



Figure 1.

3 A Mixed-Methods Needs Assessment to Identify Pharmacology Education Gaps Among Emergency Medicine Residents

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Learning Objectives: The objective of this study was to perform a targeted needs assessment in order to develop a patient-safety focused pharmacology curriculum for EM residents.

Background: Medication errors threaten patient safety and half of all errors are related to physician orders. Emergency medicine (EM) residents are expected to demonstrate competence in pharmacotherapy (Milestone PC5), yet it is unclear which curricular topics to emphasize.

Objective: The study aim was a targeted needs assessment to develop a patient-safety focused pharmacology curriculum for EM residents.

Design: A convergent mixed methods study incorporated data from a de-identified safety event database and survey responses of EM faculty and clinical pharmacists at a single-site university hospital with 24-hour EM pharmacists. We reviewed the database to quantify types and severity of medication errors over 5 years. We identified survey participants using purposive sampling and obtained consent. Anonymous surveys included categorical items that we analyzed with descriptive statistics and short answer questions that two coders examined using thematic analysis. We summarized all data sources to identify relevant curriculum gaps.

Results: Common safety threats in our database were wrong dose (43%) and computer entry errors (14%). Survey respondents included 21 physicians and 9 pharmacists. Commonly identified knowledge gaps were medication cost (63%), pregnancy class warnings (60%), antibiotic stewardship (53%), medication interactions (47%), and side effects (47%). Qualitative analysis identified the need to optimize computer order entry, improve understanding of antibiotics and critical medications, better use references to guide prescribing, and know when to involve

the pharmacist. Improved skills are needed when prescribing antibiotics, insulin, sedatives, narcotics, and epinephrine.

Conclusion: Pharmacology skills to emphasize in EM residency training include order entry, prescribing high-risk medications, antibiotic stewardship, utilization of references particularly for special populations, and consultation with the pharmacist.

Table 1. Responses to categorical survey questions.

Categorical survey questions	Most common topics reported (%reporting)
Top five knowledge gap topics	Cost of medications (63%) Medications in pregnancy and lactation (60%) Antibiotic selection and stewardship (53%) Medication interactions (47%) Familiarity with side effects (47%)
Associated with patient safety events	Pain management/opioids (43%) Insulin (37%) Sedation medications (33%)
Incorrectly ordered	Pain medications (40%) Antibiotics (30%) Insulin (27%)
Must-know side effects	EPS-inducing medications (23%) Ketamine (17%) Opioids (10%)
Dose should be memorized	RSI medications (60%) Epinephrine (43%) Vasopressors (27%) Sedation medications (27%)
Antibiotics incorrectly prescribed	Vancomycin (43%) Piperacillin-Tazobactam (30%) Trimethoprim/Sulfamethoxazole (27%) Cephalexin (27%)

4 A Qualitative Needs Assessment of COVID-19's Impact on EM Interns

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Learning Objectives: To characterize the impact that COVID-19 has had on the well-being and educational experience of EM interns in 2020

Background: The COVID-19 pandemic posed an unprecedented challenge to our learners. EM interns this year began their training during a time of great need and with less clinical experience than those of prior years.

Objectives: To characterize the impact that COVID-19 has had on the well-being and educational experience of EM interns in 2020.

Methods: We conducted a 60-minute semi-structured focus group with 18 interns at a single residency program in July 2020. A recording of the interview was transcribed and de-identified. Using qualitative methods, initial coding was performed independently using an inductive and iterative process by two study authors with experience in qualitative methodology. Once