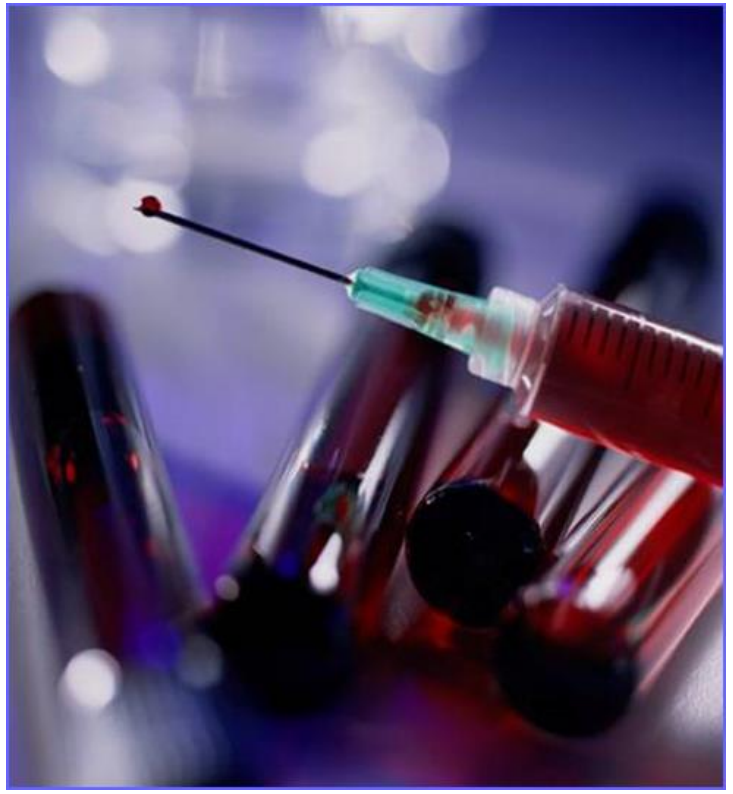


# Bloodborne Pathogen Training

**Bethel University**

# Contact Information

**If you have questions at any time throughout this training or throughout the year, please contact:**

Jens Erickson, IEA Inc.

Environmental Health & Safety (EHS) Manager

jens-erickson@bethel.edu

763-315-7900

# BBP Exposure Contacts

**Bloodborne Pathogen Program Administrator:**

Zach Hill, Director of Risk Mgmt, Security, & Safety

**Exposure Control Officer:**

Liz Miller, Director of Health Services

# Why are you receiving this training?


- **For your protection**
- **For your awareness**
- **MN OSHA required for all covered employees**
  - Initial Job Assignment & Annually thereafter

# Exposure Control Written Plan

Exposure Control Plans are required by OSHA 1910.1030

Plans must meet the following criteria:

- Must be written specifically for each facility
- Must be reviewed and updated at least annually
  - Updates should reflect changes, such as new worker positions or technology used to reduce exposures to blood or body fluids
- It must be readily available to all workers
  - For a copy, contact the Director of Health Services or the EHS Manager.

# Exposure Control Written Plan

- Evaluation of employee activities
- Designated program coordinator
- Practice universal precautions
- Hepatitis B vaccinations
- Post exposure procedures
- Personal protective equipment
- Training
- Review
- Recordkeeping

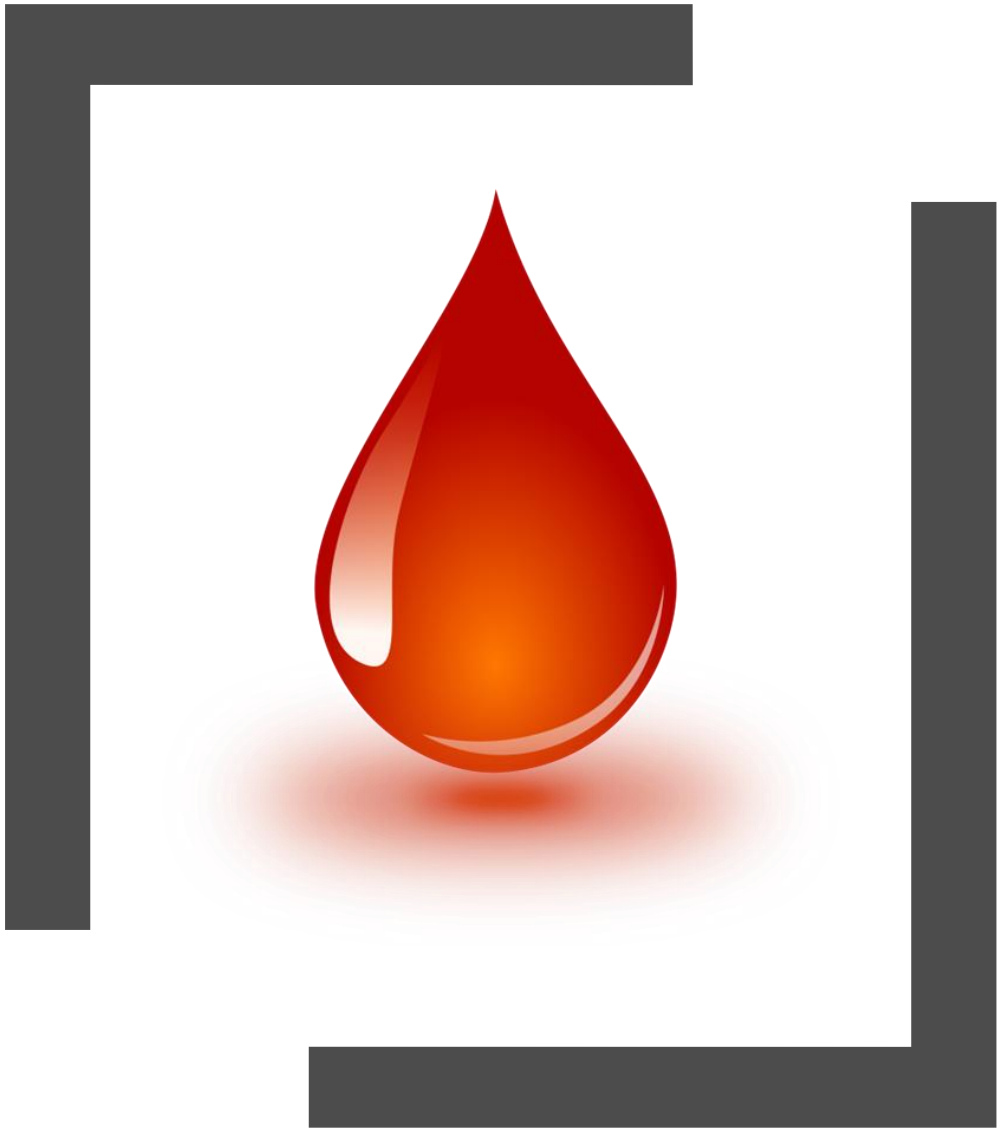
# Who Does it Cover?

All employees for whom exposure can be “reasonably anticipated” as part of their normal job duties

Employer is responsible for evaluating potential for exposure and determining who is covered.

# What About You?

- Employees typically covered under the Bloodborne Pathogen (BBP) Program:
  - Nurses
  - Health Office Assistants
  - Special Education Teachers/Paras
  - Custodial Staff
  - Athletic Trainers & Coaches
  - Early Education/Daycare Staff
  - Security/Emergency Response Staff



# Bloodborne Pathogens

- Infectious microorganisms in human blood that can cause disease
- Pathogens are spread through contact with body fluids.
- OSHA estimates 5.6 million workers are at risk of exposure.
- Most common Bloodborne Pathogens:
  - HIV
  - Hepatitis B & C

# Modes of Transmission

## Exposure to another person's blood

- Contaminated needle sharing
- Needle sticks
- Contaminated sharps/glass
- **Blood contact with non-intact skin or mucous membranes (most common in school setting)**
- Transfusions

## Sexual contact

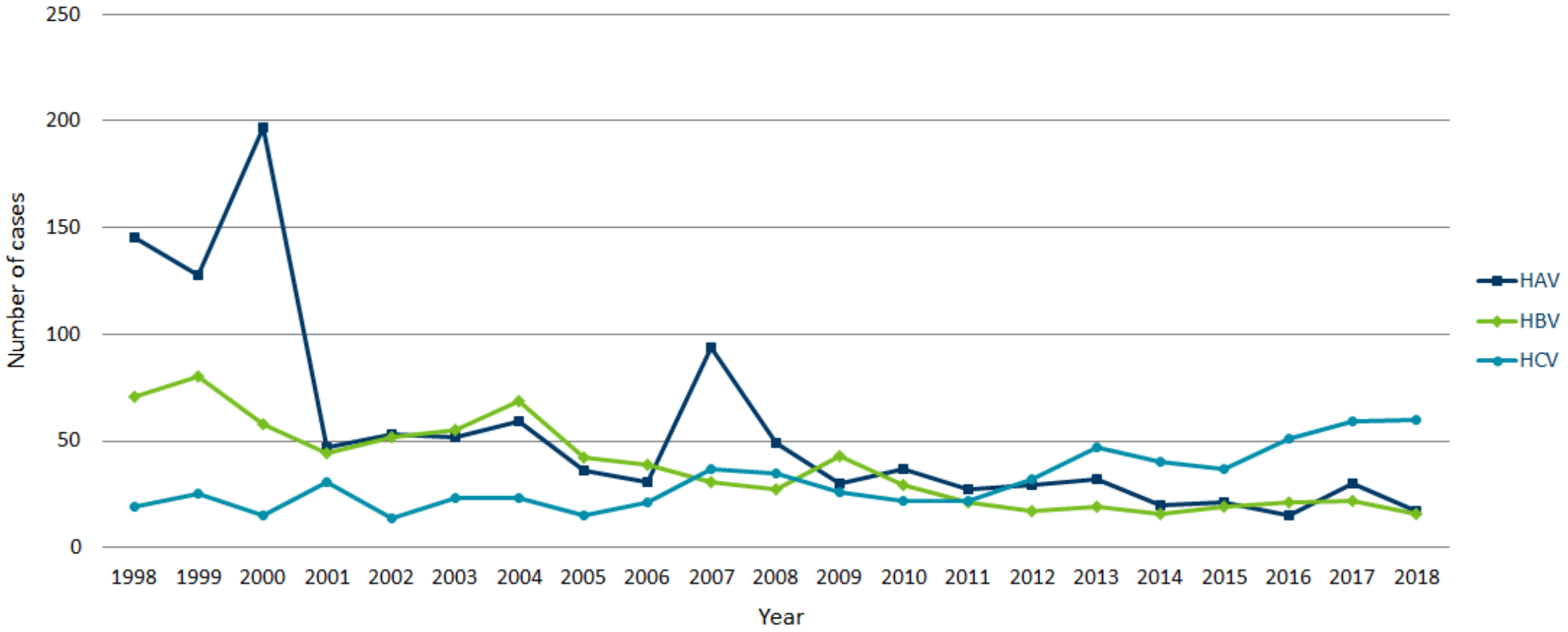
- Semen and vaginal secretions

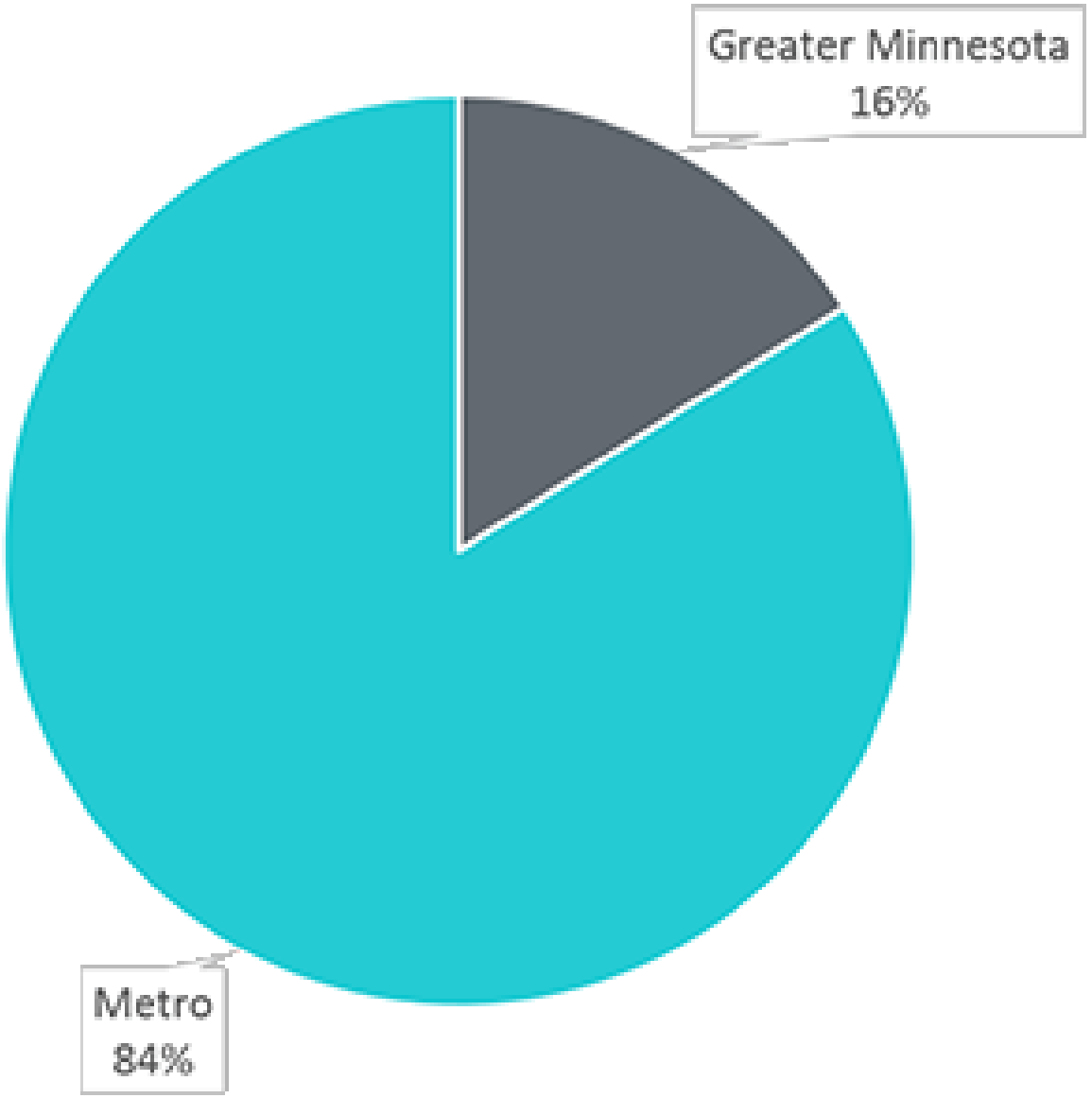
## Infected mother to child

# Hepatitis B (HBV)

- Hepatitis is defined as inflammation of the liver.
- Hepatitis B is a contagious liver disease.
- Hepatitis B can start as an acute disease; it can be cured or become chronic.
  - Acute – sudden onset, will sometimes go away within a few weeks
  - Chronic – disease that persists over a long period of time
- As of December 31, 2018, there were 25,335 persons who were assumed alive and residing in Minnesota with HBV.
- The CDC estimates between 850,000 and 2.2 million people live with chronic hepatitis B.

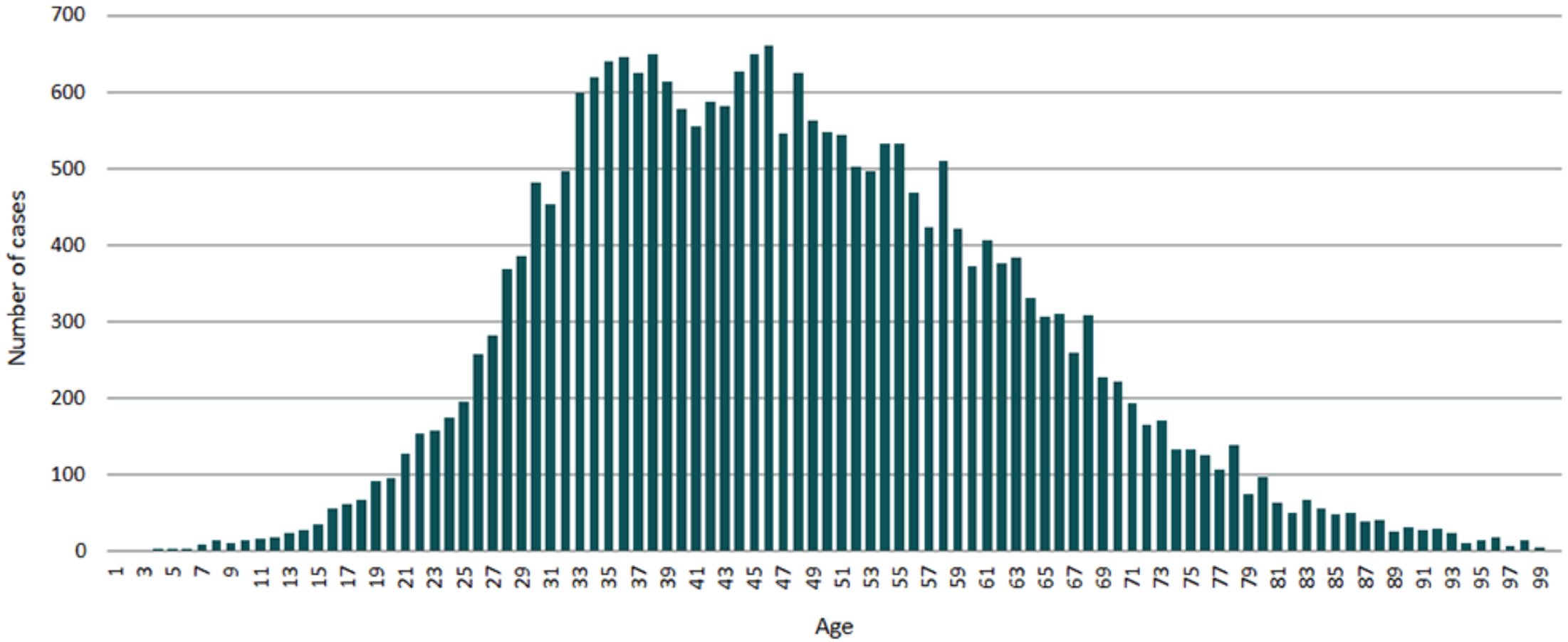
# Number of Acute Hepatitis Cases per Year 1998-2018

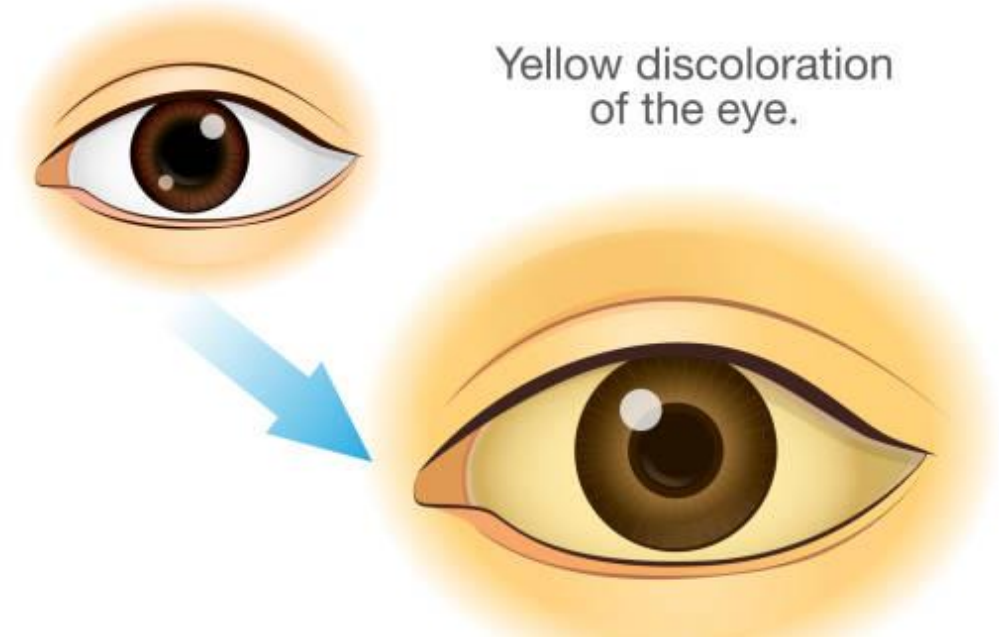





# Persons with HBV by location, in 2018

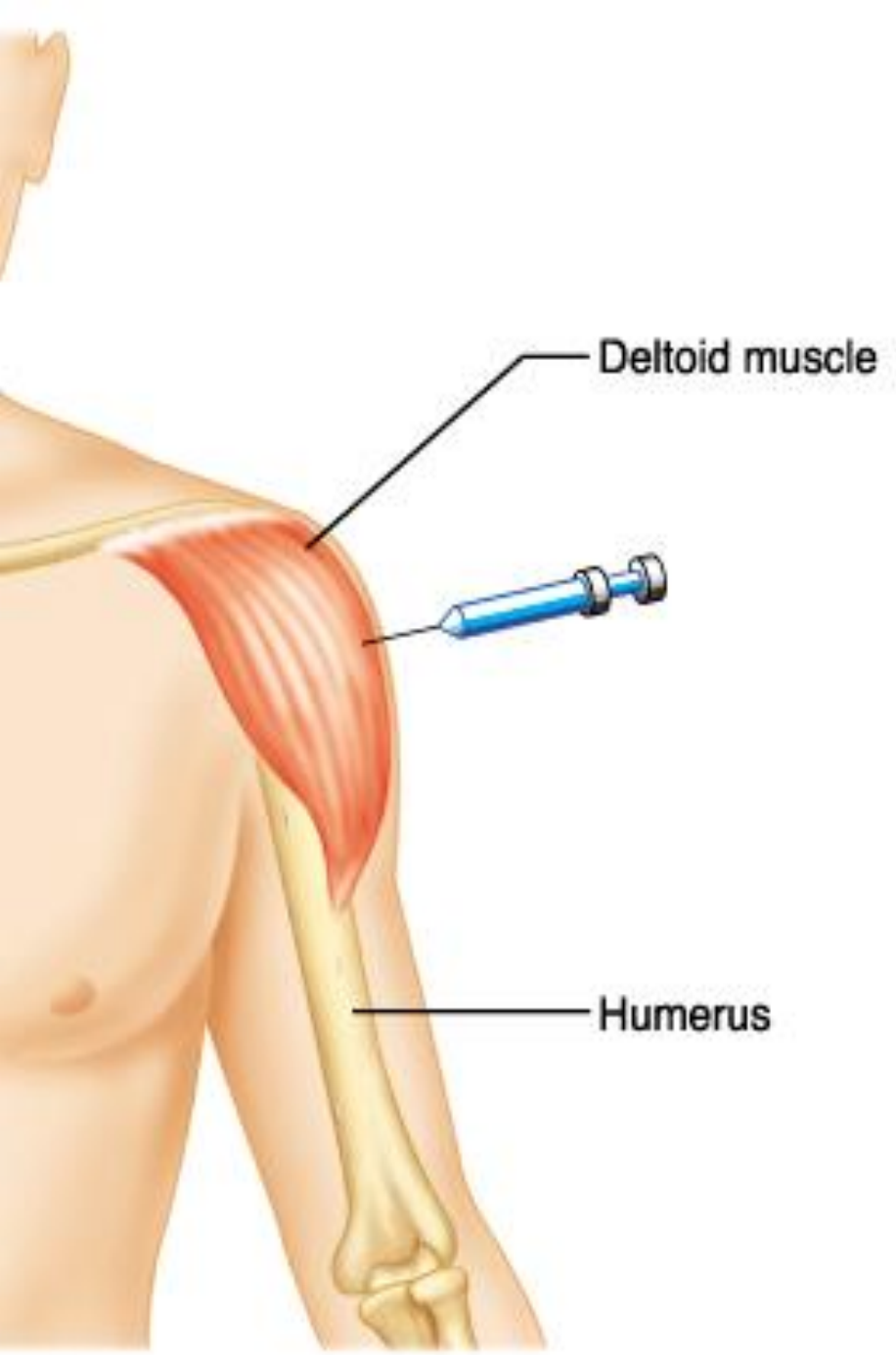
# Persons with Chronic HBV in MN by Age,2018






# Symptoms of Hepatitis B

- Acute Infection:
  - Fever
  - Fatigue
  - Loss of appetite
  - Nausea
  - Vomiting
  - Abdominal pain
  - Dark urine
  - Clay-colored bowel movements
  - Joint pain
  - Jaundice
- Chronic Infection:
  - Most individuals do not have any symptoms and can remain symptom free for decades. When symptoms do appear, they are similar to the symptoms of an acute infection.




# Hepatitis B Vaccinations

- Hepatitis B vaccinations are given in 3 doses, usually over 6 months.
  - 4 weeks are required in-between the first 2 doses
  - 8 weeks are required between doses 2 and 3
  - 16 weeks are required between doses 1 and 3
- Heplisav-B manufactured by Dynavax, is approved for two doses one month apart (2017).
- Method of Administration
  - The vaccine is administered with a needle into the deltoid muscle.
- Efficacy
  - More than 90% of healthy adult develop adequate antibody responses to the vaccine.
  - The vaccine, however, does have an age-specific immunogenicity decline.
    - After age 40, 90% of recipients respond
    - By age 60, only 75% of the vaccine develops protective antibodies
  - Immunization commonly lasts for 20 years

# Hepatitis B Vaccinations

## Safety

- The vaccine is safe. Soreness is a common side effect.
- There is always a small risk of side effects, as with any vaccine. Speak with your medical provider if you have questions.

## Benefits

- **Protects from Hepatitis B, a serious disease**
- Protects others
- Prevents from the development of liver disease and cancer
- Keeps you from missing work

# Hepatitis B Vaccinations

- If you could potentially be exposed while at work, you are able to receive Hepatitis B vaccinations at no cost.
- If you are interested in receiving the vaccination series, please indicate this in the quiz at the end of this training and you will be provided with information on doing so.

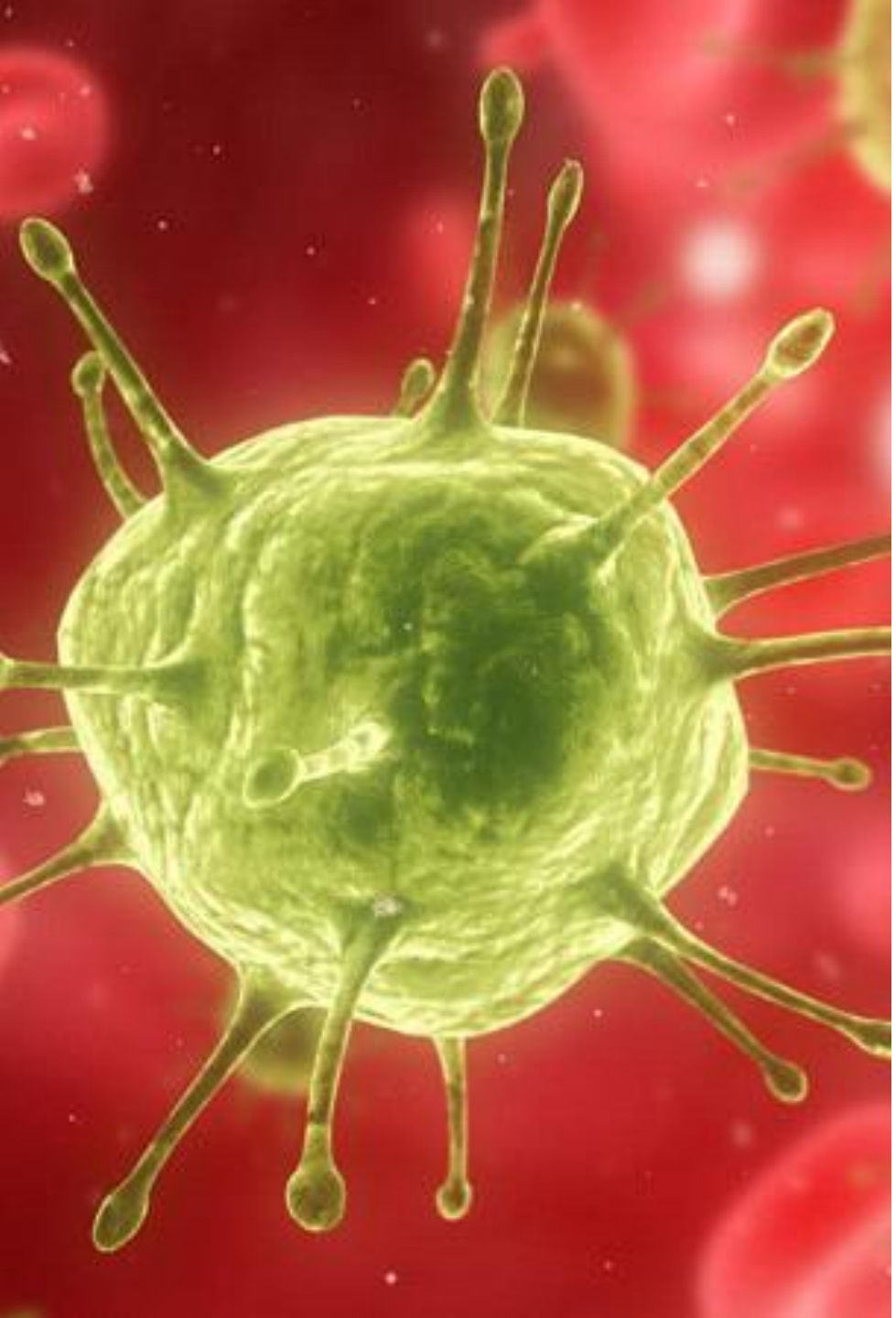
# Hepatitis B Treatments

Acute – May go away on its own, possibly no treatment is necessary

Doctors recommend rest, proper nutrition, and plenty of fluids.

Chronic – Antiviral medications can help fight the virus and slow its ability to damage the liver.

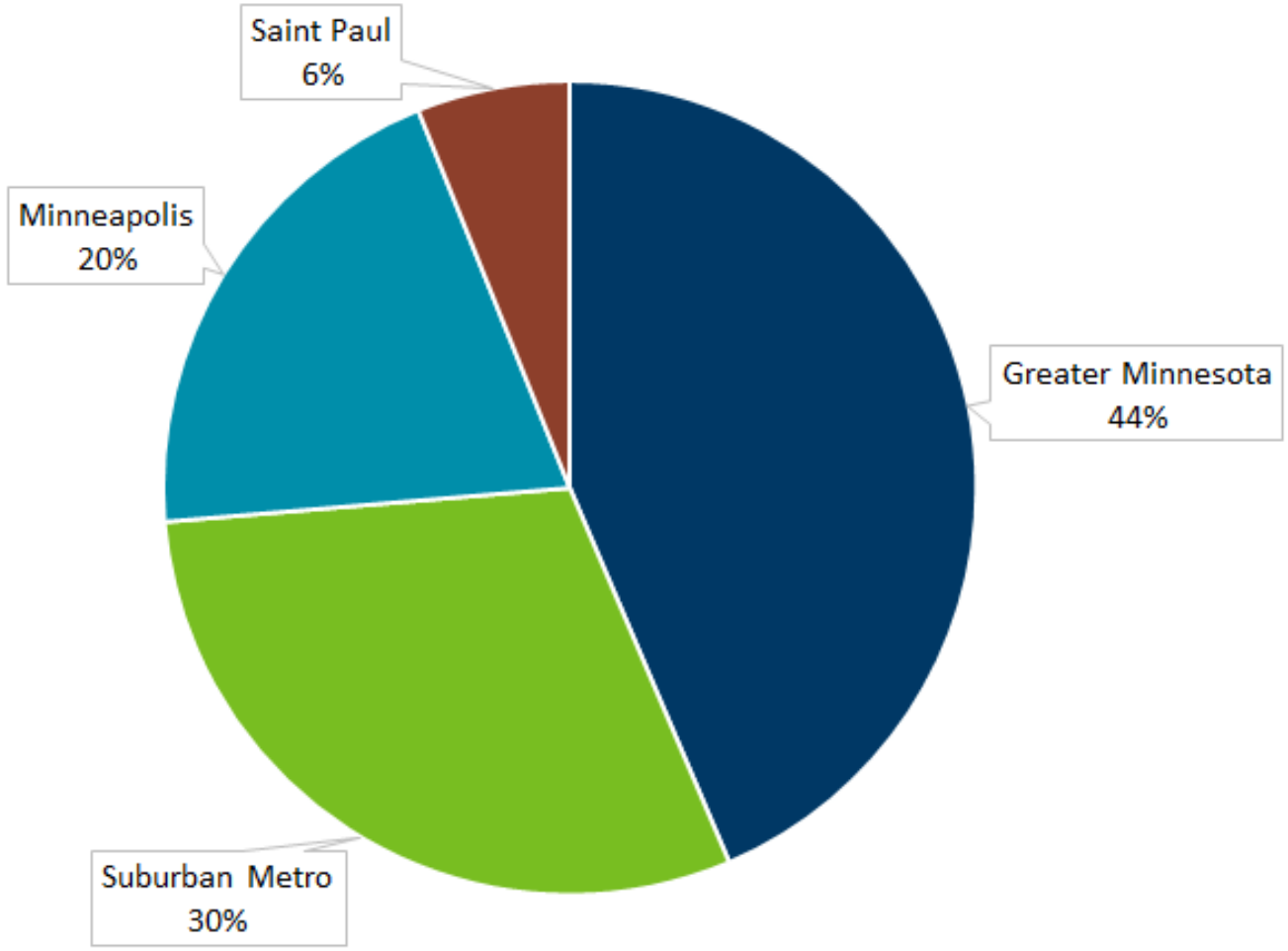
- Interferon alfa-2b (Intron A) is a man-made version of a substance produced by the body to fight infection (used for younger people to avoid long-term treatment).
- Liver transplant, to remove a damaged liver and replace it with a healthier one



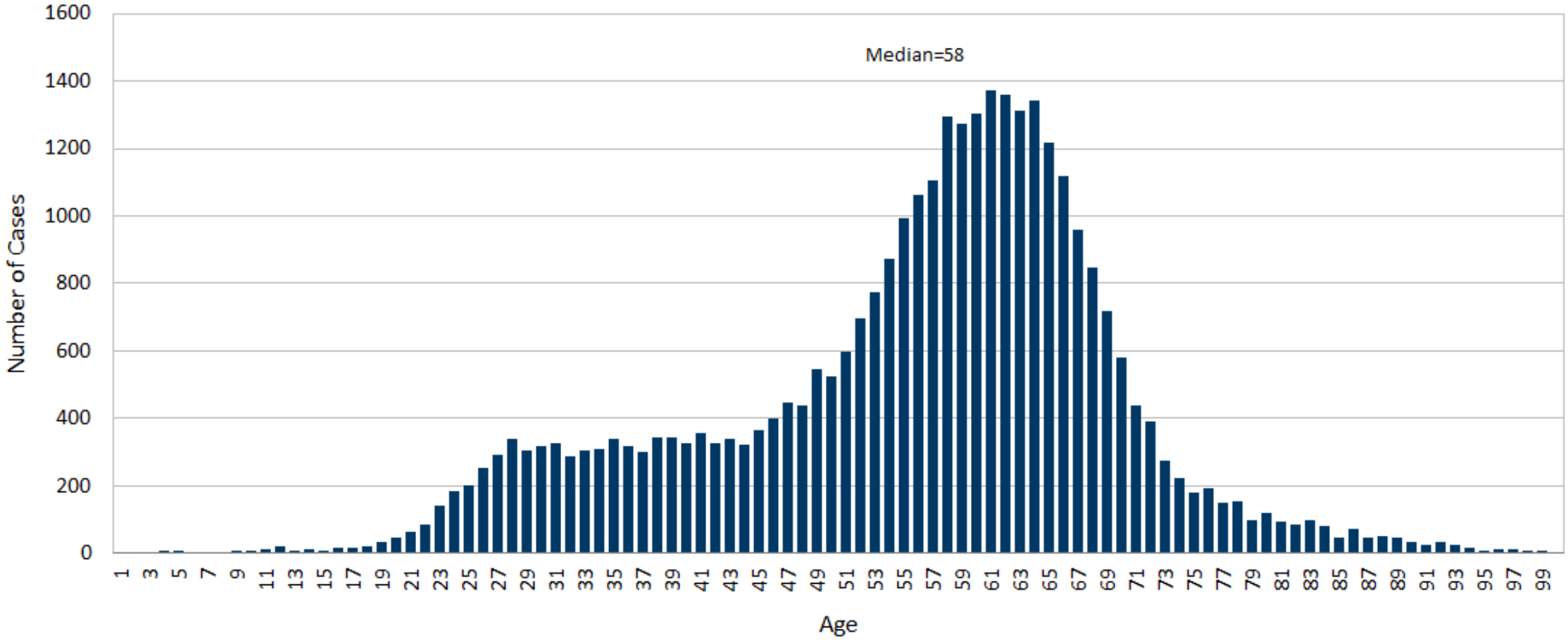
# Hepatitis C (HCV)

- Similar to Hepatitis B – inflammation of the liver
- Hepatitis C becomes a chronic illness in approximately 70-85% of infected people.
- An estimated 2.7 to 3.9 million people in the US have chronic Hepatitis C.
- There is currently no vaccination for Hepatitis C.
- There are a few medications available to help treat Hepatitis C.
- Of every 100 persons infected with HCV, approximately
  - 75-85 will go on to develop chronic infection
  - 60-70 will go on to develop chronic liver disease
  - 5-20 will go on to develop cirrhosis over a period of 20-30 years
  - 1-5 will die from the consequences of chronic infection
- As of Dec. 31, 2018, there were 33,856 persons who were reported to MDH and are assumed alive and living in Minnesota with HCV.

# Persons with Chronic HCV by Location, 2018



# Persons with Chronic HCV by Age, 2018



# Symptoms of Hepatitis C

## Acute infection

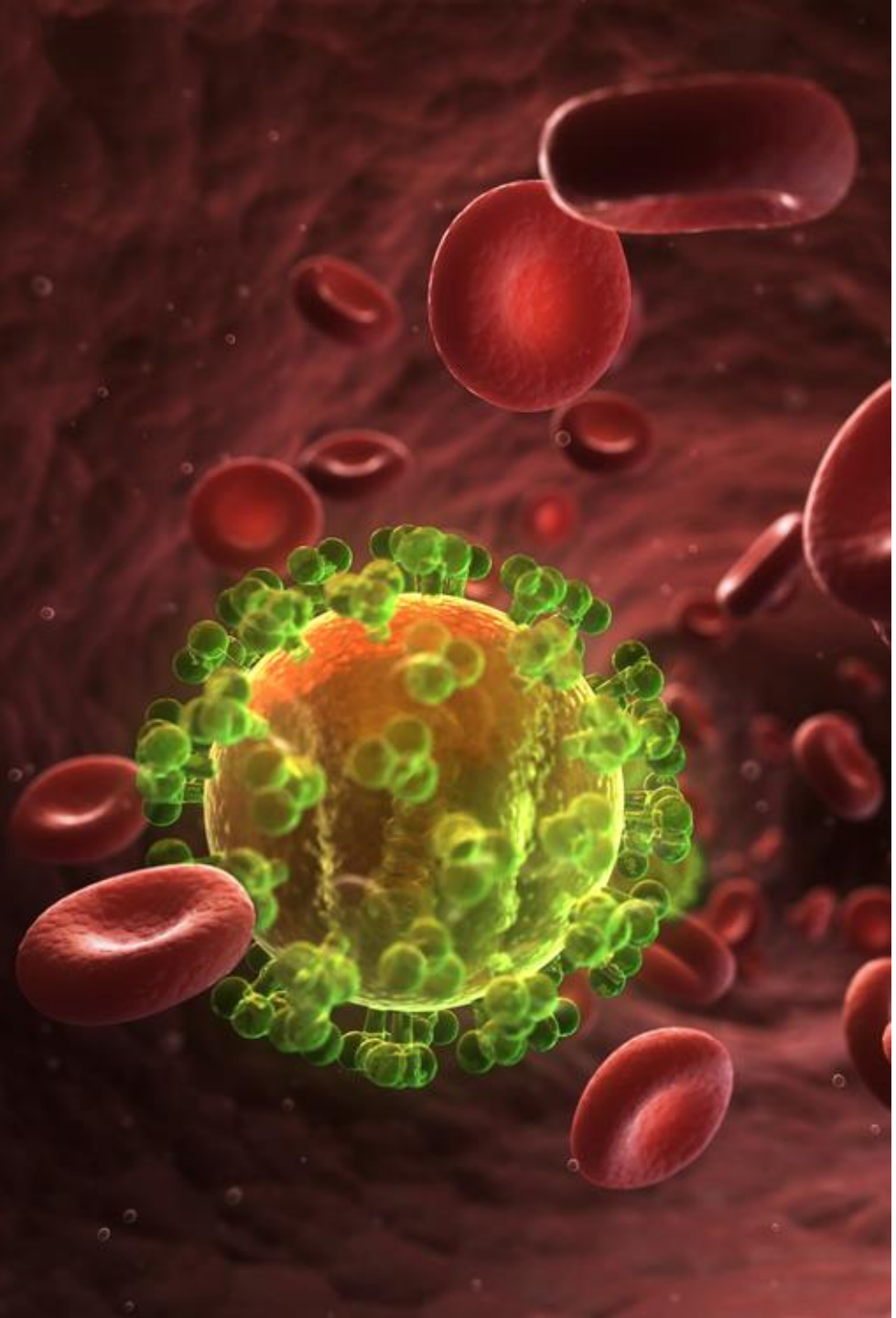
- Individuals may not have symptoms or experience only mild symptoms like:
  - Fever
  - Fatigue
  - Dark Urine
  - Clay-colored bowel movements
  - Abdominal pain
  - Loss of appetite
  - Nausea
  - Vomiting
  - Joint pain
  - Jaundice

## Chronic Infection

- Individuals may not have symptoms or have general symptoms of chronic fatigue and depression.

# Hepatitis C Treatment

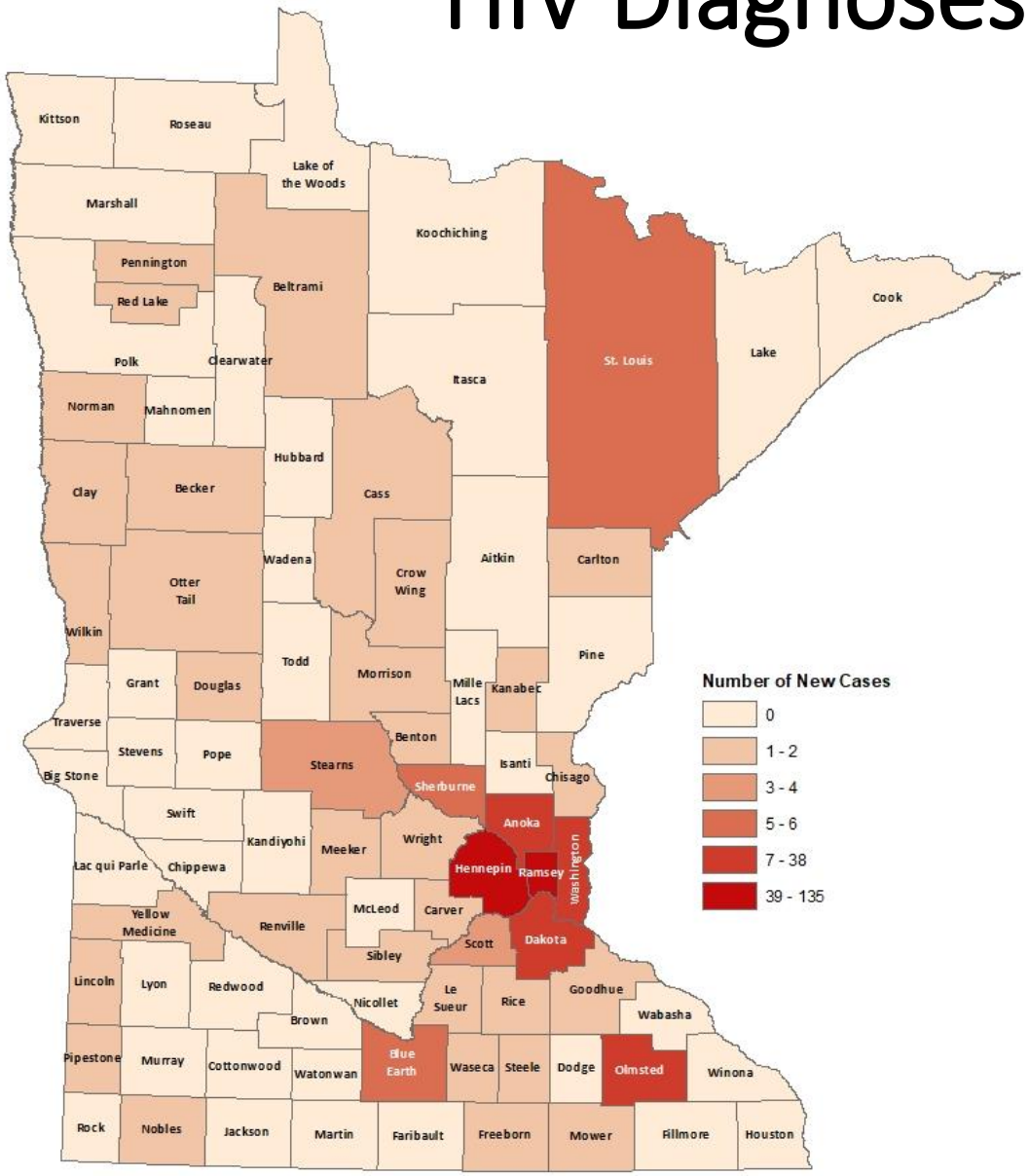
- Hepatitis C infection is treated with antiviral medications.
- The goal of treatment is to have zero Hepatitis C virus detected in the body at least 12 weeks after completed treatment.
- Due to significant advances in treatment, “direct-acting” antiviral medications can provide fewer side effects, better outcomes, and shorter treatment times – some as short as eight weeks.



# HIV/AIDS

- Human Immunodeficiency Virus
- Acquired Immunodeficiency Syndrome
- Over time, HIV attacks and weakens the immune system.
- This increases the chance for opportunistic infections.
  - This stage of the disease is classified as AIDS.
- There is no known cure for HIV or AIDS.
  - Medications can be used to slow progression of the disease.
  - People can typically live full lives.
- The CDC estimates 1.2 million Americans are living with HIV.
- As of December 31, 2018, 8,981 persons are assumed alive and living in Minnesota with HIV/AIDS.
- In 2018, there was a slight increase (2%) of new HIV diagnoses from 2017.

# HIV Diagnoses by County of Residence in 2018




| | |
|---|---|
| City of Minneapolis | 75 cases (26%) |
| City of St. Paul | 33 cases (11%) |
| Suburban* | 113 cases (40%) |
| Greater Minnesota | 65 cases (23%) |
| **Total** | **286 cases** |

# Symptoms of HIV

***Symptoms of HIV vary depending on the stage of the disease**

- **Early Stage**
  - 40%-90% of people experience flu-like symptoms
    - Fever
    - Chills
    - Rash
    - Night seats
    - Muscle aches
    - Sore throat
    - Fatigue
    - Swollen lymph nodes
    - Mouth ulcers
- **Clinical Latency Stage**
  - Individual experience no symptoms to mild ones
- **Progression to AIDS**
  - Rapid weight loss
  - Recurring fever or profuse night sweats
  - Extreme an unexplained tiredness
  - Prolonged swelling of the lymph glands
  - Diarrhea that lasts more than a week
  - Sores
  - Pneumonia
  - Memory loss, depress, and other neurologic disorders

# HIV Treatment

- Antiretroviral Therapy (ART) – different classes of drugs block the virus in different ways.  It is recommended to combine three drugs from two classes to avoid creating a drug-resistant strain of HIV.
- Different classes include:
  - Non-nucleoside reverse transcriptase inhibitors (NNRTIs)
  - Nucleoside or nucleotide reverse transcriptase inhibitors (NRTIs)
  - Protease inhibitors (PIs)
  - Entry or fusion inhibitors
  - Integrase inhibitors

# HIV Treatment

- Non-nucleoside reverse transcriptase inhibitors (NNRTIs)
  - Turn off a protein needed by HIV to make copies of itself
- Nucleoside or nucleotide reverse transcriptase inhibitors (NRTIs)
  - Are faulty versions of building blocks that HIV needs to make copies of itself
- Protease inhibitors (PIs)
  - Inactivate HIV protease, another protein that HIV needs to make copies of itself
- Entry or fusion inhibitors
  - Block HIV's entry into CD4 T cells
- Integrase inhibitors
  - Work by disabling a protein called integrase, which HIV uses to insert its genetic material into CD4 T cells

# Methods to Prevent or Reduce Exposure

- Administrative Controls
- Universal Precaution
- Engineering Controls
- Personal Protective Equipment (PPE)


# Methods to Prevent or Reduce Exposure


## Administrative Controls

- Risk assessments
- Vaccinations
- Training

## Sharps Precautions

- Place in appropriate disposal container
  - Do not overfill container
- Do not recap, bend, or brake needles
- Consider alternatives to sharps

# Methods to Prevent or Reduce Exposure

## Personal Protective Equipment

- Whenever this is risk of exposure to infectious materials, PPE must be worn.
- PPE must be readily accessible.

## Engineering Controls

- Concept of managing materials to reduce or eliminate potential exposures
- Examples: Sharps Disposal Containers and Hand Hygiene
- Hand Hygiene
  - Must wash hands with soap and water:
    - Immediately after removal of gloves
    - Whenever leave the work area, go on break or before eating
    - Following contact with blood or other potentially  infectious materials

# Universal Precautions

1. **Treat all blood and blood products as if it is infected.**
2. Always wear gloves when handling injuries, blood and/or blood products
3. If possible, allow victims to provide self-care.

# Personal Protective Equipment

The following are examples of PPE that can be worn while cleaning spills:

- **Gloves**
- Apron
- Eye protection
- Paper face mask
- CPR mask
- Face shield
- Booties

For any other PPE you may need, talk to your supervisor.

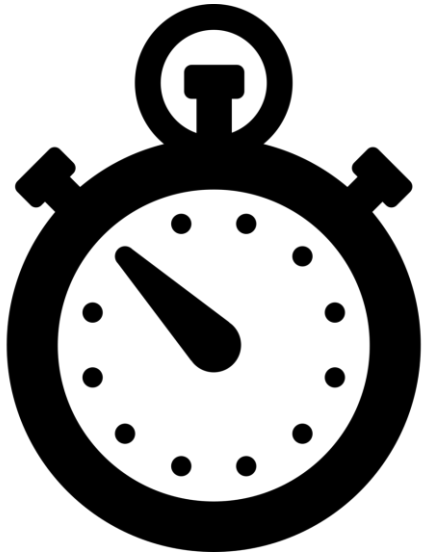
# Personal Protective Equipment

- Gloves
  - Made of latex, nitrile or rubber
  - Cover any sores or cuts with bandages before donning gloves
  - Inspect gloves for tears or punctures – DO NOT use a damaged glove.
  - Take gloves off carefully. DO NOT touch any bare skin.
  - Dispose of properly
- Goggles
  - Should be worn if there is a risk or splashing or vaporization of the contaminated fluids
- Face Shield
  - Worn, in addition to goggles, to provide additional face protection for the nose and mouth
- Aprons
  - Worn to protect clothing and fluids from soaking through to skin

# What to do if an exposure occurs?

- Wash exposed area with soap and water
- Irrigate eyes with water, if necessary
- Report the exposure to your supervisor and fill out 1st Report of Injury form
- Contact the Director of Health Services and fill out the post-exposure packet

# Cleaning Procedures



- **Use gloves**
- **Use disposable towels to absorb spill**
- **Clean spill area with soap and water**
- **Use proper disinfectant**
  - The surface not only needs to appear clean, but also needs to be free of bacteria to stop the spread of germs and possible bloodborne pathogens!
  - Note the amount of time that the chemical needs to remain wet on the surface to properly disinfect. Dwell times are different for each chemical, so it is important to note what the dwell time is for the chemical that you use!
- **Dispose of waste in proper container**

# Decontamination

All surfaces, tools and equipment that come in contact with blood or potentially infectious materials, must be decontaminated and sterilized.

Use an EPA-registered commercial disinfectant (i.e. virucide that can kill bloodborne pathogens).

For decontamination of tools and PPE, place in a bucket to disinfect for the required kill time.

# Regulated Biohazardous Waste

- Contaminated items that would release blood or other potentially infectious material, in a liquid or semi-liquid state, if compressed
- Contaminated sharps
- Any liquid or semi-liquid blood or other potentially infectious material
- Items caked with dried blood and are capable of releasing during handling

**The regulated wastes listed above must be disposed of in a biohazard bag.**

  - Bag must be red or orange-red with the biohazard symbols visible.

- Always double bag!

# Record Keeping

- Medical Records & Exposure Incident Records
  - Duration of employment + 30 years
- Sharps Log
  - Five years beyond completion of that calendar year
- Training Records
  - Three years

# BBP Exposure Contacts

**Bloodborne Pathogen Program Administrator:**

Zach Hill, Director of Risk Mgmt, Security, & Safety

**Exposure Control Officer:**

Liz Miller, Director of Health Services

# Questions?

Jens Erickson, EHS Manager

jens-erickson@bethel.edu

763-315-7900

***Please click on the following link to be taken to a quiz on the training information. This will also serve as a record that you have completed the training this year. Thank you!***

**https://forms.gle/dJACtUYoT9bxfYYk6**