

Improving Process Flows Within St Andrew's Community Hospital Wards

NUS Advisor: A/P Chan Weng Tat | Industrial Supervisor: Tang Mun Leong

1. Company Background

St Andrew's Community Hospital (SACH) is a sub-acute Hospital which offers both outpatient clinic service and in-patient care through referrals from acute hospitals and specialists. It adopted the Closed Loop Medication Management (CLMM) System in November 2016. CLMM is an integrated system that aims to restructure and streamline in-patient medication management and administration. However, SACH has been experiencing an increase in medication errors after the implementation of CLMM.

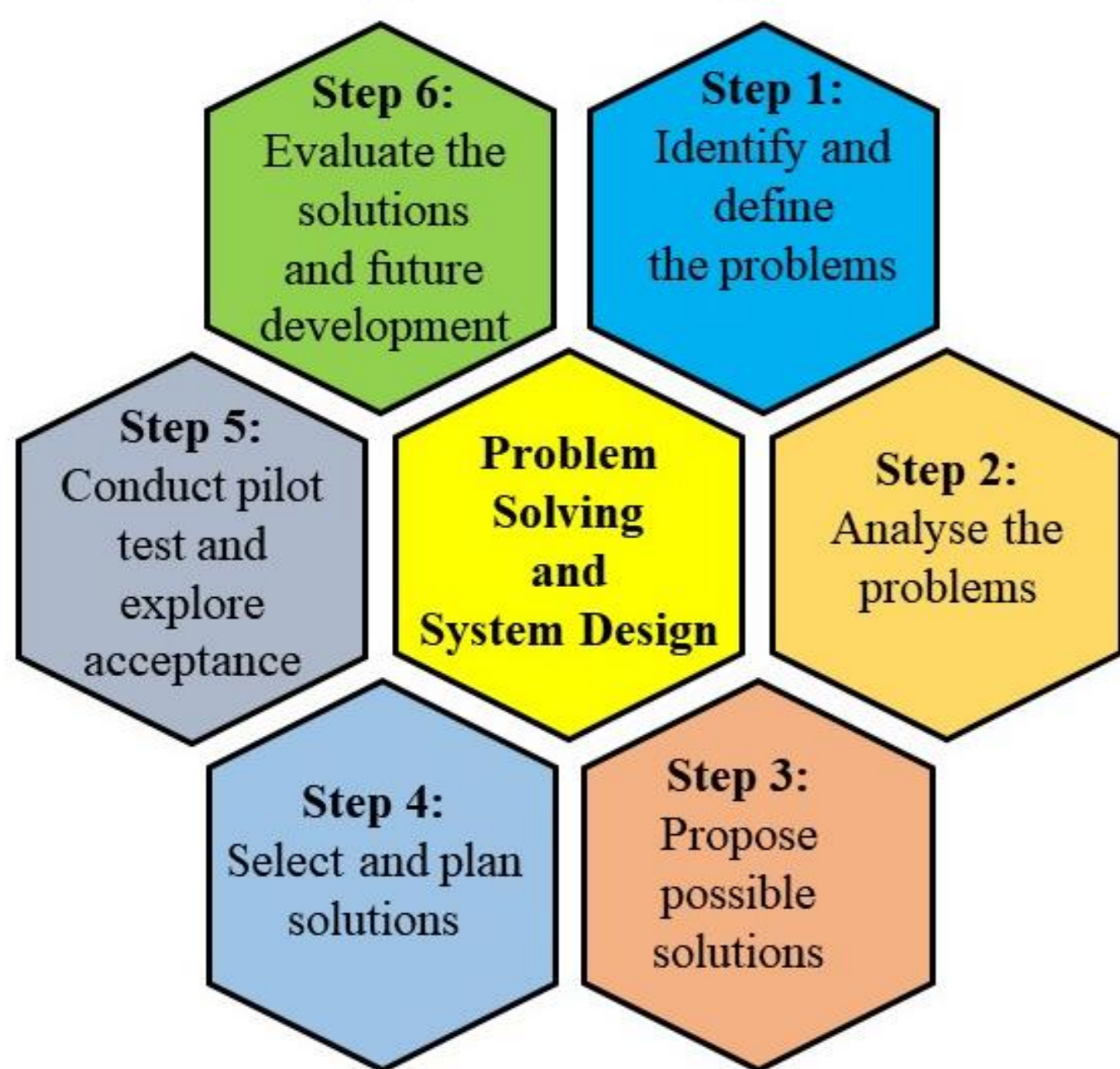
2. Objectives

- To minimise medication errors in ward operation
- To provide a dashboard visualisation of key information to facilitate nursing activities
- To structure a clearer demarcation of duties amongst departments

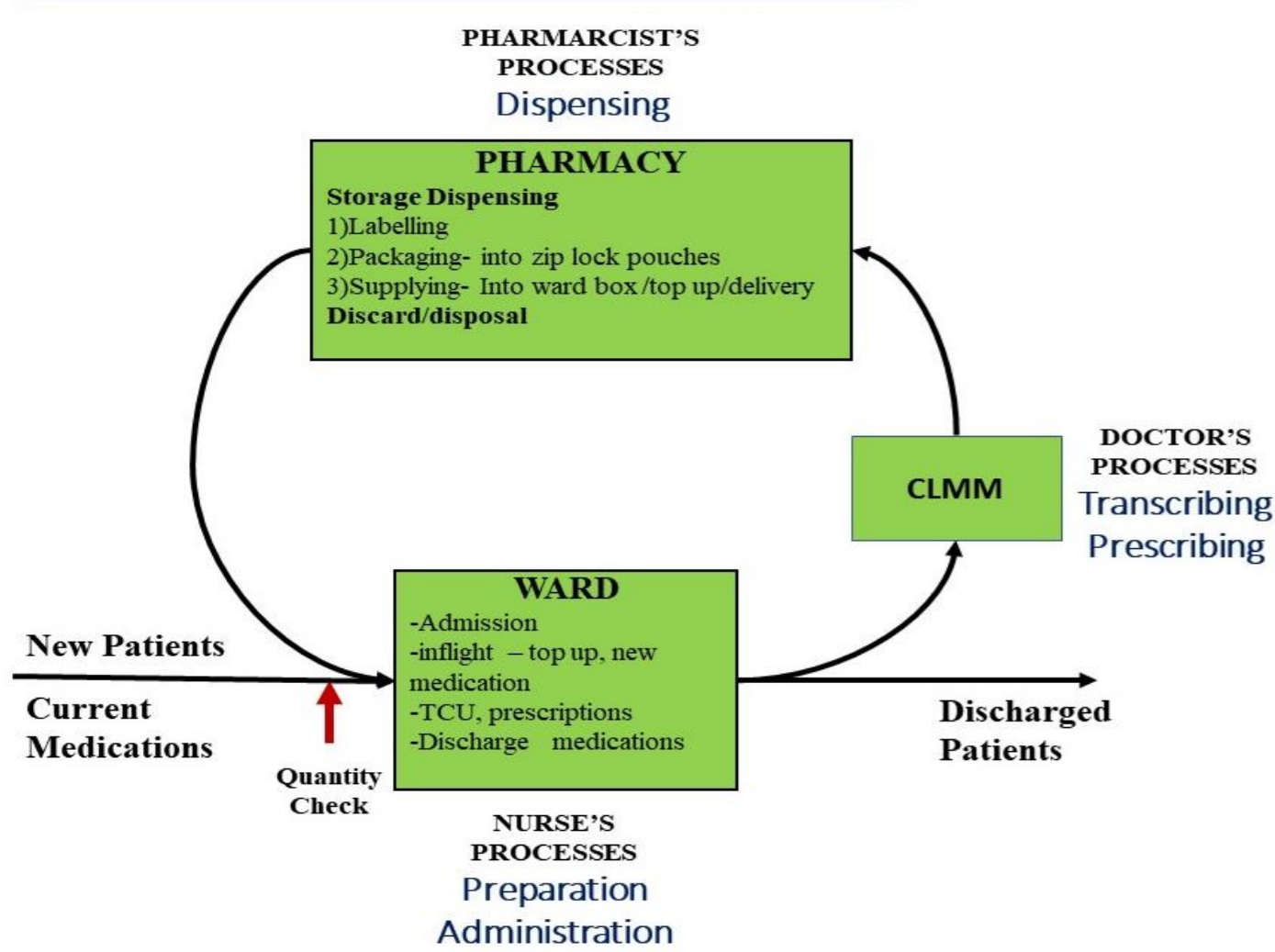
3. Key Skillsets

- System analysis and identification of root causes of problems
- Application of engineering solutions in a real-life context
- Application of dashboard visualisation technique and ergonomics

4. Methodology

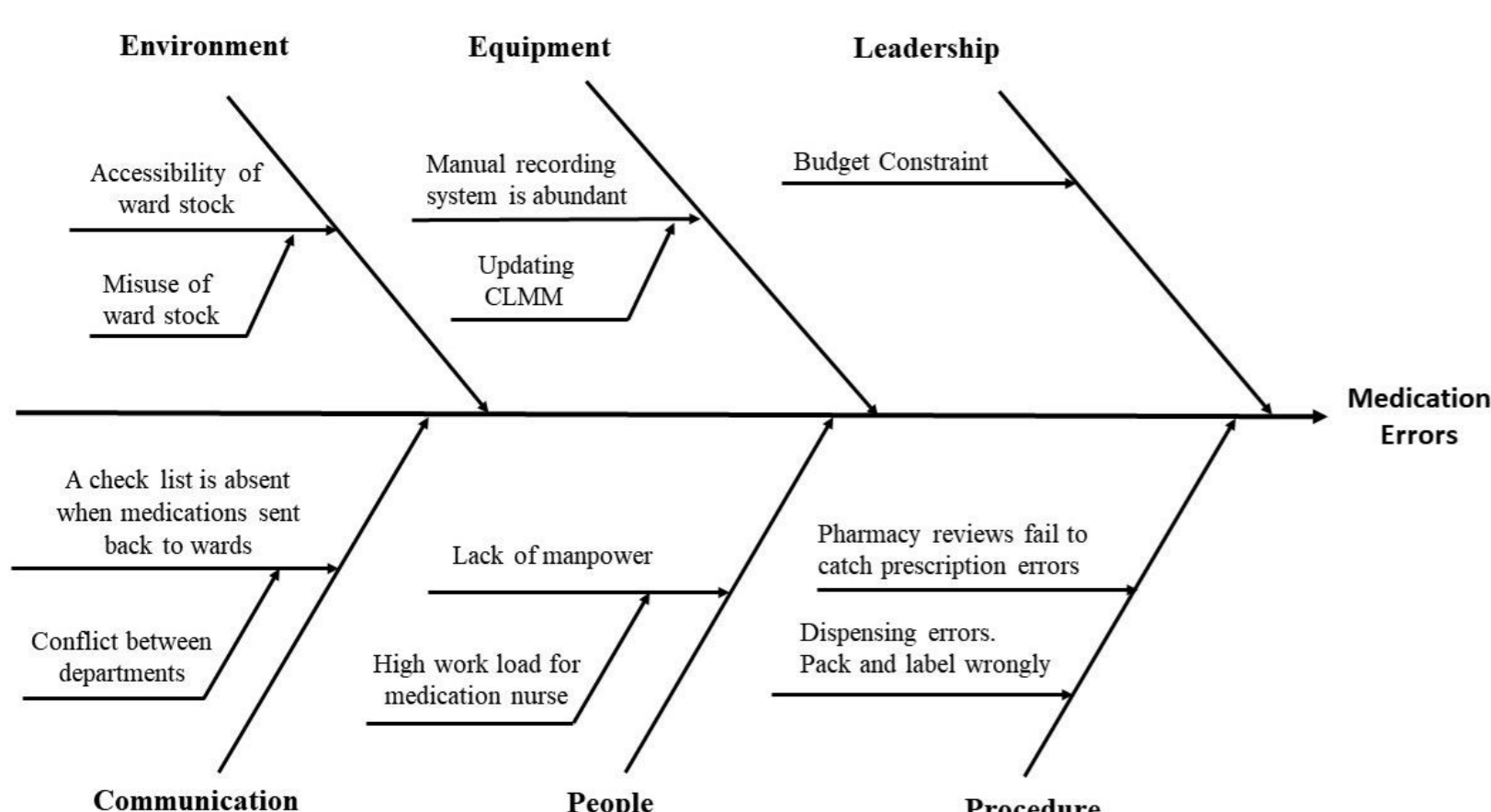


5. Process Flow



The current flow of information and medication is depicted in the diagram above, including the roles of each department.

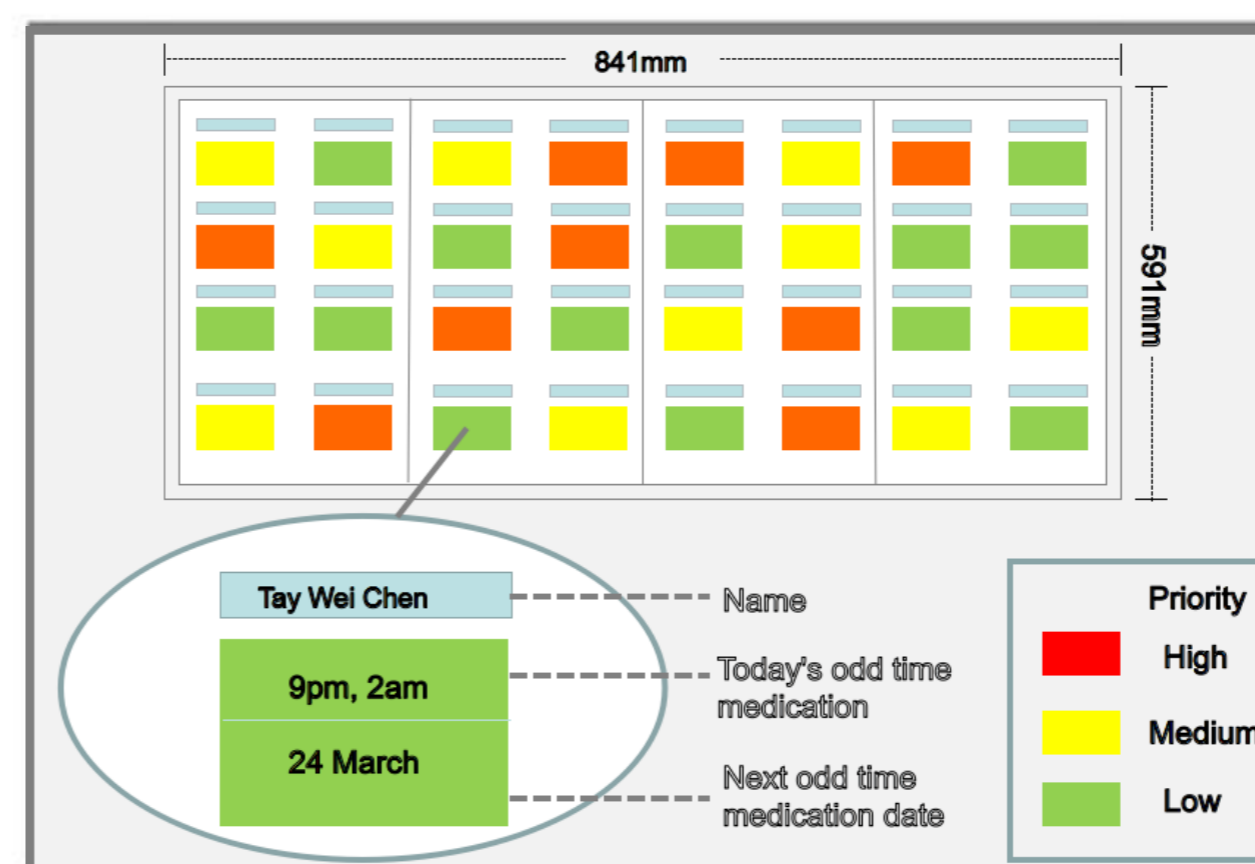
6. Problem Identification



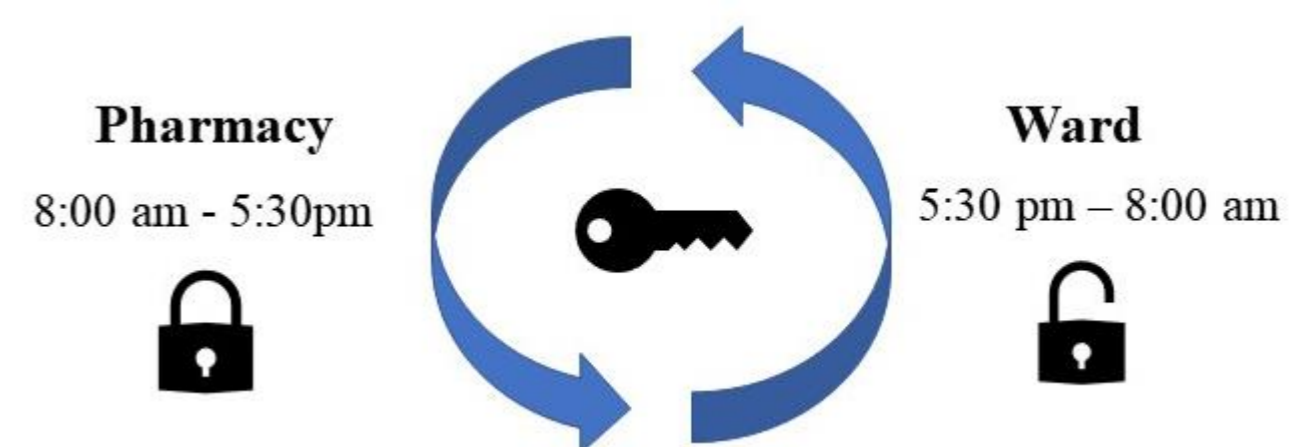
Different areas across the entire process flow that could possibly contribute to the medication errors

Problems	Details
Lateness in Medication Administration	Occurs due to the nature of the CLMM system and shortage of manpower in wards
Omission of Medication	Inadequate system in place to remind nurses of medication that need to be administered outside of regular administration timings
Taking of Medication from ward stock under some circumstances	This is not recommended practice as nurses doing so bypasses the check that pharmacy should do on doctor's prescription

7. Solutions



- Centralised Patient Profile Board (CPPB)
 - Presents nurses with a framework to allocate priorities to patients by which to serve them
 - Provides clear visual reminders of special medications to reduce cases of omission



- Restructure Formal Authority
 - Physical access to ward stock storage to be held by nurses only during pharmacy non-operating hours
 - Prevents nurses from bypassing pharmacy in the case of "immediate" doses when pharmacy is operating

8. Future Proposals

- To enhance CPPB with more sophisticated tools such as whiteboard and magnetic components for more efficient update and replacement
- To integrate CPPB with CLMM by sharing database, thus allowing automatic extraction of required information and customise output such as printed notes for users' quick reference
- To place more emphasis on promoting communication between different departments to minimise confusion and allow collaborated efforts of all departments to tackle medication errors