

Integration of AI-powered co-pilot tools for Discharge Prescription Processing Efficiency

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Mission Statement

This study aimed to implement and evaluate AI-powered co-pilot tools in improving the efficiency of discharge prescription processing. The primary objective was to optimise prescription processing time and manage increasing workload constraints and prescription complexity, while maintaining patient safety standards through continuous pharmacist oversight.

This implementation of AI co-pilot technology transforms pharmacy workflows by enhancing operational efficiency while building digital capabilities in the pharmacy workforce, advancing NHG's smart healthcare vision.

Other Team Members

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Evidence for a Problem Worth Solving

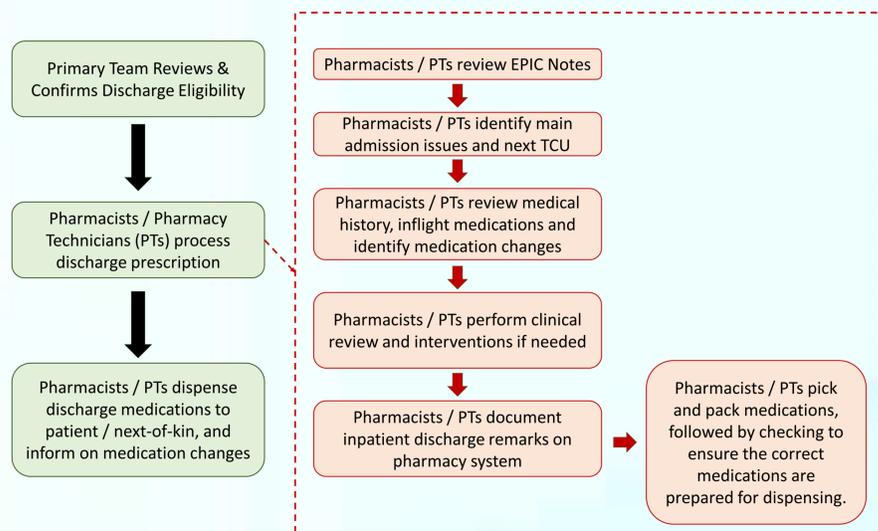
Singapore faces mounting healthcare pressures driven by demographic shifts and medical complexity.

Hospital admissions surged by 60% (400k to 645k) from 2006-2024 and elderly patients > 65yo rose from 39% to 43% from 2019 to 2022. There is rising prevalence of polypharmacy; patients are prescribed an average of 10.8 medications/day. These factors impacted discharge prescriptions complexity, creating additional demands on pharmacy services

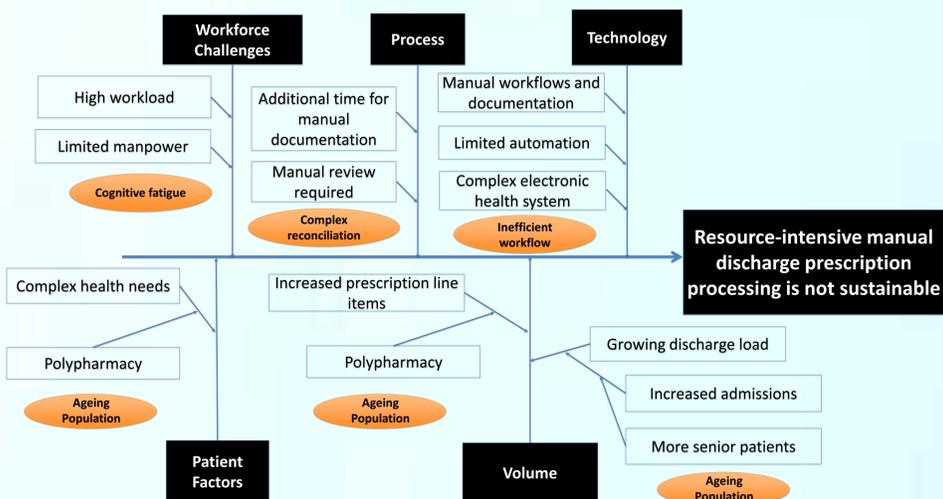
Current Performance of a Process

Current discharge prescription processes require intensive manual review and complex reconciliation. Limited workforce facing unsustainable workload from increasing patient volumes and medication complexity.

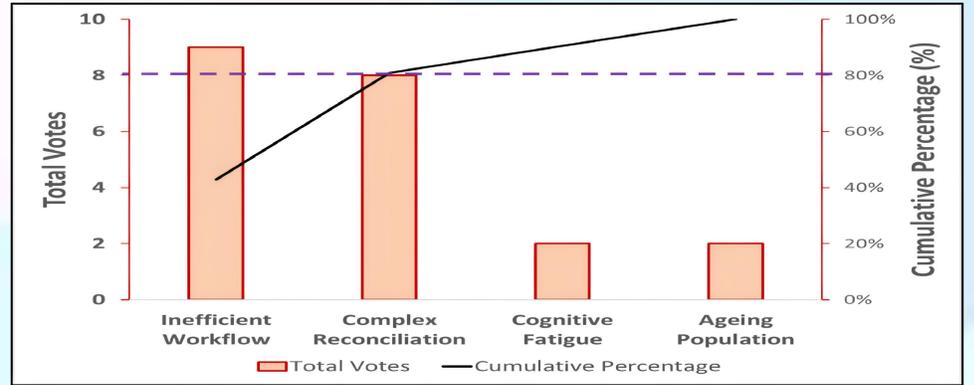
Flow Chart of Process



Cause and Effect Diagram



Pareto Chart



Implementation

Pair Chat is a secure, government-built large language model application built by Open Government Products (OGP). We developed two AI assistants on Pair Chat for implementation:

1) **EPIC Notes Analyser** for clinical notes summarization and detection of inconsistencies

2) **Medication Change Identification (Double)** for comparison between discharge medications and pre-admission medications

Phase 1: Planning and Setup (Early - Late Jan 2025)

Phase 2: Testing and Refinement (Late Jan 2025)

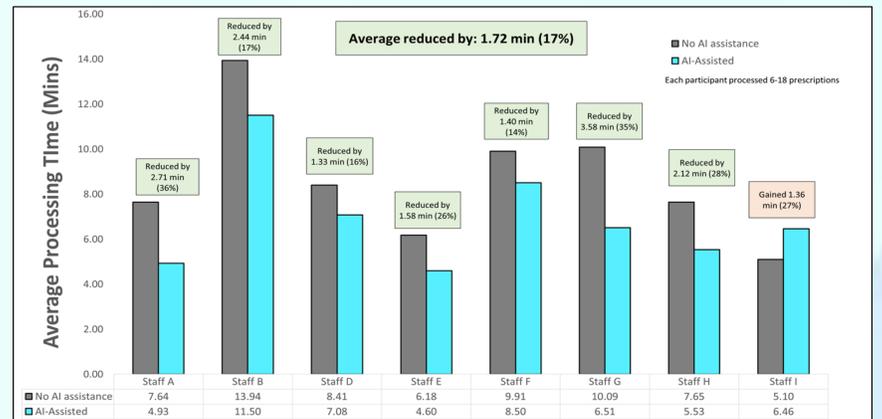
Phase 3: Implementation and Time motion studies (Late Jan – Mar 2025)

Results

High adoption rate with 63 unique users and 1,219 applications over 3 months with strong user acceptance (99.7% positive feedback, only 4 negative responses)

Efficiency Gains: 17% reduction in processing time (~1.72 min saved per prescription) for discharge prescriptions

Safer care: Out of 1,219 utilisations, there are 0 false positive and 0 false negatives after excluding atypical scenarios



Cost Savings

Average time savings per prescription ranges from -1.36 to 3.58 minutes with an average of 1.72 minutes per prescription.

With an average of 185 inpatient discharges / day, the projected time savings /day = 5.3 hours, translating to a **time saving of 0.88 Full-time equivalent**.

Total Cost Savings Per Annum (\$): 80,500.00

Problems Encountered

Varying staff approaches to AI tools affect efficiency and safety.

- Unlike other groups, Staff I showed an increase in processing time of 1.36 minutes (27%) as Staff I is in the early phases of familiarising with AI tools.
- This temporary slowdown is expected as new adopter tends to spend extra time checking their work. With continued practice, the staff's efficiency should improve as they become more confident with the AI-assisted workflow.

Strategies to Sustain

- 1) Incorporate AI assistants into standardised work instructions with comprehensive end-user training
- 2) More FTE savings are expected as user adoption increases and staff adapt to the new co-pilot workflow.
- 3) Continuous monitoring of feedback and validation to identify AI models for performance or model drift and promptly identify and share workarounds when needed. **Adjustment to system prompts will be validated using test sets before rolling out.**