PRE-DISPENSING ERRORS INVOLVING HIGH-ALERT MEDICATIONS AMONG INPATIENTS IN A TERTIARY CARE HOSPITAL: A RETROSPECTIVE ANALYSIS

"130 errors over 10 months; rare error types cluster in evening/night shifts."

Tayanit Phokinboonyasit, B.Pharm., M.Pharm.(1), Kridsadadanudej Wongwejwiwat, Pharm.D., M.Sc.(2)

(1) Department of Pharmacy, Taksin Hospital, (2) Faculty of Pharmacy, Siam University

Background and Importance

- Pre-dispensing medication errors are high-risk when high-alert medications (HAMs) are involved.
- Errors may compromise patient safety and increase healthcare costs.
- International guidance emphasizes system-level safeguards for HAMs.

Aim and Objectives: Describe frequency, types, and monthly trends of pre-dispensing errors involving HAMs in inpatients; assess whether patterns vary by pharmacy working shift.

Materials and Methods

- Design: Retrospective descriptive study using pharmacy error records.
- Period: Oct 2024 – Jul 2025.
- Inclusion: Inpatient orders containing HAMs with identified pre-dispensing errors.
- Classification: wrong instructions, wrong drug/item, wrong strength, etc.
- Analysis: Monthly trends plotted; Chi-square for error type vs shift; Fisher's exact after grouping (high- vs low-frequency) due to low cell counts; $p<0.05$.

Results: Key outcomes

- **Core numbers**
- **Total errors: N = 130**
- **Most common categories: wrong instructions 26.9%,**
  wrong drug/item 22.3%,
  wrong quantity 20.0%, wrong strength 15.4%
- **Shift association**
- **Detailed error types vs shift: $\chi^2 = 6.46$, df=4, p=0.167 (not significant)**
- **Grouped high- vs low-frequency: p=0.048 (significant); Low-frequency errors (e.g., wrong dosage form) occur mainly on evening/night shifts**

Conclusion and Relevance

Conclusion
- Pre-dispensing errors involving HAMs remain a persistent challenge.
- Frequent errors are distributed across shifts, but rare error types appear disproportionately in off-peak shifts (evening/night).

Relevance / Implications
- Strengthen system safeguards for HAMs.
- Add shift-specific interventions for off-peak periods (staffing/fatigue/context factors).
- Use monitoring of rare error types as an early warning signal in evening/night shifts.

Study design and analysis workflow (retrospective)
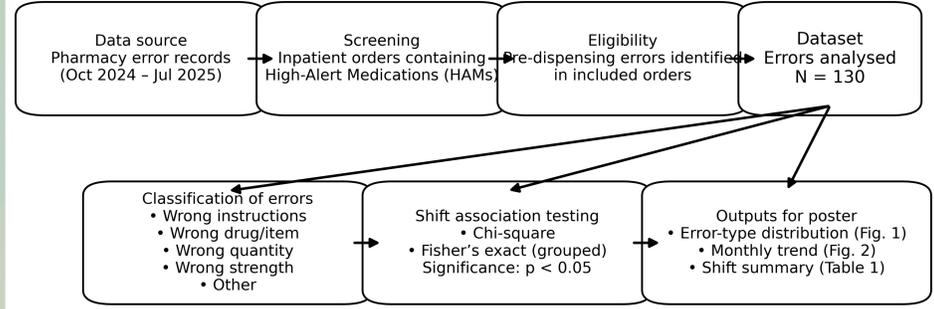
Overall Pre-dispensing Errors for High-alert Medications Inpatients, Taksin Hospital (Oct 2024 – Jul 2025)
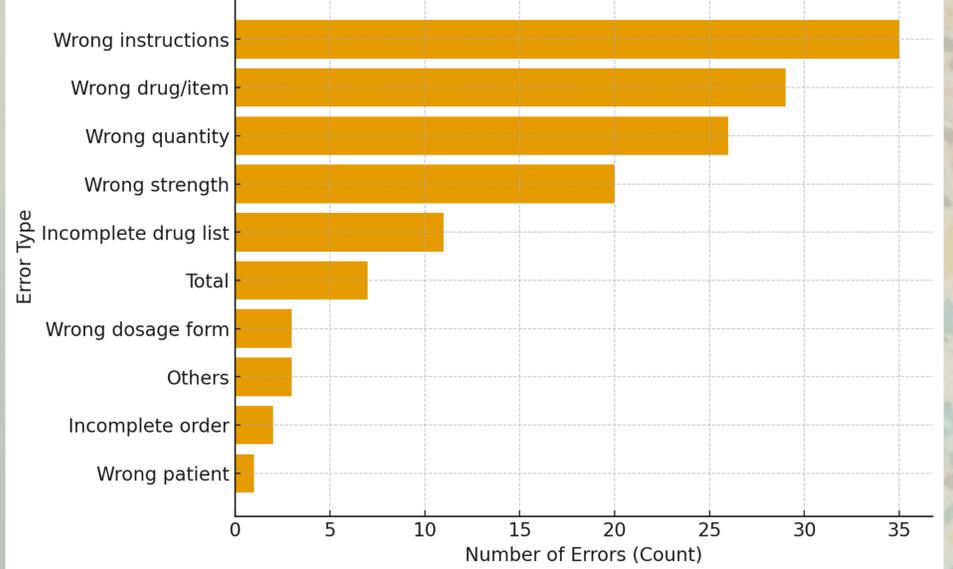
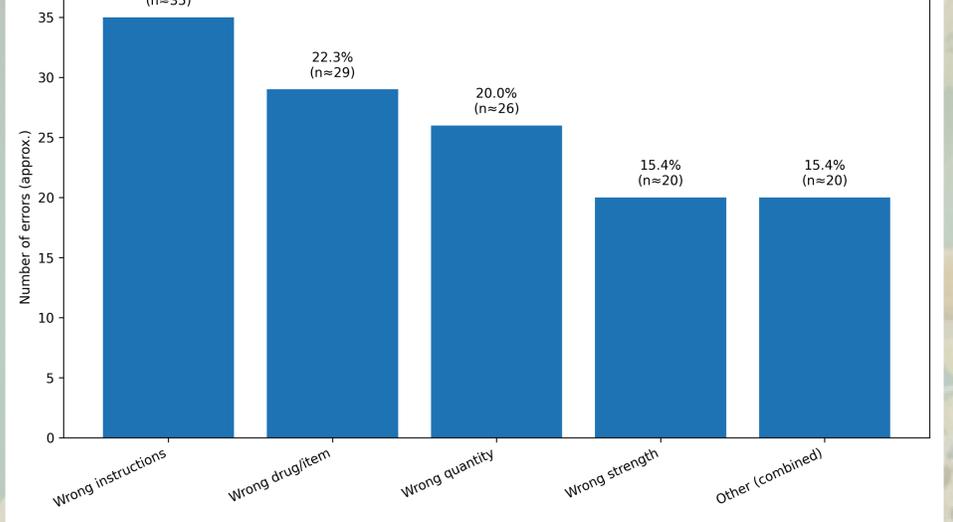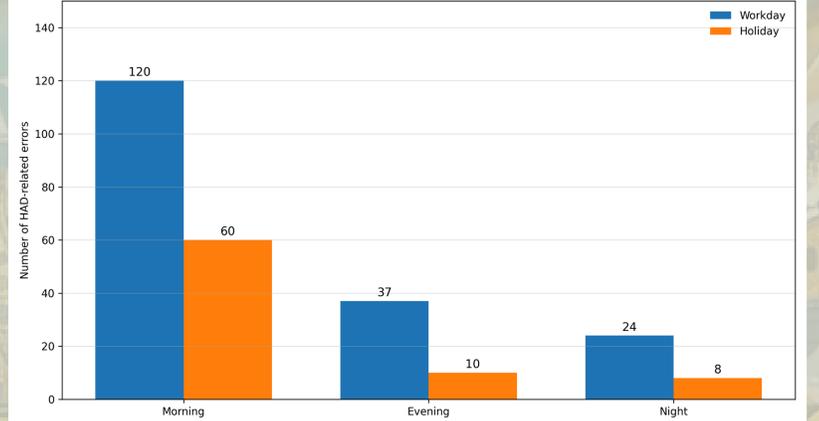Distribution of pre-dispensing errors involving high-alert medications (N=130)

Table 1. Distribution of pre-dispensing error types

	Morning	Evening	Night
Others	1035	284	135
Wrong dosage form	0	1	1
Wrong strength	813	227	98

Top 10 high-alert medications involved in HAD-related errors (N=259)

HAD-related pre-dispensing errors by pharmacy working shift (N=259)

Contact: Tayanit Phokinboonyasit, E-mail: clinicmay@yahoo.com; Kridsadanudej Wongwejwiwat, E-mail: Kridsadadanudej.won@siam.edu