Clean needle techniques
Prevention of infectious diseases
Instructor: Yuxia Qiu
The immune response to pathogens

• **Natural barriers:**
  Intact skin
  mucous membranes of nose, throat, urethra and rectum
  Stomach acid
  Healthy cells of the nose and lungs
  Normal mucus and saliva

• **Potential sources of infectious disease in an acupuncture office:**
  Hands, blood, saliva and other bodily secretions, dust, clothing and hair

• **Autogenous infections**
  Infections caused by pathogens that the patient is already carrying

• **Cross-Infections**
  Infections caused by pathogens acquired from another person or by the environment.
Blood borne pathogen

• Blood borne pathogen are microorganisms that are carried in blood (and other body fluids) that can cause disease in humans.

• Common blood borne pathogen diseases
  – Hepatitis B (HBV)
  – Hepatitis C (HCV)
  – Human immunodeficiency disease (HIV)
Blood borne pathogens may be present in:

- Blood
- Body fluids containing visible blood
- Semen and vaginal secretions
- Torn or loose skin
• Blood borne pathogens can cause infection by entering the body through:
  – Non-intact skin: open cuts and nicks; skin abrasions, dermatitis, acne, etc
  – Mucous membranes of the mouth, eyes, nose, urethra, rectum, etc.

• Transmission potential
  – Contact with another person’s blood or other contaminated body fluid
  – Needle stick with contaminated needles
## Comparison of Hepatitis A, B, C, D, and E

<table>
<thead>
<tr>
<th>Hepatitis</th>
<th>Incubation</th>
<th>Transmission</th>
<th>Onset</th>
<th>manifestations</th>
<th>Chronic</th>
<th>Vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15-50 days</td>
<td>Fecal-oral</td>
<td>Abrupt</td>
<td>Abdominal discomfort, loss of appetite, fatigue, nausea, dark urine and jaundice</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>50-180 days</td>
<td>Bloodborne;</td>
<td>Insidious</td>
<td>Begin with mild flu-like signs and symptoms such as fever, general malaise, or</td>
<td>5-10%</td>
<td>Yes</td>
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<tr>
<td></td>
<td></td>
<td>HBV can survive for at least one week in dried blood</td>
<td></td>
<td>insidious onset of anorexia and abdominal pain. Also chills, nausea, joint pains, rash and diarrhea. Last 2-6 weeks. Followed by extreme fatigue and depression for several months</td>
<td>70% who have recovered are still infectious for three months or more</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>20-90 days</td>
<td>Bloodborne</td>
<td>Insidious</td>
<td>Anorexia, nausea, vomiting, and jaundice</td>
<td>50%</td>
<td>No</td>
</tr>
<tr>
<td>D</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Requires concurrent HBV infection</td>
<td>Unknown</td>
<td>No</td>
</tr>
<tr>
<td>E</td>
<td>15-60 days</td>
<td>Fecal-oral</td>
<td>Abrupt</td>
<td>Fever, malaise, nausea, anorexia, jaundice</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
HIV: Human Immunodeficiency Virus

• Transmission:
  – Blood borne pathogen
    blood, semen, vaginal secretions, etc.
  – Note: Non-risk casual contact include shaking hands, touching, hugging, holding hands, casual kissing, etc.

• Individual at risk of infection with HIV
  – Homosexuals, IV drug users, sex workers, and transfusion recipients
  – Unsafe sex between partners of different sexes, and transplacental transmission
  – Health care workers that has a high risk of blood exposure
• Incubation period: 2-15 years

• Infection process:
  – Initial infection:
    • within 2-4 weeks: febrile illness resembling mononucleosis or influenza, resolves spontaneously
    • Some people asymptomatic.
  – Common symptoms:
    • Fever, malaise, body aches, maculopapular rash, lymphadenopathy, and headache
    • Also persistent fever and night sweats; rapid, unexplained loss of weight; unexplained chronic diarrhea; persistent cough; flat or raised pigmented skin lesion
– Clinical presentations of AIDS
  • HIV wasting disease: severe, involuntary weight loss, chronic diarrhea, constant or intermittent weakness, fever for 30 days or longer.
  • HIV encephalopathy, myelopathy, peripheral neuropathy, dementia with symptoms ranging from apathy and depression to memory loss and motor dysfunction and death.

– Opportunistic infections and neoplastic disorders:
  • Candidiasis
  • Cytomegalovirus
  • Kaposi’s sarcoma
  • Pneumocystis carinii pneumonia---the most common opportunistic infection and cause of death in AIDS patients.

– Secondary infections:
  • Tuberculosis
  • Staphylococcus
  • Herpes
  • hepatitis
Protection

• Most typical mode of transmission in the health care workplace:
  – Percutaneous exposure that occurs from contaminated instruments (mostly from needlesticks)
  – Contact of contaminated blood with non-intact skin

• It is critical to use universal precautions with every patients.

• Universal precautions:
  – Treat all blood and bodily fluids as if they are contaminated, handle all patients as if they were potentially infectious
  – Handwashing
  – The use of PPE to prevent contact with infected body fluids: gloves, masks, gown, goggles, etc.
  – Standard sterilization and disinfection measures as well as infectious waste disposal precautions
Personal Protective Equipment

- Anything that is used to protect a person from exposure
  - Lab coat
  - Latex or nitrile gloves
  - Face shields
  - CPR mouth barriers
  - Goggles, Aprons, etc
- PPE rules to follow
  - Always wear PPE in exposure situations
  - Always check PPE for defects or tears before using
  - Remove and Replace PPE that is torn or defective
  - Remove PPE before leaving a contaminated area
  - Do not reuse disposable equipment
  - PPE should be removed and disposed of in biohazard containers
  - Wash hands immediately after removing PPE
Recommended Testing of HCWs for TB, HBV, HCV and HIV

- Yearly physical that includes testing for TB (PPD type)
- Practitioners who work in an inner city clinic, with AIDS patients or drug addicts, have a PPD test every 6 months.
- HCWs who perform exposure-prone procedures should know their HBV or HIV antibody status.
- HCWs who are infected with HIV or HBV should not perform exposure-prone procedures unless they have received counseling from an expert review panel regarding the circumstances under which they may continue to perform these procedures.
- Infected HCWs should notify prospective patient of their seropositive status before undertaking exposure-prone invasive procedures.