

Prevent Bacterial & Fungal Infections In PATIENTS WHO INJECT DRUGS

Injection drug use can cause serious infections that can be hard to treat and can disable or kill your patients. Be on alert for infections associated with drug injection.

A GROWING PROBLEM

Among people who inject drugs, infections from pathogens like *Staphylococcus aureus* (staph), *Streptococcus* (strep), and *Candida* are a growing problem.

- **Invasive staph:** People who inject drugs are 16 times more likely to develop an invasive methicillin-resistant staph (MRSA) infection than those who do not.¹
- **Endocarditis:** In North Carolina, endocarditis rates associated with drug use disorder increased 12-fold from 2007-2017.²
- **Costly:** In one hospital in Miami-Dade County, treating infections related to injection drug use cost \$11.4 million in one year.³
- **Strep:** In New Mexico, 1 in 5 invasive group A strep infections in 2017 were among persons who injected drugs.⁴
- **Candidemia:** In 2017, 1 in 10 patients with Candidemia had a history of injecting drugs, a previously under-recognized risk factor.⁵

RISK FACTORS

What puts my patients at risk for bacterial and fungal infections?

- Injecting drugs without a prescription or not as prescribed
- Pathogens on the injection site or on soiled hands
- Contaminated drugs
- Contaminated equipment (e.g., from licking the needle, using non-sterile water or cotton balls), sharing supplies, or re-using supplies
- Improper care of central lines, including after discharge from health care
- Poor personal hygiene
- Skin wounds
- Experiencing homelessness, and lack of access to hygiene facilities

In addition to viral hepatitis and HIV, drug injection can cause:

- Abscesses
- Bacteremia and fungemia
- Botulism
- Cellulitis
- Empyema
- Endocarditis
- Epidural abscess and other central nervous system infections
- Osteomyelitis, especially of the spine
- Septic arthritis



TAKE ACTION

How can I help treat or prevent these infections in my patients?

Be on alert for infections among patients who inject drugs	<ul style="list-style-type: none">• In patients known to inject drugs, consider bacterial or fungal infection as a cause of symptoms. Infections can present with symptoms similar to withdrawal (e.g., fever, myalgias).• Assess for the presence of infections, especially in the case of a drug overdose.• In patients with cranial nerve weakness, descending paralysis, or who fail to respond to naloxone, consider wound botulism.• Be aware of the risk of bloodstream infections from central lines in both inpatients and outpatients.• In patients presenting with fungal and bacterial infections, consider whether injection drug use could be the cause.
Address substance use disorder while also treating the infection	<ul style="list-style-type: none">• Connect patients to harm reduction services, including substance use disorder treatment programs and, where available, syringe service programs (e.g., through a case manager or consult service).• Offer naloxone and training on its use to the patient, family, friends, and others. Educate that timely administration of naloxone can reverse the effects of an opioid overdose.• Simultaneously treat comorbidities (e.g., anxiety, depression, nicotine addiction) that may keep the patient from completing treatment for their infection.• Avoid behaviors and words that may make the patient feel stigmatized or judged.
Educate patients who continue to inject drugs	<ul style="list-style-type: none">• How infections occur (even with clean needles), wound care, and early signs of infection.• The best way to prevent an infection—stopping injecting.• Safer injection practices, such as cleaning the injection site and using clean needles and equipment.• How drugs can be contaminated with microorganisms that can cause infections or botulism.• The importance of good hygiene and good wound care. <p>Provide recommended vaccinations, and screen for viral hepatitis and HIV.</p>

¹ Jackson KA, Bohm MK, Brooks JT, et al. Invasive Methicillin-Resistant Staphylococcus aureus Infections Among Persons Who Inject Drugs — Six Sites, 2005–2016. MMWR Morb Mortal Wkly Rep 2018;67:625–628. DOI: <http://dx.doi.org/10.15585/mmwr.mm6722a2>

² Schranz AJ, Fleischauer A, Chu VH, Wu L, Rosen DL. Trends in Drug Use–Associated Infective Endocarditis and Heart Valve Surgery, 2007 to 2017: A Study of Statewide Discharge Data. Ann Intern Med.; 170:31–40. DOI: 10.7326/M18-2124.

³ Tookes H, Diaz C, Li H, Khalid R, & Doblecki-Lewis S. A Cost Analysis of Hospitalizations for Infections Related to Injection Drug Use at a County Safety-Net Hospital in Miami, Florida. PLoS One, 10(6), e0129360. DOI:10.1371/journal.pone.0129360

⁴ Valenciano SJ, McMullen C, Torres S, Smelser C, Matanock A, Van Beneden C. Notes from the Field: Identifying Risk Behaviors for Invasive Group A Streptococcus Infections Among Persons Who Inject Drugs and Persons Experiencing Homelessness — New Mexico, May 2018. MMWR Morb Mortal Wkly Rep 2019;68:205–206. DOI: <http://dx.doi.org/10.15585/mmwr.mm6808a5>.

⁵ Toda M, Williams S, Berkow E, et al. Active, Population-based Laboratory Surveillance for Candidemia — four U.S. Sites, 2012–2016. MMWR Surveillance Summary; in press.