THE IMPACT OF A BEDSIDE MEDICATION SCANNING DEVICE ON ADMINISTRATION ERRORS IN THE HOSPITAL SETTING: A PROSPECTIVE OBSERVATIONAL STUDY

C.L. Tolley[1,2], N.W. Watson[2], A. Heed[2], J. Einbeck[3], S. Medows[2], L. Wood[2], L. Campbell[2] and S.P. Slight[1,2,4], 1. School of Pharmacy, Newcastle University, UK. 2. The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, UK. 3. Department of Mathematical Sciences, Durham University, UK. 4. The Centre for Patient Safety Research and Practice, Division of General Internal Medicine and Primary Care, Brigham and Women's Hospital, Boston, Massachusetts, USA.

Introduction: The medication administration process is complex and influenced by interruptions, multi-tasking and responding to patient's needs and is consequently prone to errors.[1] Over half (54.4%) of the 237 million medication errors estimated to have occurred in England each year were found to have taken place at the administration stage and 7.6% were associated with moderate or severe harm. The implementation of a Closed Loop Medication Administration solution aims to reduce medication administration errors and prevent patient harm.

Aim: We conducted the first evaluation to assess the impact of a novel optical medication scanning device, MedEye, on the rate of medication administration errors in solid oral dosage forms.

Methods: We performed a before and after study on one ward at a tertiary-care teaching hospital that used a commercial electronic prescribing and medication administration system and was implementing MedEye (a bedside tool for stopping and preventing medication administration errors). Pre-MedEye data collection occurred between Aug-Nov 2019 and post-MedEye data collection occurred between Feb-Mar 2020. We conducted direct observations of nursing drug administration rounds before and after the MedEye implementation. Observers recorded what they observed being administered (e.g., drug name, form, strength and quantity) and compared this to what was prescribed. Errors were classified as either a 'timing' error, 'omission' error or 'other' error. We calculated the rate and type of medication administration errors (MAEs) before and after the MedEye implementation. A sample size calculation suggested that approximately 10,000 medication administrations were needed. Data collection was reduced due to the COVID 19 pandemic and implementation delays.

Results: Trained pharmacists or nurses observed a total of 1,069 administrations of solid oral dosage forms before and 432 after the MedEye intervention was implemented. The percentage of MAEs pre-MedEye (69.1%) and post-MedEye (69.9%) remained almost the same. Non-timing errors (combination of 'omission' + 'other' errors) reduced from 51 (4.77%) to 11 (2.55%), which had borderline significance (p=0.05) however after adjusting for confounders, significance was lost. We also saw a non-significant reduction in 'other' error types (e.g., dose and documentation errors) following the implementation of MedEye from 34 (3.2%) to 7 (1.62%). An observer witnessed a nurse dispense the wrong medication (prednisolone) instead of the intended medication (furosemide) in the post-MedEye period. After receiving a notification from MedEye that an unexpected medication had been dispensed, the nurse corrected the dose thus preventing an error. We also identified one instance where the nurse correctly dispensed a prescribed medication (amlodipine) but this was mistakenly identified by the MedEye scanner as another prescribed medication (metoclopramide).

Conclusions: This is the first evaluation of a novel optical medication scanning device, MedEye on the rate of MAEs in one of the largest NHS trusts in England. We found a non-statistically significant reduction in non-timing error rates. This was notable because incidents within this category e.g., dose errors, are more likely to be associated with harm compared to timing errors.[2] However, further research is needed to investigate the impact of MedEye on a larger sample size and range of medications.

References

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PHARMACY AND PRESCRIBING PRACTICE

ASTROPHARMACY: EXPLORING THE PHARMACIST'S ROLE IN SPACE TRAVEL

L. Sawyers, C. Anderson, M. Boyd, P. Williams and L.S. Toh, *University of Nottingham, School of Pharmacy*

Introduction: Significant alterations occur in human physiology and the way medications function in space (1). Understanding the efficacy and pitfalls of pharmacological intervention and developing space-related pharmacy services is therefore integral to ensuring a sustained presence for human spaceflight. In contemporary society, the pharmacist plays a significant role in a person's health. However, pharmacist input towards the spaceflight participant's health is minimal to nil.

Aim: T o explore stakeholder perspectives towards the role of Astropharmacy in the space sector.

Methods: Pharmacists (n = 18) across the globe and space sector participants (n = 18) from governmental, commercial, and space tourism sectors participated, via 27 qualitative interviews and three focus groups. Participants were recruited via purposive and snowball sampling. A six-step thematic analysis was used and mapped into the Job Characteristics Model (JCM). JCM is a theory within work design, aiming to promote work experiences and personal outcomes. There are five job dimensions – skill variety, task identity, task significance, autonomy, and feedback which influence three psychological states required for a well-designed job. The three psychological states are meaningfulness, responsibility, and knowledge of work results, which lead to positive work and personal experiences (2).

Results: Three key themes were generated: medication management, medication research, and regulation/licensing. Medication management encompassed safeguarding the space traveller's health, like space tourists, by conducting medication reviews (pre-and post-flight), medication advice (digital astro-telepharmacy information services during