. Pharmacist activities included in the recommendations were: the identification of patient's medication and pharmaceutical needs during the stay in hospital, documentation, the provision of education to patients and other healthcare staff, assigning prescribing authority to pharmacist, discharging of patients, post-discharge follow-up visits, pharmacovigilance and the involvement of pharmacists in Drug and Therapeutics Committees.
7. A focus group composed of 4 clinical pharmacists, 1 hospital pharmacist, 2 community pharmacists and 1 medical doctor was appointed in order to evaluate and provide feedback on the proposed recommendations.

RESULTS

- From the ninety-seven studies analysed a total of twenty clinical pharmacy services were identified.
- The two most frequent clinical pharmacy activities are: reviewing of medication profile on admission of patient or during the stay in hospital and identifying or altering drug administration routes, doses or frequency.
- Other clinical pharmacy activities which are carried out quite commonly include: patient medication counselling and education, initiating, changing or suggesting drug therapy and clinical pharmacist participation in medical rounds together with other members of the healthcare team.
- The proposed recommendations were positively received by members of the focus group. The main notion which was identified was that although these recommendations have the potential to be put into practice, the main problem is the lack of human resources.

Table 1: Effects of Clinical Pharmacists' Interventions identified in reported studies

Effects of clinical pharmacy services provided by the clinical pharmacist	No. of sources
Interception and reduction of severe drug-drug interactions	29
Identification and reduction of medication risks (ADRs, prescribing errors)	45
Enhancement of medication safety	10
Optimisation of medication compliance	10
Adherence to established guidelines and enforcing of protocols	10
Identification of drug-related negative outcomes and consequent increased awareness in healthcare professionals	9
Facilitation and assurance of appropriate administration of medication therapy	11
Assisting physicians in clinical decisions, suggesting drug selection and positively affecting doctors' prescribing practices	12
Decrease in length of stay in hospital	13
Reduction in readmission rates of patients and hospital visits	7
Better quality of care which is cost effective	1
Decrease in mortality rates	6
Reduction in unnecessary drug use and polypharmacy and promotion of rational medication use eg. untreated indication	53
Provision of relevant recommendations to healthcare professionals eg. therapeutic recommendations	39
Augmentation of pharmacovigilance and increase in reporting of medication errors	2
Economical savings and cost avoidance	23

CONCLUSION

This project shows a promising future for clinical pharmacy. Adopting a more patient-centred approach and including clinical pharmacists within wards, is advantageous both to the patient as well as to the healthcare system. Giving new responsibilities to pharmacists has the potential to enhance the synergy between pharmacists and other healthcare members. It helps raise healthcare standards, ensures patients are receiving better healthcare management, ameliorates patient's health and leads to economic benefits. Assessing the patient's perception of having a clinical pharmacist included within the healthcare team can be analysed in future work.