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CDC provides advice on recent hepatitis A outbreaks

Although rates of hepatitis A virus infection have steadily declined since 1995, recent spikes in community outbreaks compel a renewed effort in adult immunization.

The epidemiology of hepatitis A virus (HAV) disease has changed. Since July 2016, there have been 5 large outbreaks of infection involving more than 1600 cases,[1] with affected states requiring assistance from the Centers for Disease Control and Prevention (CDC). Two of these outbreaks were foodborne, and 3 involved person-to-person transmission.[1]

Before 2016, the number of outbreaks had been very low, and were predominantly associated with contaminated food, infected food handlers, and other food service-related exposures. Total annual cases of HAV infection had been declining steadily in all age groups since 1995 when HAV vaccine became available, from an estimated 271,000 cases resulting in 100 deaths[2] to an estimated 2800 cases (with 1390 reported) resulting in 67 deaths in 2015 (**FIGURE**).[3]

Extent of the outbreaks

The largest hepatitis A outbreak involving person-to-person transmission in the United States in the past 20 years is occurring now in California. Predominantly affected are the homeless and users of illicit drugs, whose risk of infection is compounded by exposure to fecally-contaminated environments. As of December 1, the largest number of cases were recorded in San Diego (567), Santa Cruz (76), and Los Angeles (11).[4] Adding 18 cases from other locations, the total has reached 672, resulting in 430 hospitalizations (64%) and 21 deaths (3%).[4] In San Diego, 20% of those infected also had chronic hepatitis C and 5% had chronic hepatitis B.[1]

In southeastern Michigan, 555 cases have been reported, with 457 hospitalizations (82%) and 20 deaths (4%).[5] In Utah, 91 cases and 53 hospitalizations (58%) have been documented.[6] In these regions, the predominant risk factors have been homelessness and illicit drug use. And many of those infected have had chronic hepatitis C (27.5%), hepatitis B (13.2%), or both (9.9%).[6] In 2 of the 3 states just described, the outbreaks have involved HAV genotype 1B.[1]

In New York City, an outbreak starting in January 2017 resulted in 51 cases. The epidemiology of this outbreak has been different from the others, involving men who have sex with men (MSM) and the HAV genotype 1A that matches a strain circulating among MSM in Europe.[7]

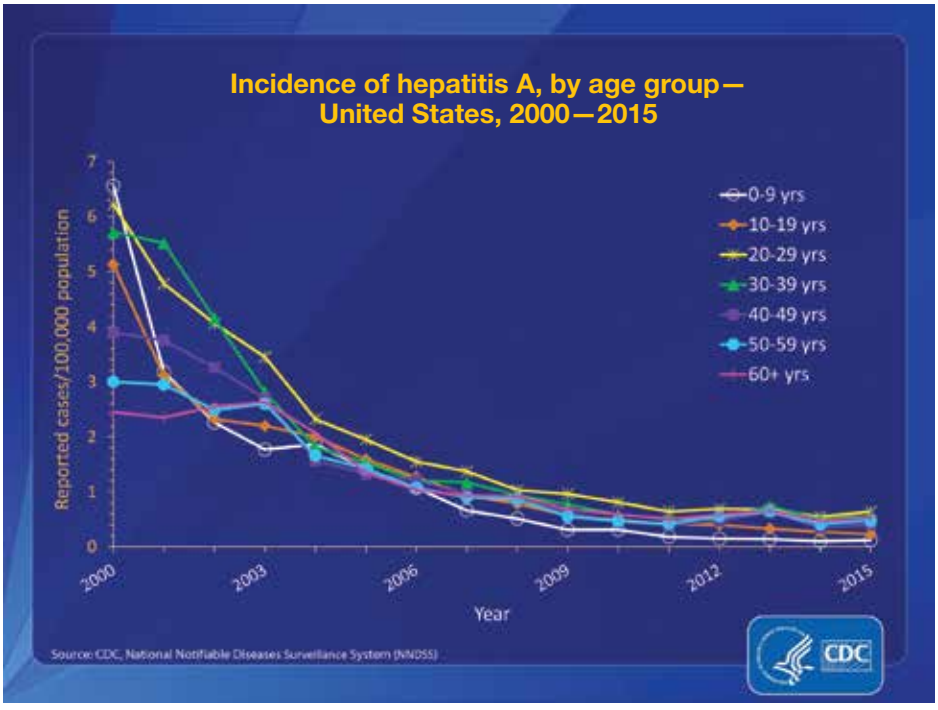
Low adult immunity is behind the outbreaks

These outbreaks have occurred in an adult US population that has low levels of immunity to HAV. In 2012 only 12.2% of adults ages 19 to 49 years had received 2 doses of HAV vaccine[8] and only 24.2% of adults had antibodies to HAV,[9] showing that most adults had never been infected with the virus or vaccinated. The reduction in HAV incidence previously described is due to the introduction of targeted, and then universal, child HAV vaccination recommendations by the Advisory Committee on Immunization Practices.

As the incidence of HAV disease declined, fewer individuals became infected as children, leading later to a susceptible pool of adults who had not been infected as children and who did not receive the vaccine in adulthood. Most of these adults will not be exposed to HAV due to decreased rates of infection in children, which, historically, has been the predominant means of adult exposure. The high hospitalization and death rates encountered in the recent and ongoing large outbreaks are explained by the multiple comorbidities of those infected.

FIGURE

Rates of hepatitis A infection have declined steadily in all age groups[3]



Who should be vaccinated against HAV

The CDC recommends giving HAV vaccine to all children at age one year, and to the following groups:[2,10,11]

- residents of a community that has a high rate of hepatitis A infection
- household members or other close personal contacts (eg, regular babysitters) of adopted children newly arrived from countries with high or intermediate hepatitis A endemicity
- men who have sex with other men
- users of illicit injection and noninjection drugs
- workers in, or travelers to, countries with high rates of hepatitis A infection
- individuals with chronic liver disease
- individuals who work with HAV-infected animals or with HAV in a research setting.

Outbreak-specific vaccine recommendations

The CDC has additionally recommended that, during outbreaks, health care providers should consider taking the following 4 steps:[12,13]

1. Increase the availability of HAV vaccine to the homeless and to those who use illicit drugs; to anyone who has ongoing, close contact with people who are homeless or who use injection and non-injection drugs; and as post-exposure prophylaxis for unvaccinated people who have been exposed to HAV in the previous 2 weeks.
2. Defer the second dose of HAV vaccine if it is in short supply.
3. Perform pre-vaccination serologic testing to identify those who are immune, thereby preserving vaccine and reducing costs.
4. Use TWINRIX if other HAV vaccines are unavailable, keeping in mind that a single dose of TWINRIX achieves 94% protection against HAV but only 31% against hepatitis B virus (HBV). Three doses of TWINRIX are needed for full protection against HBV.

Available vaccines

Three vaccines are available for protection against HAV (**TABLE**[2,14]). Post-exposure preven-

TABLE

Hepatitis A vaccines[2,14]

Vaccine	Manufacturer	Formulations	Dose schedule	Description
VAQTA	Merck	0.5-mL pediatric dose in single-dose vials and prefilled syringes. For ages 1-18 yrs 1-mL adult dose in single-dose vials and prefilled syringes for ages ≥19 yrs	2 doses at 0, 6-18 mos	Hepatitis A vaccine, inactivated; approved for ages ≥1 yr
HAVRIX	GlaxoSmithKline	Same as for VAQTA	2 doses at 0, 6-12 mos	Hepatitis A vaccine, inactivated; approved for ages ≥1 yr
TWINRIX	GlaxoSmithKline	1-mL single-dose vials and prefilled syringes. For ages ≥18 yrs	3 doses at 0, 1, and 6 mos. Or an accelerated series of 4 doses given on Days 0, 7, and 21-30, followed by a booster dose at Month 12.	Hepatitis A (inactivated) & B (recombinant) vaccine; approved for ages ≥18 yrs

tion of HAV can be achieved with HAV vaccine or immune globulin.[15] Vaccine is preferred for individuals up to age 40 years and can be used for older individuals if immune globulin is unavailable.

The CDC reports that the supply of adult HAV vaccine is being strained by these large outbreaks.[16] Physicians will need to stay in touch with their local public health departments regarding vaccine availability in the community and any local recommendations being made regarding vaccine administration, as well as to the status of any local HAV outbreaks. JFP

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