



Medication Safety Practices at Colombo South Teaching Hospital

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Abstract

Background: Medication safety is a cornerstone of patient safety and healthcare quality. Colombo South Teaching Hospital [CSTH] implemented comprehensive strategies in line with WHO's global challenge "Medication Without Harm" to reduce preventable medication-related harm, while promoting multidisciplinary collaboration and patient engagement [1,2,5].

Objectives:

To describe CSTH's medication safety initiatives, including management of high-alert and look-alike/sound-alike (LASA) medications, introduction of digital prescribing, staff and patient education programs, and the establishment of the Medication Safety Steering Committee. Additionally, to demonstrate how these practices can serve as a model for other hospitals implementing WHO-aligned patient safety strategies [1,7].

Methods: A Medication Safety Committee guided multidisciplinary actions involving doctors, nurses, pharmacists, and IT staff. Key interventions included auditing prescriptions, introducing electronic prescribing through the Hospital Information Management System (HIMS), separate storage and labelling of high-alert medications, and continuous staff and patient education. Audit findings and competition outcomes were used to assess compliance and identify areas for improvement [3,5].

Results: Enhanced awareness and adherence to safe medication practices, improved interdepartmental collaboration, reduction in medication-related errors, establishment of standardized procedures for high-alert and LASA medications, and recognition of CSTH as the national demonstration hospital for medication safety by the Ministry of Health [1,7]. Units participated actively in competitions, leading to sustained motivation for safety practices and continuous quality improvement [5,6].

Conclusion: CSTH's model demonstrates practical implementation of WHO-aligned patient safety strategies, enhanced multidisciplinary collaboration, and serves as a benchmark for hospitals across Sri Lanka aiming to operationalize national medication safety initiatives [1,7,9].

Introduction

Medication errors are a leading cause of preventable harm in healthcare worldwide [10]. Globally, errors can occur at multiple points including prescribing, dispensing, and administration, with high-alert and LASA medications posing the greatest risk[5,6]. The WHO Global Patient Safety Challenge "Medication Without Harm" aims to reduce avoidable medication-related harm by 50% by 2025 [1,7].

Colombo South Teaching Hospital [CSTH], a major tertiary care institution in Sri Lanka, has responded to this challenge by implementing structured medication safety interventions across all units. These interventions involve

multidisciplinary teams, including medical officers, nurses, pharmacists, and allied health professionals, emphasizing shared responsibility for patient safety [2,5].

The hospital's initiatives began with the organization of a Symposium on Medication Safety in 2024, aligning with the WHO theme "Medication Without Harm" [1]. This symposium served as a catalyst for system-wide changes, focusing on rational prescribing, safe dispensing, structured storage protocols, patient education, and continuous professional development for healthcare staff [3,9].

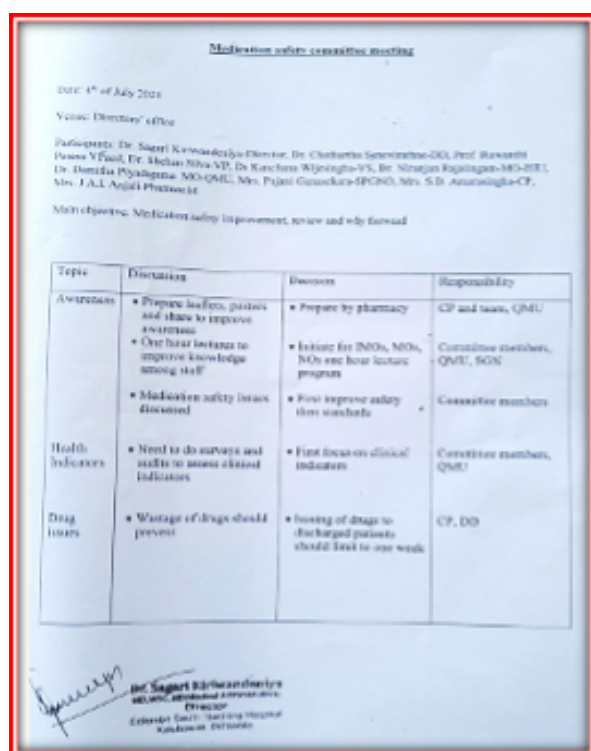
The rationale for these interventions is rooted in evidence that comprehensive, hospital-wide approaches to medication safety improve patient

outcomes, reduce adverse events, and foster a culture of safety [3,4,5].

Methods

1. Establishment of the Medication Safety Steering Committee

CSTH established a multidisciplinary Medication Safety Steering Committee including representatives from the Quality Management Unit, Department of Pharmacy, and clinical departments[2,3]. The committee oversees all medication safety initiatives, develops hospital-specific guidelines, monitors incidents, coordinates training, and ensures compliance with Ministry of Health policies and WHO-aligned strategies [1,7]. (Figure 1 & 2)



Medication safety steering committee meeting

Date: 4th of July 2023

Venue: Directorate office

Participants: Dr. Sagari Kiriwandasiriya-Director, Dr. Chathurika Seneviratne-DEI, Prof. Ruvandil Perera Y.Paid, Dr. Abhinav Nisha-VP, Dr. Karthika Wijesingha-PS, Dr. Nirajana Rajasingan-MD-DEI, Mrs. Doretha Piyasingha-MD-QM, Mrs. Pujari Gunasekara-SPONS, Mrs. S.D. Anuradha-CP, Mrs. J.A.L. Anjali Pharmacist

Main objective: Medication safety improvement, review and why forward

Topic	Discussion	Decisions	Responsibility
Awareness	- Prepare leaflets, posters and share to improve awareness - One hour lecture to improve knowledge among staff - Medication safety issues discussed	- Prepare by pharmacy - Lecture for INOs, MNOs, NOs and hour lecture program - First improve safety then standards	- CP and team, QM/U - Committee members, QM/U, SGN - Committee members
Health Indicators	Need to do surveys and audits to assess clinical indicators	First focus on clinical indicators	Committee members, QM/U
Drug issues	Wastage of drugs should prevent	Issuing of drugs to discharged patients should limit to one week	CP, DO

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Figure 01



Figure 02

2. Digitalization for Medication Safety

CSTH integrated Hospital Information Management System [HIMS] for medication safety, adopting barcode-assisted and QR-based registration, electronic prescribing, and Clinical Decision Support Systems [CDSS]. Over 11 million patients have benefited since 2023.

(Figures 3 and 4)

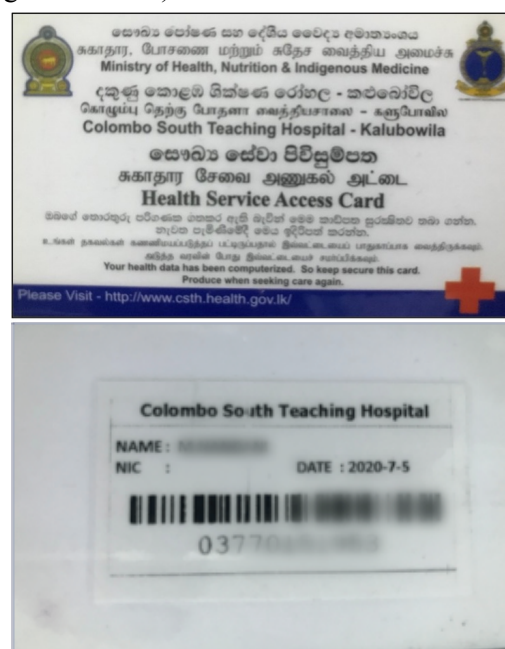


Figure 03 : Health Service Access Card

Prescription

PHN	1017400784	Prescription ID	68055
Patient Name	NAME: DR. SAGARI KIRIWANDASIRIYA, DIRECTOR, DIRECTORATE OF PHARMACY, COLLOMBO SOUTH TEACHING HOSPITAL	Prescribed By	Dr. D. K. K. K.
Age	21 Y, 2 M, 20 D	Status	Active
Gender	Male	Prescribed Date	2023-09-13 14:01:42
Clinic No	OPD/2-09-13/2023		

Item	Dosage	Frequency	Duration(In Days)	Remarks	
1)Cephalexin Capsule(Cephalexin)	500 mg	tds	3		
2)Paracetamol	1000 mg	tds	3		
3)Theophylline SR Tab 125mg	125 mg	bd	3		
4)Cetirizine hydrochloride Tab	10 mg	noct	3		

Save

Reject prescription

Figure 04 : Electronic Prescription

3. High-Alert Medication Safety Measures

High-alert medications are drugs that carry an elevated risk of causing significant patient harm if used in error[5]. Measures implemented at CSTH include the followin as shown in the figures 4-7.



Figure 05 : Separate Storage and Locked Access

Medications are stored in dedicated, secured areas separate from routine stock to prevent unauthorized access and accidental selection[5,6]



Figure 06 : Auxiliary Labels and Colour Coding

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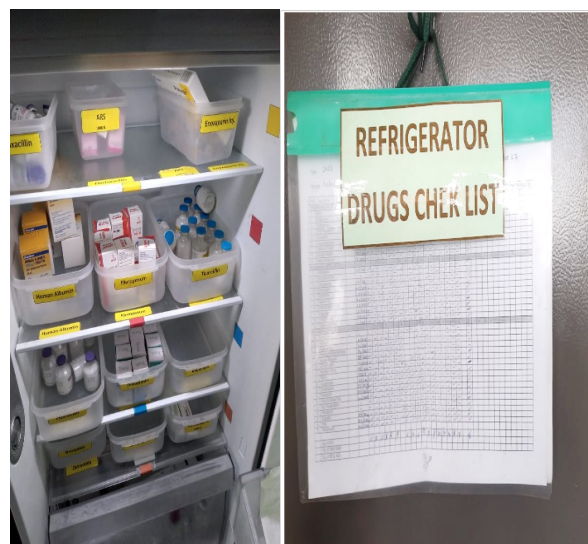


Figure 07 : Cold Storage Management

Refrigerated medications are organized by type and temperature requirement, with separate compartments to minimize cross-contamination and ensure integrity [5,6].



Figure 08 : Expiry Management

A First-In-First-Out (FIFO) system is enforced, using color-coded or symbol-based indicators for expiration dates to reduce administration of expired drugs[5,6].

4. Management of Look-Alike and Sound-Alike (LASA) Medications

LASA medications are a common source of error due to similar appearance or pronunciation [5,6]. CSTD strategies include the follow as shown in the figures

- **Distinct Labelling:** Pharmacy staff employ color-coded packaging for LASA drugs to enhance visual differentiation [6]. (Figure 8)
- **Staff Training:** Regular workshops train staff to double-check LASA medications before dispensing and administration [5,6].
- **Patient Education:** Multilingual leaflets provide clear instructions on dosage and administration, ensuring patient comprehension [5,9].



Figure 09 : Distinct Labelling

5. Patient and Staff Education

Educational Posters: Displayed in waiting areas and wards to reinforce safe medication practices [5,9].

Allergy Identification: Patients wear allergy wristbands, and known allergies are documented in red on drug sheets [5,9].

Continuous Training: Workshops on prescription writing, medication reconciliation, and incident reporting enhance staff competence and reduce preventable errors [2,5,10].

6. Inter-Unit Medication Safety Competition

An Inter-Unit Medication Safety Competition fosters active participation and continuous improvement [5,6]. Conducted with the Department of Clinical Pharmacology, University of Sri Jayewardenepura, units are evaluated on:

- Implementation of safe medication practices.
- Innovative approaches to storage, labelling, and handling.
- Engagement in audits and staff education.

Winners receive recognition to promote a culture of safety, teamwork, and accountability across the hospital [5,6]. (Figure 9).



	2024	2023
Ward Category	1 st Place - WARD 15A	1 st Place - SCBU
	2 nd Place - SICU	2 nd Place - Ward 37
	3 rd Place - WARD 03	3 rd Place - Ward 03
	4 th place - SCBU	4 th Place - Ward 11
	5 th Place - Ward 28/2	5 th Place - OPD
Pharmacy Category	1 st Place - Pharmacy Indoor	1 st Place - OPD Pharmacy
	2 nd Place - Pharmacy OPD [Old]	2 nd Place - Cardiology Pharmacy
	3 rd Place - Pharmacy General	3 rd Place - Dermatology Pharmacy

Figure 10 : Medication Safety Competition

Results

Awareness and Knowledge: Staff demonstrated heightened understanding of high-alert and LASA medications, and proper administration protocols [2,5].

Improved Practices: Standardized procedures for storage, labelling, and administration were implemented hospital-wide [3,5].

Error Reduction: Incident reporting and audits showed a decline in medication errors and near misses [5,10].

Recognition: CSTH was designated as the national demonstration hospital for medication safety by the Ministry of Health, validating its leadership role in implementing WHO-aligned strategies [1,7].

Benchmarking: Other hospitals visited CSTH to observe practical implementation of medication safety initiatives, facilitating replication and adaptation in diverse settings [1,7].

Discussion

CSTH's comprehensive medication safety interventions align with international best practices and WHO recommendations [1,7]. Measures including high-alert medication storage, LASA labelling, and structured staff training contributed to a measurable reduction in errors and strengthened the hospital's safety culture [2,3,5,6]. Multidisciplinary collaboration, coupled with patient education initiatives, further enhanced adherence and accountability [5,9].

Recognition as the national demonstration hospital underscores CSTH's role as a benchmark institution, offering practical guidance for the replication of safety initiatives across Sri Lanka [1,7]. The inter-unit competition model successfully encouraged engagement, continuous improvement, and integration of safety practices into routine clinical workflows [5,6].

Conclusion

Medication safety initiatives at CSTH significantly improved patient safety and care quality, demonstrating the practical implementation of WHO-aligned strategies. Structured approaches to high-alert and LASA medications, staff and patient education, and inter-unit engagement provide a model for hospitals nationwide. Recognition by the Ministry of Health and adoption by visiting institutions highlight CSTH's leadership and contribution to advancing patient safety across Sri Lanka [1,7,9,10].

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