# Webcast Wednesday: Hepatitis A Identification and Treatment

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# Goals and Objectives

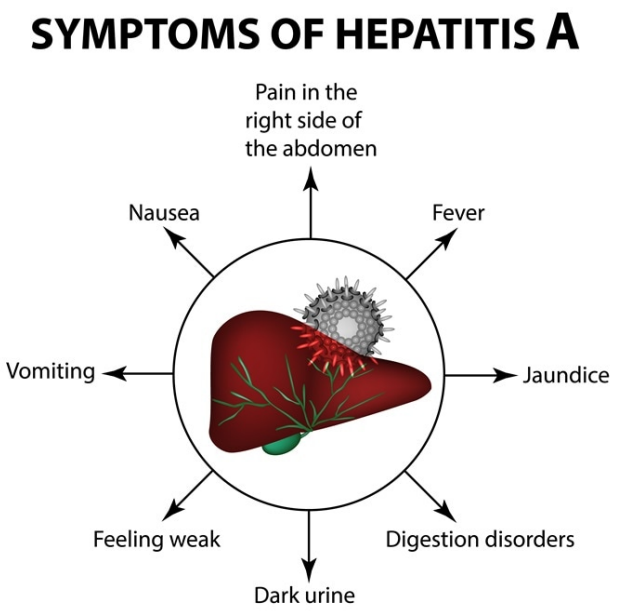
1. Discuss Hepatitis A modes of transmission and recent outbreaks
2. Review methods for diagnosing Hepatitis A and when to test for acute Hepatitis A infection
3. Explore questions surrounding Hepatitis A vaccination, including who to vaccinate, vaccine efficacy, and program implementation to enhance access to vaccination
4. Describe indications for post-exposure prophylaxis

# Transmission

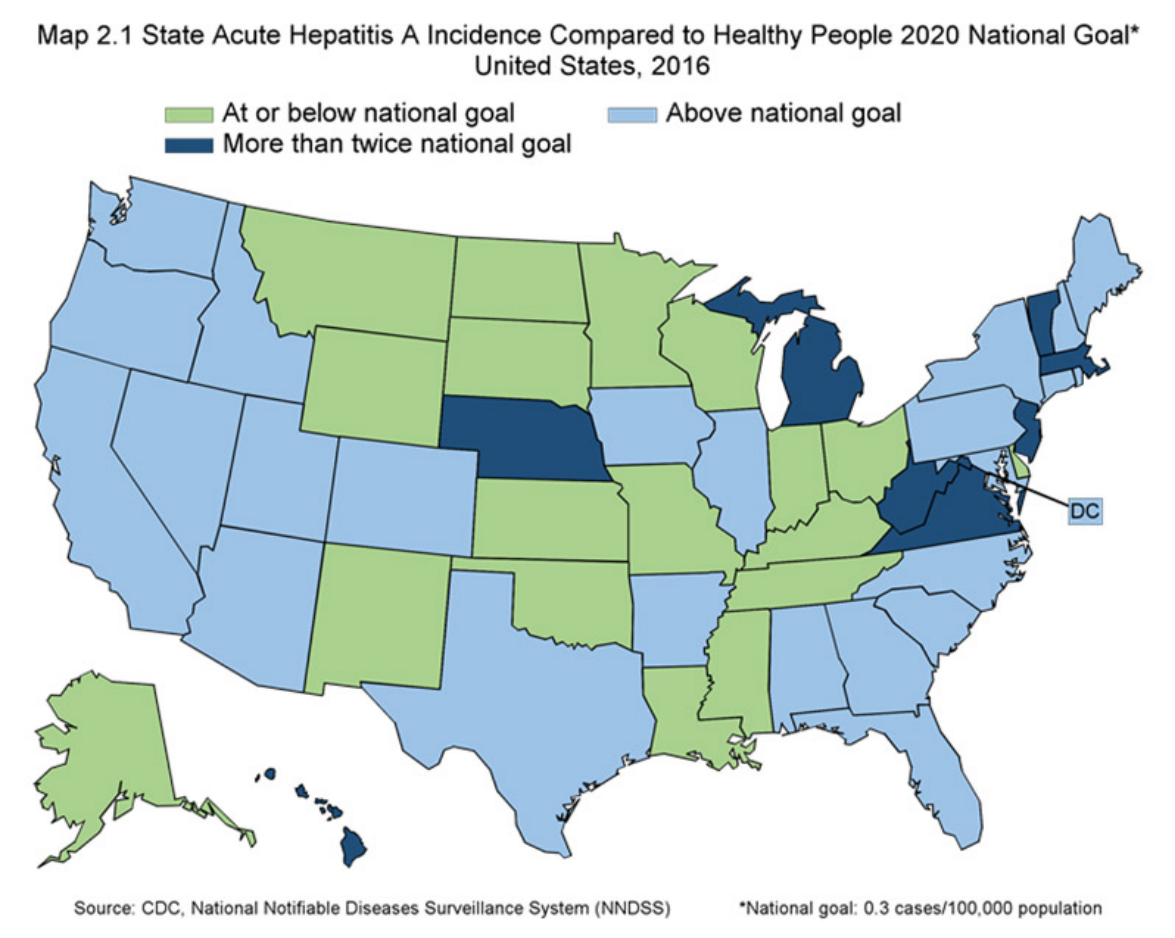
- Transmission is fecal-oral
  - Generally spread through contaminated food
  - Can also be spread through
    - Contaminated water
    - Person-to-person contact
    - Illicit drug use
    - Sexual contact (men who have sex with men at highest risk)
- No identified risk factor in 55% of patients

# Incubation and Presentation

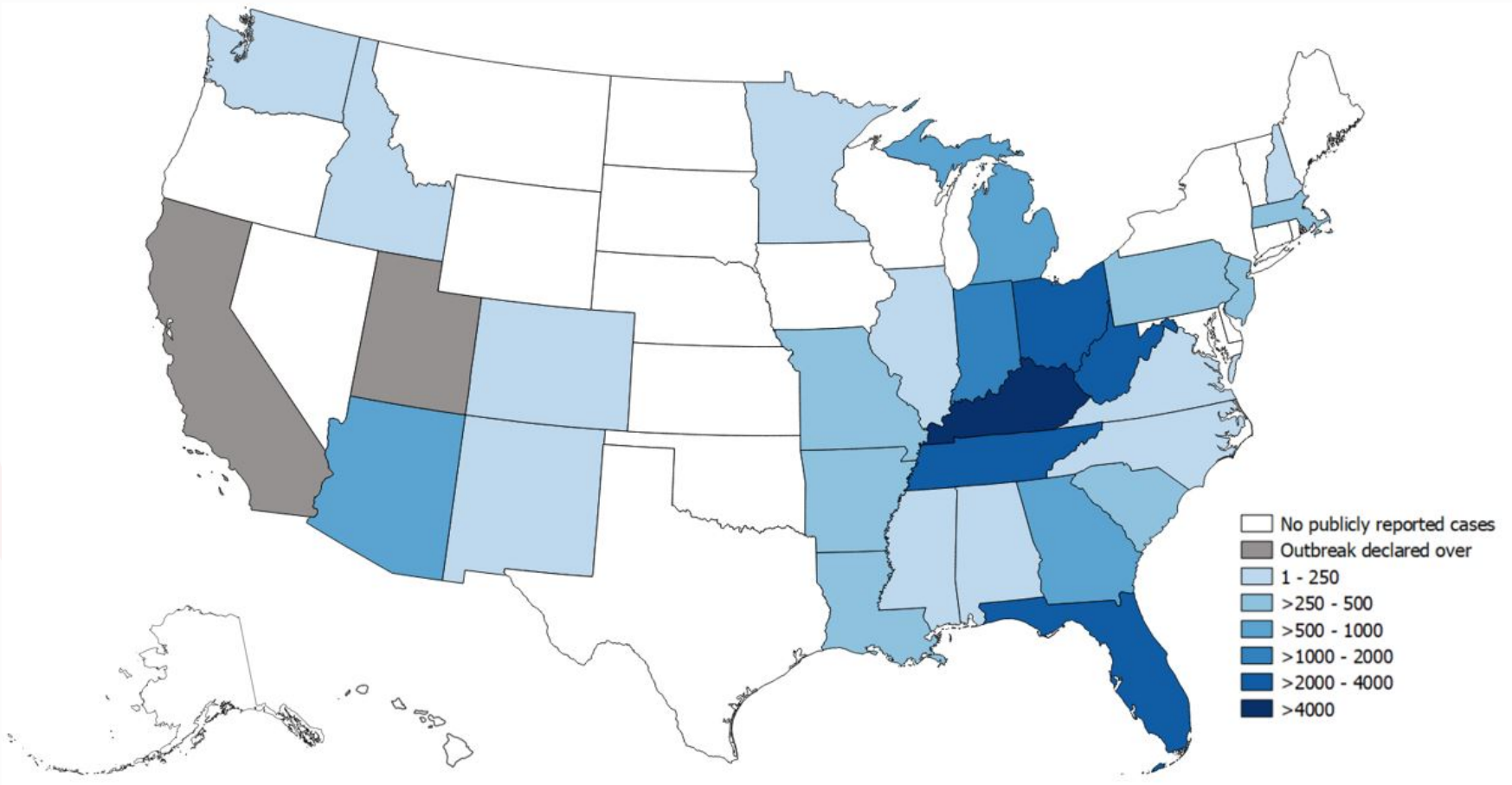
- Time from exposure to symptoms ~ 28 days
  - Range 15 – 50 days
- Symptoms
  - Nausea/vomiting/weight loss
  - Jaundice (>70%)/Dark urine
  - Diarrhea/abdominal pain
  - Fever
- Asymptomatic infection does occur
  - More common in children



# Hepatitis A Prior to 2016



# Hepatitis A Outbreaks since 2016

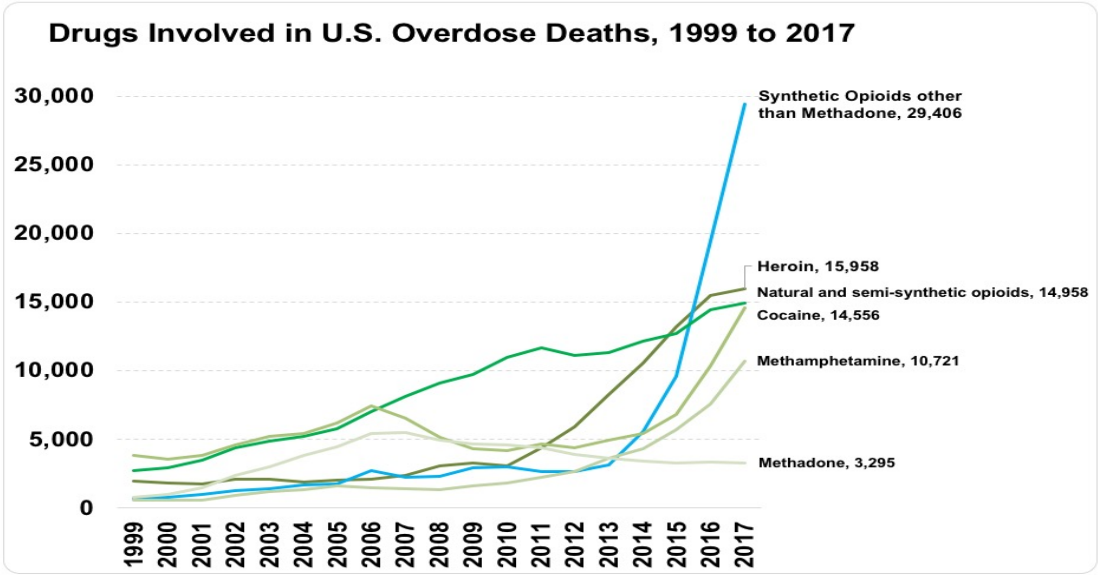


# Outbreak Data

- Since 2016
  - 29 states affected
  - Two states (California and Utah) declared an end to outbreak
  - 24,280 infections
    - 236 deaths
    - 60% of patients hospitalized
    - Tennessee: 2257; West VA: 2540; Ohio: 3244; Kentucky: 4837
    - Higher rates of morbidity and mortality
      - Co-existent liver disease
      - Older age at time of infection

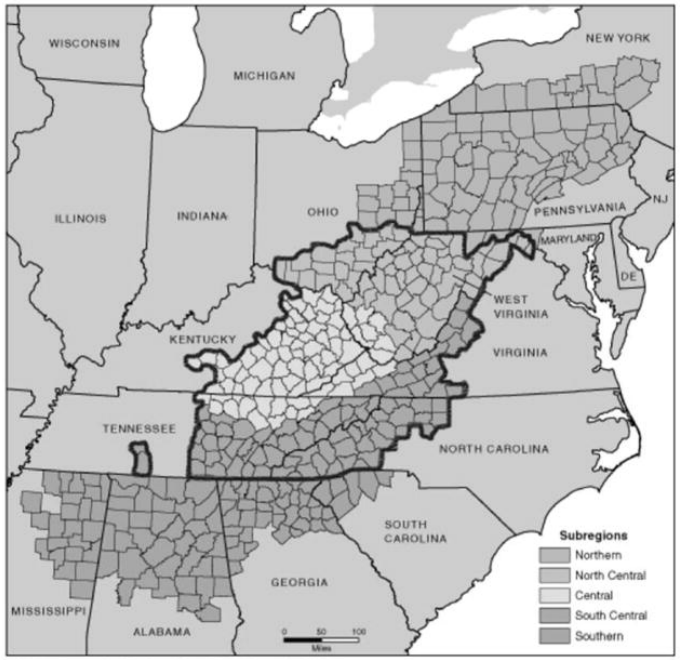
# A 9/11 Every 2.5 Weeks

- Decline in US life expectancy every year since 2016



# Central Appalachia

- Disproportionally effected by Hepatitis A outbreaks
  - Tied strongly to illicit drug use
  - Lack of access to health care
    - Specialized training
  - Generation-spanning effects of the opioid epidemic
    - Highest rates of overdose death
    - Prior OxyContin prescribing rates five times higher than nat'l average in some counties



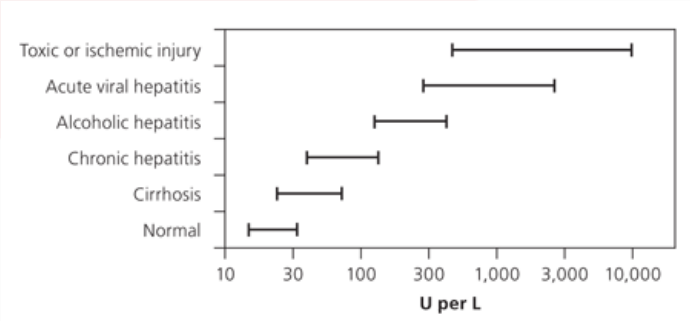
Map by: Appalachian Regional Commission, November 2009.

# Populations at Highest Risk

- People who use drugs
  - Both injection and non-injection drugs
- Unstable housing/homelessness
- Men who have sex with men
- Current/recent incarceration

# Hepatitis A Identification

- Symptom presentation could indicate broad possible diagnoses
  - GI symptoms, fever, jaundice, elevated AST/ALT
  - Risk factors
    - Increase degree of suspicion
    - Neither necessary nor sufficient
  - ALT range generally 500 – 5000, ALT > AST



# Hepatitis A serologies

- Diagnosis made by detection of IgM anti-HAV
  - Sensitivity/specificity 95%
  - Active viral shedding in stool generally occurs while patients are IgM positive
    - Short period of shedding prior to symptoms
- Total anti-HAV
  - Remains positive lifetime
  - Utility: distinguishing prior exposure if unvaccinated

# Prognosis

- Complications are rare but more common in recent outbreaks
  - Fulminant hepatitis (acute liver failure) < 1%
    - More common in Hepatitis B or C co-infection, pregnancy, older age
  - Extrahepatic complications
    - Rare
    - Include vasculitis, reactive arthritis, acute pancreatitis, GBS, AIHA
  - Relapse
    - Can occur up to six months from initial infection
    - Patients are infective during this time
    - Will not progress to chronic infection
  - 85% of patients recover clinically and biochemically in three months

# Fulminant Hepatitis/Acute Liver Failure

- Diagnosis based on
  - Elevated aminotransferases
  - Hepatic encephalopathy
  - INR $\geq$ 1.5
- Continued bilirubin rise also concerning
- If at/advancing towards liver failure, transfer to center capable of transplant

# Management

- Uncomplicated Hepatitis A
  - Lab monitoring with CBC/CMP/INR
    - Frequency guided by degree of illness
    - Not hospitalized: every 1-3 days until labs show consistent improvement (Opinion!)
  - Supportive care
    - Rest, maintenance of hydration
    - Avoid hepatotoxic agents
    - Advance diet as tolerated

# Post-Exposure Protection

- Who warrants post-exposure prophylaxis
  - Household contacts
  - Sexual contacts
  - Sharing of illicit drugs
  - Child care contacts if
    - One or more cases diagnosed
    - Two or more household contacts of child care center diagnosed
    - Care for children in diapers: all unvaccinated staff
    - Not in diapers: only classroom contacts
  - Food handlers in the same establishment

# Post-Exposure Measures

- Healthy, over 12 months: HAV vaccine
  - Consider adding immune globulin in patients over 40
    - Lower likelihood of vaccine response, higher likelihood of complications
- Immune compromised or chronic liver disease, over 12 months: HAV vaccine and immune globulin
- Less than 12 months or allergic to vaccine: immune globulin

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- Second vaccine recommended for long-term prevention but not needed for post-exposure prevention

# Pre-Exposure Vaccination

- 1995-96: approval of vaccines
  - Initial recommendation to vaccinate in higher risk communities
- 2005
  - Majority of cases in areas considered low risk
  - Led to 2006 CDC recommendation to vaccinate all children starting at 12-23 months
  - Two vaccines given at least six months apart
    - Twinrix (Hepatitis A/B combination vaccine) not approved for patients under 18

# Vaccinations After Childhood

- Illicit drug use
- Men who have sex with men
- Chronic liver disease
- Clotting factor disorders
- HAV research lab employees or who work with HAV-infected primates
- Homeless and older than 1
- Direct contact (described earlier)
- Household contact/babysitting of an individual from intermediate/high rate of HAV endemicity
- Desire for protection

# Endemicity

- High endemicity regions (parts of southeast Asia and Africa) lead to very low prevalence rates of susceptible adolescents/adults
- Intermediate endemicity (middle income regions in Middle East, Latin America, Asia) -> lower likelihood of childhood exposure -> higher population of susceptible adolescents/adults

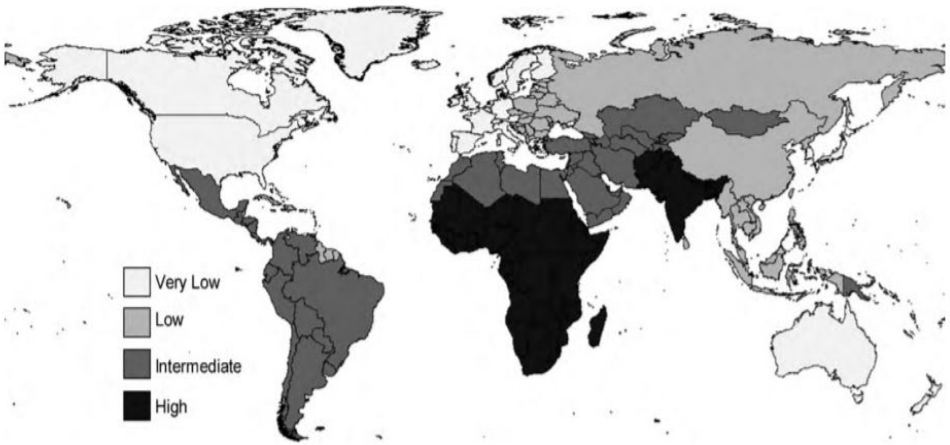


**Fig. 1.** Estimated prevalence of hepatitis A virus, 2005.

# Role of Hepatitis A Antibody Testing

- Response rates to vaccines are universally high and durable
  - Possible decreased response rates in patients with HIV or chronic liver disease
- Hepatitis A Antibody testing not needed to confirm response
  - No known benefit of re-vaccination

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- Antibody testing prior to vaccination
  - May be cost effective in areas of intermediate/high endemicity where likelihood of exposure higher

# Conclusions

- Hepatitis A outbreaks have increased throughout the US in recent years
- There is a strong association between these outbreaks and illicit drug use, with foci in the Central Appalachian region
- Vaccinating individuals at risk may help mitigate current outbreaks and reduce likelihood of future outbreaks
- Post-exposure prophylaxis with either Hepatitis A vaccination or immune globulin can help to lower rate of Hepatitis A transmission in communities experiencing outbreaks

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