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Abstract

Background: Outpatient Antimicrobial Therapy (OPAT) has been shown to have similar clinical outcomes to therapy completed in the inpatient setting with an overall clinical success rate above 85%. Approximately 10 to 25% of patients discharged with OPAT are readmitted and approximately 70% of those readmissions are directly related to OPAT. The primary purpose of this study is to identify risk factors associated with therapy-related readmissions in OPAT patients who discharged from an academic medical center.

Methods: This retrospective single center study evaluated 184 adults diagnosed with an infectious process and subsequently discharged with intravenous antimicrobials for a treatment duration of at least 7 days. Patients readmitted within 90 days of discharge were compared to patients without readmission. Multivariate logistic regression was completed to identify factors associated with readmission.

Results: Patients were treated with OPAT for a median of 42 days in both groups. The majority of infections in both groups were culture-positive, with multi-drug resistant organisms isolated in 44.2% of the readmitted group and 42.6% of the not-readmitted group. The overall readmission rate for OPAT patients was 33%. The most common reason for readmission was worsening of infection (56% of all readmissions), with adverse events related to OPAT (8%) and acute kidney injury (8%) also being common reasons for readmission. When controlling for confounding variables, patients were more likely to be readmitted if being treated for bloodstream infection or if they had a history of readmission in the previous 12 months.

Conclusion: Readmission rate related to OPAT at this academic medical center was higher than reported in previous literature. Patients with history of readmission may be at higher risk for readmission related to OPAT which could potentially be related to complexity of comorbidities. Patients with a history of readmission or bloodstream infection may require more intense monitoring and follow up.

Background

Outpatient Antimicrobial Therapy (OPAT)

OPAT was introduced in the mid 1970s when studies were successfully completed in cystic fibrosis patients. Further reports were released that confirmed OPAT as a viable treatment option.^{1,2} It has continued to expand and improve over the years with a clinical success rate remaining over 85%.²

OPAT is associated with significant cost savings to health systems.³ As with any treatment option, there are also risks; adverse event rates are around 25%.⁴

While OPAT-related readmissions remain around 10% worldwide, these rates lower when monitored appropriately.^{5,6}

Objectives

- Identify risk factors associated with therapy-related readmissions in patients who were discharged from UCMC and received at least 7 days of intravenous outpatient antimicrobial therapy (OPAT)
- Evaluate occurrence rates and risk factors for OPAT-associated complications

*Authors of this presentation have nothing 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.

Methods

This retrospective, single center, chart review included OPAT discharges from November 2012 through October 2015 and evaluated OPAT-related 90-day admission rates and risk factors associated with these readmissions.

Inclusion Criteria

- Age ≥ 18 years old
- Infectious process diagnosis on discharge
- At least one week of IV antimicrobial therapy at home or in a nursing facility required at discharge

Exclusion Criteria

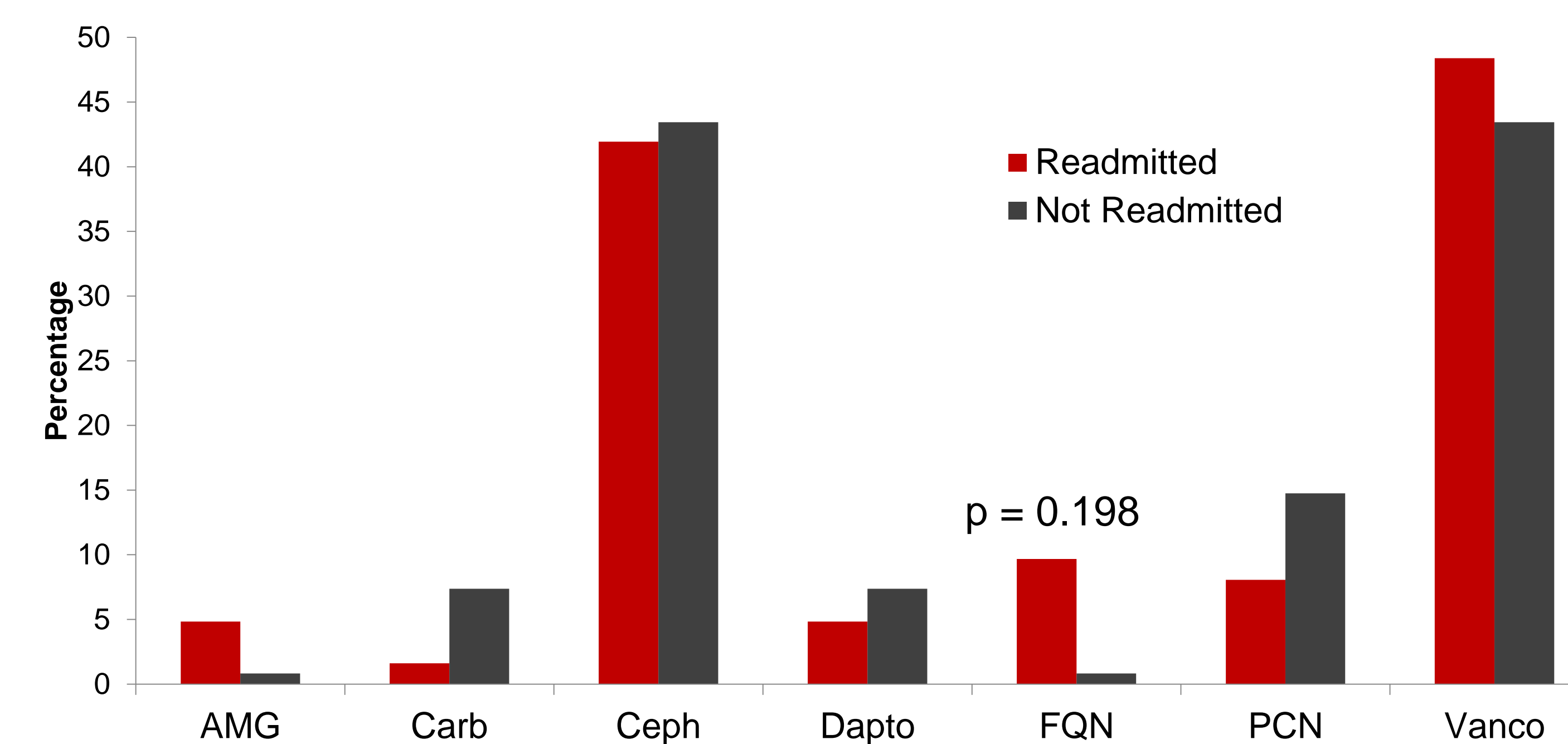
- Prisoners
- Pregnant Women
- Discharge to hospice

Results

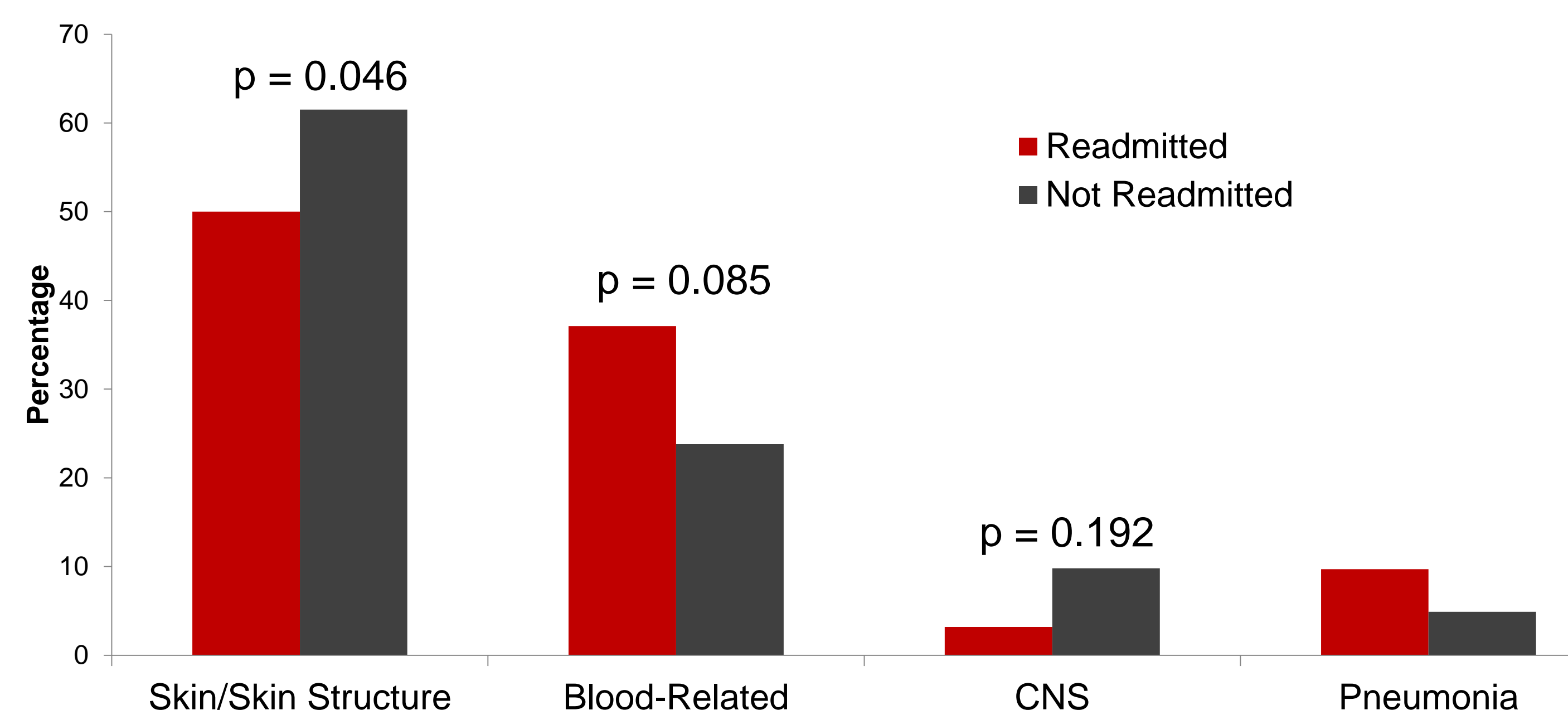
Baseline Characteristics – General Criteria

	Readmitted, 90 days (n = 62)	Not Readmitted (n = 122)	p-value
Male, n (%)	40 (64.5)	74 (60.7)	0.727
Age, years median (IQR)	54 (37 – 63)	51 (38 – 61)	0.828
Culture Positive, n (%)	52 (83.9)	94 (77.0)	0.375
SNF at discharge, n (%)	32 (51.6)	68 (55.7)	0.708
ID Follow-Up, n (%)	44 (70.9)	95 (77.9)	0.396
Admitted Previously, n (%)	49 (79.0)	59 (48.4)	<0.001

Antibiotics Used



Infection Treated

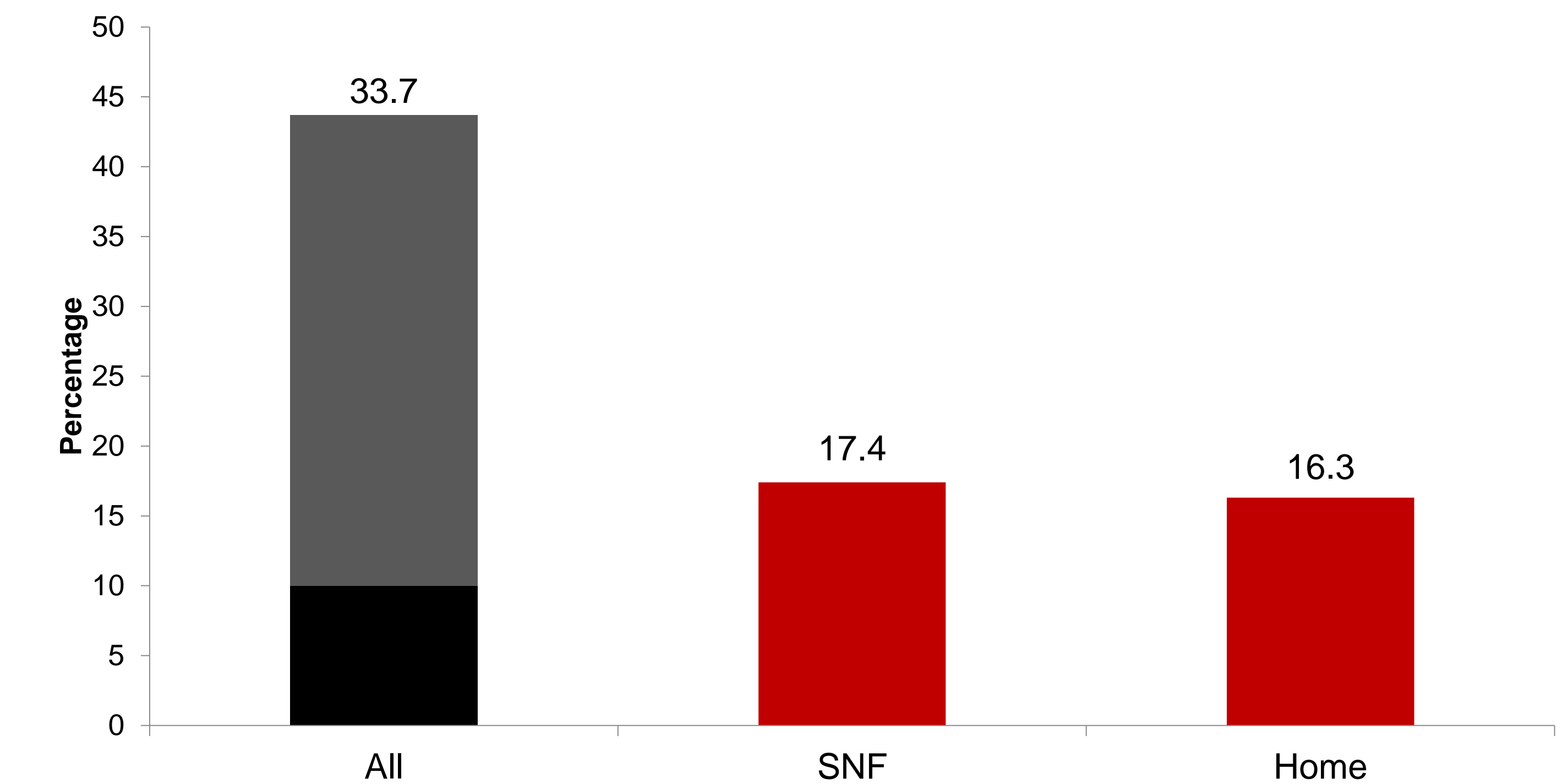


Results

Socioeconomic Data

	Readmitted, 90 days (n = 62)	Not Readmitted (n = 122)	p-value
Composite Federal, n (%)	54 (87.0)	88 (72.1)	0.036
Private Insurance, n (%)	8 (12.9)	32 (26.6)	0.060
Uninsured, n (%)	0 (0)	2 (1.6)	0.794
High-risk screening, n (%)	7 (11.3)	5 (4.1)	0.121

OPAT-related Readmission Rate (90-day)



Risk Factors Affecting OPAT-related Readmissions

	Odds Ratio	Lower 95% CI	Upper 95% CI
Previous Admission	3.702	1.714	7.998
Lack of Lab Monitoring Recs	1.491	0.680	3.272
Federal Insurance	1.935	0.803	4.664
Blood-Related Infection	8.674	3.048	24.682
Skin/Skin Structure Infection	0.202	0.0809	0.507
CNS Infection	0.145	0.0260	0.815

Hosmer–Lemeshow Goodness of Fit: 4.194 (p = 0.839)

Application

Overall readmission rates were higher than reported in previous literature. Previous readmissions and blood-related infections were identified as risk factors for OPAT-related readmission.

Future directions include development of an interprofessional team to address opportunities identified.

References

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