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A Qualitative Assessment of Discharge against Medical Advice among Patients Hospitalized for Injection-Related Bacterial Infections in West Virginia

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Abstract

Background: The incidence of infective endocarditis (IE) and other systemic bacterial infections is increasing, and people who inject drugs (PWID) have higher rates of discharge against medical advice (AMA) for these infections than patients whose infections are not injection-related. In this study, we characterize factors that contribute to AMA hospital discharge among PWID.

Methods: We conducted qualitative interviews with twenty PWID hospitalized with serious injection-related bacterial infections in West Virginia. Participants completed a brief survey and in-depth qualitative interview. Interviews were recorded and transcribed verbatim and analyzed using a codebook developed based on deductive and inductive thematic analysis. We also conducted medical records abstraction and used descriptive statistics to summarize medical and survey data.

Results: Average age was 34 years, 55% were female, 95% identified as white, and 75% had a primary diagnosis of IE. Drugs injected prior to hospitalization were methamphetamine (60%), prescription opioids (38%), and/or heroin/fentanyl (25%). Participants cited multiple contributors

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Declarations of Interest

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Ethical Approval

This study was approved by the West Virginia University Institutional Review Board.

to AMA discharge including negative interactions with hospital staff that they perceived as stigmatizing, including being searched or monitored for illicit drug use; inadequate management of pain and withdrawal; boredom and confinement during lengthy hospitalizations; and isolation from family and other social supports.

Conclusion: We identified multiple factors contributing to AMA discharge that are amenable to intervention. Given the significant morbidity, mortality, and financial costs associated with hospitalizing PWID for serious injection-related bacterial infections, hospitals should be highly motivated to develop and test interventions designed to improve outcomes among these patients.

Keywords

endocarditis; injection drug use; people who inject drugs; AMA discharge

Introduction

The United States is experiencing dramatic increases in morbidity and mortality related to injection drug use (IDU). Although drug overdose is the primary cause of drug-related mortality and injection-related viral infections like HIV and hepatitis C are the subject of ongoing attention, serious injection-related bacterial infections like infective endocarditis (IE) and osteomyelitis have also increased substantially over the past two decades (Collier, Doshani, & Asher, 2018; Rudasill et al., 2019; Wurcel et al., 2016). In West Virginia, which consistently has the highest overdose mortality rate in the U.S. (Scholl, Seth, Kariisa, Wilson, & Baldwin, 2019), one hospital documented a more than two-fold increase in the rate of IE cases from 2008 to 2015, largely attributable to IDU (Bates, Annie, Jha, & Kerns, 2019).

People who inject drugs (PWID) also have relatively poor related hospitalization outcomes. Compared to patients with IE not related to IDU (non-IDU-IE), PWID have longer hospital stays and higher rates of readmission, reoperation, and death (Rudasill et al., 2019; Shrestha et al., 2015). A recent meta-analysis reported an overall mortality rate of 5.7% within 30 days after cardiac surgery for injection-related IE (IDU-IE), a 47% greater hazard of death, and more than double the hazard of reoperation for IDU-IE compared to non-IDU-IE (Goodman-Meza et al., 2019). Readmissions for IDU-IE are more than twice as high as non-IDU-IE (Leahey, Lasalvia, Rosenthal, Karchmer, & Rowley, 2019), and one-year mortality is as high as 36% for readmitted patients (Huang, Barnes, & Peacock, 2018). Indeed, recurrent infections are the leading cause of death among IDU-IE patients (Nguemeni Tiako et al., 2019; Straw et al., 2019).

Discharge against medical advice (AMA; sometimes referred to as “patient-directed discharge”) contributes to readmissions and poor health outcomes. An analysis of data from the National Readmissions Database found that almost five percent (4.8%) of IDU-IE patients are discharged AMA during their index hospitalization, compared to just 1.8% for non-IDU-IE (Rudasill et al., 2019). Single-site studies from the United States and Canada have reported much higher rates of AMA discharge among PWID, ranging from 25–41% (Nolan, Marks, Liang & Durkin, 2020; Ti & Ti., 2015). AMA discharge is associated with higher rates of readmission and mortality, making it an important target for improving

IDU-IE outcomes (Choi, Kim, Qian, & Palepu, 2011; Glasgow, Vaughn-Sarrazin, & Kaboli, 2010; Hwang, Li, Gupta, Chien, & Martin, 2003; Southern, Nahvi, & Arnsten, 2012; Yong et al., 2013).

Previous research suggests PWID frequently have negative healthcare and hospitalization experiences. Qualitative studies report that PWID's healthcare decisions – including delaying treatment and leaving AMA – are often informed by experiences with withdrawal, unmanaged pain, and perceived stigmatization by medical staff (Bearnot, Mitton, Hayden, & Park, 2019; McNeil, Kerr, Pauly, Wood, & Small, 2016; McNeil, Small, Wood, & Kerr, 2014; Paquette, Syvertsen, & Pollini, 2018; Velez, Nicolaidis, Korthuis, & Englander, 2016). However, few studies have specifically examined factors contributing to AMA discharge among PWID, and we are not aware of any from rural settings like Appalachia. Given this research gap, our study aimed to characterize factors contributing to AMA discharge among PWID in West Virginia.

Methods

Study design

Semi-structured interviews with brief quantitative survey and medical records abstraction.

Recruitment

Inpatients with serious injection-related bacterial infections at West Virginia University's JW Ruby Hospital are generally referred for consult with the WVU Behavioral Medicine and Psychiatry (BMED). Between August 2017, and July 2018, the BMED social worker who managed these referrals (TD) screened patients for study recruitment. Eligibility criteria were a) ≥18 years old; b) diagnosis of infective endocarditis, osteomyelitis, complex cellulitis, discitis, or other infection requiring long-term intravenous (IV) antibiotic therapy; and c) history of IDU disclosed on the medical chart or to BMED staff. Interested eligible patients were interviewed at bedside. We used purposive sampling techniques (Kuzel, 1992; Patton, 2002) to insure sample variation by sex, drugs used, treatment engagement status, and prior discharge history.

Data collection

Interviews started with the study consent form; patients who agreed to participate concurrently agreed to have their medical records accessed for research purposes. Participants completed a brief survey on demographics and drug use, followed by a qualitative interview lasting 45–90 minutes. The latter was framed by a semi-structured interview guide that included open-ended questions on drug use, hospitalization experiences, and thoughts regarding substance use treatment. Participants received $25 for participation. All study materials and procedures were approved by WVU's Institutional Review Board.

Quantitative survey data were entered into Excel. Qualitative interviews were digitally recorded and transcribed verbatim. Medical records data were abstracted using a standardized form and entered into Excel for analysis.

Data Analysis

We used descriptive statistics to analyze quantitative survey and medical records data. For qualitative data, the analytic team reviewed transcripts to generate a preliminary qualitative coding scheme based on the interview guide (deductive) and emergent themes (inductive) (Ryan & Bernard, 2003). We then met to discuss the coding scheme and develop a codebook. Codes were arranged in hierarchical structure by parent codes (e.g., hospitalization) and sub-codes representing more specific themes (e.g., medical staff interactions, security and surveillance, leaving AMA). The second author coded all transcripts in consultation with the first author, who checked the coding for consistency. Memos about important or unique findings in select transcripts helped identify cross-cutting themes and generate deeper understanding of the data. MAXQDA software (VERBI Software, 2017) was used to support the qualitative analysis.

To identify themes related to AMA discharge, analysis was first restricted to participants who reported leaving or considering leaving AMA during the current hospitalization *or* a past qualifying hospitalization. Drawing from this subset of participants, the authors identified factors that contributed to AMA discharge (or consideration of AMA discharge) and selected quotes to illustrate these themes. Next, to provide additional context for the factors identified as relevant to AMA discharge decisions by this subset of participants, the authors expanded the analysis to include all study participants who reported similar experiences (e.g., experiences of boredom and restricted movement) with the goal of providing richer contextual information. Pseudonyms were assigned to protect participant confidentiality.

Results

Participant characteristics

Table 1 presents demographic and medical information for the total sample (N=20). Three participants were discharged AMA subsequent to their study interview (referred to hereafter as the “current” hospitalization), four reported considering leaving or briefly attempting to leave AMA, and another eight indicated they left AMA at least once previously during a hospitalization for injection-related endocarditis or other injection-related bacterial infection requiring long-term IV antibiotics (for a total of 11 of 20 participants, 55%). Participants cited multiple factors contributing to their desire to leave the hospital that clustered in four thematic areas: negative interactions with hospital staff, inadequate management of withdrawal symptoms and pain, boredom and confinement, and isolation from family and other social supports.

Staff interactions

Participants described both positive and negative interactions with hospital staff (e.g., nurses, doctors, and security officers) that influenced their decision-making regarding treatment completion. Most (n=13) described at least one negative interaction with staff, ranging from insensitivity and rude comments to systematic patterns of perceived maltreatment. Multiple participants felt stigmatized due to their drug use histories, perceiving that medical staff “look down on” patients with substance use disorders (SUDs) and treat them with

condescension and judgment. One individual noted that when medical staff became aware of his drug use history, interactions changed “from being concerned” to “watching to make sure that you’re not doing anything that you’re not supposed to be.”

Participants frequently complained of negative interactions involving hospital security. Security interventions included room searches, patient pat-downs, having 24-hour in-room video monitoring, searching or prohibiting visitors, and having “sitters” that provided round-the-clock, in-room patient monitoring. Patients resented being suspected of active drug use based solely on their drug use history.

Kim, a 46-year-old woman with a 20-year injection history, described leaving AMA after her room and belongings were searched for drugs. The incident occurred when her fiancé was visiting and was given permission to take a shower (both the participant and her fiancé were homeless):

> Well, [my fiancé] took a shower and he was in there longer than what the charge nurse thought he should be. […] Well, I was sleepin’ and [the security officer] walked in and kicked the bed and told me that he was gonna search my belongings and search my part of the room. He looked under the bed, looked in the bed with me, looked in the closet, dumped my purse out. The whole nine yards. He went through everything. […] And I asked the nurse. I said, “What’d security find after you all sent ‘em in here to embarrass me and humiliate me?” And she was like, “We didn’t find nothin’, but we’re gonna start watching your visitor.” I said, “No, you’re not because I’m leavin’.” And I left. I mean, it’s just humiliating and embarrassing. It’s more embarrassing when that happened, when security comes over drugs, than it is for any other thing that can happen to you in your life.

Dakota, a 26-year-old woman with IE who had been injecting for 10 years, described a similar incident preceding a recent AMA discharge. She left the hospital AMA twice before her current hospitalization; her first AMA discharge was prompted by a negative interaction with a nurse and security officer. She recalled being asked to pull up her shirt to show a doctor her incision site. When Dakota’s nurse thought she saw drugs hidden in her bra, the nurse called security to have her and her room searched. Dakota was furious that despite the search yielding no drugs, she was told she would have a security officer posted in her room for the remainder of her stay and restrictions placed on her visitors.

> I just wanted to get the hell out of here because they had made me feel like an outcast. They made me feel like I had something to hide when I didn’t. And, you know, I just basically told her, I was like, you know, “I think what you’re doing is wrong. You’re basically chasing people off that don’t need to be chased off, that still need antibiotics, that still need to be here, and you’re running me off because you felt like you seen something that you didn’t see.” … And she brought in a urine cup and she told me that she wanted me to pee in the urine cup just to make sure I hadn’t shoved it inside of me. And I was like, “This is, this is an overkill. Give me my release forms. I’ll just sign them.” And she goes, “Well, that’s against medical advice.” I said, “I would rather leave against medical advice than to stay here and be, you know, treated like this.”

Dakota experienced intense shame and embarrassment from this episode, and she immediately relapsed upon leaving the hospital:

> So you know, I just, I left, and the first thing I did was went and got high, that night, as soon as I left. And it wasn't, it wasn't fair to the doctors that took their time out to make me better. It wasn't fair to the nurses that didn't, that did believe in me (laughs). Um, because of this one nurse, you know, I, I just felt like I wasn't good enough, so I went out and got high.

Dakota indicated that she generally received very good care and respected most members of her care team but said how she was treated by this one nurse led her to leave AMA. Her story highlights that perceived stigmatization by even a single staff member can have serious consequences for patient care.

Conversely, participants viewed positive interactions with staff as motivating healthy behaviors, including completing treatment. During her current hospitalization, Dakota's surgeon convinced his team to re-operate despite her history of AMA discharge and relapse. She described the impact of his positive attitude:

> *But yeah, just the fact that he had that much faith in me was enough to make me wanna, it makes me wanna do good, 'cause every time that I think about doing drugs again or every time I think about, you know, wanting to leave here and go see somebody that might have something or talk to somebody on the phone that might be doing something, I rethink my strategy, rethink the whole situation, because why do I need to do that? You know, it's the same situation when* [the doctor] *said, "I don't wanna do surgery on you, but I will because I have faith in you."*

Withdrawal and pain management

Patients generally did not feel their opioid withdrawal and pain symptoms were well managed during hospitalization. Although they were linked with BMED staff for assessment after admission, the median time from admission to receipt of the BMED consultation note was five days (IQR: 2–12 days). This meant that, in some cases, patients withdrew from opioids without medical management. Additionally, participants noted they had higher opioid tolerance than the average patient but felt this was not taken into consideration when making pain management decisions. Specifically, some noted that the opioids prescribed were enough to keep their withdrawal at bay but not enough to manage their pain.

Two participants directly connected withdrawal and insufficient pain management to their AMA discharge. Ashley, a 28-year-old woman attributed her one previous AMA discharge to untreated withdrawal: "Like, yeah, I understand I'm an addict, and you shouldn't feed my addiction, but don't let me lay and suffer. If you keep me comfortable, I'll stay and finish my antibiotics or my treatment."

Issues surrounding pain management and withdrawal were typically intertwined with negative staff interactions and perceived stigma. Ashley also considered leaving AMA during her current hospitalization, citing perceived stigma from the ICU nurses around pain management.

> The nurses treated me like I was a straight needle junkie that they pulled up out the ditch out here and brought in this hospital. They didn't want to- after heart surgery, I hurt. I mean, I had my chest and stuff cut open. They didn't want to gi- they acted like they didn't want to give me my pain meds. They acted like I was pain- seeking like pain meds. I would hit my button and they would ignore me in ICU. I'd see them look at me through the glass, and they would ignore me. […] I was about to ready leave AMA out of ICU. That's how bad it was. […] I understand we're addicts and all that, but like we said earlier, everybody's got a different situation. But the staff shouldn't treat anyone else different than anybody, you know, just a regular patient. I think it would really help with people not leaving. Because there's- it has took all I've had not to sign out of this hospital. Like I - like after this experience, I will never come back to this hospital.

Sarah, a 21-year-old woman who had been injecting for less than a year when she contracted IE, also worried about being judged by nurses for requesting pain medication. Although she was offered opioids for postsurgical breakthrough pain, she requested them only once to avoid being perceived as "just seeking to get high." The judgment she felt from nurses caused her to consider ending treatment early, but she stayed because she feared the negative health consequences. For both Sarah and Ashley, insufficient pain management was exacerbated by the stigmatizing attitudes and behavior they perceived from their nurses and led to serious consideration of AMA discharge.

Boredom and restricted movement

Virtually every participant alluded to challenges posed by boredom during their hospitalization. Once stabilized, these patients are generally healthy but require a stay of approximately six weeks to complete IV antibiotic therapy. Compounding challenges related to length of stay was a policy restricting these patients to their unit unless accompanied by hospital staff. There were no activities provided to keep them busy and participants indicated they were offered no opportunities for psychosocial treatment, recovery or support groups, or socialization with other patients. Many did not have access to laptops or smartphones. As a result, participants reported feeling "confined," "locked up," and "trapped," comparing their hospitalization to incarceration.

Two participants directly linked boredom and confinement to prior AMA discharges. Dakota, who left AMA after being searched and immediately relapsed, was re-hospitalized after her symptoms recurred. During her second hospitalization, she left AMA eight days before her scheduled discharge. She linked this second AMA discharge to frustration with movement restrictions and a general sense of weariness with hospitalization:

> And I was getting very, very, very fed up with just being here. I was tired of being in the hospital, I was tired of being around the people, I was tired of just everything. I couldn't go outside. I couldn't smoke a cigarette, (laughs). I couldn't be around anybody.

The inability to go outdoors was a common complaint. David, a 48-year-old man with osteomyelitis, considered leaving AMA during his current hospitalization due to feelings of confinement. David wanted to end his treatment early "just because I'm tired of being

trapped in here." He elaborated, "You know, I don't even look out the window because I don't like to … I haven't felt the outside air in almost five weeks."

Lisa, a 29-year-old woman, left AMA during her initial IE hospitalization and was quickly readmitted. She tied her decision to multiple factors including missing her children and feelings of social isolation and boredom. She stated that she "started to get really depressed just sitting in the rooms all the time," and that despite warnings from her medical team she left AMA with two and a half weeks of treatment remaining. When asked what the hospital should do to prevent patients from leaving AMA, Lisa said they should "Giv[e] people something to do to outside of their rooms."

Social isolation

Lack of social support was described as a major factor influencing patients' hospital stays. Most participants resided in other parts of West Virginia and therefore got few visitors. Long distance calls using in-room phones had to be placed by hospital staff, leaving these patients isolated and bored. Social isolation was especially difficult in the context of boredom and confinement. Indeed, both factors contributed to Lisa's decision to terminate treatment. She noted that in the midst of her boredom, a visit from her children ultimately prompted her AMA discharge. The children were "kind of upset, and crying, wanting me to go home," She explained. "Yeah, it just gets lonely. Sitting in here all by yourself all the time."

Social support may also be an important protective factor against AMA discharge for some patients. Participants with family members who visited frequently noted the importance of these visits, and three participants said family members convinced them to stay rather than leave AMA. Sarah stated, "I feel like why people leave before the end of their stay, I feel like if I didn't have as much visitors as I did, I would have too." Lisa suggested one way to reduce AMA discharges would be to co-locate patients receiving antibiotic treatment for injection-related infections, thus allowing them to receive social support from each other.

Discussion

PWID hospitalized for serious injection-related bacterial infections highlighted multiple factors that influence treatment completion. The perceived stigmatization described here is consistent with prior studies documenting pervasive drug use stigma in medical care (Bearnot et al., 2019; Morgan, 2014; van Boekel, Brouwers, van Weeghel, & Garretsen, 2013; Velez et al., 2016). Unfortunately, there is a dearth of research examining anti-stigma interventions for medical staff working with PWID; our results highlight a clear need to develop and test such interventions. Many of the negative interactions described by our participants centered on concerns related to drug use; indeed, security issues were the most frequently cited factor in leaving AMA. This is a common source of conflict for hospitalized people who use drugs (McNeil et al., 2014).

Unmanaged opioid withdrawal and inadequately managed pain were additional sources of patient frustration and prompted thoughts of AMA discharge. These concerns have been linked to AMA discharge in previous qualitative research with PWID (McNeil et al., 2016). Pain management issues were interwoven with drug use stigmatization, as

participants often feared being perceived as “drug seeking” and requests for pain medication were sometimes denied or ignored in a manner that reinforced this fear. Of note, while unmanaged opioid withdrawal was only a concern for individuals who used opioids before hospitalization, concerns regarding undertreated pain were cited by one participant who used only methamphetamine, suggesting that pain management issues may be relevant for all PWID.

The median time from admission to BMED consultation among patients in this study was 5 days; reducing the time from admission to specialty substance use consultation has the potential to improve both withdrawal management and overall patient outcomes. A growing number of studies have identified inpatient use of medications for opioid use disorder (MOUD) as protective against AMA discharge among people who use drugs, although most of these studies employ small samples and are not sufficiently powered to demonstrate independent associations (Chan et al., 2004; Santos, Shofer, Lowenstein, & Perrone, 2020; Suzuki et al., 2020; Ti et al., 2015; Wang et al., 2020). Where, as in our sample, methamphetamine use is common, inpatient treatment for substance use disorder should go beyond MOUD to include behavioral therapies as well.

Boredom and restricted movement also influenced AMA discharge. This represents another way that policies intended to limit illicit drug access can increase the likelihood of early treatment termination. It also reflects missed opportunities to engage in more time-intensive recovery programming (e.g., in-person or online group therapy) in a setting where patients may be particularly motivated and able to do so. Research suggests an unmet need for SUD treatment access during, and directly after, hospitalization (Gray, Rogawski Mcquade, Scheld, & Dillingham, 2018; Jicha, Saxon, Lofwall, & Fanucchi, 2019; Rosenthal, Karchmer, Theisen-Toupal, Castillo, & Rowley, 2016). Although relapse was not cited frequently as a reason for leaving AMA, it has been linked to AMA discharge in prior qualitative research with PWID (McNeil et al., 2016). Thus, recovery programming may help improve outcomes both by treating SUDs and by alleviating boredom.

Overall, our research suggests multiple factors amenable to intervention that may improve treatment completion. These include improved withdrawal and pain management, staff-focused stigma-reduction interventions, changes in patient mobility policies, expanding activities for patients with lengthy hospitalizations, and increasing social supports. Given the serious health and financial costs of IDU-IE and similar infections, hospitals should have multiple motivations for adopting and testing these interventions. One recent analysis noted that a WV hospital bore 78% of the economic burden of IDU-IE infections at a cost of >13 million over 8 years (Bates et al., 2019). Research suggests that doctors may be aware of the issues facing people who use drugs in the hospital but feel unprepared to deal with them; interventions specifically designed to support to these patients may help in this regard (Englander et al., 2018). It is imperative that hospitals address the factors contributing to AMA discharge to improve outcomes among PWID by integrating medical care with psychiatric and substance use disorder treatment as well as harm reduction (Elbatarny, Bahji, Bisleri, & Hamilton, 2019). Previous research also suggests outpatient parenteral antimicrobial therapy may be safe and effective for PWID despite widespread reticence to

offer this option (Suzuki, Johnson, Montgomery, Hayden, & Price, 2018), and hospitals should provide outpatient opportunities while researching and monitoring their effectiveness.

The generalizability of our results is limited by the small sample size and recruitment from a single hospital. However, our findings echo previous research on the negative hospitalization experiences of PWID. Our study adds to a growing body of evidence that demonstrates myriad negative outcomes associated with drug use stigma in healthcare settings and suggests multiple avenues for hospital policy changes that should be evaluated in future research.

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References

Bates Mark C., Annie Frank, Jha Ayan, & Kerns Fred. (2019). Increasing incidence of IV-drug use associated endocarditis in southern West Virginia and potential economic impact. Clinical Cardiology. doi:10.1002/clc.23162

Bearnot Benjamin, Mitton Julian A., Hayden Margaret, & Park Elyse R. (2019). Experiences of care among individuals with opioid use disorder-associated endocarditis and their healthcare providers: Results from a qualitative study. Journal of Substance Abuse Treatment, 102, 16–22. doi:10.1016/j.jsat.2019.04.008 [PubMed: 31202284]

Chan AC, Palepu A, Guh DP, Sun H, Schechter MT, O'Shaughnessy MV, & Anis AH (2004). HIV-positive injection drug users who leave the hospital against medical advice: the mitigating role of methadone and social support. Journal of Acquired Immune Deficiency Syndromes, 35(1), 56–59. doi:10.1097/00126334-200401010-00008 [PubMed: 14707793]

Choi Mark, Kim Haerin, Qian Hong, & Palepu Anita. (2011). Readmission Rates of Patients Discharged against Medical Advice: A Matched Cohort Study. PloS One, 6(9), e24459. doi:10.1371/journal.pone.0024459 [PubMed: 21931723]

Collier Melissa G., Doshani Mona, & Asher Alice. (2018). Using Population Based Hospitalization Data to Monitor Increases in Conditions Causing Morbidity Among Persons Who Inject Drugs. Journal of Community Health. doi:10.1007/s10900-017-0458-9

Elbatarny Malak, Bahji Anees, Bisleri Gianluigi, & Hamilton Andrew. (2019). Management of endocarditis among persons who inject drugs: A narrative review of surgical and psychiatric approaches and controversies. General Hospital Psychiatry, 57, 44–49. doi:10.1016/j.genhosppsych.2019.01.008 [PubMed: 30908961]

Englander H, Collins D, Perry SP, Rabinowitz M, Phoutrides E, & Nicolaidis C (2018). "We've Learned It's a Medical Illness, Not a Moral Choice": Qualitative Study of the Effects of a Multicomponent Addiction Intervention on Hospital Providers' Attitudes and Experiences. Journal of Hospital Medicine, 13(11), 752–758. doi:10.12788/jhm.2993 [PubMed: 29694454]

Fanucchi LC, Walsh SL, Thornton AC, Nuzzo PA, & Lofwall MR (2020). Outpatient parenteral antimicrobial therapy plus buprenorphine for opioid use disorder and severe injection-related infections. Clinical Infectious Diseases, 70(6), 1226–1229. 10.1093/cid/ciz654 [PubMed: 31342057]

Glasgow Justin M., Vaughn-Sarrazin Mary, & Kaboli Peter J. (2010). Leaving Against Medical Advice (AMA): Risk of 30-Day Mortality and Hospital Readmission. Journal of General Internal Medicine, 25(9), 926–929. doi:10.1007/s11606-010-1371-4 [PubMed: 20425146]

Goodman-Meza D, Weiss RE, Gamboa S, Gallegos A, Bui AAT, Goetz MB, … Landovitz RJ (2019). Long term surgical outcomes for infective endocarditis in people who inject drugs: a systematic review and meta-analysis. BMC Infectious Diseases, 19(1), 918. doi:10.1186/s12879-019-4558-2 [PubMed: 31699053]

Gray Megan E., Rogawski Mcquade Elizabeth T., Scheld W. Michael, & Dillingham Rebecca A. (2018). Rising rates of injection drug use associated infective endocarditis in Virginia with missed opportunities for addiction treatment referral: a retrospective cohort study. BMC Infectious Diseases, 18(1). doi:10.1186/s12879-018-3408-y

Huang Glen, Barnes Erin W., & Peacock James E. (2018). Repeat Infective Endocarditis in Persons Who Inject Drugs: "Take Another Little Piece of my Heart"*. Open Forum Infect Dis, 5(12). doi:10.1093/ofid/ofy304

Hwang Stephen W., Li Jianli, Gupta Rajesh, Chien Vince, & Martin Rochelle E. (2003). What happens to patients who leave hospital against medical advice? CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne, 168(4), 417–420.

Jicha C, Saxon D, Lofwall MR, & Fanucchi LC (2019). Substance Use Disorder Assessment, Diagnosis, and Management for Patients Hospitalized With Severe Infections Due to Injection Drug Use. Journal of Addiction Medicine, 13(1), 69–74. doi:10.1097/adm.0000000000000454 [PubMed: 30252689]

Kuzel AJ (1992). Sampling in qualitative inquiry. In Crabtree BF & Miller WL (Eds.), Doing qualitative research (pp. 31–44). Newbury Park, CA: Sage.

Leahey P. Alexander, Lasalvia Mary T., Rosenthal Elana S., Karchmer Adolf W., & Rowley Christopher F. (2019). High morbidity and mortality among patients with sentinel admission for injection drug use-related infective endocarditis. Open Forum Infect Dis doi:10.1093/ofid/ofz089

McNeil Ryan, Kerr Thomas, Pauly Bernie, Wood Evan, & Small Will. (2016). Advancing patient-centered care for structurally vulnerable drug-using populations: a qualitative study of the perspectives of people who use drugs regarding the potential integration of harm reduction interventions into hospitals. 111(4), 685–694. doi:10.1111/add.13214

McNeil Ryan, Small Will, Wood Evan, & Kerr Thomas. (2014). Hospitals as a 'risk environment': An ethno-epidemiological study of voluntary and involuntary discharge from hospital against medical advice among people who inject drugs. 105, 59–66. doi:10.1016/j.socscimed.2014.01.010

Morgan BD (2014). Nursing attitudes toward patients with substance use disorders in pain. Pain management nursing : official journal of the American Society of Pain Management Nurses, 15(1), 165–175. doi:10.1016/j.pmn.2012.08.004 [PubMed: 24602434]

Tiako Nguemeni, Jordan Max, Mori Makoto, Mahmood Bin, Usman Syed, Shioda Kayoko, Mangi Abeel, Yun James, & Geirsson Arnar. (2019). Recidivism Is the Leading Cause of Death Among Intravenous Drug Users Who Underwent Cardiac Surgery for Infective Endocarditis. Seminars in Thoracic and Cardiovascular Surgery, 31(1), 40–45. doi:10.1053/j.semtcvs.2018.07.016 [PubMed: 30165237]

Nolan NS, Marks LR, Liang SY, & Durkin MJ (2020). Medications for opioid use disorder associated with less against medical advice discharge among persons who inject drugs hospitalized with an invasive infection. Journal of Addiction Medicine. 10.1097/adm.0000000000000725

Paquette Catherine E., Syvertsen Jennifer L., & Pollini Robin A. (2018). Stigma at every turn: Health services experiences among people who inject drugs. International Journal of Drug Policy, 57, 104–110. doi:10.1016/j.drugpo.2018.04.004 [PubMed: 29715589]

Patton MQ (2002). Qualitative research and evaluation methods (3rd ed.). Thousand Oaks, CA: Sage.

Rosenthal Elana S., Karchmer Adolf W., Theisen-Toupal Jesse, Castillo Roger Araujo, & Rowley Chris F. (2016). Suboptimal Addiction Interventions for Patients Hospitalized with Injection Drug Use-Associated Infective Endocarditis. The American Journal of Medicine, 129(5), 481–485. doi:10.1016/j.amjmed.2015.09.024 [PubMed: 26597670]

Rudasill Sarah E., Sanaiha Yas, Mardock Alexandra L., Khoury Habib, Xing Hanning, Antonios James W., … Benharash Peyman. (2019). Clinical Outcomes of Infective Endocarditis in Injection Drug Users. Journal of the American College of Cardiology, 73(5), 559–570. doi:10.1016/j.jacc.2018.10.082 [PubMed: 30732709]

Ryan Gery W., & Bernard H. Russell. (2003). Techniques to Identify Themes. Field Methods, 15(1), 85–109. doi:10.1177/1525822X02239569

Santos CJ, Shofer FS, Lowenstein M, & Perrone J (2020). Discharges "Against Medical Advice" in Patients With Opioid-related Hospitalizations. Journal of Addiction Medicine. doi:10.1097/adm.0000000000000688

Scholl L, Seth P, Kariisa M, Wilson N, & Baldwin G (2019). Drug and Opioid-Involved Overdose Deaths — United States, 2013–2017. MMWR: Morbidity and Mortality Weekly Report, 67, 1419–1427. doi:10.15585/mmwr.mm675152e1

Shrestha Nabin K., Jue Jennifer, Hussain Syed T., Jerry Jason M., Pettersson Gosta B., Menon Venu, … Gordon Steven M. (2015). Injection Drug Use and Outcomes After Surgical Intervention for Infective Endocarditis. 100(3), 875–882. doi:10.1016/j.athoracsur.2015.03.019

Southern William N., Nahvi Shadi, & Arnsten Julia H. (2012). Increased Risk of Mortality and Readmission among Patients Discharged Against Medical Advice. 125(6), 594–602. doi:10.1016/j.amjmed.2011.12.017

Straw Sam, Baig M Wazir, Gillott Richard, Wu Jianhua, Witte Klaus K, O'regan David J, & Sandoe Jonathan A T. (2019). Long-term Outcomes Are Poor in Intravenous Drug Users Following Infective Endocarditis, Even After Surgery. Clinical Infectious Diseases. doi:10.1093/cid/ciz869

Suzuki Joji, Johnson Jennifer, Montgomery Mary, Hayden Margaret, & Price Christin. (2018). Outpatient Parenteral Antimicrobial Therapy Among People Who Inject Drugs: A Review of the Literature. Open Forum Infect Dis, 5(9), ofy194–ofy194. doi:10.1093/ofid/ofy194 [PubMed: 30211247]

Suzuki J, Robinson D, Mosquera M, Solomon DA, Montgomery MW, Price CD, … Weiss RD (2020). Impact of Medications for Opioid Use Disorder on Discharge Against Medical Advice Among People Who Inject Drugs Hospitalized for Infective Endocarditis. American Journal on Addictions, 29(2), 155–159. doi:10.1111/ajad.13000

Ti L, Milloy MJ, Buxton J, McNeil R, Dobrer S, Hayashi K, … Kerr T (2015). Factors Associated with Leaving Hospital against Medical Advice among People Who Use Illicit Drugs in Vancouver, Canada. PloS One, 10(10), e0141594. doi:10.1371/journal.pone.0141594 [PubMed: 26509447]

Ti L, & Ti L (2015). Leaving the hospital against medical advice among people who use illicit drugs: A systematic review. American Journal of Public Health, 105(12), e53–e59. 10.2105/AJPH.2015.302885 [PubMed: 26469651]

van Boekel Leonieke C., Brouwers Evelien P. M., van Weeghel Jaap, & Garretsen Henk F. L. (2013). Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: Systematic review. Drug and Alcohol Dependence, 131(1–2), 23–35. doi:10.1016/j.drugalcdep.2013.02.018 [PubMed: 23490450]

Velez Christine M., Nicolaidis Christina, Korthuis P. Todd, & Englander Honora. (2016). "It's been an Experience, a Life Learning Experience": A Qualitative Study of Hospitalized Patients with Substance Use Disorders. Journal of General Internal Medicine. doi:10.1007/s11606-016-3919-4

VERBI Software. (2017). MAXQDA 2018 [computer software]. In. Berlin, Germany: VERBI Software.

Wang SJ, Wade E, Towle J, Hachey T, Rioux J, Samuels O, … Foster K (2020). Effect of Inpatient Medication-Assisted Therapy on Against-Medical-Advice Discharge and Readmission Rates. American Journal of Medicine, 133(11), 1343–1349. doi:10.1016/j.amjmed.2020.04.025

Wurcel Alysse G., Anderson Jordan E., Chui Kenneth K. H., Skinner Sally, Knox Tamsin A., Snydman David R., & Stopka Thomas J. (2016). Increasing Infectious Endocarditis Admissions Among Young People Who Inject Drugs. Open Forum Infect Dis, 3(3), ofw157. doi:10.1093/ofid/ofw157 [PubMed: 27800528]

Yong TY, Fok JS, Hakendorf P, Ben-Tovim D, Thompson CH, & Li JY (2013). Characteristics and outcomes of discharges against medical advice among hospitalised patients. Internal Medicine Journal, 43(7), 798–802. doi:10.1111/imj.12109 [PubMed: 23461391]

Table 1.

Characteristics of patient sample hospitalized for injection-related bacterial infections in West Virginia (N=20)

	Sample (n)	%
Age in years		
20–29	8	40
30–39	6	30
40–49	6	30
Sex	20	100
Female	11	55
Male	9	45
Race/Ethnicity	20	100
White	19	95
Other race/ethnicity	1	5
Years injected drugs (total)		
≤5	6	30
6–10	8	40
11–15	0	0
16–20	4	20
>20	2	10
Drugs injected in 30 days before current hospitalization		
Methamphetamine	12	60
Prescription opioids	8	38
Heroin/fentanyl	5	25
Cocaine	2	10
Medical diagnoses	20	100
Infective endocarditis	15	75
Osteomyelitis	3	15
Epidural or other deep tissue abscess	2	10
Sepsis	2	10
Length of hospital stay during current hospitalization (days)		
≤14	1	5
15–28	2	10
29–42	4	20
43–56	12	60
>56	1	5