

Brief Report

Assessing Limitations and Solutions in Developing Clinical Pharmacy Services in Sri Lankan Government Hospitals: A Report from a Hospital Pharmacists' Workshop

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ABSTRACT

Adverse events related to unsafe medication practices remains a leading cause of avoidable injury and mortality. Although there is vast evidence to support clinical pharmacy services in improving medication safety, pharmacy departments in Sri Lankan government hospitals still primarily manage the distribution and provision of medicines. Acknowledging this, a Hospital Pharmacists' Workshop was organised to identify factors that may impede clinical pharmacy services and medication safety practices in Sri Lanka, and further, collate recommendations to overcome these factors. A representative sample of Chief Pharmacists from hospitals around the workshop location of Kandy, representatives of the Society of Government Pharmacists (SGP) and Pharmaceutical Society of Sri Lanka (PSSL) were invited as a sample of convenience attended the workshop hosted by the University of Peradeniya. The workshop was facilitated by experienced pharmacists visiting on behalf of the Collaboration of Australians and Sri Lankans for Pharmacy Practice, Education and Research (CASPPER) group. Delegates were divided into groups for facilitator led discussions. Issues, solutions and recommendations were discussed and agreed upon as one large cohort. The consensus objective identified by attendees was to support government pharmacists in recognising and improving identified patient, pharmacist and system factors that hinder the implementation of clinical pharmacy services. Developing and promoting the



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adherence to best practice standards, instituting competency standards for pharmacists, and streamlining current processes were the main modifiable recommendations proffered by attendees. It is acknowledged that service improvement is not an easy task. Actions from national groups, individual hospitals and universities are required to implement effective and sustainable changes as identified by attendees at this workshop.

Key Words: Quality Use of Medicines; Pharmaceutical Care; Medication Safety; Clinical Pharmacy; Drug Provision; Drug Policy

INTRODUCTION

Adverse events related to unsafe medication practices remain a leading cause of avoidable injury and mortality, with both human and system factors implicated in suboptimal use of medicines.(1) As such, the need to enhance medication safety practices, both globally and within Sri Lanka, has been widely recognised.(1-10) The commitment towards improving medication safety practices has been addressed by World Health Organisation (WHO) campaigns; through the integration of quality use of medicine (QUM) recommendations into national policy and education programs in Sri Lanka; and through research promoting the role of clinical pharmacists in improving QUM and medication safety in Sri Lankan hospitals.(1-6) In practice however, there remains limitations to enacting medication safety systems and promoting clinical pharmacy services in government hospitals within Sri Lanka.

Globally, the issue of avoidable medicine related adverse effects have been acknowledged by WHO. In 2017, the organisation announced that its Third Global Patient Safety Challenge, namely Medication Without Harm, would address medication safety.(1) It has identified four domains as areas of focus: healthcare professionals; medicines; systems and practices; and patients and the public. The

aim of this challenge is to develop strategies that ultimately ensure that patient safety is at the core of the entire medication process.

Within Sri Lanka, medication safety has also been identified as an area of focus. The 2005 Sri Lankan National Medicinal Drug Policy decreed that improving QUM and supporting the development of the pharmacy profession should be prioritised.(2) In order to develop a pharmacy workforce capable of supporting an improvement in QUM, a Bachelor of Pharmacy degree was introduced in Sri Lanka in 2006. This course was established to equip graduates with the skills to provide clinical pharmacy services in Sri Lanka.

To assist in this goal, the Department of Pharmacy University of Peradeniya (DPUP) has been working with the Collaborative of Australian and Sri Lankan Pharmacists for Practice Education and Research (CASPPER) since 2009. As well as supplementing undergraduate teaching, the group supports ongoing clinical pharmacy research in Sri Lanka. To date, the research supported by the CASPPER team has consistently highlighted the impact and patient care benefits of clinical pharmacists improving medication practices, and thus patient safety and quality of care in Sri Lankan Hospitals.(3-4)

One such study in a Sri Lankan tertiary hospital, assessed the opportunity for clinical pharmacists to optimise QUM in a Sri Lankan tertiary hospital.(3) This study identified significant issues in the admission and discharge medicine reconciliation process, with at least 46% of medication errors attributed to incomplete medication histories taken on admission and a further 72% of medication regimens considered inappropriate on discharge.(3) The study also identified that most patients interviewed had a poor understanding of their medicines. Ultimately, the study concluded that significant opportunities exist for clinical pharmacists to improve QUM in Sri Lankan hospitals.(3)

A further study, at the same site demonstrated that a significant opportunity exists for pharmacists to affect positive change within these centres.(4) The study found that of the drug related problems identified by investigators, 83% of recommendations were accepted and 73.5% implemented by the medical team.(4) The study demonstrated that there was overwhelming positive support from medical staff for the incorporation of clinical pharmacy services into the existing healthcare system, with 91.7% agreeing that clinical pharmacy services would improve QUM and are vital to the current healthcare system.(4)

Three earlier studies all identified gaps in the QUM processes in Sri Lanka from a patient perspective, including Manchanayake's work that identified the significant needs to improve services to support patients understanding dosing instructions (7) and the Hettihewa study that highlighted gaps in adherence to the prescriber's intended medication regime.(8)

Despite this evidence, pharmacy departments in Sri Lankan government hospitals still primarily manage the distribution and dispensing of medicines for inpatient and outpatient cohorts and are not present on ward based clinical care teams. It was postulated that by identifying why this is, and how current individual practices or medication systems may contribute to limiting clinical pharmacy services, solutions to these impacting factors could be identified.

Therefore, in a bid to identify these factors, and to highlight the overall importance of medication safety, a Government hospital Pharmacists' Workshop was organised in August 2018 at the University of Peradeniya. This workshop was aimed at Chief Pharmacists (or delegates) and senior pharmacists working within Sri Lankan government hospital sector and was facilitated by the visiting CASPPER group.

The objectives of this workshop were to identify strategies to address patient, pharmacist and system factors which limit clinical pharmacy services and negatively impact medication safety in Sri Lanka and to identify potential solutions and actions to overcome these factors. On behalf of the members in attendance, this report presents the outcomes of that workshop.

THE WORKSHOP

Invitations to attend the Government Pharmacists' Workshop were sent from the DPUP to Chief Pharmacists at 12 hospitals surrounding Kandy, the location for the workshop. The Chief Pharmacist at each hospital could nominate up to two pharmacists to attend. Representatives of the PSSL and the SGP were also invited to attend the workshop as these organisations

play a national role in pharmacy practice and education. In total, twenty-nine delegates attended from 11 Government Hospitals (one site did not attend). Although chief pharmacists were invited four sites sent a delegate or proxy. There was also the chief pharmacist from a private hospital; although the discussions were focused on practices in government hospitals. The list of participating hospitals or organisations, and the number of attendees from each representative group, is presented in Table 1. All delegates had at least five years hospital pharmacy experience. Research Ethics approval was not required as this workshop was organised to explore current practices, propose possible changes and share findings in the form of a published report with other Sri Lankan pharmacy colleagues in order to stimulate change.

The workshop was held in the afternoon on August 13, 2018 at the University of Peradeniya. All delegates were pre-allocated by the facilitators into five workshop groups. Pre-allocation ensured that groups were diverse in terms of experience (i.e. included Chiefs and less senior delegates) and geography (ie different hospitals and towns). Each group was facilitated by a CASPPER representative and a member of the DPUP teaching staff.

Associate Professor Ian Coombes, (IDC) on behalf of CASPPER, opened the workshop. A brief introduction was followed by a presentation of international and local evidence for causes of medication errors and solutions focussing on medication safety practices to improve QUM, including clinical pharmacy. After this, groups commenced the facilitator led group discussions. Attendees were asked to: Share their own objectives for the workshop;

define current pharmacy practice within their health service (from procurement to patient); identify limitations in current practices (both human and system factors); and consider possible solutions and actions required to overcome the identified limitations.

Each topic was discussed in turn with the CASPPER facilitators recording the outputs from their workshop group. Feedback was made to the whole group for further development, with the Lead Facilitator (IDC) recording the consensus decisions.

Table 1: The list of participating hospitals or organisations and the number of attendees present at the Government Pharmacists' Workshop.

Hospital or Organisation	Number of attendees
Anuradhapura – Teaching Hospital	2
Colombo – Asiri Central Hospital	1
Dambulla – Base Hospital	2
Gampola – Base Hospital	2
Kandy – Teaching Hospital	2
Kegalle – General Hospital	2
Kurunegala – Teaching Hospital	2
Matale – District General Hospital	2
Mawanella – Base Hospital	2
Peradeniya – Teaching Hospital	3
Sirimawo Bandaranayake Children's Hospital	2
Warakapola – Base Hospital	2
Pharmaceutical Society of Sri Lanka (PSSL)	2
The Society of Government Pharmacists	3

WORKSHOP OUTPUTS

Objectives identified by participants

The consensus objective identified by attendees was to support government pharmacists to identify and agree on strategies to improve modifiable patient, pharmacist and system (pharmacy) factors that limit clinical pharmacy services, and thus medicine and patient safety.

Current pharmacy practices in Sri Lanka

Describing the current pharmacy process, from procurement to patient administration, allowed for a clear understanding of the distribution of tasks within Sri Lankan hospital pharmacies. It also allowed government pharmacists to compare practices between individual health services. Figure 1 describes the medication distribution process. Figure 2 and Figure 3 describe the pharmacist process from point of patient presentation to dispensation of medication for out-patients and in-patients respectively.

Identification of limitations and solutions – Patient, pharmacist and system factors

Patient factors

Attendees identified that poor patient understanding of medicines (including indication, dosing and duration), basic literacy standards and language barriers all contribute to reducing medicine compliance. By way of solutions, the group identified that the provision of clearly labelled medicines, supplemented with written (in an appropriate language) or pictorial medicine information, could help overcome these barriers.

Further, attendees noted that there remains a variable understanding of the role of a pharmacist amongst the general population.

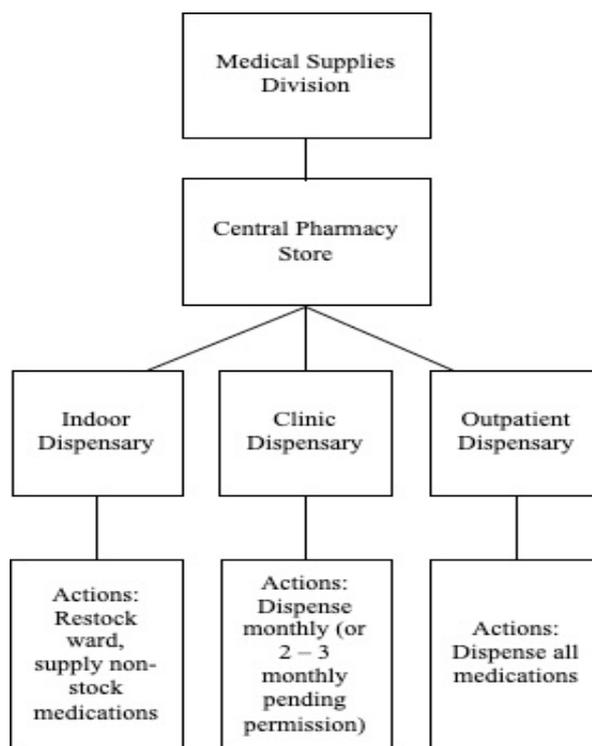


Figure 1: Medication distribution chain in Sri Lankan government hospitals as identified by attendees at the Government Pharmacists' Workshop.

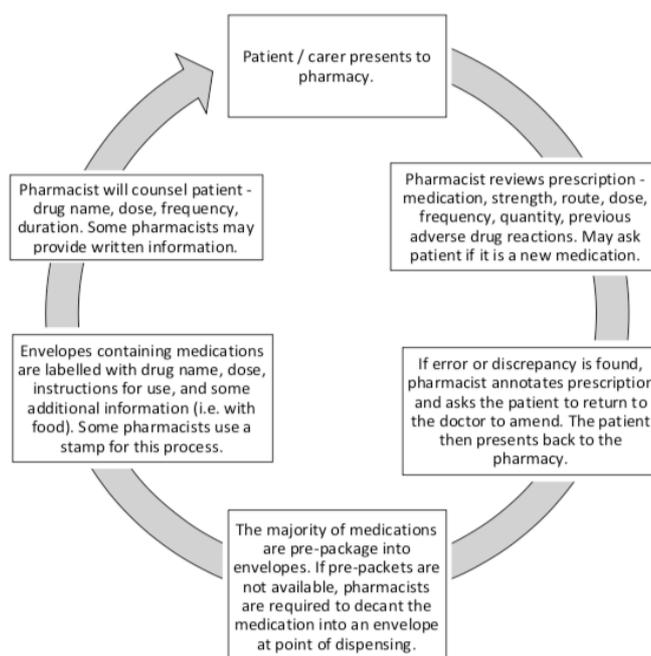


Figure 2: Pharmacy process as identified by attendees from point of patient presentation to an outpatient clinic to the dispensation of medication to the patient.

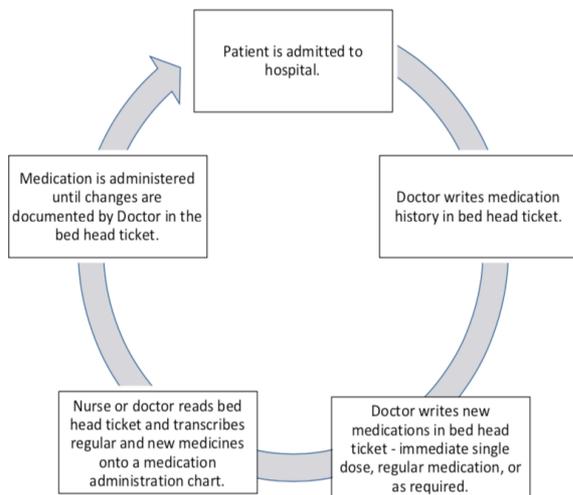


Figure 3: Inpatient medication process as identified by attendees from point of patient presentation to hospital to administration of medications.

It was thought that by displaying information in pharmacies, explaining the role of a pharmacist, as well as requesting regular feedback from patients on the pharmacy service, this could be somewhat overcome.

Pharmacist factors

The limited and inconsistent provision of information to patients by pharmacists in terms of appropriate labelling of medicines, counselling and offering of supplementary patient information, was identified as a patient safety risk. It was suggested that by adhering to best practice standards for dispensing and counselling, as promoted by WHO and International Pharmaceutical Federation, a more consistent and higher standard of safety would be provided by the pharmacy service.⁽¹¹⁾ Further, the use of pre-printed adhesive medicine labels, with blank spaces for specific patient/medicine details to be written, was recommended to streamline and standardise dispensing processes.

Attendees at the workshop also noted that the competency of the workforce is not routinely assessed and feedback on performance is not provided. The group agreed that competency should be assessed on a continuous basis and targeted education and training be available for upskilling purposes.

System/pharmacy factors

Time pressure, look-alike medicines and limited division of services (clinical and non-clinical) were all identified as system barriers to patient safety. Attendees supported the streamlining of current processes to free pharmacist time. It was identified that various points in the standard pharmacy process could be targeted to achieve this goal. Procuring monthly-sized packs from the manufacturer or centralising repackaging at one centre would limit time spent repacking medicines. Further, utilising assistants in dispensing and distribution tasks, providing targeted counselling (for high risk or new medications), and redirecting the distribution of non-pharmaceutical supplies to a generic store, would allow pharmacists more time to implement clinical services.

In terms of medicine safety practices, clearly labelling and physically separating look-alike products could reduce the risk of unintentional substitution of these medicines. Additionally, by sub-dividing dispensing services, avoidable errors could be reduced: by allocating separate pharmacists to the triage of prescriptions, dispensing of medicines and if possible the counselling of patients. This would ensure double checks are carried out with greater accuracy.

Recommendations for action

Recommendations for action, as suggested by attendees, are presented in Table 2. Key recommendations include: to develop, distribute and audit the adherence to Best Practice Global Standards; to consider a division of pharmacy tasks (clinical vs non-clinical); to promote the role of a

pharmacists to the public; to institute competency standards for pharmacists (11); to purchase monthly pre-packed medications from the manufacturer where available; and to purchase pre-printed adhesive labels to streamline the dispensing and labelling of medicines

Table 2: Recommendations for Chief Pharmacists, universities and national groups to improve medication safety

Chief Pharmacists	Universities and PSSL	Nationally
<p>Ensure comprehensive induction for all staff.</p> <p>Provide access to Best Practice Standards for dispensing, labelling and counselling.</p> <p>Review current division of service – introduce targeted counselling services; consider sub-division of clinical services and limit non-clinical tasks.</p> <p>Identify lead pharmacists for training and education roles; introduce competency standards and regular review of performance.</p> <p>Consider purchasing of manufactured monthly packs where available to optimise pharmacist time and reduce risk of accidental substitution with look-alike medicines.</p> <p>Purchase pre-printed adhesive labels with space for patient name / directions to ensure consistent labelling of medicines.</p> <p>Display information of pharmacy services to the public, to raise awareness of role in medication safety.</p>	<p>Assist in the upskilling of current pharmacists.</p> <p>Continue to provide undergraduate clinical pharmacy training and promote medication safety.</p> <p>Continue to support research which promotes QUM principles.</p>	<p>Develop and implement Best Practice Standards for dispensing, labelling and counselling.</p> <p>Facilitate the purchase of manufactured monthly packs or consider centralising pre-packing of medicines.</p> <p>Create additional designated dispensary and ward based positions that focus on clinical pharmacy in addition to distribution and dispensing</p>

DISCUSSION AND CONCLUSION

The workshop demonstrated a significant commitment from attendees to expand the role of hospital pharmacists beyond medication dispensing, and to improve clinical services to optimise QUM, medication safety and ultimately patient care. Participants recognised the need to provide more comprehensive counselling services, improve current dispensing and labelling practices, and provide more practical medicine information to patients in a bid to enhance medicine understanding and compliance.

Given that without significant increase in designated additional staff for dispensary and ward based clinical activities, time constraints remain the major limitation to optimising clinical pharmacy services in Sri Lankan government hospitals, a strategy to streamline existing practices was a major topic of discussion at the workshop. The time burden of repacking medications, as well as the risk of unintentional substitution of look-alike medications, was identified as areas for intervention. By purchasing original monthly-sized packs from the manufacturer directly, this time and safety risk could be somewhat mitigated. Further, by reallocating non-clinical services (general stores, distribution of non-pharmaceutical supplies), more time could be allocated to improving clinical services.

The workshop further reinforced the importance of providing medications to patients that are clearly labelled and associated with pharmacists counselling patients about the drug and dose to take. This is all in line with the evidence from earlier work in Sri Lanka of gaps in patients understanding of dosing instructions (7) and

their association with low levels of adherence (8) and need for improved drug labelling.(9) The adoption of international standards for quality pharmacy services by professional pharmacy bodies in Sri Lanka such as those jointly prepared by WHO and International Pharmacy Federation (FIP) would be a positive strategy.(11)

There was unanimous agreement that a large proportion of the current workforce requires further education, training and feedback in order to upskill and enhance their clinical competencies. It was suggested that universities could support the training of pharmacists from individual hospitals, and that in turn, these pharmacists could provide education at a site level – thereby facilitating a “train the trainer” approach. The need for post graduate education and training and continuing professional development has also been recommended by Sakeena and colleagues. (10)

In light of these recommendations however, it is acknowledged that service improvements and engagement with key stakeholders is not an easy or quick process. Peer support, avoiding duplication of tasks, diverting non-clinical services where possible, and ensuring clear standards of best practice are made available and adhered to will help overcome some factors limiting the implementation of clinical pharmacy services in Sri Lanka. Although this workshop was supported for logistical reasons by Pharmacists from hospitals surrounding the workshop location, the outputs would be generalisable to the whole country. Further workshops with a mix of government and private hospitals delegates may enrich the pool of ideas for improvement. Support from national professional pharmacy bodies and an overall

strategy from Government to develop designated clinical roles in dispensaries and ward based clinical pharmacy services is also required to enable wide spread and sustainable benefits to QUM and patient care in Sri Lanka. Continuing collaboration between universities, hospital pharmacy leaders and workforce and national and international organisations such as PSSSL, SGP and CASPPER as occurred at this workshop will be essential to moving the agenda of developing clinical pharmacy services forwards in Sri Lanka.

In conclusion, this workshop helped identify limitations in the current Government Hospital pharmacy processes that potentially contribute to avoidable medicine adverse effects. Further, it proposed a series of actions to help address these limitations. It is hoped that with the implementation of these actions, medication safety and ultimately patient safety will be improved.

Author's Declaration

The authors declare that all persons listed as authors have read and given approval for the submission of this manuscript.

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Competing Interests

The authors declare that they have no competing interests to disclose.

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