Hepatitis A Virus
Hepatitis A Virus (HAV)

- causes the illness hepatitis A, also known as type A viral hepatitis
- occurs sporadically and epidemically worldwide
- levels of endemicity related to the hygienic and sanitary conditions of geographic areas
- where environmental sanitation is poor (i.e. developing countries) infection is common and occurs at an early age
  - disease is most-common among school-age children and young adults
  - epidemics are uncommon due to adult immunity
- epidemics occur in industrialized countries where they generally evolve slowly, cover wide geographic areas, and last many months
  - common source epidemics may evolve rapidly
- there are an estimated 1,399,000 new cases each year
The Virus

- classified with the enterovirus group of the Picornaviridae family
  - includes other disease causing viruses such as polioviruses, coxsackieviruses, echoviruses, and rhinoviruses (cold viruses)
- a single molecule of RNA surrounded by a small (27 nm diameter) protein capsid
- resistant to denaturation by ether, acid (pH 3.0), drying, and temperatures as high as 56°C and as low as -20°C

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Reservoir/Sources

- the principal reservoir is humans
  - excreted in feces of infected people
  - reaches peak levels in feces the week or two before onset of symptoms and diminishes rapidly after symptoms appear
- rarely chimpanzees and other primates
Mode of Transmission

- person-to-person by the fecal-oral route
- common-source outbreaks
  - contaminated water
  - food contaminated by infected food handlers
    - Includes foods not cooked or handled after cooking
  - raw or undercooked mollusks
    - harvested from contaminated waters
  - contaminated produce
- infectious dose is unknown, but is thought to be as little as 10-100 virus particles
Signs and Symptoms

- usually a mild illness characterized by sudden onset of:
  - fever
  - malaise
  - nausea
  - anorexia
  - abdominal discomfort
- followed in several days by jaundice
- varies in clinical severity from a mild illness lasting 1 – 2 weeks to a severely disabling disease lasting several months
- prolonged, relapsing hepatitis for up to 1 year occurs in 15% of cases

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Incubation Period

- average 28 – 30 days
- range 15 – 50 days

- maximum infectivity occurs during the latter half of incubation and continues for a few days after onset of jaundice
- asymptomatic infections can still shed the virus
Diagnosis and Treatment

- Diagnosis is based on serologic testing for IgM antibody to HAV
- There is no specific treatment for infection with HAV
- Most people only require treatment to relieve symptoms
- Immune globulin (contains anti-bodies)
  - Given as a shot
  - Provides short-term protection
    - Approximately 3 months
  - Can be given before exposure to HAV
    - Such as before travel to a country where hepatitis A is common
  - Can be given after exposure to HAV to prevent infection
    - Must be given within 2 weeks after exposure

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Prevention

- Vaccines can prevent infection with HAV
  - There are 4 inactivated vaccines available
  - Vaccines are given parenterally
    - Two-dose series
    - 6-18 months apart
  - The duration of protection is likely to be at least 20 years, and possibly lifelong
  - Vaccine may be administered concurrently with other vaccines without affecting efficacy
  - Recommended for all children, for travelers to countries where HAV infection is endemic, and for people at high risk for infection
Prevention

- wash your hands carefully with soap and warm water several times a day
  - after using the bathroom
  - after changing a diaper
  - before and after preparing food
- do not eat raw or undercooked seafood or shellfish from areas of questionable sanitation
- travelers to developing countries should not drink untreated water or beverages with ice in them
- fruits and vegetables should not be eaten unless cooked or peeled