

Meeting People Where They Are: Integrating Wound Care With Addiction Services

Amanda Rosecrans, MD, MHS

Presented at ASAM State of the Art Course 2022



Disclosure Information

Amanda Rosecrans, MD, MHS

- No Disclosures

Session Learning Objectives

At the end of the session, you will be able to:

- Describe the prevalence of and risk factors for skin and soft tissue infections amongst people who inject drugs.
- Describe barriers to seeking healthcare and benefit of integrated services.
- Describe a street-based model of integrated services for people who use drugs in Baltimore City.
- Discuss successes and challenges in providing wound care for people who use drugs.
- Provide overview of clinical wound care for people who use drugs.
- Identify opportunities for integrating basic wound care into addiction medicine services.

Outline

- Impact and prevention
 - Prevalence
 - Pathophysiology
 - Risk factors
 - Healthcare utilization
 - Barriers to care
 - Prevention
- Integration of services
 - Integration of harm reduction practices
 - The Spot mobile clinic overview
 - Example cases from The Spot
- Overview of clinical wound care
 - Acute infections
 - Chronic ulcers

Impact and Prevention

Skin and Soft Tissue Infections - Prevalence

- Skin and soft tissue infections (SSTIs) are very common amongst people who inject drugs (PWID)
 - Lifetime prevalence up to 69%¹⁻⁵
 - Active or recent abscess or chronic wound up to 35%^{2,4,5}
- Prevalence of SSTIs have increased during recent years
 - Hospitalizations for SSTIs increased by 12% from 2016-2018⁶
 - PWID seeking treatment for SSTIs increased during the COVID pandemic, possibly due to effect of the pandemic on access to harm reduction services⁷

Etiology / Pathophysiology

- Multifactorial: microvascular damage, local tissue injury, ischemia, venous thrombosis, chronic inflammation, impaired lymphatic and venous drainage, non-sterile injection, reuse and sharing of equipment, etc⁸.
- Drugs and additives:
 - Cocaine - causes vasoconstriction, local ischemia
 - Heroin - more associated with SSTIs, black tar heroin associated with wound botulism⁹
 - Methamphetamine - MRSA risk factor, creates biofilm that impairs wound healing
 - Levamisole - antihelminthic agent added to cocaine, can cause vasculitis¹⁰
- Xylazine - veterinary tranquilizer increasingly added to opioid supply, can cause necrotizing skin ulcers^{11,12}

Risk Factors for SSTIs

- Factors associated with increased wounds include female sex, cocaine injection, homelessness, injecting in the neck or groin, sharing or reusing equipment, and lack of skin and hand hygiene^{1,2,4,13-16}
- Skin popping (subcutaneous or intramuscular injection) associated with 4-fold increase in abscesses compared to intravenous injection¹⁷
- Cleaning injection site is protective against SSTI^{3,4}

Health Care Utilization

- Rough national estimate of 98,000 hospitalizations, with estimated 155,000-540,000 SSTIs related to injection drug use annually¹⁸
- Low percent of health care seeking - approximately 30% sought care for a recent infection⁵
- PWID who present to the emergency department for SSTI treatment are at high risk of subsequent hospitalization and death, especially amongst people experiencing homelessness or who were recently incarcerated¹⁹

Barriers to Care Seeking

- Experiences of dehumanization and stigma in healthcare are common,^{20,21} as well as inadequate treatment of withdrawal²¹
- PWID strategies to avoid healthcare stigma include delaying healthcare, not disclosing drug use, downplaying pain, and seeking care elsewhere²⁰
- PWID report being more likely to seek care for SSTIs with:
 - A regular trusted healthcare provider²²
 - Community-based organizations that provide non-stigmatizing environments where they experience greater acceptance and respect²⁰

SSTI Self-care Practices

- Self-care for SSTIs is common - up to 80% reported⁵
- Reported self-care includes lancing abscesses, applying hot compresses, using hydrogen peroxide, increased drug use to treat pain, and buying antibiotics^{5,17,21,23}



Prevention of SSTIs

- Evidence for harm reduction practices to reduce SSTIs is limited
- Education about skin cleaning and proper use of equipment can help prevent SSTIs^{24,25}
- In one large study, utilization of syringe exchange services reduced SSTI risk, and the combination of syringe exchange and opioid substitution therapy reduced risk by 40%²⁶

Prevention - Safer Use Counseling²⁷

- Wash your hands and clean injection site with alcohol pad
- Use a new needle for every injection
- Use new works (cooker, cotton, water, tourniquet, etc) and do not share with others
- Use thinnest (highest gauge needle) possible
- Insert the needle at 45-degree angle, bevel up
- Inject slowly to ensure needle is in the vein
- Remove the tourniquet and needle immediately and use clean cotton or material to stop bleeding. Do not lick injection site.
- Rotate injection sites
- Dispose of used equipment properly

Integration of Services

Harm Reduction and Integration of Services

- Harm reduction is an important foundational element around which to structure services for people who use drugs- creating an environment of acceptance, dignity, and respect allows for trusting relationship and opens the door to more effective engagement in clinical services²⁸
- Integrating clinical wound care in community-based harm reduction settings such as syringe exchange programs has been effective and cost-effective, and expansion of such services is needed²⁹⁻³²
- Engaging patients hospitalized with serious injection-related infections including SSTs with integrated infectious disease and addiction services also shows promise for improved outcomes³³

Healthcare on the Spot

- The Baltimore City Health Department (BCHD) launched a mobile clinical service in 2018 called Healthcare on the Spot (The Spot)
- Currently co-locates with BCHD's syringe services program and other harm-reduction partners at eight locations across Baltimore City with high rates of overdose
- Provides free, low-threshold, integrated health services for people use drugs
- Mission is to bring evidence-based, empathetic clinical services to communities in Baltimore affected by drug use

The Spot



Spot Services

- Low-threshold, same-day buprenorphine
- Testing and treatment for infectious disease
 - Hepatitis C
 - HIV (on-site HIV treatment and PrEP)
 - Sexually transmitted infections (gonorrhea, chlamydia, syphilis)
- Wound care
- Vaccines (COVID, hepatitis A, influenza)
- Case management
- Naloxone distribution

Spot Data

- First 14 months of the program (pre-COVID - Sep 2018-Nov 2019), served 569 unique patients (over 2000 visits)³⁴
 - 74% prescribed buprenorphine
 - 17% active injection drug use
 - 4% treated for wounds
- Telemedicine services during COVID (Mar 2020-Mar 2021) - 150 people maintained on buprenorphine through telemedicine, no wound care services³⁵
- Since return to full in-person services (Sep 2021-Jun 2022), 536 unique patients
 - 66% prescribed buprenorphine
 - 15% reporting active IVDU, additional 9% reporting prior IVDU
 - 4% report active wound on intake, 8% treated for wounds

Spot Cases

- 28yo woman who engaged for several months in buprenorphine services, known HCV positive but repeatedly declined labs to start treatment
 - Had bilateral chronic upper extremity wounds and was embarrassed to disclose this, so declined phlebotomy
- 46yo woman with chronic lower extremity wound, known HCV positive
 - Initially engaged in wound care, then agreed to HCV treatment and was cured
 - 9 months after initial engagement in care, initiated on buprenorphine (previously on methadone)

Overview of Clinical Wound Care

Wound Care - SSTIs^{8,36}

- Abscesses
 - Single abscess on extremity - outpatient incision and drainage
 - Recommend ER/hospital care for:
 - Infections involving face, neck, hand, groin
 - Signs of systemic infection or hemodynamic instability
 - Failure of outpatient treatment
 - Microbiology similar to general population
 - Most commonly *S aureus* (MRSA), also streptococcal species (*viridens*, beta-hemolytic)
 - Polymicrobial and anaerobic more common in PWID
 - Adjuvant antibiotics with I&D can improve outcomes
 - Cover for MRSA and streptococci
 - Oral options include trimethoprim-sulfamethoxazole, doxycycline, or clindamycin
 - Duration 5-7 days

Wound Care - SSTIs^{8,36}

- Cellulitis
 - Second most common SSTI, with or without abscess
 - Typically, in extremities at site of prior injection
 - Oral antibiotics
 - Oral agents that are effective for uncomplicated abscesses can be effective for uncomplicated cellulitis
 - Trimethoprim–sulfamethoxazole, doxycycline, or clindamycin
 - Duration 5-7 days
 - Refer for ER/hospital care if systemically ill or lack improvement on oral regimen

Wound Care - SSTIs^{8,36}

- Pyomyositis
 - Purulent infection of skeletal muscle, at injection site or from hematogenous spread
 - Focal pain, tenderness, induration, swelling of muscle
 - Refer for ER/hospital management
 - CT/MRI, blood cultures, percutaneous drainage, vancomycin
- Necrotizing fasciitis
 - Accounts of 1% of SSTIs in PWID
 - Soft tissue edema, erythema, severe pain out of proportion to physical findings, crepitus, anesthesia of overlying skin, bullae, necrosis, fever
 - Surgical emergency - early debridement is key
 - Antibiotics adjuvant - can be mono- (including clostridial species) or polymicrobial, broad spectrum IV coverage

Wound Care - Chronic Ulcers^{8,37}

- Chronic cutaneous or venous ulcers are common in PWID, usually affecting lower extremities, and can persist after cessation of drug use
- Antibiotics only indicated if acute infection suspected
- Wound description/assessment
 - Location and size
 - Periwound - dry/wet, erythema, pain, irritation
 - Edge - erythema, maceration, cliffed
 - Wound bed - % viable tissue (pink granular tissue)
 - Drainage - (small, medium, large amount), color and odor

Wound Care - Chronic Ulcers Cont'd.^{8,37}

- Cleansing
 - Cleanse with normal saline or wound cleanser
 - If suspicious for pseudomonas (bright green), use dilute acetic acid 3-5% solution
 - Do not use alcohol or hydrogen peroxide - cytotoxic
- Moisture balance
 - Do not want too wet (bacterial overgrowth) or too dry (healthy cells cannot grow)
 - Adding moisture - hydrogel
 - Wicking - calcium alginate, can add foam bandage for additional absorption
 - Use barrier film with zinc around wound to prevent maceration
- Bacterial balance
 - Assess for odor/drainage - can use calcium alginate with silver for antimicrobial properties
 - Assess for signs/symptoms of infection - increasing pain is most indicative, treat if acutely infected

Wound Care - Chronic Ulcers Cont'd.^{8,37}

- Debridement
 - Conservative sharp debridement with curette
 - Autolytic debridement with hydrogel, hydrocolloid
 - Enzymatic debridement - collagenase (only one product available, expensive)
 - Can apply topical lidocaine for pain control prior to debridement
- Edema management
 - Compression wrapping, walking, leg elevation
 - Ensure palpable pulses or arterial-brachial index 0.8 or higher before compression
 - Can start with two-layer wrap - rolled gauze topped with self-adhesive bandage

Spot Case Review

- 31yo woman with chronic lower extremity wound, known HCV positive, unstably housed
- Provided wound care on van approximately every 2 weeks starting Jan 2022
- Care included:
 - Initially thought to be infected with pseudomonas (bright green), and she declined ER evaluation - treated with 7 days of ciprofloxacin and acetic acid cleansing
 - Additional course of trimethoprim-sulfamethoxazole x 7 days for surrounding cellulitis
 - Ongoing cleansing, debridement, and dressing changes
 - Acetic acid cleansing, hydrocolloid silver, foam
 - Debridement with curette as needed
 - Wound care products given for home care

Spot Case Cont'd



3/1/22



5/10/22



5/24/22

Final Takeaways

- SSTIs and chronic wounds are common and cause significant morbidity.
- Addiction providers should screen for wounds in all patients who inject drugs and provide preventive counseling and resources.
- Engaging patients in wound care helps to build trust and can lead to enhanced engagement in addiction and other services.
- Providing judgment-free, empathetic, support environment is key.
- Outpatient addiction and primary care providers can provide basic in-office wound care to improve outcomes for PWID.

Acknowledgments

- Thank you to the amazing Spot team, and especially Robert Harris, Meredith Zoltick, and Anne St Clair for contribution to slide content.
- Spot Team:
 - Medical Director: Robert Harris, MSN-CRNP, MPH
 - Community Health Workers: Ingrid Blackwell, Darryl Hayes
 - Nurse: Anne St Clair, RN
 - Case Manager: Joy Bell, BS
 - Providers: Meredith Zoltick, CRNP, Meredith Kerr, DNP, MPH, Catherine Willman, CRNP, Kathleen Page, MD (original Clinical Chief)

Resources

- American Professional Wound Care Association
- The Wound, Ostomy, and Continence Nurses Society
- National Harm Reduction Coalition
- Infectious Diseases Society of America Skin and Soft Tissue Infections Guidelines
- Access, Harm Reduction, Overdose Prevention, and Education (AHOPE) Program Participant Guide

References

1. Cahn BA, Bartholomew TS, Patel HP, Pastar I, Tookes HE, Lev-Tov H. Correlates of injection-related wounds and skin infections amongst persons who inject drugs and use a syringe service programme: A single center study. *Int Wound J*. 2021;18(5):701-707.
2. Dahlman D, Hakansson A, Bjorkman P, Blome MA, Kral AH. Correlates of Skin and Soft Tissue Infections in Injection Drug Users in a Syringe-Exchange Program in Malmo, Sweden. *Subst Use Misuse*. 2015;50(12):1529-1535.
3. Larney S, Peacock A, Mathers BM, Hickman M, Degenhardt L. A systematic review of injecting-related injury and disease among people who inject drugs. *Drug Alcohol Depend*. 2017;171:39-49.
4. Smith ME, Robinowitz N, Chaulk P, Johnson KE. High rates of abscesses and chronic wounds in community-recruited injection drug users and associated risk factors. *J Addict Med*. 2015;9(2):87-93.
5. Ozga JE, Syvertsen JL, Zweifler JA, Pollini RA. A community-based study of abscess self-treatment and barriers to medical care among people who inject drugs in the United States. *Health Soc Care Community*. 2021.
6. Coyle JR, Freeland M, Eckel ST, Hart AL. Trends in Morbidity, Mortality, and Cost of Hospitalizations Associated With Infectious Disease Sequelae of the Opioid Epidemic. *J Infect Dis*. 2020;222(Suppl 5):S451-S457.

References

7. McRae M, Sardiwalla Y, Nachmani O, Price E, Huynh M, Coroneos C. Upper Extremity Infection Related to Intravenous Drug Use: Considering the True Cost of the COVID-19 Pandemic and Lockdown. *Hand (N Y)*. 2022:15589447221077377.
8. Chambers HF. Skin and Soft Tissue Infections in Persons Who Inject Drugs. *Infect Dis Clin North Am*. 2021;35(1):169-181.
9. Peak CM, Rosen H, Kamali A, et al. Wound Botulism Outbreak Among Persons Who Use Black Tar Heroin - San Diego County, California, 2017-2018. *MMWR Morb Mortal Wkly Rep*. 2019;67(5152):1415-1418.
10. Sayadi L, Laub D. Levamisole-Induced Vasculitis. *Eplasty*. 2018;18(5).
11. Johnson J, Pizzicato L, Johnson C, Viner K. Increasing presence of xylazine in heroin and/or fentanyl deaths, Philadelphia, Pennsylvania, 2010-2019. *Inj Prev*. 2021;27(4):395-398.
12. Reyes JC, Negron JL, Colon HM, et al. The emerging of xylazine as a new drug of abuse and its health consequences among drug users in Puerto Rico. *J Urban Health*. 2012;89(3):519-526.
13. Freibott CE, Phillips KT, Anderson BJ, Stewart C, Liebschutz JM, Stein MD. Under the Skin: The Relationship Between Subcutaneous Injection and Skin Infections Among People Who Inject Drugs. *J Addict Med*. 2022;16(2):164-168.
14. Hope VD, Marongiu A, Parry JV, Ncube F. The extent of injection site infection in injecting drug users: findings from a national surveillance study. *Epidemiol Infect*. 2010;138(10):1510-1518. 15.
15. Lloyd-Smith E, Wood E, Zhang R, Tyndall MW, Montaner JS, Kerr T. Risk factors for developing a cutaneous injection-related infection among injection drug users: a cohort study. *BMC Public Health*. 2008;8:405-405.
16. Hrycko A, Mateu-Gelabert P, Ciervo C, Linn-Walton R, Eckhardt B. Severe bacterial infections in people who inject drugs: the role of injection-related tissue damage. *Harm Reduct J*. 2022;19(1):41-6.
17. Binswanger IA, Kral AH, Bluthenthal RN, Rybold DJ, Edlin BR. High prevalence of abscesses and cellulitis among community-recruited injection drug users in San Francisco. *Clin Infect Dis*. 2000;30(3):579-581.

References

18. See I, Gokhale RH, Geller A, et al. National Public Health Burden Estimates of Endocarditis and Skin and Soft-Tissue Infections Related to Injection Drug Use: A Review. *J Infect Dis.* 2020;222(Suppl 5):S429-S436.
19. Binswanger IA, Takahashi TA, Bradley K, Dellit TH, Benton KL, Merrill JO. Drug users seeking emergency care for soft tissue infection at high risk for subsequent hospitalization and death. *J Stud Alcohol Drugs.* 2008;69(6):924-932.
20. Biancarelli DL, Biello KB, Childs E, et al. Strategies used by people who inject drugs to avoid stigma in healthcare settings. *Drug Alcohol Depend.* 2019;198:80-86.
21. Harris RE, Richardson J, Frasso R, Anderson ED. Experiences with skin and soft tissue infections among people who inject drugs in Philadelphia: A qualitative study. *Drug Alcohol Depend.* 2018;187:8-12.
22. Fink DS, Lindsay SP, Slymen DJ, Kral AH, Bluthenthal RN. Abscess and self-treatment among injection drug users at four California syringe exchanges and their surrounding communities. *Subst Use Misuse.* 2013;48(7):523-531.
23. Starrels JL, Barg FK, Metlay JP. Patterns and determinants of inappropriate antibiotic use in injection drug users. *J Gen Intern Med.* 2009;24(2):263-269.
24. Mezaache S, Briand-Madrid L, Rahni L, et al. A two-component intervention to improve hand hygiene practices and promote alcohol-based hand rub use among people who inject drugs: a mixed-methods evaluation. *BMC Infect Dis.* 2021;21(1):211-1.
25. Phillips KT, Stewart C, Anderson BJ, Liebschutz JM, Herman DS, Stein MD. A randomized controlled trial of a brief behavioral intervention to reduce skin and soft tissue infections among people who inject drugs. *Drug Alcohol Depend.* 2021;221:108646.
26. Dunleavy K, Munro A, Roy K, et al. Association between harm reduction intervention uptake and skin and soft tissue infections among people who inject drugs. *Drug Alcohol Depend.* 2017;174:91-97.

References

18. Boston Public Health Commission. Access, Harm Reduction, Overdose Prevention, and Education (AHOPE) Program Participant Guide. <https://www.bphc.org/whatwedo/Recovery-Services/services-for-active-users/Documents/Client%20Manual%20FINAL.pdf>. Accessed June 28, 2022.
19. Taylor JL, Johnson S, Cruz R, Gray JR, Schiff D, Bagley SM. Integrating Harm Reduction into Outpatient Opioid Use Disorder Treatment Settings : Harm Reduction in Outpatient Addiction Treatment. *J Gen Intern Med*. 2021;36(12):3810-3819.
29. Castillo M, Ginoza MEC, Bartholomew TS, et al. When is an abscess more than an abscess? Syringe services programs and the harm reduction safety-net: a case report. *Harm Reduct J*. 2020;17(1):34-4.
30. Huyck M, Mayer S, Messmer S, Yingling C. Community Wound Care Program Within a Syringe Exchange Program: Chicago, 2018-2019. *Am J Public Health*. 2020;110(8):1211-1213.
31. Robinowitz N, Smith ME, Serio-Chapman C, Chaulk P, Johnson KE. Wounds on wheels: implementing a specialized wound clinic within an established syringe exchange program in Baltimore, Maryland. *Am J Public Health*. 2014;104(11):2057-2059.
32. Sanchez DP, Tookes H, Pastar I, Lev-Tov H. Wounds and Skin and Soft Tissue Infections in People Who Inject Drugs and the Utility of Syringe Service Programs in Their Management. *Adv Wound Care (New Rochelle)*. 2021;10(10):571-582.
33. Serota DP, Tookes HE, Hervera B, et al. Harm reduction for the treatment of patients with severe injection-related infections: description of the Jackson SIRI Team. *Ann Med*. 2021;53(1):1960-1968.