HEPATITIS A OUTBREAK: SAN DIEGO, CALIFORNIA, 2016-18

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West Coast PulseNET Meeting
6 February 2019
I have no relevant financial relationships with any commercial supporters.

Unlabeled/Investigational products and/or services will *not* be mentioned in this talk.

All data in this presentation are preliminary and subject to change.
Primarily transmitted via the fecal-oral route

Incubation period ranges from 15 to 50 days (mean 28 days)

Period of communicability from two weeks before through one week after the onset of jaundice or elevation of liver enzymes

Virus viable outside body for months, depending on environmental conditions
HAV virus inactivated by:

- Heating to >185˚ F (>85˚ C) for one minute
- Routine water chlorination
- 1:100 dilution of household bleach to water on surfaces
- Quaternary ammonium formulations with HCl
- 2% glutaraldehyde

Alcohol-based hand sanitizer not effective, need soap and running water

Vaccination with the full, 2-dose series of Hepatitis A virus vaccine is the best way to prevent infection

Vaccine introduced
Routine vaccination for children in high-incidence states (including California)
Routine vaccination for all U.S. children

Source: CDC (adapted). Downloaded 3/7/17 from https://www.cdc.gov/hepatitis/hav/havfaq.htm
Incidence* of reported acute hepatitis A cases
National Notifiable Diseases Surveillance System, United States

1987–1997† (pre-vaccine)

* Rate per 100,000 population. † Annual average incidence.

Source: CDC. Downloaded 7/1/17 from:
https://www.cdc.gov/mmwr/volumes/65/su/su6501a6.htm
Incidence* of reported acute hepatitis A cases
National Notifiable Diseases Surveillance System, United States

2007 (post-vaccine)

* Rate per 100,000 population.

Source: CDC. Downloaded 7/1/17 from:
https://www.cdc.gov/mmwr/volumes/65/su/su6501a6.htm
Hepatitis A Cases, San Diego County
1994 - 2016

Vaccine introduced

Routine vaccination for children in high-incidence states (including California)

Routine vaccination for all U.S. children
HEPATITIS A

- Reportable in California within one working day of identification by laboratory & provider (CCR Title 17 Sections 2500, 2505)

- Surveillance noted increase in cases above baseline in early March 2017

- 11/16 to 2/17: 7-9 cases expected, 19 cases reported

- Instead of international travel, predominant risks are drug use and homelessness.

- Health alert on outbreak on March 10, 2017
HEPATITIS A

Investigation approach

- Standard HAV investigation questionnaire
- Supplemental questionnaire (drug use, homeless service access, restroom use)
- Identification of cases with sensitive occupations
- Identify and provide prophylaxis to contacts
- Investigate common food, water, drug sources
- CDC laboratory provides confirmation of HAV RNA
HEPATITIS A, SAN DIEGO

- 592 confirmed outbreak cases from 11/22/16 thru 10/18/18
  - 407 (68%) hospitalizations, 20 (3.4%) deaths
  - 404 (68%) male (14 MSM), 188 (32%) female
  - Age range 5-87 (median 43.0)

- Suspected Exposure Type
  - 201 (34%) homeless and illicit drug use
  - 91 (15%) homeless only
  - 79 (13%) illicit drug use only
  - 167 (28%) neither
  - 54 (9%) unknown
Hepatitis A Cases, San Diego County
1994 - 2018

Vaccine introduced
Routine vaccination for children in high-incidence states (including California)
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HEPATITIS A, SAN DIEGO

- Co-infections
  - 81/474 (17.1%) with hepatitis C
  - 25/474 (5.1%) with hepatitis B
- 20 (3.4%) cases diagnosed in jails
  - 15 primary, 5 secondary
- Sensitive occupations
  - 24 food handlers (1 secondary case ID’ed)
  - 7 healthcare workers (1 secondary case ID’ed)
- 70 non-outbreak CSTE HAV cases
  (not included in outbreak count)
Case vaccination histories:

- 55% had ACIP indication(s) for vaccination
- 25% of homeless had no ACIP indication
- None completed full two-dose series
- 39 (6.6%) received one dose prior to symptom onset:
  - <1 week - 9
  - 1-2 weeks - 9
  - > 2 weeks - 21 (range 15 - 242 days)
Based on the San Diego outbreak experience, persons experiencing homelessness had:

- **Risk for HAV**: $aOR = 3.1$ (95% CI 1.4–7.4)
- **Risk for HAV hospitalization**: $aOR = 3.8$ (95% CI 2.2–6.6)
- **Risk of death from HAV**: $aOR = 3.9$ (95% CI 1.1–17)
PUBLIC HEALTH STRATEGY

- Vaccinate
- Sanitize/hygiene
- Educate
PUBLIC HEALTH STRATEGY

- Vaccinate
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www.sdepi.org
Local recommendations for vaccination

- 3/17: Homeless individuals
- 5/17: Homeless services providers and volunteers
- 5/17: Public safety workers who work with at-risk
- 5/17: Behavioral health who work with at-risk
- 5/17: Selected healthcare workers who work with at-risk (expanded 7/17)
- 6/17: Sanitation and janitorial workers
- 8/17: All food handlers in county

ACIP recommendation: ANY person who desires immunity should be given vaccine
HEPATITIS A VACCINATION

- Immunizing those at-risk
  - Mass vaccination events at social service providers, substance abuse facilities, etc.
  - At medical providers
    - Clinics
    - ED’s
    - Behavioral health
  - In jails/detention centers
    - Post-exposure prophylaxis
    - Offer at booking & while incarcerated
    - Required for all food handlers
- In the field – “foot teams”
  - PHN paired with homeless outreach workers
<table>
<thead>
<tr>
<th>Vaccination Provider</th>
<th>Count*</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>County</strong></td>
<td></td>
<td></td>
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<tr>
<td>Post-exposure prophylaxis</td>
<td>1,015</td>
<td>0.5%</td>
</tr>
<tr>
<td>Jails</td>
<td>9,768</td>
<td>4.9%</td>
</tr>
<tr>
<td>Psychiatric Hospital</td>
<td>467</td>
<td>0.2%</td>
</tr>
<tr>
<td>Public Health Centers (IZ)</td>
<td>12,119</td>
<td>6.1%</td>
</tr>
<tr>
<td>Public Health Clinics (TB,STD)</td>
<td>1,626</td>
<td>0.8%</td>
</tr>
<tr>
<td>Field Events – Mobile Van</td>
<td>848</td>
<td>0.4%</td>
</tr>
<tr>
<td>Field Events – Foot Teams</td>
<td>5,787</td>
<td>2.9%</td>
</tr>
<tr>
<td>Field Events – POD/mass vaccination</td>
<td>26,521</td>
<td>13.3%</td>
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<tr>
<td><strong>Non-County</strong></td>
<td></td>
<td></td>
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<tr>
<td>FQHC</td>
<td>28,843</td>
<td>14.5%</td>
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<tr>
<td>Healthcare systems (ED, hospitals, clinics)</td>
<td>94,025</td>
<td>47.2%</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>10,407</td>
<td>5.2%</td>
</tr>
<tr>
<td>Occupational health</td>
<td>7,800</td>
<td>3.9%</td>
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<tr>
<td><strong>Total</strong></td>
<td>199,226</td>
<td>100%</td>
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Outbreak-Associated Hepatitis A Cases & Vaccinations by Month, November 2016 through December 2018

Prepared by County of San Diego, Health & Human Services Agency, Public Health Services, Epidemiology & Immunization Services, 2/4/19
PHS staff member with “Hepatitis A prevention kits” for distribution to raise awareness among homeless about hepatitis.

They contain water, non-alcohol hand sanitizer, cleaning wipes, soap, clinic location information, and plastic bags.
Handwashing station being installed in downtown San Diego on 9/2/17

(Photo: San Diego Union Tribune)
Portable restrooms with security in downtown San Diego on 9/2/17

(Photo: San Diego Union Tribune)
City contractor cleaning a street in downtown San Diego on 9/11/17

(Photo: San Diego Union Tribune)
Protect yourself from Hepatitis A

Get vaccinated and wash your hands after using the restroom and before eating.

San Diego is in the midst of a Hepatitis A outbreak. Call 2-1-1 to find a vaccine clinic near you.

11 health advisories
16 news stories
Website established
Education campaigns (medical, homeless services, business, at-risk groups)

Poster developed for ad campaign at mass transit and other public locations
HEPATITIS A - LESSONS

- Infection control issues
- Adult vaccinations – we need to do better!
- Public health/behavior health partnerships are critical
- Homelessness is an independent risk factor for HAV
- Plan for data collection
- HAV PCR and genotype/strain information very useful
- Food handlers rarely pass on the disease
Expert panel urges hepatitis A shots for homeless in U.S.

ACIP voted on 10/24/18 to recommend HAV vaccine to homeless persons over one year of age
ACKNOWLEDGMENTS

Stakeholders in San Diego County
- Hospitals, health systems, FQHC’s, behavioral health and substance abuse providers, pharmacies throughout the county
- Homeless service providers
- San Diego County Sheriff’s Medical Services Division
- Law enforcement homeless outreach teams
- County of San Diego Health and Human Services
- County of San Diego Department of Environmental Health
- 18 incorporated cities in San Diego County + MORE!

County of San Diego Public Health Services
- Sarah Stous
- Melissa Thun
- Annie Kao
- Whitney Pinto
- Jeff Johnson
- Hepatitis A Team
- Public Health Laboratory
- Tracy Basler

CDPH
- Jennifer Zipprich
- Kathy Harriman

CDC EIS Program
- Corey Peak
- Jessica Healy
- Wences Arvelo

CDC Division of Viral Hepatitis
- Monique Foster
- Megan Hofmeister
- Sumathi Ramachandran
- Yulin Lin
- Yury Khudyakov
QUESTIONS ?
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