Infection Prevention in Corrections Settings

Christopher Hurt, MD, FIDSA 28 June 2023



Disclosures

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- National Coordinating Resource Center serves as the central web-based repository for AETC Program training and capacity building resources; its website includes a free virtual library with training and technical assistance materials, a program director, and a calendar of trainings and other events. Learn more: https://aidsetc.org/
- National Clinician Consultation Center provides free, peer-to-peer, expert advice for health professionals on HIV prevention, care, and treatment and related topics. Learn more: https://nccc.ucsf.edu
- National HIV Curriculum provides ongoing, up-to-date HIV training and information for health professionals through a free, web-based curriculum; also provides free CME credits, CNE contact hours, CE contact hours, and maintenance of certification credits. Learn more: www.hiv.uw.edu



Christopher B. Hurt, MD, FIDSA Associate Professor of Medicine

Associate Chief for Clinical Operations, UNC Division of ID Director, North Carolina HIV Training & Education Center Site PI, Ryan White HIV/AIDS Program Part D, UNC ID Clinic

Institute for Global Health & Infectious Diseases University of North Carolina at Chapel Hill School of Medicine

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Objectives

- Name and briefly describe four infectious diseases that are more common among justice-involved individuals.
- List at least three different activities common in correctional settings that could result in the transmission of an infectious disease from one person to another.
- Define "standard precautions," "contact precautions," and "airborne precautions" and describe the personal protective equipment that is appropriate for each.
- Outline the steps to take if you are exposed to blood or visibly bloody body fluids in the workplace.

Standard precautions



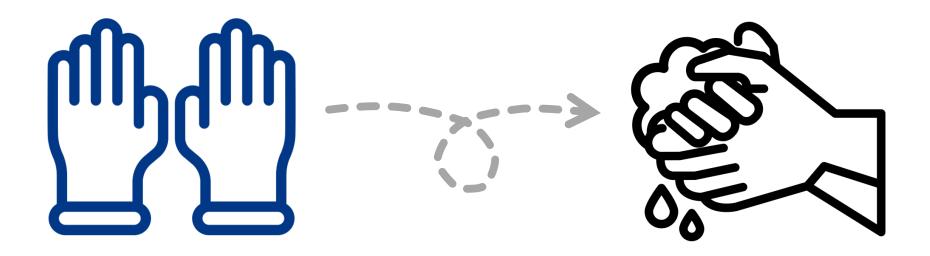
Keep clean and dirty items separated



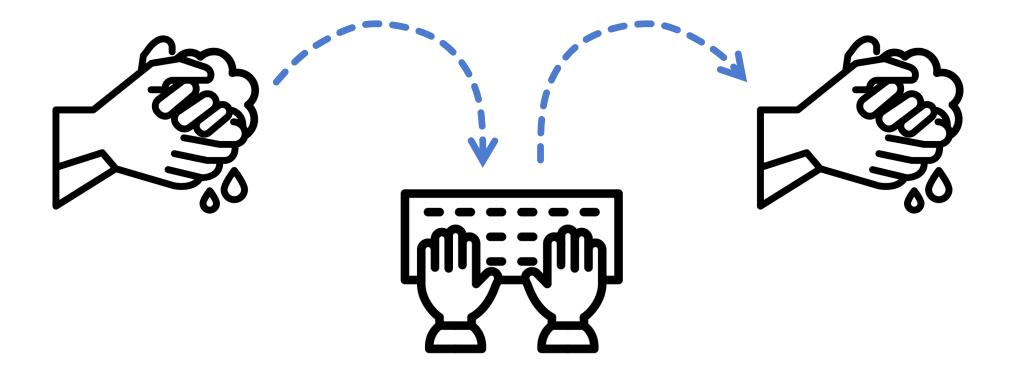


Is it red, wet, or dirty?

Wear gloves and then perform hand hygiene.



Clean in & clean out



Best practices for hand hygiene

Alcohol-based hand sanitizer



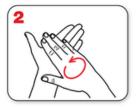


Wet hands with water

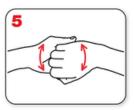


cover all hand surfaces.

Soap & water



Rub hands palm to palm



backs of fingers to opposing palms with fingers interlocked



right palm over left dorsum with interlaced fingers and vice versa



rotational rubbing of left thumb clasped in right palm and vice versa



palm to palm with fingers interlaced



rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



rinse hands with water

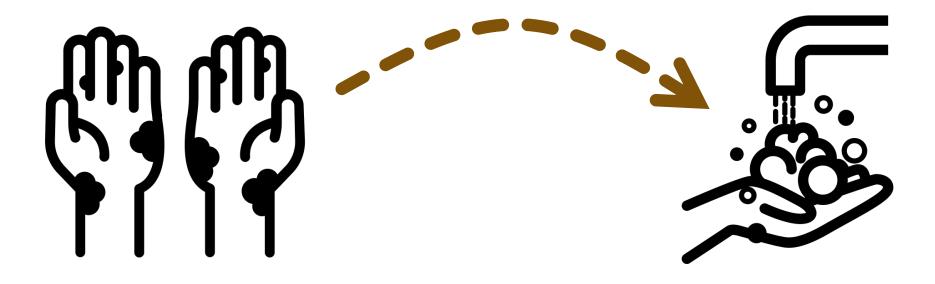


dry thoroughly with a single use towel



use towel to turn off faucet

Use soap if it's soiled



Transmissionbased precautions



How germs are spread



Airborne



Body contact



Surfaces



Droplets (sprays & splashes)



Blood (wet or dried)



Body fluids

Personal protective equipment (PPE)



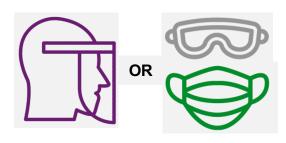
Airborne



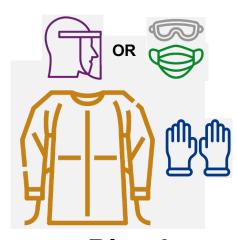
Body contact



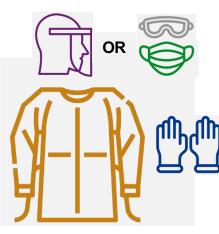
Surfaces



Droplets (sprays & splashes)



Blood (wet or dried)



Body fluids

Contact precautions



CONTACT PRECAUTIONS EVERYONE MUST:





Clean their hands, including before entering and when leaving the room.

PROVIDERS AND STAFF MUST ALSO:



Put on gloves before room entry. Discard gloves before room exit.



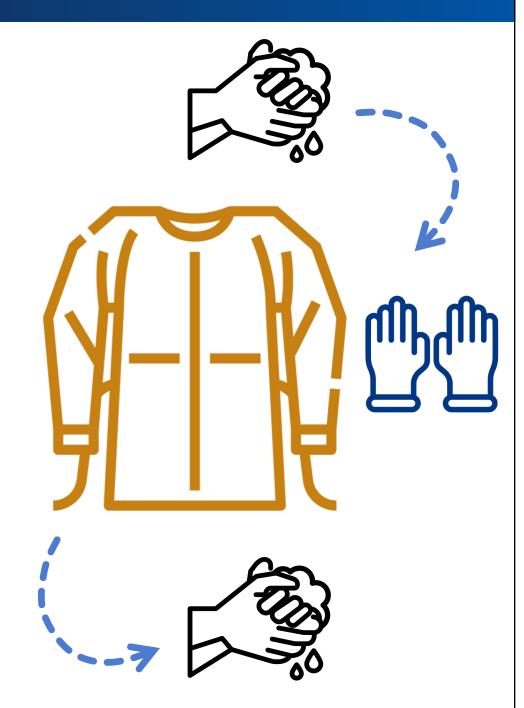
Put on gown before room entry. Discard gown before room exit.





Use dedicated or disposable equipment. Clean and disinfect reusable equipment before use on another person.





Droplet precautions



Clean their hands, including before entering and when leaving the room.



Make sure their eyes, nose and mouth are fully covered before room entry.

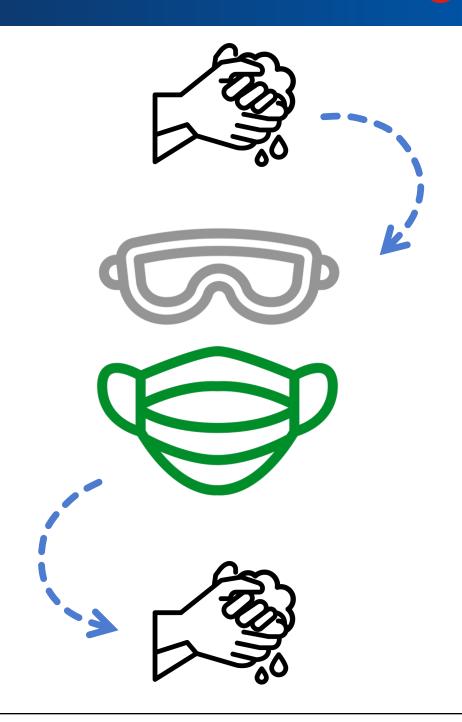


or



Remove face protection before room exit.





Droplet precautions





Clean their hands, including before entering and when leaving the room.



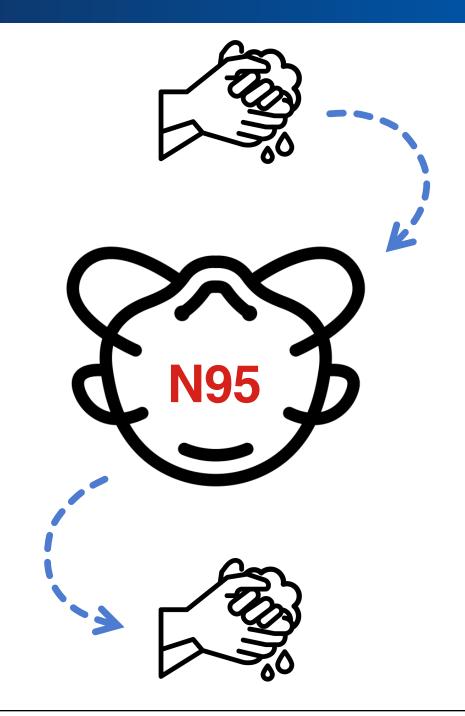
Put on a fit-tested N-95 or higher level respirator before room entry.

Remove respirator after exiting the room and closing the door.



Door to room must remain closed.





Bloodborne pathogens



Hepatitis B

Caused by	Transmitted by	Burden	Curable?
Hepadnavirus (a DNA virus)	Barrier-free contact with blood or body fluids (vaginal fluid, semen)	0.2% of Americans had hepatitis B in 2020	No But HBV can be controlled with daily medication
	May remain infectious on surfaces for up to 7 days	of persons in state and federal prisons had hepatitis B in 2016	Highly effective vaccines are available for people at risk of infection

Hepatitis B

Caused by	Transmitted by	Burden	Precautions
Hepadnavirus (a DNA virus)	Barrier-free contact with blood or body fluids (vaginal fluid, semen) May remain infectious on surfaces for up to 7 days	O.2% of Americans had hepatitis B in 2020 1.2% of persons in state and federal prisons had hepatitis B in 2016	If blood or bloody fluid anticipated: OR OR OR OR OR OR OR OR OR O

Hepatitis C

Caused by	Transmitted by	Burden	Curable?
Hepacivirus (an RNA virus)	Barrier-free contact with blood Sexual transmission is very rare May remain infectious on surfaces for up to 6 weeks	0.7% of Americans had hepatitis C in 2016 8.8% of persons in state and federal prisons had hepatitis B in 2016	Yes After 8-12 weeks of once-daily oral medication There is no vaccine against HCV

Hepatitis C

Caused by	Transmitted by	Burden	Precautions
Hepacivirus (an RNA virus)	Barrier-free contact with blood Sexual transmission is very rare May remain infectious on surfaces for up to 6 weeks	O.7% of Americans had hepatitis C in 2016 8.8% of persons in state and federal prisons had hepatitis B in 2016	If blood or bloody fluid anticipated:

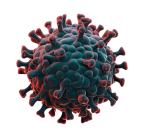
HIV disease

Caused by	Transmitted by	Burden	Curable?
A type of retrovirus (an RNA virus)	Barrier-free contact with blood or body fluids (vaginal fluid, semen, breast milk) May remain infectious on surfaces for at least 7 days	O.4% of Americans had HIV in 2020 1.1% of persons in state and federal prisons had hepatitis B in 2016	No But HIV can be controlled with daily medication There is no vaccine against HIV

HIV disease

Caused by	Transmitted by	Burden	Precautions
A type of retrovirus (an RNA virus)	Barrier-free contact with blood or body fluids (vaginal fluid, semen, breast milk)	0.4% of Americans had HIV in 2020	Standard If blood or bloody fluid anticipated:
	May remain infectious on surfaces for at least 7 days	of persons in state and federal prisons had hepatitis B in 2016	OR OR

Bloodborne pathogens are occupational hazards



Hepatitis B Virus (HBV) One in every

needlestick exposures results in a new **HBV** infection



Hepatitis C Virus (HCV) One in every 30

needlestick exposures results in a new **HCV** infection



Human immunodeficiency virus (HIV)

One in

One in every

needlestick exposures results in a new **HIV** infection

Protect yourself: search safely



https://commons.wikimedia.org/wiki/File:Prison_shivs_(cropped).jpg



https://commons.wikimedia.org/wiki/File:Bleeding finger.jpg

- Always wear gloves
- Look before you reach
- Never run fingers under surfaces you can't see
- Use common sense and best practices for pat-downs and other inspections

If you're exposed to blood...

1



Wash needlesticks and cuts with soap and water ASAP.

2



Flush splashes to nose, mouth, or eyes with water ASAP.

3



Report the exposure ASAP to ensure you get appropriate care.

Respiratory pathogens



Tuberculosis (TB)

Caused by	Transmitted by	Burden	Curable?
Bacteria (Mycobacterium tuberculosis)	Aerosolized bacteria from people with TB lung disease	0.002% of Americans had active TB in 2022	Yes After ~ 6 months of treatment with oral medications
https://flick.kirpidR31Ps	https://commons.wikimedia.org/wiki// File:/Tuberculosia_imagest.jpg	of persons in state and federal prisons had active TB in 2016	The BCG vaccine for TB is not used in the United States

Tuberculosis (TB)

Caused by	Transmitted by	Burden	Precautions
Bacteria (Mycobacterium tuberculosis)	Aerosolized bacteria from people with TB lung disease	0.002% of Americans had active TB in 2022	Airborne N95 If blood or bloody
MIDS SPIRE-MYDRESSIPS	https://commons.wkimadia.org/wsid/ File:Tuberculosis_image1.jog	3.6% of persons in state and federal prisons had active TB in 2016	fluid anticipated: OR AND N95

COVID

Caused by	Transmitted by	Burden	Curable?
SARS-CoV-2 (an RNA virus)	Droplets and aerosols generated by sneezing or coughing	30% of Americans have had COVID	Yes With 5-10 days of medications
	https://phil.cdc.gov/data/is.aspx?pid=11161	53% of persons in state and federal prisons have had COVID	mRNA-based vaccine effectiveness was 50-80% (lots of variables)

COVID

Caused by	Transmitted by	Burden	Precautions
SARS-CoV-2 (an RNA virus)	Droplets and aerosols generated by sneezing or coughing	30% of Americans have had COVID	For close contact with infected persons: OR AND N95
	https://phil.cdc.gov/details.aspx?pid=11181	53% of persons in state and federal prisons have had COVID	If blood or bloody fluid anticipated:

Virus image created using Microsoft Bing Image Creator (powered by DALL-E)
Reported US diagnoses through May 2023 (99.4M of 333.3M) → https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/
Prison diagnoses through 2023 (660,000 of 1,256,000) → https://www.prisonpolicy.org/blog/2023/04/21/pandemic-lessons-learned/
COVID vaccine effectiveness → https://covid.cdc.gov/covid-data-tracker/#vaccine-effectiveness

Flu (influenza)

Caused by	Transmitted by	Burden	Curable?
Orthomyxovirus (a segmented RNA virus)	Droplets and aerosols generated by sneezing or coughing	16% of Americans had influenza in 2022-23 season	Medication shortens symptoms and infectiousness
https://phil.cdc.gov/Details.aspx?pid=11823	https://phil.cdc.gov/details.aspx?pid=11161	of persons in state and federal prisons get influenza each season	Vaccine effectiveness averages 40-60% (lots of variables)

Flu (influenza)

Caused by	Transmitted by	Burden	Precautions
Orthomyxovirus (a segmented RNA virus)	Droplets and aerosols generated by sneezing or coughing	16% of Americans had influenza in 2022-23 season	Droplet OR OR AND
https://jphil.cdc.gov/Details.aspx?pid=11823	https://phil.edc.govidetails.aspx?pid=11161	of persons in state and federal prisons get influenza each season	If blood or bloody fluid anticipated:

GI pathogens



Hepatitis A

Caused by	Transmitted by	Burden	Curable?
Hepatovirus (a non-enveloped RNA virus)	Ingesting viruses from an infected person's stool Shared injection drug equipment	19,900 Americans had hepatitis A in 2020	Sort of Infection resolves on its own, providing lifelong immunity
https://mathworld.wolfram.com/Triakislcosahedron.html	May remain infectious on surfaces for at least 28 days	of persons with hepatitis A in 2016-2020 had recently been incarcerated	Vaccine effectiveness is ≥ 94% and long-lived

Hepatitis A

Norovirus

Caused by	Transmitted by	Burden	Curable?
A calicivirus (a non-enveloped RNA virus)	Ingesting viruses from an infected person's stool or vomit	6.4% of Americans get norovirus each year	No Infection resolves on
https://phil.cdc.gov/Details.aspx?pid=21348	May remain infectious on surfaces for at least 7 days	??? of incarcerated persons acquire norovirus per year; outbreaks are explosive	its own, with supportive care There is no vaccine against norovirus

Norovirus

Caused by	Transmitted by	Burden	Precautions
A calicivirus (a non-enveloped RNA virus)	Ingesting viruses from an infected person's stool or vomit	6.4% of Americans get norovirus	Standard
	May remain	each year ??? of incarcerated	If patient is vomiting or having uncontrolled diarrhea:
https://phil.cdc.gov/Details.aspx?pid=21348	infectious on surfaces for at least 7 days	persons acquire norovirus per year; outbreaks are explosive	

Skin surface pathogens



Shingles (zoster)

Caused by	Transmitted by	Burden	Curable?
Varicella zoster virus (VZV) (an enveloped DNA virus)	Contact with or inhalation of aerosolized material from shingles lesions	1 in 3 Americans will ever develop shingles	No Infection with VZV is lifelong, but medications can speed
	People who have immunity to varicella are not at major risk from shingles (chickenpox infection or vaccination)	incarcerated persons develop shingles each year	healing The shingles vaccine is highly effective

Shingles (zoster)

Caused by	Transmitted by	Burden	Precautions
Varicella zoster virus (VZV) (an enveloped DNA virus)	Contact with or inhalation of aerosolized material from shingles lesions People who have immunity to varicella are not at major risk from shingles (chickenpox infection or vaccination)	1 in 3 Americans will ever develop shingles ??? incarcerated persons develop shingles each year	If widespread (disseminated), airborne AND contact precautions for protection of vulnerable coworkers and incarcerated persons

Mpox (formerly monkeypox)

Caused by	Transmitted by	Burden	Curable?
Mpox virus (an enveloped DNA virus)	Inhalation of virus or skin contact with lesions, scabs,	30,487 Americans diagnosed with	Yes Medications
	and/or contaminated surfaces	mpox since January 2023 ???	speed healing, but people with weakened immune systems
	Bedding and clothing are potentially contagious	incarcerated persons had mpox	are at risk for severe disease or death Vaccine helps!

Mpox (formerly monkeypox)

Caused by	Transmitted by	Burden	Precautions
Mpox virus (an enveloped DNA virus)	Inhalation of virus or skin contact with lesions, scabs, and/or contaminated surfaces	30,487 Americans diagnosed with mpox since January 2023	Airborne and Contact OR AND N95
	Bedding and clothing are potentially contagious	incarcerated persons had mpox	

Caused by	Transmitted by	Burden	Curable?
Bacteria (methicillin-resistant Staphylococcus aureus)	Contact with skin lesions or the skin of persons colonized with the bacteria Bedding and clothing are potentially contagious	1.5% of Americans carry MRSA in their nostril(s) 5-85% of incarcerated persons carry MRSA in their nostril(s)	Yes Invasive infections with MRSA can be successfully treated with antibiotics There is no vaccine for MRSA

Caused by	Transmitted by	Burden	Precautions
Bacteria (methicillin-resistant Staphylococcus aureus)	Contact with skin lesions or the skin of persons colonized with the bacteria Bedding and clothing are potentially contagious	1.5% of Americans carry MRSA in their nostril(s) 5-85% of incarcerated persons carry MRSA in their nostril(s)	If patient has an uncovered skin lesion or open wound:



Questions?

Christopher Hurt, MD churt@med.unc.edu