



Clinical Impact of Pharmacist-Led Antibiotic Prescribing for Urinary Tract Infections in the Emergency Department

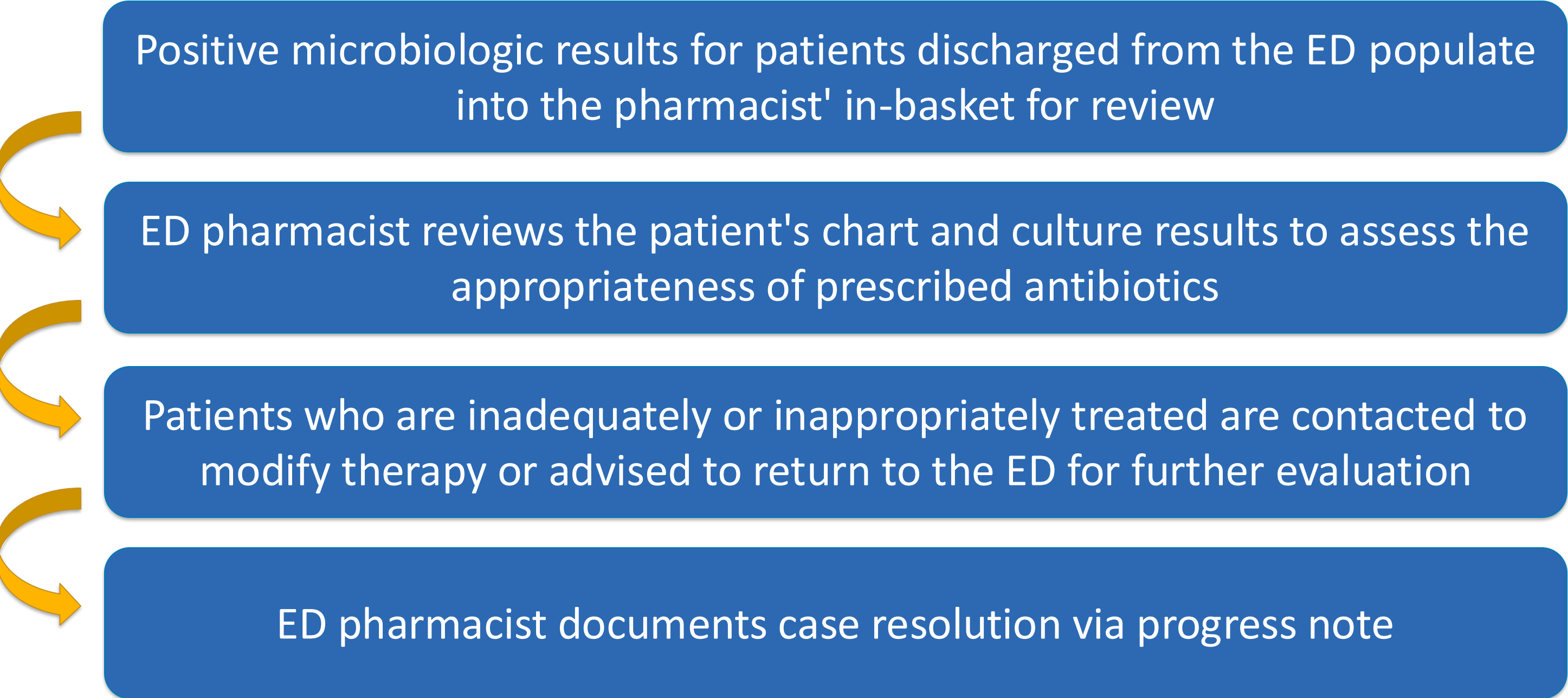
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Background

- Pharmacist-led collaborative practice agreements (CPA) in the emergency department (ED) for management of microbiologic cultures are increasingly being implemented in health systems across the country.
- Retrospective studies have shown reduced time to "optimized therapy," but less have evaluated the impact on return ED and/or hospital visits.^{1,2}
- Mixed data exist for whether CPAs can decrease patient ED revisits and hospital readmissions.^{3,4}
- UC San Diego Health implemented an antimicrobial culture callback for ED pharmacists in January 2023. Pharmacists review all microbiologic results except HIV and hepatitis results, admitted patients, and pediatric patients.

ED Pharmacist CPA Workflow



Objective and Methods

To compare rates of ED revisit and hospital admission within 30-, 60-, and 90-days between pre- and post-CPA implementation

Study Design	Retrospective study from 01/2022 to 12/2022 (pre-CPA) and 02/2023 to 06/2025 (post-CPA)
Patient Population	Inclusion: Patients discharged from the ED with a positive urine culture Exclusion: Admission to the hospital from ED, incarcerated, hospice, or ED to Home patients
Statistical Analysis	Categorical data was assessed by chi-squared tests and/or z-tests Continuous data was assessed by t-test and/or Mann-Whitney U

Results

Figure 1: Patient Screening

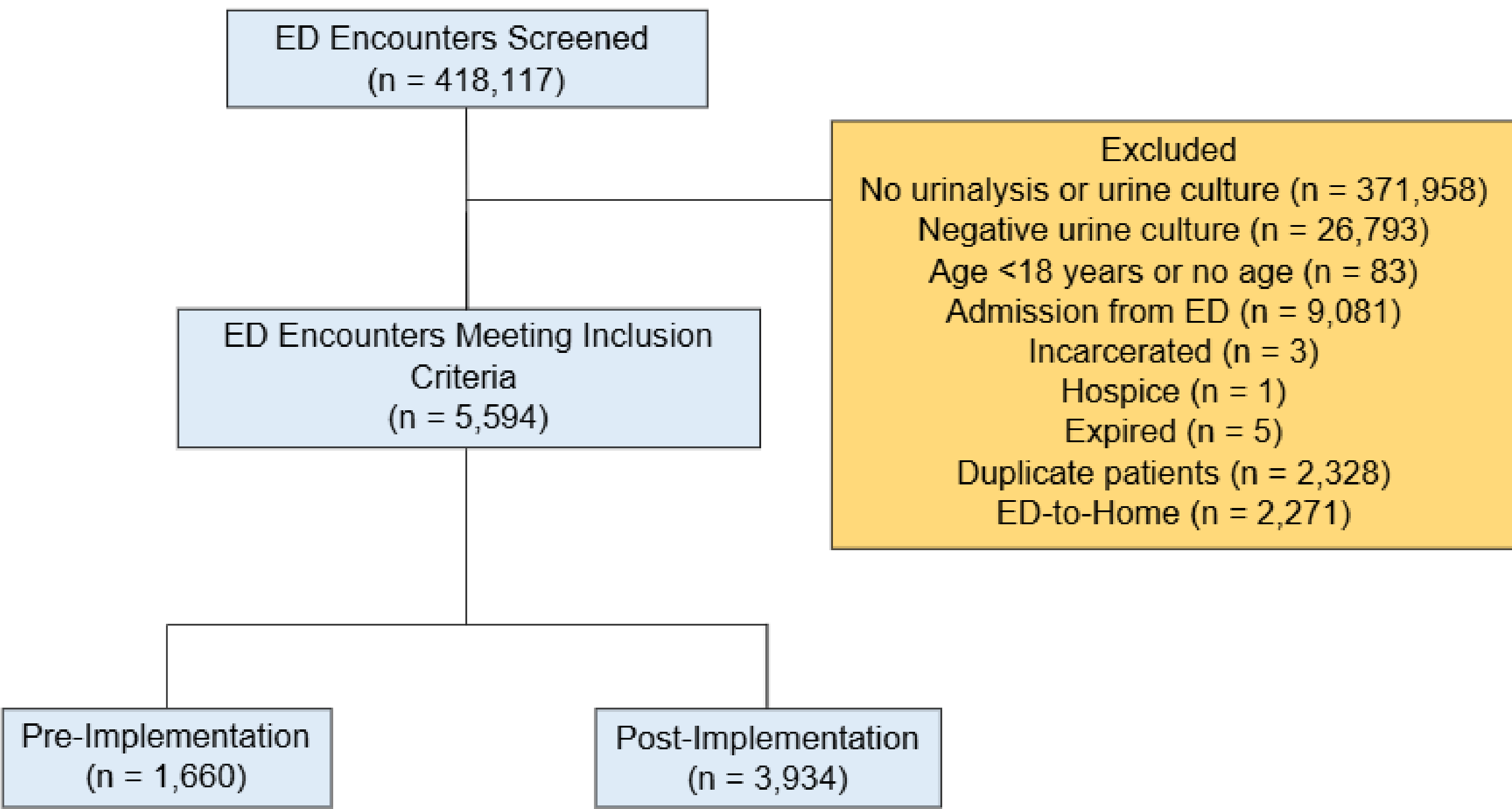
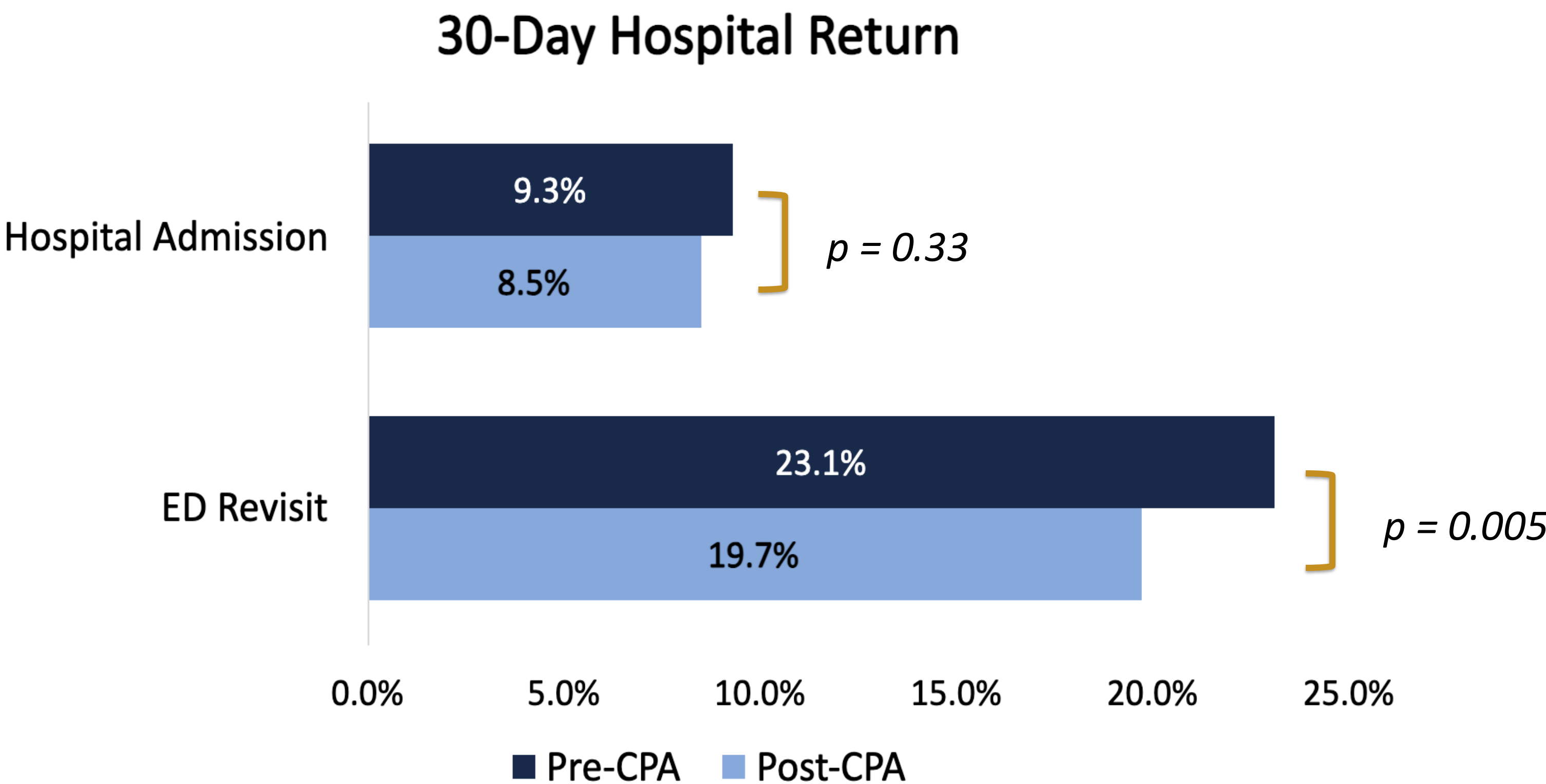


Table 1: Patient Demographics

Baseline Characteristics	Pre-CPA (n = 1,660)	Post-CPA (n = 3,934)	P-value
Median age, years (P2.5-P97.5)	56 (20-92)	58 (20-92)	0.019
Female, n (%)	1275 (76.8)	2929 (74.5)	NS
White, n (%)	804 (48.4)	1872 (47.6)	NS
Pregnant, n (%)	65 (3.9)	186 (4.7)	0.010
History of ESBL, n (%)	137 (8.3)	420 (10.7)	0.007
History of VRE, n (%)	6 (0.4)	16 (0.4)	NS
History of CRE, n (%)	1 (0.1)	2 (0.1)	NS
History of indwelling catheter, n (%)	139 (8.4)	395 (10.0)	0.059
Indwelling catheter present, n (%)	42 (2.5)	126 (3.2)	NS
Diabetes mellitus, n (%)	404 (24.3)	957 (24.3)	NS

Figure 2: Primary Outcome



Results (Continued)

Table 2: Secondary Outcomes

Outcome	Pre-CPA (n = 1,660)	Post-CPA (n = 3,934)	RR (95% CI)	P-value
30-day, n (%)				
ED revisit	384 (23.1)	776 (19.7)	0.75 (0.62-0.91)	0.005
Hospital admission	155 (9.3)	334 (8.5)	0.91 (0.76-1.09)	NS
60-day, n (%)				
ED revisit	506 (30.5)	1011 (25.7)	0.84 (0.77-0.92)	<0.001
Hospital admission	208 (12.5)	456 (11.6)	0.93 (0.79-1.08)	NS
90-day, n (%)				
ED revisit	586 (35.3)	1180 (30.0)	0.85 (0.78-0.92)	<0.001
Hospital admission	242 (14.6)	542 (13.8)	0.95 (0.82-1.09)	NS

Conclusion and Discussion

- This study had an extended study period and large sample size to evaluate the quality outcome measures of the pharmacist-driven CPA.
- Among patients discharged from the ED with empiric antibiotics for UTI treatment, there was an **absolute reduction in ED revisit and hospital readmission in the post-CPA group** compared to the pre-CPA group.
- ED pharmacist involvement in culture management appears to be effective and reduces hospital return visits.
- Future directions include examining different types of cultures, appropriateness of antibiotic prescribing, and cost analyses.

Limitations

- Reason for ED revisit or hospital admission may not be infection-related.
- "Ed to Home" program, which aims to follow up with high-risk patients for ED readmission, was implemented in 2022.
- Differences in our ED pharmacist staffing coverage may affect ability to prioritize culture follow-up.

References

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