

Project Title

Understanding Prescription Incidents in Primary Care to Target Contributory Factors:
A descriptive study

Project Lead and Members

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Organisation(s) Involved

1. Ministry of Health holdings
2. National Healthcare Group Polyclinics, Singapore

Healthcare Family Group(s) Involved in this Project

Medical, Pharmacy

Applicable Specialty or Discipline

Family Medicine

Project Period

Start date: March 2021

Completed date: March 2021

Aims

- To describe prescription incidents occurring in the primary care setting
- To explore the associations between prescription incidents and various factors

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Lessons Learnt

Through this project, I have learnt that prescription errors can involve a range of patient demographics, with varying medication conditions, and can be due to a range of error types, or even multiple factors in some situations. These can lead to a series of outcomes ranging from being intervened by the pharmacist staff, to reaching the patient and causing patient harm.

I have also learnt that this is likely the tip of the iceberg in terms of elucidating the root causes of prescription errors and may provide us with some direction in order to begin future audits or projects to reduce prescription errors.

Conclusion

See poster appended / below

Additional Information

Singapore Health & Biomedical Congress (SHBC) 2021: Singapore Primary Care Research Poster – Gold Award

Project Category

Care & Process Redesign, Value Based Care, Risk Management, Adverse Outcome Reduction, Quality Improvement

Keywords

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National Healthcare Group

POLYCLINICS

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INTRODUCTION

Prescription incidents are associated with significant morbidity and mortality¹, increased costs to the healthcare system, as well as decreasing patient satisfaction and erosion of trust in the healthcare system^{2,3}. Some of the common medication incidents include incorrect drug, incorrect dosage⁴, as well as incidents involving patients with medications prescribed during shared care across different healthcare institutions. While many studies have described medication incidents in the tertiary care setting, their contributory factors as well as systemic interventions to curb them, few have focussed on medication incidents occurring in the primary care setting and the associated unique challenges. With this information, we can then proceed to craft interventions targeting these medication incidents via inter-disciplinary collaborative systems based interventions⁵

OBJECTIVE

1. To describe prescription incidents occurring in the primary care setting
2. To explore the associations between prescription incidents and various factors

METHODS

Prescription incident was defined as incidents in which timely error recovery prevented the incident from reaching the patient⁶.

A retrospective cross sectional study was conducted using audit database and patient medical records from Hougang polyclinic for March 2021.

Data collected included details about prescription incidents, prescribing physicians, patient demographics and underlying medical conditions.

RESULTS

There were 526 prescription incidents out of total of 19,513 prescriptions (incident rate=2.69%). The most common chronic conditions associated with prescription incidents were hyperlipidaemia (n=320,71.6%), hypertension (n=276,61.7%) and diabetes/pre-diabetes (n=245,54.8%).

The medications most involved in prescription incidents were oral hypoglycaemic agents (OHGA) (n=83,15.8%) and insulin and related consumables such as needles and syringes (n=30,5.7%). Among the OHGA-related incidents, the majority (n=52,62.6%) were related to Ramadan- these were caused by missing instructions on medication adjustments (n=48,92.3%) and wrong dosages during the fasting period (n=4,7.7%). Among Insulin and consumables-related incidents, the most common causes included missing/incorrect instructions for Ramadan (n=6,20%), incorrect frequency of syringes and needles when compared to the frequency of insulin that patient administers (n=6,20%), and transition of care or shared care between primary care and tertiary care settings (n=5,16.7%).

In keeping with our descriptive findings, our generalized linear model showed that diabetes and transition of care or shared care between primary care and other healthcare settings are significantly associated with prescription incidents.

Factors associated with prescription incidents*

Parameters	Beta coefficient	95% Wald Confidence Interval		Significance
		Lower limit	Upper limit	
Diabetes (including pre-diabetes)	0.173	0.073	0.273	0.001
Transition of Care/shared care	0.209	0.127	0.291	0.000

*Analysis using generalized liner model with log link function, adjusted for patient race, patient gender, patient age, hyperlipidemia, hypertension, arthritis, cardiovascular diseases, kidney disease, stroke/TIA, number of chronic conditions, number of medications per prescription, physician workload, and physician employment

CONCLUSIONS

Overall prescription incident rate was low. It is important to note that a significant proportion involved adjustments of OHGAs during Ramadan. This is important as it puts patients at increased risk of both hyperglycaemia and hypoglycaemia. Ramadan happens annually and involves a significant proportion of our patients.

Additionally, transition of care or shared care between healthcare institutions was found to be a significant contributory factor to prescription incidents.

Further studies are needed to explore these associations in order to establish multi-disciplinary systems-based interventions targeting prescription of diabetic medications for patients fasting for Ramadan and to target prescription practices involving transition of care or shared care between institutions.

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