

Infection Prevention for Viruses and Bacteria

OFFICE OF THE OMBUDSMAN

Objectives

- ▶ Understanding common illnesses found in DOC environments
- ▶ Analyze the impact of common illnesses on DOC staff, inmates, and day to day operations
- ▶ Create practices that prevent the spread of illnesses in the DOC environment

Who

Everyone is at risk everyday from viruses and bacteria in the environment that we live and work in.

Who

DOC employees

- ▶ Come and go to their homes and families
- ▶ Close living conditions
- ▶ Children go to school
- ▶ Adults going to work
- ▶ Extracurricular activities
- ▶ Extended family gatherings
- ▶ Stores and errands
- ▶ Close working conditions

Incarcerated individuals

- ▶ Come and go to work
- ▶ Close living conditions
- ▶ Interact with numerous other individuals
- ▶ Extracurricular activities
- ▶ Trips for health care
- ▶ Family visits
- ▶ Working closely with DOC staff

What

Tuberculosis (TB)

Hepatitis A

Hepatitis B

Hepatitis C

Human
immunodeficiency
virus (HIV)

Viruses

MRSA

How

- ▶ Illnesses and disease are spread through many different ways.
 - ▶ Airborne: directly exhaled from the infected person into the surrounding environment-landing on all surfaces and people within 6 feet. Easily inhaled.
 - ▶ Droplet: fluids that are sprayed into the environment with sneezing, coughing, talking, and breathing.
 - ▶ Bloodborne: in the blood and bodily fluids. May be absorbed through broken/cracked skin, eyes, nose, mouth, vagina, anus/rectum.
 - ▶ Some viruses and bacteria only live a few minutes in the air or on surfaces while others can survive days or months

Think

How to keep yourself and everyone around you safe

- ▶ Always suspect that the person you are interacting with has a potential /illness or disease(see previous list).
- ▶ Consider use of personal protective equipment(PPE) when dealing with inmates and their belongings.
- ▶ PPE (personal protective equipment) includes but is not limited to:
 - ▶ gloves-protects skin on hands against fluids and solids
 - ▶ Mask(N95 if necessary)-protects against airborne materials
 - ▶ Goggles-protects against fluids and spray matter
 - ▶ Gowns-protects against splashing or spraying of material

Tuberculosis

Caused by the bacterium called *Mycobacterium Tuberculosis*

Two types:

- Dormant (inactive) TB which causes no symptoms and is not contagious

- TB disease which is active, contagious, and can be fatal if not treated

TB can infect any part of the body including the lungs, spine, kidneys, and brain.

Tuberculosis

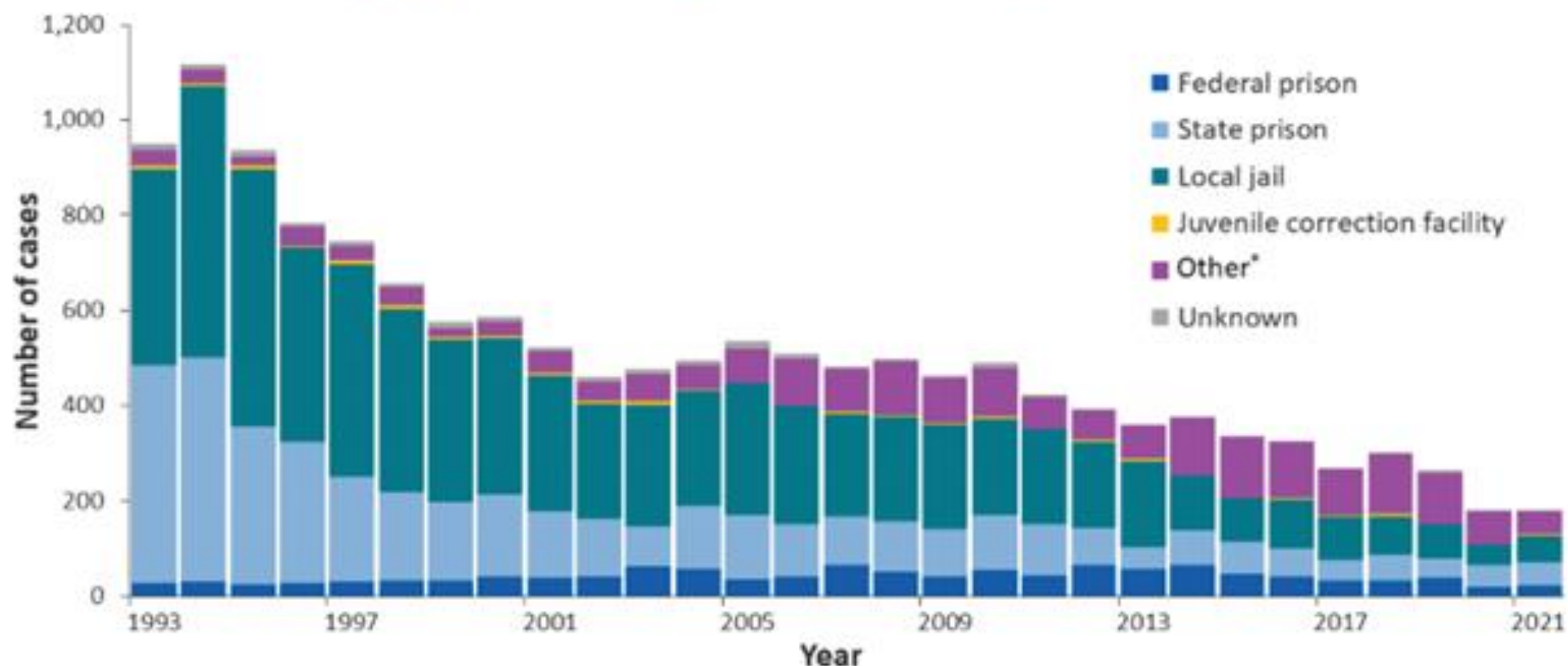
People at highest risk

- ▶ Those people with HIV
- ▶ Substance use disorder
- ▶ Diabetes mellitus
- ▶ Severe kidney disease
- ▶ Low body weight
- ▶ Organ transplants
- ▶ Homeless/living in overcrowded conditions
- ▶ Medical treatments involving steroids (arthritis, Chron's/colitis, chronic lung conditions)

Tuberculosis signs and symptoms

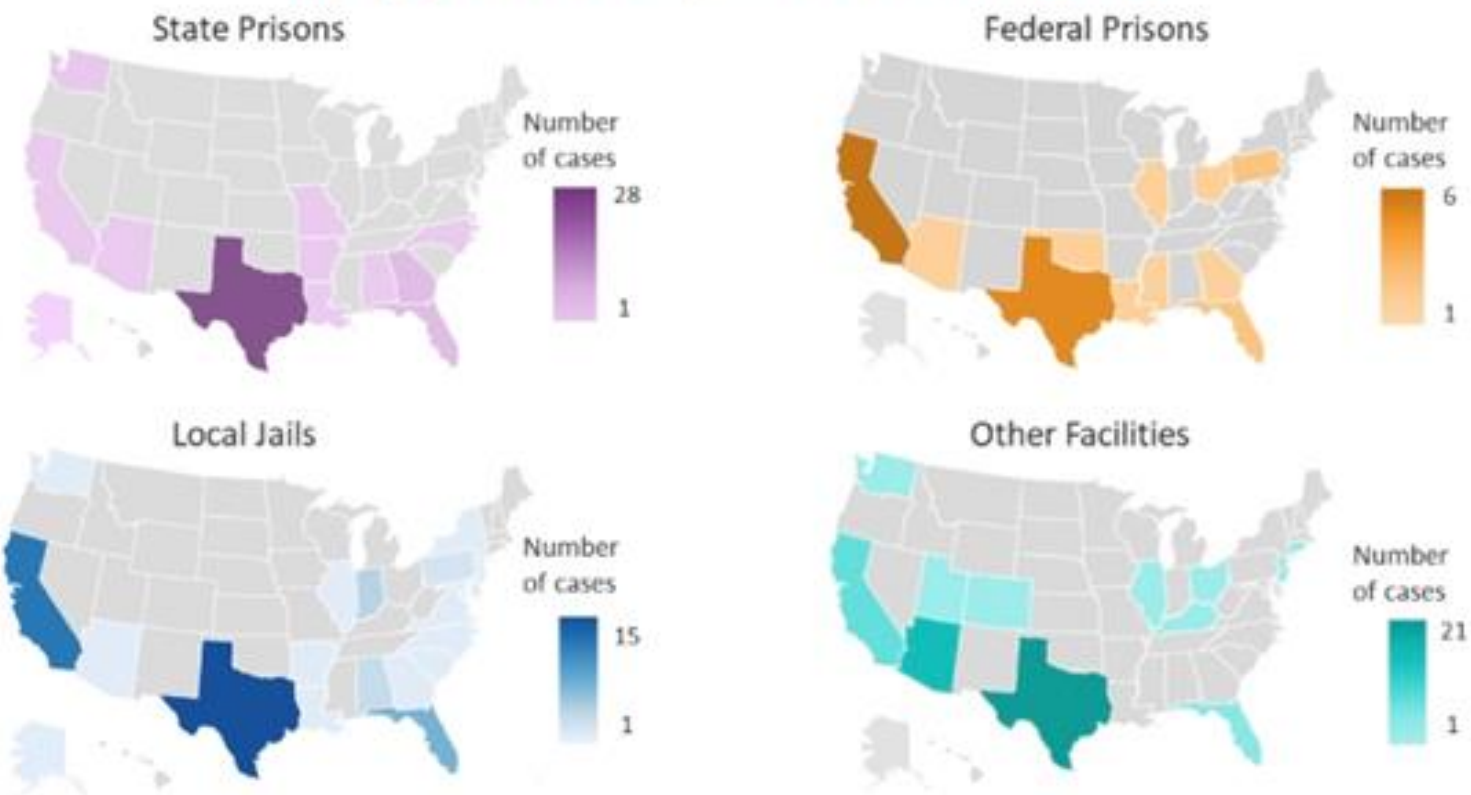
- ▶ May include some but not all
 - ▶ Cough lasting 3 weeks or longer
 - ▶ Pain the chest
 - ▶ Coughing up blood or blood tinged sputum
 - ▶ Weakness
 - ▶ Fatigue
 - ▶ Weight loss
 - ▶ Loss of appetite
 - ▶ Chills
 - ▶ Fever
 - ▶ Night sweats

TB Cases Among Correctional Facility Residents Aged ≥ 15 Years by Type of Facility, United States, 1993–2021



*Includes Immigration and Customs Enforcement (ICE) detention centers, Indian reservation facilities (e.g., tribal jails), military stockades and jails, federal park police facilities, police lockups (temporary holding facilities for persons who have not been formally charged in court), or other correctional facilities that are not included in the other specific choices

TB Cases Among Correctional Facility Residents Aged ≥ 15 Years by Type of Facility, United States, 2021



HIV

Human Immunodeficiency Virus

- ▶ Is a disease that attacks part of the immune system.
- ▶ HIV attacks and destroys CD4 T-cells — important immune system cells that help your body fight infections. The more CD4 T-cells that are destroyed, the weaker your immune system can become. With fewer CD4 T-cells due to HIV, it can be harder for your body to fight illnesses and infections.
- ▶ Untreated HIV leads to AIDS, because unlike common viruses like Influenza and Covid, your body cannot fight off and defeat the HIV virus.

HIV Human Immunodeficiency Virus

HIV is not transmitted



food, drink,
utensils



insect bites



kiss, touch



clothes, towels



toilet, shower

CDC.gov



HIV/AIDS

HIV is transmitted



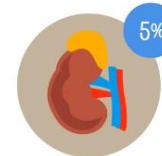
10%
use of non-sterile
syringes and tools



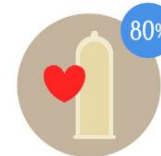
10%
pregnancy
breastfeeding



5%
blood transfusion



5%
organ transplant



80%
unprotected sex

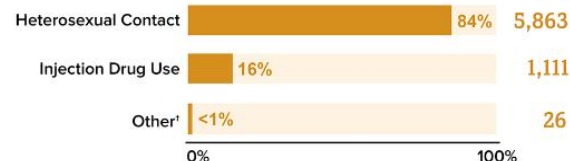
HIV by gender the US



There were **36,801 new HIV diagnoses** in the US and dependent areas in 2019. Of those, 19% (6,999) were among women.

New HIV Diagnoses Among Women by Transmission Category in the US and Dependent Areas, 2019*

Most new HIV diagnoses among women were attributed to heterosexual contact.



* Based on sex assigned at birth and includes transgender people. For more information about transgender people, visit CDC's [HIV and Transgender People](#) web content.

† Includes perinatal exposure, blood transfusion, hemophilia, and risk factors not reported or not identified.

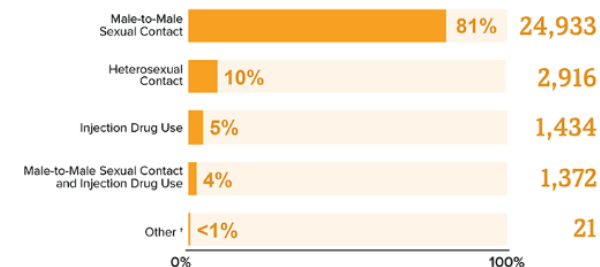
Source: CDC. [Diagnoses of HIV infection in the United States and dependent areas, 2019](#). *HIV Surveillance Report* 2021;32.



Of the **37,968 NEW HIV DIAGNOSES** in the US and dependent areas in 2018, 81% were among men.

New HIV Diagnoses Among Men in the US and Dependent Areas by Transmission Category, 2018*

Most new HIV diagnoses among men were attributed to male-to-male sexual contact.



*Based on sex at birth and includes transgender people.

† Includes hemophilia, blood transfusion, perinatal exposure, and risk factors not reported or not identified.

Source: CDC. [Diagnoses of HIV infection in the United States and dependent areas, 2018 \(updated\)](#). *HIV Surveillance Report* 2020;31

HIV

People at greatest risk

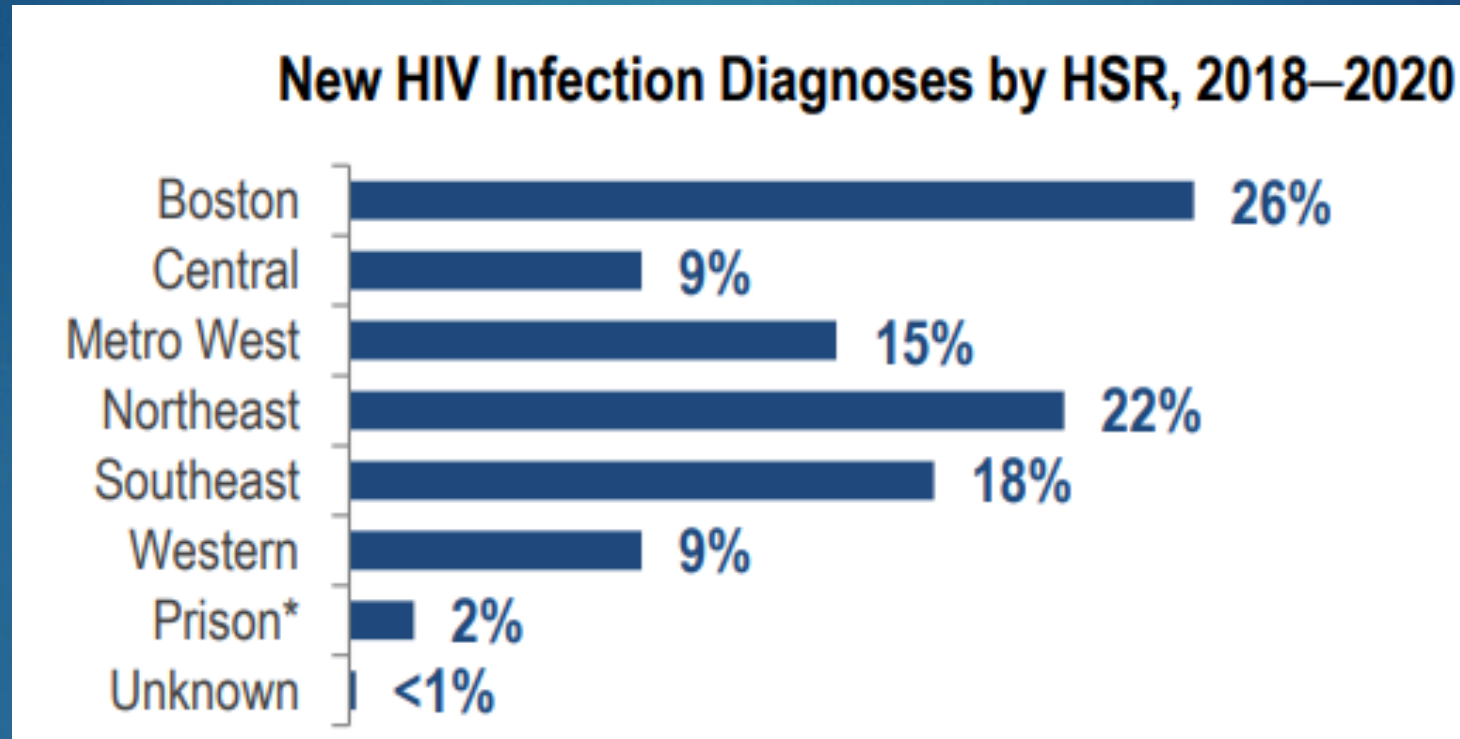
GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN

Men who have sex with men (MSM) have been the population most impacted by the epidemic since the beginning.¹³ MSM of color are even more disproportionately impacted by HIV, as issues of stigma and discrimination on the basis of sexual orientation intersect with racism and other social determinants of health. If current rates continue, it is estimated that 1 in 6 MSM will be diagnosed with HIV at some point in their lives.¹⁴

- MSM make up an estimated **2%** of the US population, but accounted for **66%** of new annual HIV infections in 2017¹⁵
- As of 2019, **56%** of people living with HIV in the US contracted it through male-to-male sexual transmission¹⁶
- As of 2018, **1 in 6** MSM living with HIV was unaware of their status¹³
- Analysis of HIV diagnoses between **2010** and **2016** found that new infections among all MSM in the US remained stable, but they increased **65%** among young Black American MSM aged **25 to 34** and **68%** among Hispanic/Latino American MSM in that same age group¹⁵

Male HIV in Massachusetts

New Diagnosis



The total new diagnosis rate per year is about 700 people for Massachusetts. 2% of the total for this 3 years is 42 newly diagnosed inmates—not including those diagnosed prior to these years that are still incarcerated. Current prison population at this time is 5800. At least 1 inmate out of every 140 is HIV positive.

HIV Treatment

- ▶ Treatment consists of medications called “anti-retrovirals”
- ▶ The goal of treatment is to establish an undetectable amount of the virus in a blood sample.
- ▶ Treatment is life long
- ▶ Medications need to be taken regularly and on time

AIDS

Acquired immunodeficiency syndrome

- ▶ If HIV is untreated(or is resistant to treatment) it further develops into AIDS resulting in:
 - ▶ Yeast/fungal infections
 - ▶ Diarrhea/colon infections
 - ▶ Herpes with development of skin wounds
 - ▶ Weakness and confusion
 - ▶ Weightloss/wasting syndrome
 - ▶ Death

PPE for HIV



Medical gloves

Always wear gloves when potential for contact with blood or body fluids

Mask

Mask and goggles/safety glasses if there is concern for spray or splashing of blood or body fluids

Gown

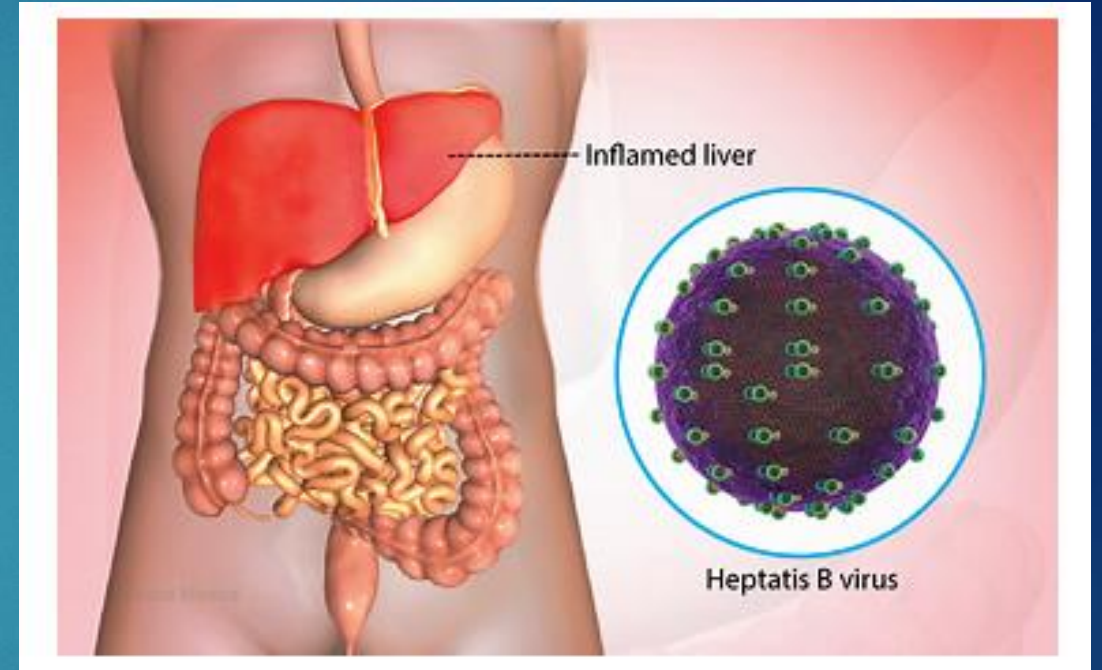
Gown for protection of clothes and body from spray of blood or body fluids

Prevent

Prevent puncture wounds and cuts from potentially infected items- never place your hand in places you cannot see when doing searches

Hepatitis viruses

Hepatitis viruses directly attack the liver.
If left untreated can lead to liver failure,
Liver cancer, liver scarring and death



Hepatitis viruses

	Hepatitis A	Hepatitis B	Hepatitis C
Transmission	Touch dirty surface and directly ingest(eat)- VERY CONTAGIOUS	Blood and body fluid	Blood and body fluid
Vaccine available	Yes We get it as kids	Yes We get it as kids and a booster at 18	no
Signs and symptoms	Yellow eyes and skin, dark urine, abdominal pain, joint pain, itchy skin, nausea, vomiting, diarrhea, fatigue	Yellow eyes and skin, dark urine, abdominal pain, joint pain, itchy skin, nausea, vomiting, diarrhea, fatigue	Yellow eyes and skin, dark urine, abdominal pain, joint pain, itchy skin, nausea, vomiting, diarrhea, swollen abdomen, bruises easily
treatment	supportive	Antiviral medications	Antiviral medication
Long term effects	rarely	Yes for those born with Hep B and 2-6% of adults	yes

Hepatitis A

Is a Liver infection caused by the hepatitis A virus (HAV). HAV is found in the stool and blood of people who are infected. Hepatitis A is very contagious. It is spread when someone unknowingly ingests the virus — even in microscopic amounts — through close personal contact with an infected person or through eating contaminated food or drink.

Also, can be from contaminated food in restaurants

Hepatitis B

- ▶ Is a liver infection that is caught by exposure to blood, body fluids, including semen, sharing needles, or during childbirth.
- ▶ Not all people newly infected with HBV(Hepatitis B Virus) have symptoms, but for those that do, symptoms can include fatigue, poor appetite, stomach pain, nausea, and jaundice. For many people, hepatitis B is a short-term illness. For others, it can become a long-term, chronic infection that can lead to serious, even life-threatening health issues like cirrhosis or liver cancer.

Hepatitis C

- ▶ Hepatitis C is a liver disease caused by the hepatitis C virus. It is a liver infection that is caught by exposure to blood, body fluids, including semen, sharing needles, or during childbirth.
- ▶ When someone is first infected with the hepatitis C virus, they can have a very mild illness with few or no symptoms or a serious condition requiring hospitalization. For reasons that are not known, less than half of people who get hepatitis C are able to clear, or get rid of, the virus without treatment in the first 6 months after infection.
- ▶ Signs and symptoms: Yellow eyes and skin, dark urine, abdominal pain, joint pain, itchy skin, nausea, vomiting, diarrhea, **swollen abdomen, bruises easily**
- ▶ Most people who get infected will develop a chronic, or lifelong, infection. Left untreated, chronic hepatitis C can cause serious health problems including liver disease, liver failure, liver cancer, and even death.

PPE for all Hepatitis

- ▶ Consider wearing medical gloves when potential for contact with blood or body fluids
- ▶ Mask and goggles/safety glasses if there is concern for spray, splashing of blood or body fluids, or spitting
- ▶ Gown for protection of clothes and body from spray of blood or body fluids
- ▶ Prevent puncture wounds and cuts from potentially infected items
never place your hand in places you cannot see when doing searches

Viruses and other illnesses

	Covid 19	Flu	RSV	Noro virus
Transmission	Airborne/droplet	Airborne/droplet	Airborne/droplet	Direct ingestion(eat)
vaccine	yes	yes	no	no
Signs and symptoms	Cough, fever, congestion, shortness of breath, headache, body aches	Cough, fever, congestion, headache, body aches	Cough, fever, congestion, shortness of breath	Nausea, vomiting, diarrhea, fever, abdominal pain
Treatment	Supportive care, antiviral medication	Supportive care Antiviral medication	Supportive care	Supportive care

Covid 19

- ▶ Is an airborne/droplet spread illness and is **HIGHLY CONTAGIOUS**. Can also be picked up from surfaces and rubbed into eyes, nose or mouth from hands.
- ▶ Cough
- ▶ Congestion
- ▶ Fever
- ▶ Headache
- ▶ Shortness of breath
- ▶ Body aches
- ▶ Covid 19 started in the early winter of 2020. Many of the people first sick with Covid 19 were sicker than they had ever been before. Thousands died and many have long term problems(long haulers)after battling Covid that first winter. With vaccines and time, Covid has become less deadly, but remains a high risk illness for small children and anyone with long term lung problems(asthma, COPD, emphysema, pulmonary hypertension).

Covid 19

Numerous variants with more and more evolving

Vaccines could be a yearly requirement

Numbers wax and wane. Peaking at the beginning of the school year and within 7-10 days of holiday gatherings and after school vacation weeks. See graph

Indoor environments and close contact with others also large contributors to spread of the illness.

Covid 19

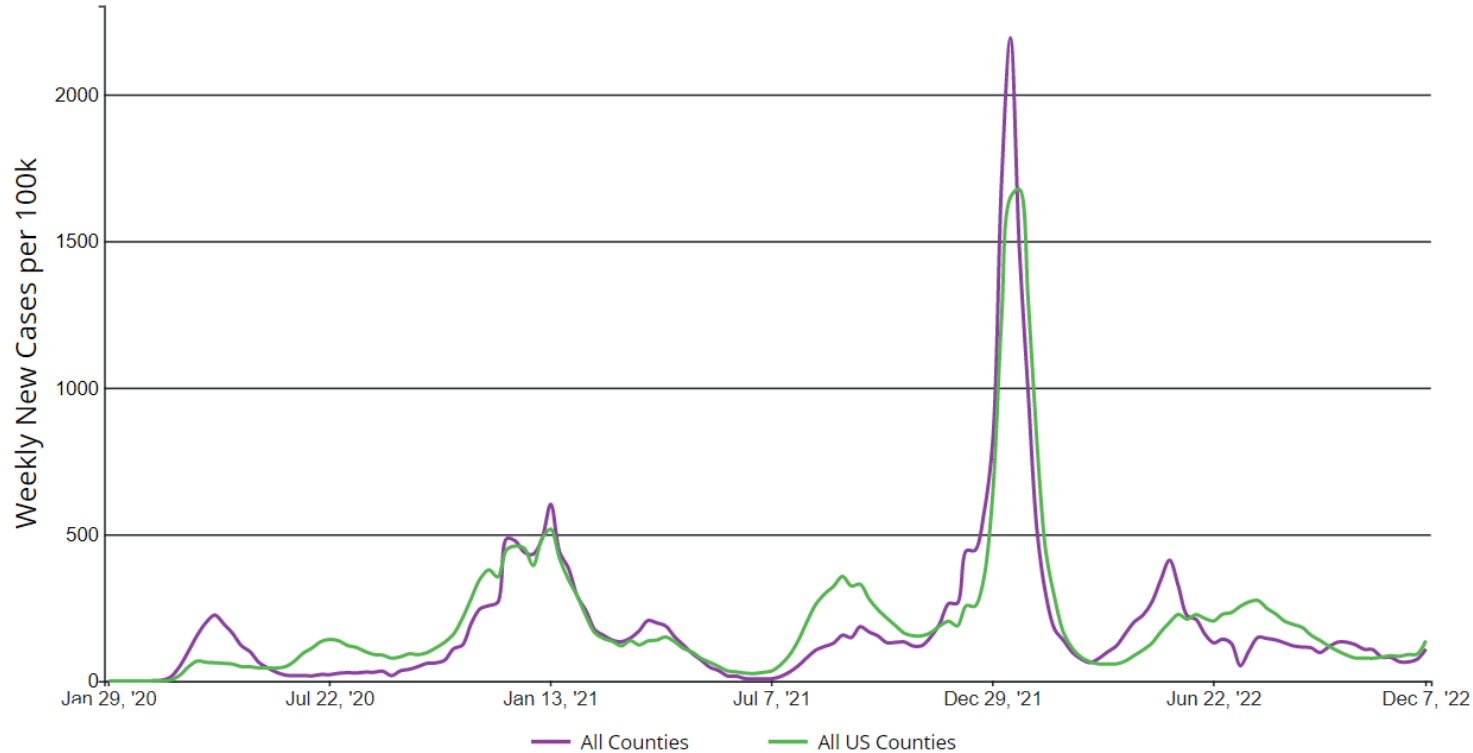
12/12/22

Cases	Testing	Hospitalizations	Deaths
Confirmed Cases There were 7,499 new, confirmed cases reported during the past 7 days bringing the total to 1,942,303 total confirmed cases.	Tests Reported There were 102,808 new COVID-19 molecular tests reported during the past 7 days, bringing the cumulative total to 48,672,205 tests.	Hospitalizations On December 6, 2022, there were 239 patients primarily hospitalized for COVID-19 related illness and 766 total patients hospitalized with COVID-19.	Confirmed Deaths There were 76 new, confirmed deaths reported during the past 7 days. There have been 20,972 confirmed deaths in total.
Probable Cases There were 1,195 new, probable cases reported in the past 7 days bringing the total to 181,940 total probable cases.	Percent Positivity The 7-day average of percent positivity is 7.85%.	ICU & Intubated Patients There were 67 patients in Intensive Care Units (ICU) and 27 patients were intubated.	Probable Deaths There were 10 new, probable deaths reported during the past 7 days. There have been 1,602 probable deaths in total.

This information can be found weekly at:

[COVID-19 Response Reporting | Mass.gov](https://www.mass.gov/info-details/covid-19-response-reporting)

COVID-19 Weekly Case Rate per 100,000 Population in Massachusetts, by Metro vs. Non-Metro



Covid cases
January 2020-
December 2022

Massachusetts
counties vs all US
counties

February, March, April, May 2020 is deceiving since the case numbers are low, but that is when most of the deaths from Covid occurred

December 2021 cases numbers were high with much fewer deaths

Covid 19 Treatment

- ▶ Supportive care-push drinking fluids
- ▶ Tylenol and Motrin for fever, headaches, body aches
- ▶ Monoclonal Antibodies and anti-virals in severe cases (Treatments can change with each variant)
- ▶ Antibiotics DO NOT WORK for viral illnesses
- ▶ Masks for people at greatest risk
- ▶ Vaccine series and boosters

Influenza viruses

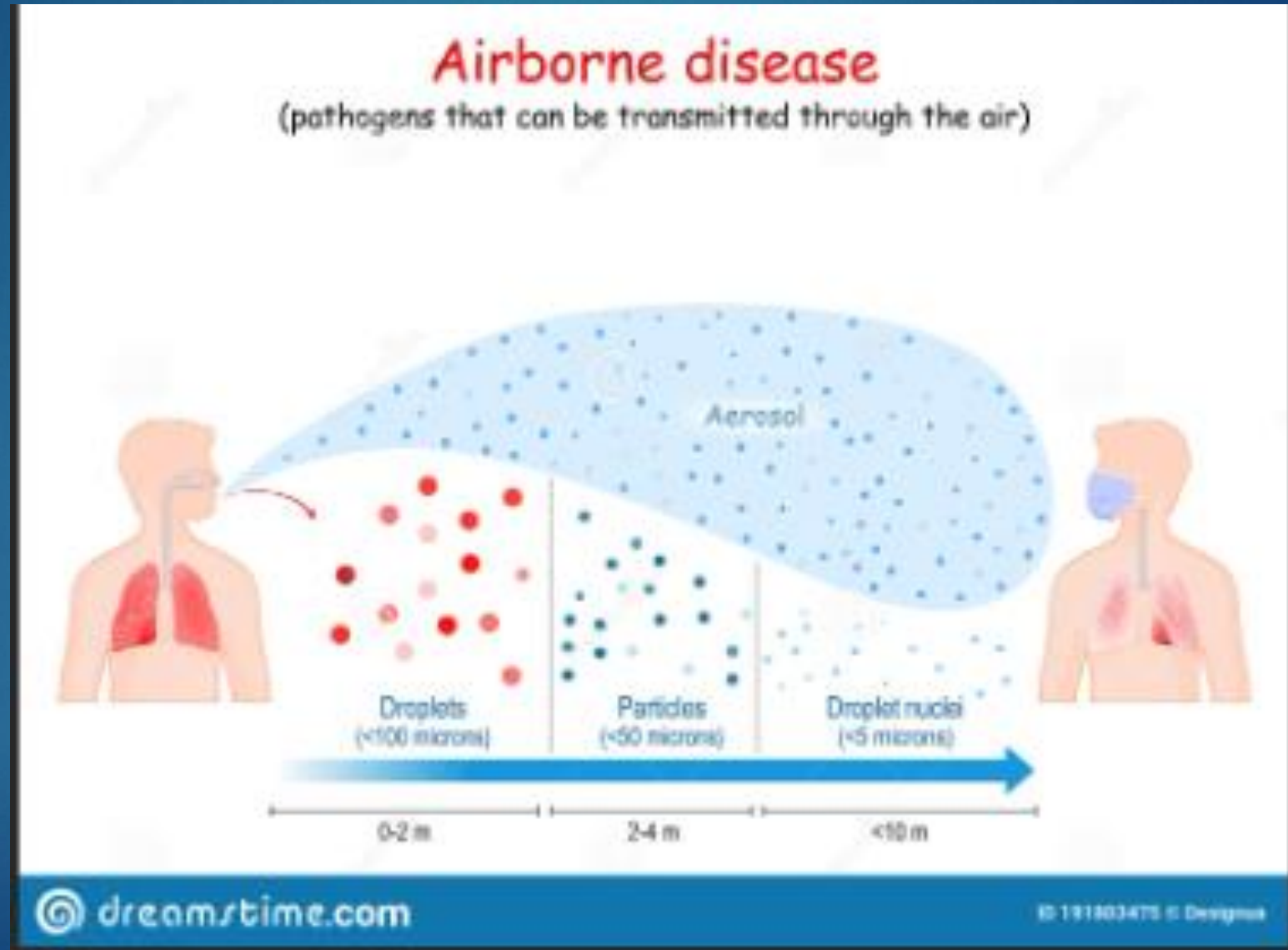
- ▶ Airborne and droplet spread, also **HIGHLY CONTAGIOUS**. Can also be picked up from contaminated surfaces and rubbed into eyes, nose or mouth by contaminated hands.
 - ▶ Cough
 - ▶ Congestion
 - ▶ Fever
 - ▶ Headache
 - ▶ Body aches
- ▶ Hundreds of variants
- ▶ Vaccine yearly for most likely strains
- ▶ Common in winter months
- ▶ Waxes and wanes similar to Covid and other viral illnesses

Influenza treatment

- ▶ Supportive care-push drinking fluids
- ▶ Tylenol and Motrin for fever, headache, and body aches
- ▶ Anti-virals (Tami flu) for extreme illness (or high risk population)
- ▶ Antibiotics do NOT work against viral illnesses
- ▶ Stay home if you are sick
- ▶ Vaccine annually

Airborne and droplet transmission

TB, Covid, Influenza, RSV



RSV

Respiratory syncytial virus

- ▶ Virus that is contagious and is spread by airborne, droplet, or direct contact with the virus from a surface and then you touch your eye, nose or mouth.
- ▶ Coughing
- ▶ Sneezing
- ▶ Fever
- ▶ Wheezing
- ▶ Runny nose with large amount of mucous
- ▶ Decreased appetite

RSV treatment

- ▶ Supportive care with plenty of fluids to drink
 - ▶ Tylenol and Motrin for fever, headache, body aches
 - ▶ Respiratory treatments may be necessary to control wheezing
 - ▶ Keep infants nasal passages clear for breathing
-
- ▶ Increased prevalence in fall and winter
 - ▶ Can be deadly to small children and infants, elderly, and those with underlying respiratory illness

Noro viruses

Highly contagious and spread through close contact and sharing contaminated food and drinks. Contaminated surfaces- especially bathrooms used by infected persons.
DO NOT SHARE FOODS WITH OTHERS IF PEOPLE HAVE NOROVIRUS SYMPTOMS.



Noro virus

- ▶ Vomiting and diarrhea
 - ▶ Sudden onset
 - ▶ Abdominal pain and cramping
 - ▶ May or may not have a fever
 - ▶ Usually lasts 24-48 hours
-
- ▶ Supportive care-small sips of fluids and rest.
 - ▶ Antibiotics and anti-virals DO NOT work-needs to run its course
 - ▶ Clean areas frequently with antiseptic wipes especially high touch areas
 - ▶ Can cause severe dehydration and fainting.

Personal safety to avoid viruses

- ▶ Wash your hands frequently with soap and water or hand sanitizer
- ▶ Clean surfaces in your work area with provided wipes at the beginning of each shift and high touch surfaces (like light switches)
- ▶ Avoid touching your eyes, mouth, face while at work
- ▶ Cover your cough (with your elbow)
- ▶ Report inmates that appear to have signs and symptoms of illness to the health services staff: help stop the spread
- ▶ Wear a mask if you so desire or it is required
- ▶ Stay home if you are sick

MRSA

Methicillin Resistant Staphylococcus Aureus

- ▶ MRSA is a bacterial infection that is hard to treat because many antibiotics do not work to kill the bacteria anymore
- ▶ About 5% of the US population has MRSA. Many are "carriers" who may not know they have the bacteria because it does not make them sick.
- ▶ MRSA can live on surfaces for up to several weeks

MRSA

- ▶ MRSA is spread through contact with the bacteria on items and surfaces.
 - ▶ Gym mats and equipment
 - ▶ Towels
 - ▶ Door handles
 - ▶ Table/desk top
 - ▶ Razors
 - ▶ Open wounds
 - ▶ Sharing needles
 - ▶ Phones, tablets, keyboards

MRSA

What it looks like



Many describe the wound as a "spider bite".

Wound will appear:

Red
Hot
Swollen
Painful
draining

MRSA

signs/symptoms/Treatment

- ▶ Person may/may not have:
 - ▶ Fever
 - ▶ Weakness/fatigue
 - ▶ Headache
 - ▶ Joint pain
- ▶ If caught early-high dose oral antibiotics may work
- ▶ Intravenous antibiotics are often necessary
- ▶ Keep wound covered-check daily for changes
- ▶ Wound may need to be drained

MRSA prevention

- ▶ Gym equipment needs to be cleaned in between each person using it
- ▶ Do not share towels, razors, or lifting gloves
- ▶ Wipe down all surfaces after use-especially in high use areas-chow halls, tables and chairs on housing units, officers' desks, railings
- ▶ Wipe down high touch areas like door handles, phones, tablets

Wipe down work stations at the beginning of you shift

Wash your hands frequently with hand sanitizer or soap and water

Staying Safe

Noone wants to bring these illnesses home from work- follow these simple steps

Wash your hands frequently with soap and water or hand sanitizer

Check hands for open areas and keep open areas covered

Clean surfaces in your work area with provided wipes at the beginning of each shift

Avoid touching your eyes, mouth, face while at work

Cover your cough

Report inmates that appear to have signs and symptoms of illness to help stop the spread

Wear a mask if you so desire or it is required

Stay home if you are sick

References

- ▶ [CDC.gov](https://www.cdc.gov)
- ▶ [Mass.gov](https://www.mass.gov)
- ▶ Shutterstock stock photography
- ▶ [DREAMstime.com](https://www.dreamstime.com)

The background of the slide features a dark blue field filled with numerous interlocking gears of various sizes. The gears are rendered in a lighter blue, semi-transparent style, creating a sense of depth and mechanical complexity. In the upper right corner, there is a solid, bright yellow rectangular block.

Questions?



Thank You.

Prepared in collaboration and
cooperation of DOC and the
Office of the Ombudsman

[HTTPS://COVIDOMBUDSMAN-MADOC.ORG](https://COVIDOMBUDSMAN-MADOC.ORG)

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