Clinical Outcomes and Healthcare Utilization in Uninsured Patients Requiring Long-term Antibiotic Therapy

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BACKGROUND

- Outpatient parenteral antimicrobial therapy (OPAT) is frequently utilized in the management of severe infections
- Uninsured patients may have more difficulties accessing OPAT services (compared to those with insurance) which can result in prolonged hospitalizations or early discharge with potentially suboptimal therapy
- We sought to assess disparities in the care of hospitalized, uninsured patients who had an OPAT indication by examining patterns of service utilization and clinical outcomes

METHODS

- Study design: Retrospective cohort study
- Inclusion criteria:
  - Adult patients admitted to an academic hospital between 09/01/2018-12/31/2018
  - Index admission with one of the following diagnoses identified by ICD-10 codes:
    - Infective endocarditis (IE), *Staphylococcus aureus* bloodstream infection (BSI), and bone and joint infection (including osteomyelitis, prosthetic joint infection, septic arthritis)
  - Infectious diseases consultation completed (to confirm diagnosis and assess suitability for OPAT)
  - Primary payer source corresponding to uninsured/ self pay or privately/ commercially insured (referent)
- Exclusion criteria:
  - Age ≥ 65 years as these individuals are likely to have Medicare as a payer source
- Clinical data were collected during the index admission
- Outcomes were follow for up to 30 days after discharge:
  - Primary: Composite outcome of all-cause death and readmission at 30 days
  - Secondary: Length of stay (LOS) and discharge against medical advice (AMA)

RESULTS

- 104 patients were identified including 66 (63.5%) privately insured and 38 (36.5%) uninsured individuals

Table 1. Baseline characteristics during index admission

Variable	Privately insured (n=66) N (%) or Median (IQR)	Uninsured (n=38) N (%) or Median (IQR)	All (n=104) N (%) or Median (IQR)	P-value
Age, years	56.6 (48.5-60.7)	43.0 (32.0-47.3)	51.5 (36.8-58.7)	<0.001
Male gender	45 (68.2%)	25 (65.8%)	70 (67.3%)	0.802
African American	13 (19.7%)	21 (55.3%)	34 (32.7%)	<0.001
Employed	41 (64.1%)	7 (19.4%)	48 (48%)	<0.001
Admission to ICU	16 (24.2%)	8 (21.1%)	24 (23.1%)	0.710
Comorbidities				
Congestive heart failure	5 (7.6%)	3 (7.9%)	8 (7.7%)	1.000
Diabetes mellitus	14 (21.2%)	7 (18.4%)	21 (20.2%)	0.733
Hypertension	36 (54.6%)	12 (31.6%)	48 (46.2%)	0.024
Lymphoma/ leukemia	4 (6.1%)	0	4 (3.9%)	0.294
Solid Tumor	7 (10.6%)	1 (2.6%)	8 (7.7%)	0.253
Chronic kidney disease	9 (13.6%)	1 (2.6%)	10 (9.6%)	0.089
Intravenous drug use	1 (1.5%)	22 (57.9%)	23 (22.1%)	<0.001

Table 2. Infectious diseases diagnoses and antibiotic management

Variable	Privately insured (n=66) N (%) or Median (IQR)	Uninsured (n=38) N (%) or Median (IQR)	All (n=104) N (%) or Median (IQR)	P-value
Diagnosis				
Musculoskeletal infection	47 (71.2%)	26 (68.4%)	73 (70.2%)	0.764
Endocarditis (IE)	10 (15.2%)	13 (34.2%)	23 (22.1%)	0.024
S. aureus BSI	15 (22.7%)	4 (10.5%)	19 (18.3%)	0.187
Duration of IV antibiotics, days	42 (42-50)	41 (19.5-42)	42 (35-47)	<0.001
Oral antibiotics at discharge	2 (3.0%)	6 (15.8%)	8 (7.7%)	0.049

Table 3. Outcomes

| Variable	Privately insured (n=66) N (%) or Median (IQR)	Uninsured (n=38) N (%) or Median (IQR)	All (n=104) N (%) or Median (IQR)	P-value
Discharge AMA	0	7 (18.4%)	7 (6.7%)	<0.001
Length of stay, days	10 (5-19)	15.5 (6-42)	11 (5.5-24.5)	0.053
Composite 30-day all-cause readmission/ death	21 (31.8%)	4 (10.5%)	25 (24.0%)	0.017
Readmission	15 (22.7%)	3 (7.89%)	18 (17.3%)	0.063
Death	6 (9.1%)	1 (2.6%)	7 (6.7%)	0.418
Emergency department visit, all-cause, 30 days	17 (25.8%)	9 (23.7%)	26 (25.0%)	0.814
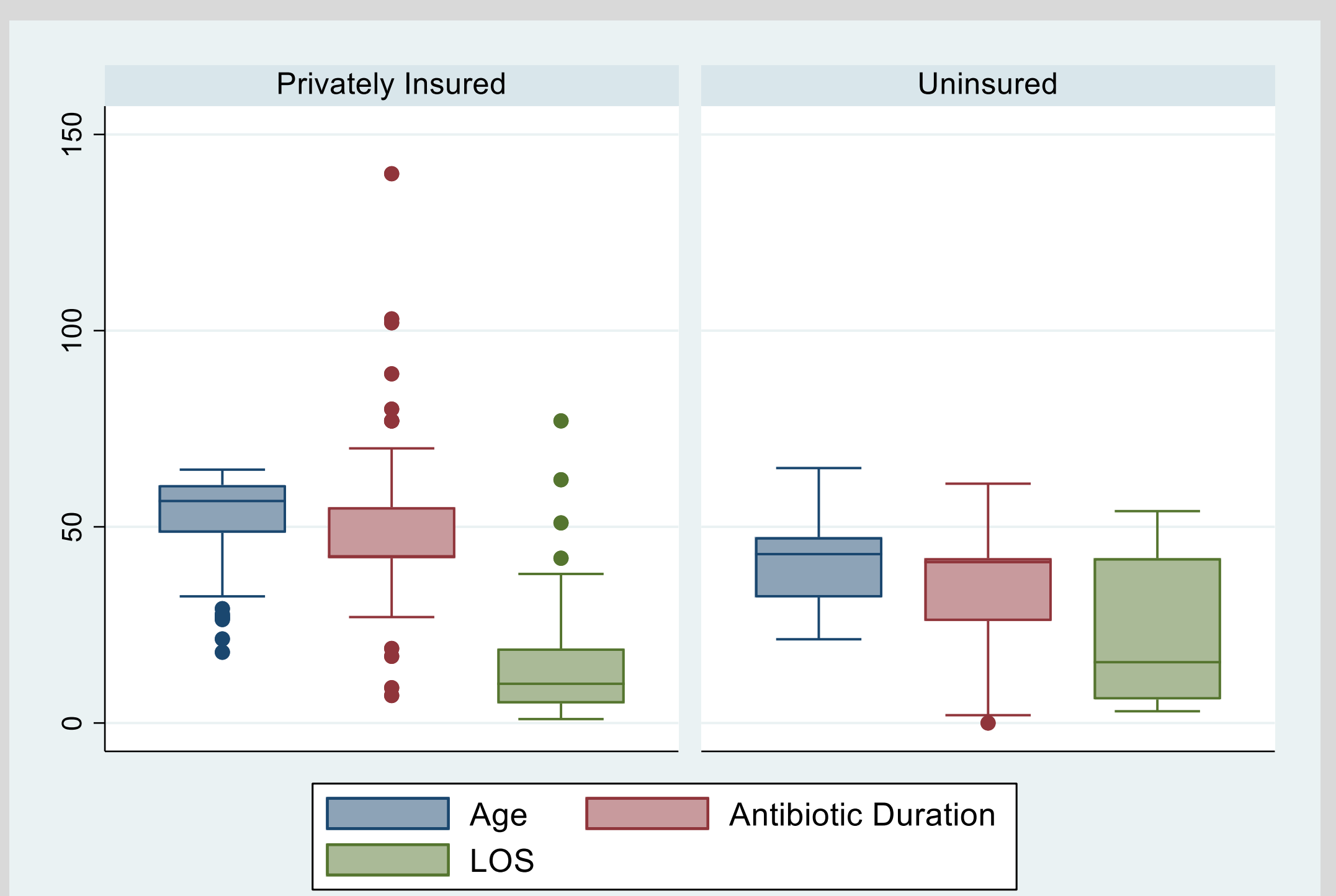
Figure 1. Box plot for age, duration of IV antibiotics, and LOS by primary payer source.

CONCLUSIONS

- Uninsured patients were more likely to leave AMA, complete shorter duration of IV antibiotics, and receive oral antibiotics at discharge compared with privately insured patients
- The composite outcome occurred less frequently in the uninsured group (p=0.017) on unadjusted analyses
- A larger study is needed to allow for more robust multivariable models to adjust for covariates
- This study has several limitations including small sample size, likely underrepresentation of readmissions and deaths that occurred outside of our health system and short follow-up duration
- Data will be used to inform a pilot self-OPAT program for uninsured patients

CONTACT INFORMATION

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