



### THE BIOLOGY OF HEPATITIS A

- **DEFINITION:** Acute hepatitis means that the liver becomes inflamed. The hepatitis A virus is the one of the viral causes of hepatitis, and the cause of the recent outbreak in California.
- **TRANSMISSION:** Hepatitis A is a highly contagious viral infection of the liver that spreads from person-to-person primarily through the fecal-oral route. A person can become infected if food, water, hands, or other objects that are contaminated with even microscopic amounts of feces gets into the mouth. In the U.S., transmission is usually associated with ingesting food or water contaminated with infected feces. Close personal contact with someone infected with hepatitis A, and living in overcrowded and unsanitary conditions, also increase risk of transmission.
- **PERSISTENCE:** The virus can survive outside the human body for months. High temperatures, such as boiling water, kill the virus, although freezing temperatures do not. Once in the human body, the incubation period of hepatitis A is about 1 month, from initial exposure to development of symptoms.
- **RECOVERY:** The vast majority of people who catch hepatitis A make a complete recovery over 1-3 months. Death and other severe outcomes are rare, occurring typically in people who already have liver disease. Upon recovery, people develop antibodies that protect them from hepatitis A for life. There is a highly effective vaccine that protects against hepatitis A infection.

### STATEWIDE TRENDS AND RECOMMENDATIONS

- **BEST RESPONSE:** Vaccination is the best way to prevent hepatitis A. In the current outbreak, increasing access to sanitation (toilet and handwashing facilities) is also important. Other strategies to prevent hepatitis A spread include careful handwashing and proper food handling techniques.
- **STATEWIDE ACTIONS:** The actions for responding to the current hepatitis A outbreak can be grouped into the following strategic initiatives: 1) monitor disease trends; 2) vaccinate persons at risk; 3) increase access to sanitation; 4) increase awareness of the public and health care providers about hepatitis A; 5) coordinate the agencies and partners carrying out the response; and 6) provide laboratory testing to confirm which cases are linked to the outbreak. Local health department actions are particularly important, in following up with cases and patients via significant boots-on-the-ground effort.
- **VACCINE AVAILABILITY:** Currently, adult hepatitis A vaccine supply is constrained. Public health agencies are working closely with vaccine manufacturers to manage vaccine distribution, so that the vaccine is available for outbreak control and routine immunization of persons for whom vaccination is recommended.
- **FEDERAL RESOURCES:** Federal Section 317 funding for vaccine purchase, immunization program funding, and the Public Health Emergency Preparedness grants have been important in supporting the response to this outbreak in California.

### IDENTIFYING AND MANAGING AT-RISK POPULATIONS

- **RESPONSE FOCUS:** In the current outbreak, the focus is on people with direct contact with someone who has hepatitis A; persons experiencing homelessness; people who use drugs, both injection and non-injection drugs; and men who have sex with men (MSM).
- **OTHER AT-RISK POPULATIONS IN AREAS WITH HIGH TRANSMISSION OF HEPATITIS A:** Homeless service providers; plumbers and custodial workers; food service providers; anyone with chronic liver disease.
- **RAPID RESPONSE MEASURES:** Emphasis on quickly identifying patients and at-risk populations, and instituting vaccination programs. For hospitals and clinics, this requires systematic surveillance when admitting patients, and strategic planning in local community outreach efforts.
- **PATIENT MANAGEMENT:** Sensitivity when counseling infected and exposed individuals to avoid behaviors that encourage transmission. For homeless patients, providing hospital isolation and temporary housing during the period of infectiousness helps contain the spread of the disease to others.

### SELECT EXPERTS

*The following researchers and practitioners can advise and share insights on Hepatitis A in California.*

#### BOB KIM-FARLEY MD MPH

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*Dr. Kim-Farley can speak on the epidemiology of hepatitis A, and effective responses and challenges in Los Angeles County.*

#### PAUL Y. KWO MD

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*Dr. Kwo can speak on the biology, prevention, and treatment of hepatitis A and other liver diseases.*

#### JEFFREY NORRIS MD

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*Dr. Norris can speak on community outreach and treatment efforts in San Diego, including homeless populations.*

#### FRANCESCA TORRIANI MD

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*Dr. Torriani can speak on the epidemiology of hepatitis A, and effective response and challenges at UC San Diego Health System.*

#### JAMES WATT MD MPH

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*Dr. Watt can speak on statewide infection trends and regional coordination for hepatitis A response and vaccination.*

## LOS ANGELES COUNTY STATUS AND RESPONSE

- **AT-RISK POPULATIONS:** As of 1 December 2017 in Los Angeles County (LAC), a total of 15 cases of hepatitis A and 12 hospitalizations have been reported among the homeless and/or those who use illicit drugs; and a total of 19 cases and 8 hospitalizations have been reported among MSM. The increase in cases among MSM is consistent with national and international trends.
- **VACCINATION:** A major effort is underway to vaccinate at-risk people in LAC. Children are generally protected due to LAC Department of Public Health vaccine recommendations in place since 1999. Adults are largely unvaccinated and remain vulnerable. LAC DPH is recommending and facilitating vaccine access for at-risk individuals.
- **OUTREACH:** As of 1 December, LAC DPH has held 367 vaccination outreach events, with >26,000 doses of vaccine administered or distributed. Since its public announcement, LAC DPH has responded to calls from numerous agencies and organizations, following up via consultations and webinars to advise and discuss coordination with cities, first-responder agencies, sanitation workers, providers for persons experiencing homelessness, substance use disorder (SUD) providers, healthcare providers, and others.

## SAN DIEGO COMMUNITY OUTREACH EXAMPLE

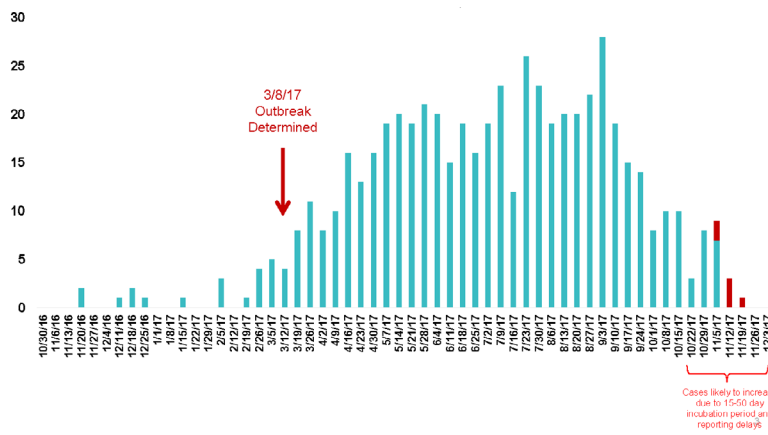
- **AT-RISK POPULATIONS:** As of 5 December 2017, the County of San Diego has reported 567 cases of hepatitis A, 382 hospitalizations, and 20 deaths. Around two-thirds of those infected are individuals reporting homelessness, illicit drug use, or both. Many of those experiencing homelessness were on the streets of Downtown San Diego.
- **VACCINATION:** Starting in 2017, vaccination efforts were undertaken through the County and with community partners. Currently, the County continues to hold multiple free, community-based mass vaccination events throughout the San Diego community. The focus of these events is on high-risk individuals, especially those experiencing homelessness.
- **OUTREACH:** To date, hundreds of vaccination outreach events have been held throughout the County, delivering >108,716 vaccines to the public. The County has deployed, with support from community agencies, nurses in the streets of San Diego to reach homeless individuals who might not otherwise engage in services. Handwashing stations and portable toilets have been placed in area frequented by those experiencing homelessness. Regular coordination meetings have been held between the County, City of San Diego, and key partners.

## UC SAN DIEGO HEALTH SYSTEM EXAMPLE

- **NUMBERS:** Between 1 March and 5 December 2017, 139 acute hepatitis A cases were diagnosed at UC San Diego Health (25% of all SD County). Of these, 137 were diagnosed at UC San Diego Hillcrest campus, 117 (84%) were admitted to the hospital, and 7 (5%) resulted in death.
- **VACCINATION AND SANITIZATION EFFORTS:** Developed algorithms to identify and immediately vaccinate at-risk patients seen in the UC San Diego Health Emergency Department or who are admitted to the hospital. Developed best-practice algorithms in the electronic health record to identify and vaccinate at-risk patients in ambulatory care (HIV, chronic liver diseases, transplant registries). Vaccine drives to all UC San Diego Health active workforce (healthcare workers, food, sanitation, environmental care, EMT, security). Used bleach solution to clean the hospital and clinic areas with acute hepatitis A patients.
- **OUTREACH EFFORTS:** Worked with San Diego County Public Health Services to vaccinate individuals at risk in the County. Provided presentations, posters, and public forums to partners in the County and within UC San Diego Health.

**FIGURE 1: OUTBREAK-ASSOCIATED HEPATITIS A CASES IN SAN DIEGO COUNTY SINCE NOVEMBER 2016 (TOTAL=567).**

Graph sourced/adapted from presentation prepared by Live Well San Diego/County of San Diego Health & Human Services Agency (Dated 3 December 2017).



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