

# High risk substance use may predict OPAT nonadherence among people who use drugs admitted with invasive infections

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## Background

- Patients with substance use disorder (SUD) are frequently admitted to hospitals for invasive infections.
- Outpatient parenteral antimicrobial therapy (OPAT) in people who use drugs (PWUD) is complicated by poor outcomes due to nonadherence and SUD relapse.
- We evaluated outcomes of PWUD discharged on OPAT.

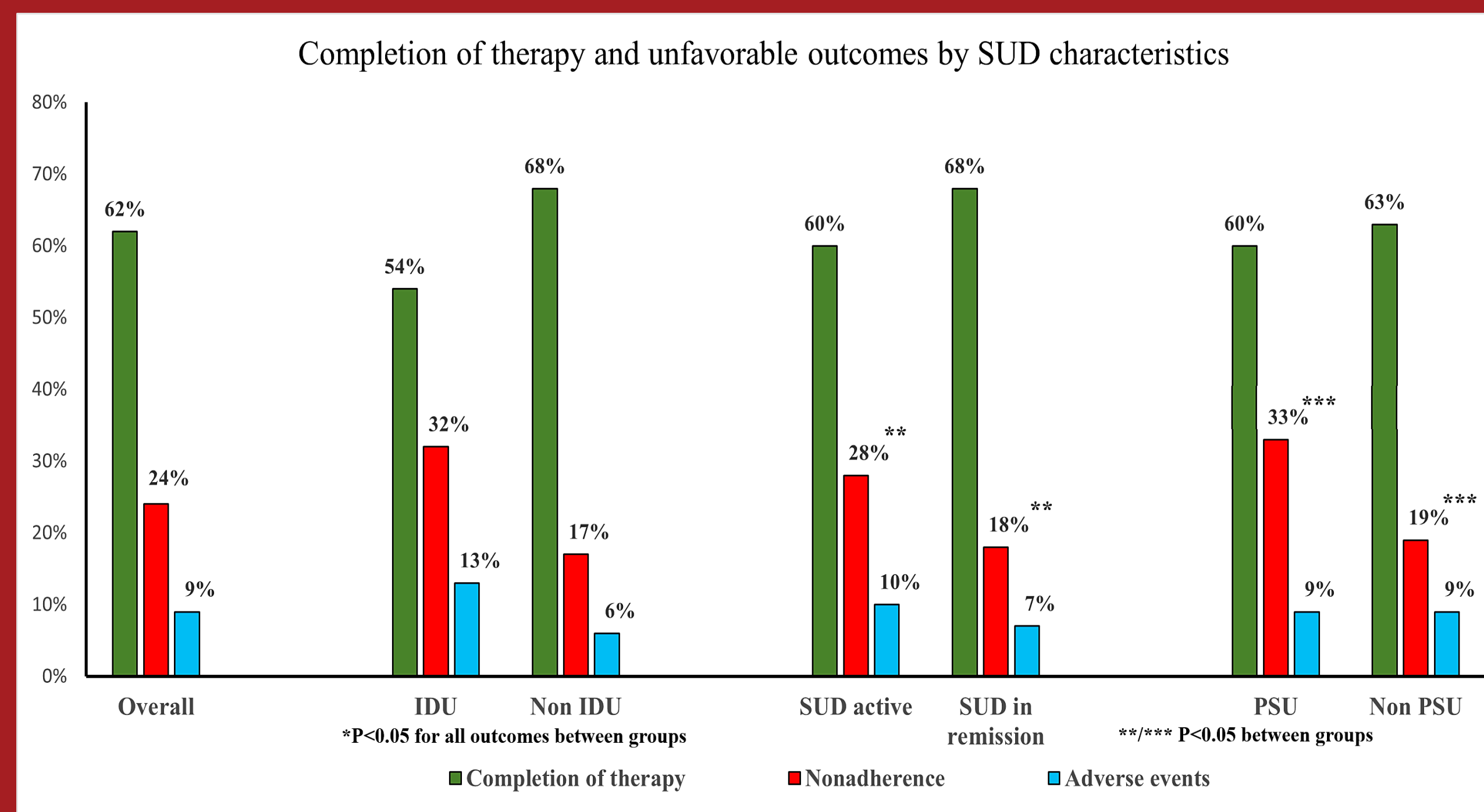
## Methods

- Retrospective cohort study of adults enrolled in OPAT program at two University of Maryland hospitals from 10/2017 – 04/2020
- ICD-9 or -10 codes for SUD (excluding those who only had alcohol and/or nicotine use disorder)
- We looked at characteristics of PWUD to assess whether there were differences in infections, their management, SUD interventions and OPAT outcomes between groups.

## Results

- 263 OPAT episodes, 201 patients
- 33% currently experiencing homelessness
- 44% had psychiatric comorbidity
- 64% had consultation by substance use services
- 62% completion of therapy → 79% were completed at SNF
- 24% nonadherence
  - 32% with injection drug use (IDU) (vs 17% without IDU)
  - 28% with active substance use within prior year (vs 18% with SUD in remission)
  - 33% with >1 substance (vs 19% in only 1 substance used)
- Drug/catheter-related adverse events = 3.64/1000 OPAT days with IDU
- Catheter abuse = 7 encounters (6 with IDU or active SUD)
- Cumulatively an unfavorable outcome (including failure, 30-day readmission, drug or PICC related adverse event, nonadherence or death) seemed to occur in 58% of IDU encounters as compared to non-IDU encounters (42.5%,  $P = 0.01$ ).
- MOUD was prescribed at discharge in 68% of overall cohort and was not associated with improved outcomes for any of the above groups.

**Injection drug use, ongoing substance use, and use of multiple substances are associated with OPAT nonadherence.**



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## Results

Table 1. Patient characteristics

Characteristic	N = 201 (with 263 unique OPAT episodes)	Characteristic	N = 201 (with 263 unique OPAT episodes)
Median age, years (IQR)	48 (36-54)	Indication for OPAT, no./total (%)	
Male sex, no./total (%)	105/201 (52.2)	Osteoarticular infection	123/263 (46.8)
Race, no./total (%)		Endocarditis (IE)	54/263 (20.5)
Black	90/201 (44.8)	Non-IE endovascular infection	23/263 (8.7)
White	110/201 (54.7)	Primary bacteremia	22/263 (8.4)
Others	1/201 (0.5)	Skin & soft tissue infection	20/263 (7.6)
Comorbidities, no./total (%)		Others	21/263 (8.0)
HCV antibody positive	139/201 (69.2)	Multisite infections, no./total (%)	55/201 (27.4)
Any diabetes	36/201 (17.9)	Median length of hospital stay, days (IQR)	11 (7-16)
HIV	29/201 (14.4)	OPAT location, no./total (%)	
Congestive heart failure	15/201 (7.5)	Subacute rehabilitation	207/263 (78.7)
COPD	15/201 (7.5)	Home	44/263 (16.7)
Psychiatric condition	88/201 (43.8)	Outpatient clinic (dalbavancin)	10/263 (3.8)
Substance use disorder, no./total (%)		Acute rehabilitation	2/263 (0.8)
Opioid, active	190/263 (72.2)		
Opioid, remission	60/263 (22.8)		
Cocaine	102/263 (38.7)		
Others	15/263 (5.7)		
Polysubstance use	98/263 (37.2)		

Table 2. OPAT Outcomes

	Overall n = 263	IDU n = 122	Non-IDU n = 141	SUD active n = 203	SUD in remission n = 60	Multiple substances n = 92	Only one substance n = 171
SUD							
SUD consult	162 (61.6)	108 (88.5)	54 (38.3)**	147 (72.4)	15 (25.0)**	84 (91.3)	78 (45.6)**
MOUD at discharge	169 (64.3)	84 (68.9)	85 (60.2)	122 (60.1)	47 (78.3)*	67 (72.8)	102 (59.6)
Outcomes							
Readmission	101 (38.4)	45 (36.9)	56 (39.7)	76 (37.4)	25 (41.7)	31 (33.7)	70 (40.9)
PICC abuse	7 (0.66/1000 PICC days)	6 (1.4/1000 PICC days)	1 (0.2/1000 PICC days)	6 (0.83/1000 PICC days)	1 (0.43/1000 PICC days)	2 (0.63/1000 PICC days)	5 (0.79/1000 PICC days)
Death	20 (7.6)	10 (8.2)	10 (7.1)	13 (6.4)	7 (11.7)	5 (5.4)	15 (8.8)

\* $P < 0.05$ , \*\* $P < 0.001$

## Discussion/Conclusion

- IDU, active substance use (within 1 y), and use of multiple substances are associated with higher rates of OPAT nonadherence.
- In patients hospitalized with SUD-related infections, interventions need to be focused on those with high risk SUD through MOUD optimization along transitions of care and linkage to care to improve OPAT outcomes and overall health events