

Measuring an emergency medicine pharmacist's impact in an acute care community hospital

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Introduction

Pharmacists have been involved in the care of emergency department (ED) patients for decades.¹ More recently, the specialized field of emergency medicine pharmacy has grown exponentially, with >2000% increase in specialty training positions from 2007 to 2020.² Emergency medicine pharmacists (EMPs) are well-integrated members of the interprofessional ED team. Unlike other specialists, EMPs are visible, accessible members of the team due to their physical presence in the ED.³ EMPs provide direct care at the bedside and make critical interventions to optimize patient safety, pharmacotherapy, and cost-effectiveness.^{2,3} In September 2019, the William W. Backus Hospital (BH) implemented an EMP program.

Purpose

This was a quality improvement project designed to assess the impact of implementing an EMP program in a 213-bed, Level III trauma center.

- One full time equivalent EMP based in the ED
- Monday-Friday, 1430-2300

Methods

- Approved by Hartford Healthcare Institution Review Board as a non-research activity exempt from further oversight

Baseline

- Period between 10/1/2018 – 8/31/2019 (11 months)
- ED orders were remotely covered by rotating staff pharmacists
- Staff pharmacists documented ED-associated interventions using the EMR (electronic medical record), Epic® software

Data Collection

EMR data were collected through EMR-generated reports and grouped into the following categories:

- Antimicrobial stewardship
- Clinical recommendations
- Drug/dose changes
- Drug information
- Medical response
- Medication reconciliation
- Order clarification
- Patient counseling
- Unclassifiable

Implementation

- Period between 10/1/2019 – 8/31/2020 (11 months)
- ED orders were covered by EMP
- EMP documented ED-associated interventions using the EMR
- EMP documented providers' intervention acceptance and rejection rates

Questionnaire

- Questionnaire was distributed to eligible ED staff: 30 ED providers (MD, DO, APRN, PA) and 46 RNs who regularly worked concurrent shifts with the EMP
- REDCap software was used to collect respondent data
- Questionnaire consisted of 11 items: 6 Likert scale, 3 multiple-choice, and 2 open-ended
- Categorical data were analyzed using Fisher's test, when appropriate
- FET p < 0.05 considered statistically significant

Results

Figure 1. Baseline Period Interventions (N=470)

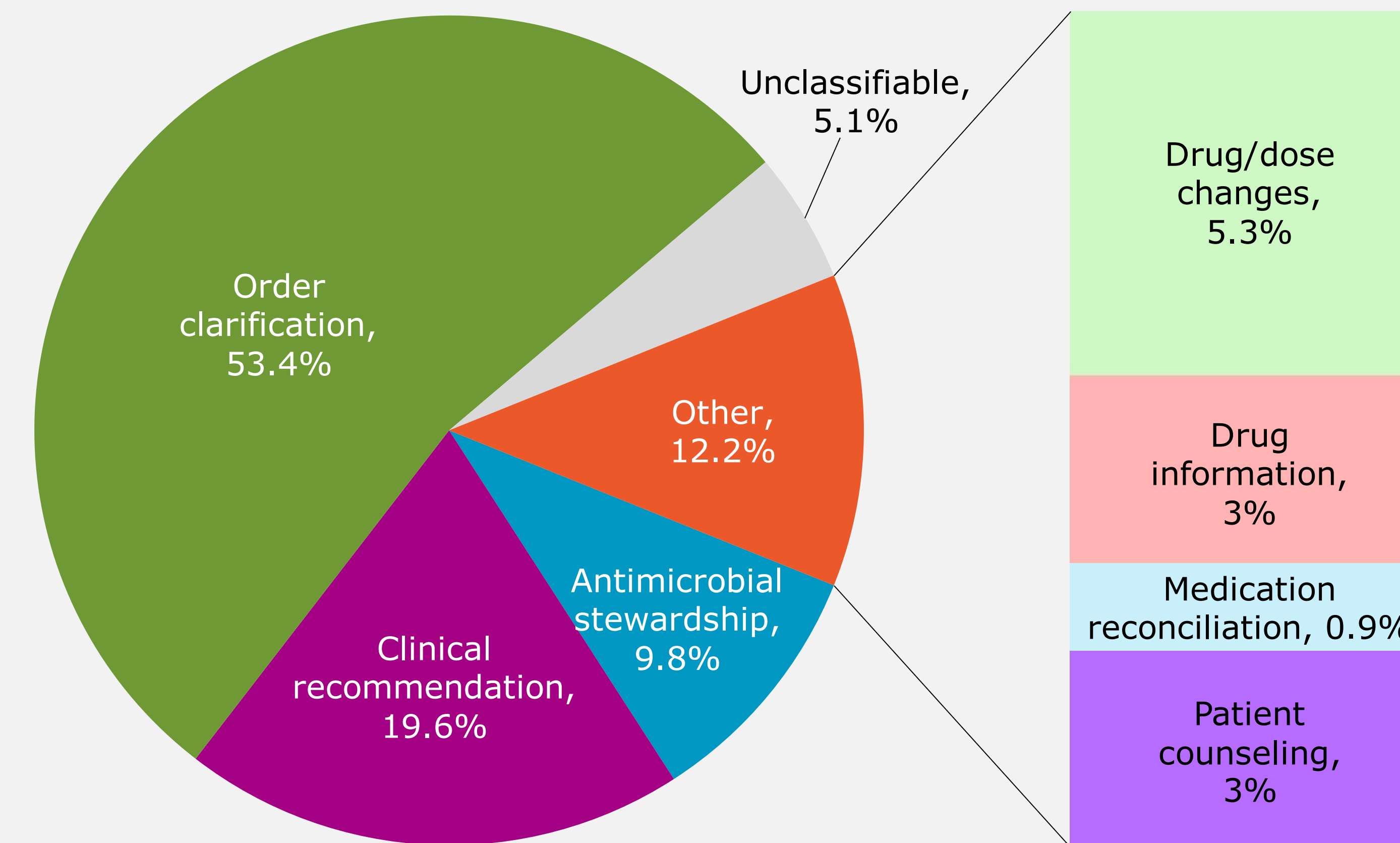


Figure 2. Implementation Period Interventions (N=1372)

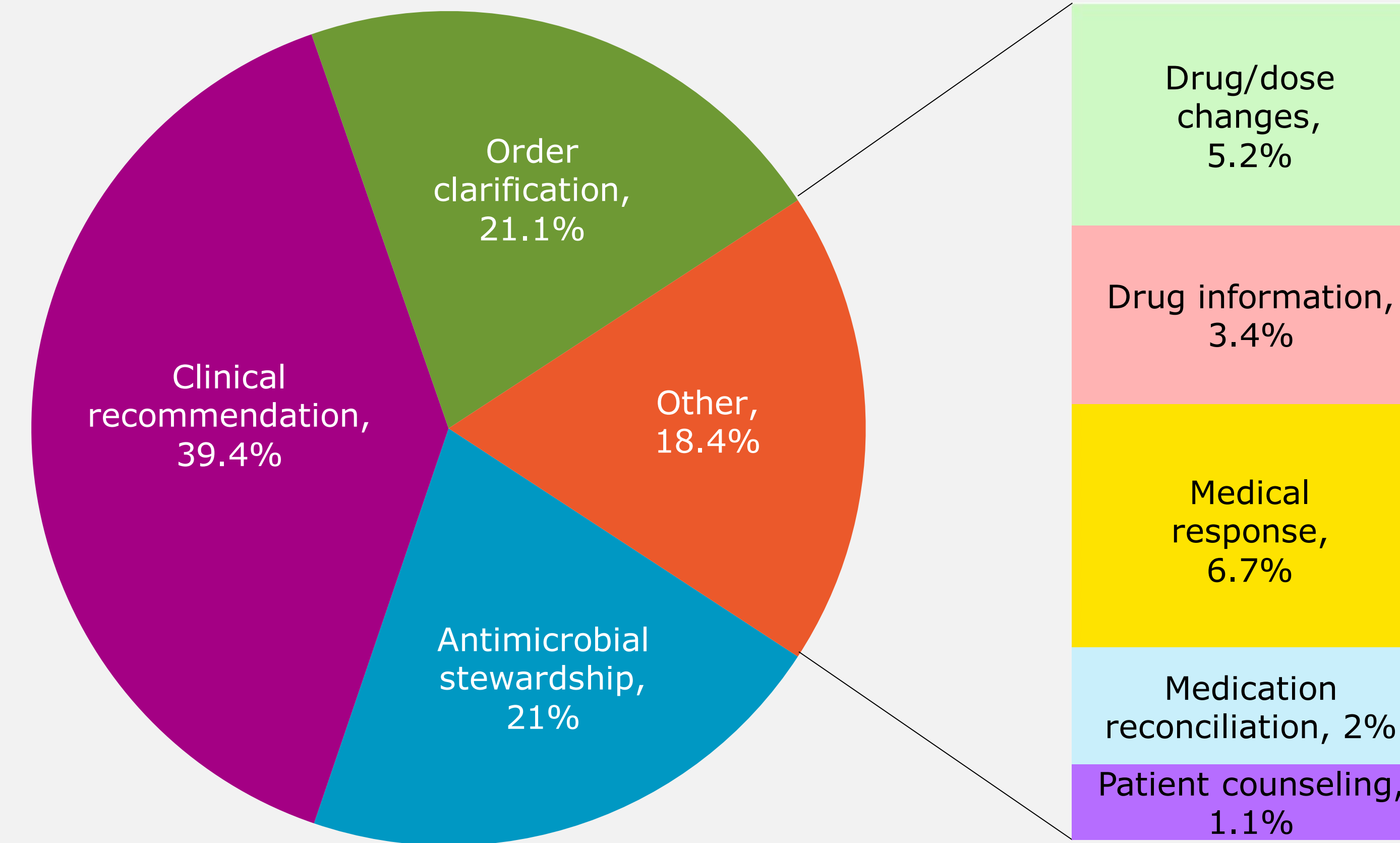
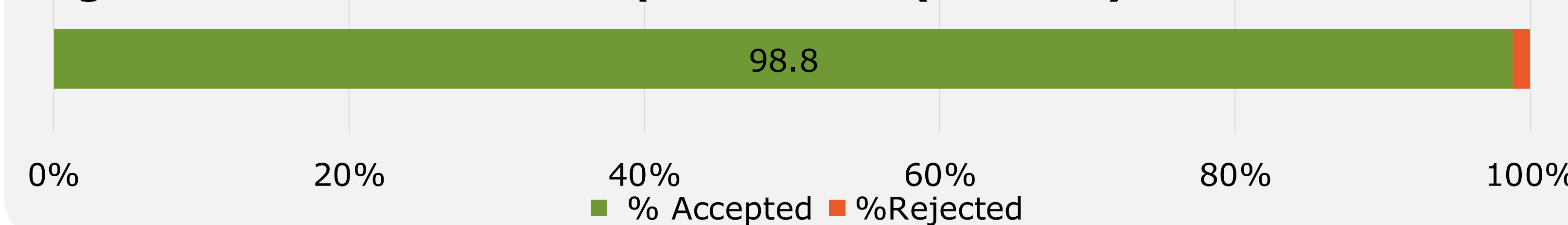


Figure 3. Intervention Acceptance Rate (N=1283)



Results

Table 1. Questionnaire Results

Categorical Questionnaire Items	Providers (N=16)	Nurses (N=36)	FET p value	
The implementation of the EMP has benefitted the ED.	Agree n (%)	0 (0)	5 (13.9)	0.308
	Strongly Agree n (%)	16 (100)	31 (86.1)	
I utilize the EMP (located in the ED) more than staff pharmacists (located in the central pharmacy).	Agree n (%)	1 (6.3)	3 (8.3)	1.000
	Strongly Agree n (%)	15 (93.8)	33 (91.7)	
The presence of an EMP improves the quality of patient care and patient outcomes.	Agree n (%)	1 (6.3)	4 (11.1)	1.000
	Strongly Agree n (%)	15 (93.8)	32 (88.9)	
The EMP is a useful source for medication/treatment recommendations.	Agree n (%)	0 (0)	3 (8.3)	0.544
	Strongly Agree n (%)	16 (100)	33 (91.7)	
Having an EMP during traumas, medical resuscitations, and critical encounters enhances my ability to deliver safe, high-quality care.	Agree n (%)	0 (0)	4 (11.1)	0.299
	Strongly Agree n (%)	16 (100)	32 (88.9)	
The EMP is an integral member of the interprofessional ED team.	Agree n (%)	1 (6.3)	5 (13.9)	0.653
	Strongly Agree n (%)	15 (93.8)	31 (86.1)	
In the last 2 weeks when the EMP was present, how many times on average did you interact with the pharmacist to enhance patient care?	Once/week n (%)	4 (25)	7 (19.4)	0.719
	Multiple times/week n (%)	12 (75)	29 (80.6)	
Other Questionnaire Items	Providers (N=16)	Nurses (N=36)	FET p value	
Do you think the EMP program should be continued at Backus Hospital?	Yes n (%)	16 (100)	36 (100)	N/A
	No n (%)	0 (0)	0 (0)	
What would make the EMP program better?	N/A		N/A	
Describe an experience in which your interaction with the EMP improved outcomes.	Varied responses		N/A	

Discussion

- EMP program implementation increased the number of interventions made by 192%. Additionally, the program introduced a new intervention category—medical response—reflecting the EMP's role in cardiac arrest, rapid response, stroke, and trauma codes.
- The largest category of baseline interventions was order clarifications, vs. clinical recommendations after implementation. This indicates a shift in provider-pharmacist communication, with increased emphasis on clinical interventions such as optimization of pharmacotherapy.
- Intervention acceptance rates could not be compared between periods, since this data was not recorded during the baseline period. Similarly, 5.1% of baseline interventions were categorized as unclassifiable, owing to lack of information in the baseline EMR report.
- Likert and multiple-choice questions were analyzed as categorical data since all responses fell into only two categories per question.
- There were no statistically significant differences between nurse and provider questionnaire responses, suggesting that the EMP was equally utile to both professions.

References

1. Cohen V, Jellinek SP, Hatch A, Motov S. Effect of clinical pharmacists on care in the emergency department: a systematic review. *Am J Health Syst Pharm.* 2009;66(15):1353-61.
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Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Ming May Zhang: Nothing to disclose; Jason K. Lew: Nothing to disclose