

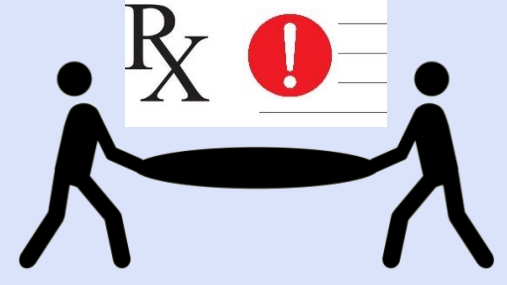
# Is the Pharmacist “Safety Net” Effective in Preventing Prescribing Errors?

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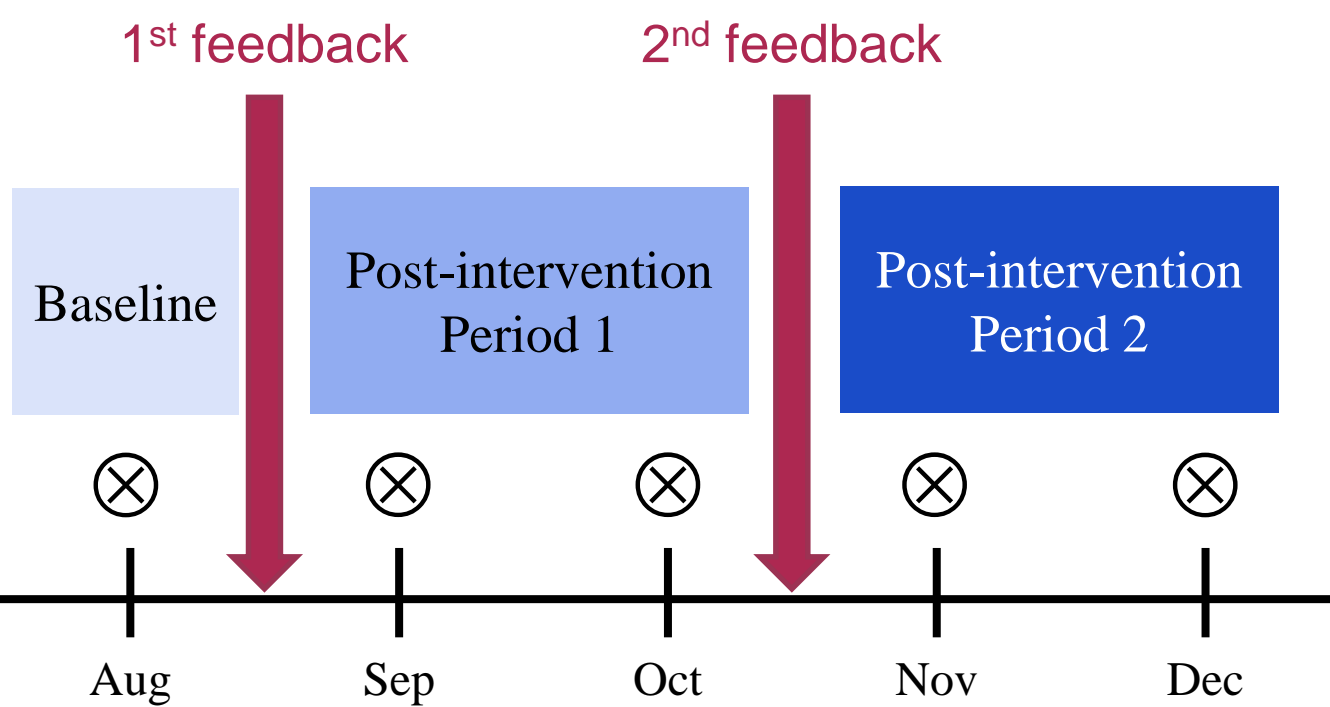


## Introduction

Pharmacists play an important role in identifying prescribing errors, and are often viewed as the “safety net” for patients in many healthcare settings.<sup>1</sup> However, their ability in correctly detecting errors is not well understood. We investigated the ability of pharmacists in detecting prescribing errors, and whether feedback improved their ability to do so.

## Methodology

A quasi-experimental study was conducted in a proportionate random sample of 18 public specialist hospitals, district hospitals, and health clinics in Perak. The study population was pharmacists involved in dispensing medications at the paediatric outpatient setting. A pharmacist was appointed at each site to review prescriptions of patients aged 12 years and below. Prescription data were collected monthly, and feedback was provided to pharmacists following data collection at baseline, and the third month of the study (Fig. 1). We considered both commission and omission errors (Box 1). Changes in the % prescriptions with errors missed by pharmacists were compared between baseline and third month, and end of study.



**Fig. 1: Flowchart of study design and timeline**

The symbol ⊗ denotes data collection by the appointed pharmacist. The 1<sup>st</sup> feedback was provided after baseline data collection. The 2<sup>nd</sup> feedback was provided after the 3<sup>rd</sup> month data collection. Maximum 20 prescriptions were collected consecutively for each pharmacist. Each prescription was reviewed for errors, and data were recorded on a standardised form, then transcribed to an Excel sheet to generate feedback charts.

### Box 1: Definition and Types of Prescribing Error<sup>2</sup>

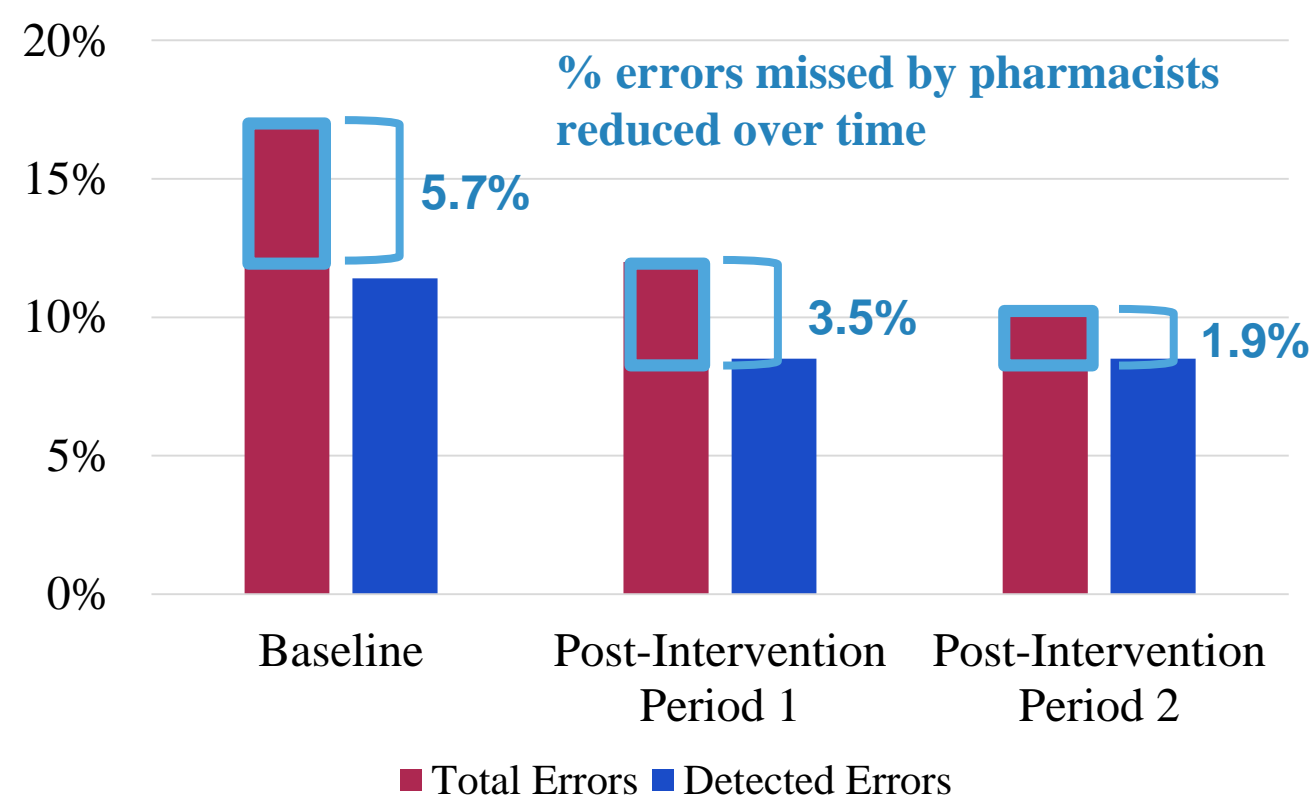
Inappropriate Prescription (Commission Error)	Incomplete Prescription (Omission Error)
Incorrect drug	Missing drug
Incorrect dose	Missing dose
Incorrect frequency	Missing frequency
Incorrect dosage form	Missing dosage form
Incorrect duration/quantity	Missing duration/quantity
Incorrect strength	Missing strength
Contraindication	
Duplication	
Polypharmacy	

## Results

During the 5-month study period, a total of 6,076 paediatric prescriptions were reviewed. All prescription characteristics were similar in the three study periods (Table 1).

**Table 1: Characteristics of prescriptions reviewed**

	Baseline (n=1390)	Post-Intervention Period 1 (n=2507)	Post-Intervention Period 2 (n=2170)
<b>Type of health facility</b>			
Specialist hospital	15%	16%	11%
District hospital	48%	51%	61%
Health clinic	37%	33%	28%
<b>Time of prescription writing</b>			
During office hours	69%	65%	69%
After office hours	31%	35%	31%
<b>Number of items in the prescription</b>			
1	19%	20%	20%
2-3	66%	66%	65%
4 or more	15%	14%	15%



**Fig. 2: Total errors, errors detected, errors missed**

At baseline, 17.1% prescriptions had errors, and pharmacists correctly detected 11.4%. In post-intervention period 2, the percentage of prescriptions reduced to 10.4%, and pharmacists correctly detected 8.5%. The ability of pharmacists to detect errors improved with active feedback, as observed by the “closing of the gap” between Total Errors and Detected Errors.

## Discussion/Conclusion

With the expanding number and complexity of medications, pharmacists’ roles and responsibilities have expanded broadly. Pharmacists must not be assumed as a complete safety net to prevent prescribing errors. Feedback in the form of league tables were effective in improving error detection by pharmacists. Policymakers should consider the implementation of sentinel monitoring methods with active feedback<sup>3</sup> in the health system to monitor staff performance and ensure patient safety.

## References

1. Pharmacists' Impact on Patient Safety: A Joint Project of the American Pharmacists Association Academy of Pharmacy Practice and Management and Academy of Pharmaceutical Research and Science. Washington, DC: American Pharmacists Association; 2016.
2. Dean B, Barber N, Schachter M. What is a prescribing error?. Qual Health Care 2000;9(4):232-7.