A Qualitative Analysis of Resident Report Medication Safety Events in the Emergency Department

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A Qualitative Analysis of Resident Report Medication Safety Events in the Emergency Department

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In a study performed in the 1990s, medical error was estimated to be the eighth leading cause of death in the United States[1]. In a more recent study performed in 2016, medical error was listed as the third leading cause of death[2]. According to studies done in the 90's in New York and Utah it was found that approximately 2.9% and 3.7% of hospital admissions experienced an adverse event. Adverse events were defined as injuries caused by medical management. The percentage of these errors that were preventable was over 50% in both studies[3, 4, 5]. The Institute of Medicine believes that the incidence of preventable adverse drug events is at $1.5 million annually in the United States. This leads to an increased cost of about $3.5 billion due to a preventable drug event[6]. In response, the Accreditation Council for Graduate Medical Education (ACGME) has made universal involvement in patient safety a requirement. (7) Within Emergency Medicine (EM), the ACGME further requires documentation behavior anchors as they relate to Pharmacology (8).

Problem Statement

This project seeks to qualitatively analyze EM resident observations of medication related patient safety encounters in the ED, reported in a convenience sample using the residency's procedure logging software.

This project was reviewed and deemed non-human subjects research. In pursuit to ACGME Common Program Requirements (CPR) (7), a PGY 1-4 Emergency Medicine (EM) residency based in a suburban health care network made standard the requirement for residents to log encounters related to medication safety. The logs were reviewed and approved by the Program Evaluation Committee (PEC), which required one submission for each EM rotation. Logs were recorded in New Innovations™ as a procedure. Logs were analyzed both descriptively (Type of Medication, Type of Encounter) and qualitatively (What Happened, Interventions, Prevention Strategies) using methodology described Kathleen MacQueen in her article about codebook development for qualitative analysis.

Accident category	Frequency %
none	0.4
Medication overdose	25.2
Pt ran out of medication	1.2
Medication Side Effect	25.2
Substance use disorder	12.2
Medication reconciliation	2.0
Polypharmacy	2.6
Medication error	5.6
Allergic reaction	4.3
untreated symptom	1.6
Non-compliance with medications/treatment plan	2.8
ineffective medications/medication administration	3.4
accidental ingestion	1.6
Communication difficulty	3.7
difficulty administering treatment/medication	0.3
Near Miss	0.3
missing information	2.2
Duplicate	2.6
others/unknown	1.2

Table 1- showing the frequency of the different accident categories

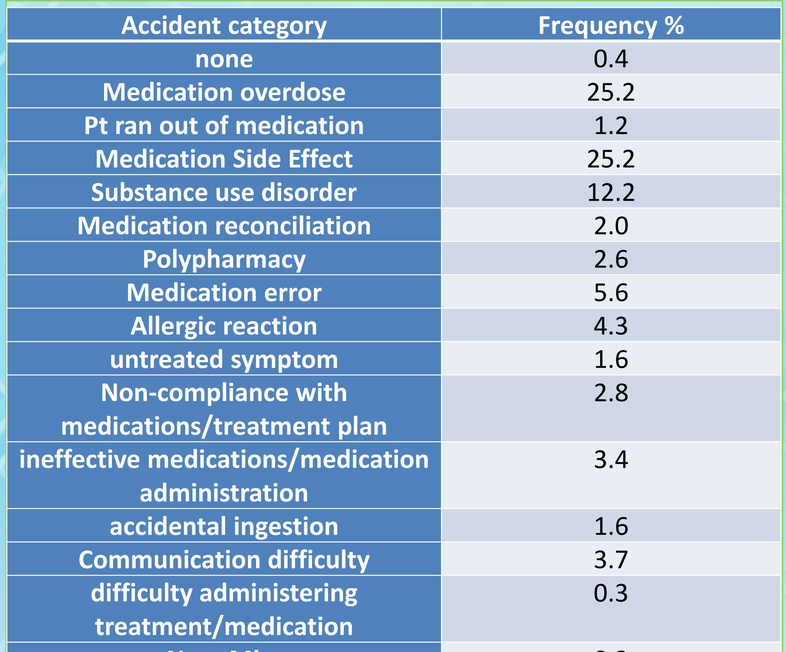

Figure 1- depicting the most common medication types involved in the medication logs

Prevention categories	Frequency %
none	1.9
Patient intervention/patient education	25.7
Provider intervention	27.0
Hospital intervention	7.5
Non/Pre-hospital intervention	3.7
Communication	2.7
Unavoidable event	7.7
Closer follow up	9.9
Medication intervention	10.8
Unknown based on log	2.2

Table 2- depicting the different ways residents felt these medication events could have been prevented

- The data identified medication overdose as the leading cause for medication errors within the LVHN health system.
- It also identified psychiatric medications as the leading medication group that was being mismanaged either by patients or by practitioners.
- The most frequent ways to prevent these events as reported by the residents were through improved patient and/or provider education.
- Future studies could look to target one of the larger areas of concern from this project such as the prescribing of psychiatric medications.
- This also can give the Toxicology fellowship new areas to improve resident education.
- This project relates to SELECT through the domain of Health Systems and Leadership as a quality improvement project.
- I learned about the different aspects that go into a quality improvement project as well as cultivating my time management and interpersonal relationship skills.

- The project demonstrates that residents can meet ACGME patient safety requirements by describing medication related ED encounters in a commercially available residency software system.
- The cohort is limited by being one of convenience from a single training program.
- Training providers, followed by patient education may prevent future medication encounters, especially for psychiatric prescriptions.

REFERENCES

1. American Hospital Association. Hospital Statistics. Chicago. 1999.
2. Martin MA, Daniel M. Medical error—the third leading cause of death in the US . BMJ. 2016;353(2139). doi:https://doi.org/10.1136/bmj.i2139.
3. Brennan, Troyen A.; Leape, Lucian L.; Laird, Nan M., et al. Incidence of adverse events and negligence in hospitalized patients: Results of the Harvard Medical Practice Study I. N Engl J Med. 324:370–376,1991.
4. Leape, Lucian L.; Brennan, Troyen A.; Laird, Nan M., et al. The Nature of Adverse Events in Hospitalized Patients: Results of the Harvard Medical Practice Study II. N Engl J Med. 324(6): 377–384,1991.
5. Thomas, Eric J.; Studdert, David M.; Burstin, Helen R., et al. Incidence and Types of Adverse Events and Negligent Care in Utah and Colorado. *Med Care* forthcoming Spring 2000.
6. Aspden P, Wolcott JA, Bootman JL, et al., eds. 2006. Preventing Medication Errors: Quality Chasm Series. Washington, DC: Inst. Med., Natl. Acad. Press
7. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResidency2019.pdf. Accessed 1.21.20.https://www.acgme.org/Portals/0/PDFs/Milestones/EmergencyMedicineMilestones.pdf?ver=2015-11-06-120531-877 Accessed 1.21.20
8. Thompson CB, Walker B. Basics of research (Part 12): Qualitative research. Air Medical Journal. 1998;17(2):65-70. doi:10.1016/s1067-991x(98)90022-0.

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