

**670. A Collaborative Response by Public Health and Local Hospitals to a NICU Tuberculosis Exposure**

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**Background.** Early recognition of tuberculosis (TB) cases is critical to prevent spread. Infants are at high risk for TB acquisition after exposure. A TB case went unrecognized despite seeking medical attention in December 2016 for a cough and suspicious radiographic and laboratory testing. During a two week period in November and December 2016 the case visited an infant in a Neonatal Intensive Care Unit (NICU) almost daily for extended periods of time. The NICU was housed in a local community hospital, but staffed by personnel from a separate local children's hospital. On January 3, 2017, Summit County Public Health was notified of the case and after ascertaining the potential NICU TB exposure began a collaborative contact investigation with the community hospital and the children's hospital staff, newborns and visitors to the NICU.

**Methods.** This observational study describes a TB contact investigation of potentially exposed persons in a NICU. The three institutions jointly developed a plan whereby the children's hospital notified families of the potentially exposed babies, provided prophylactic anti-tubercular medication and follow-up screening. The hospitals' Infection Preventionists notified and tested the potentially exposed staff. The health department screened the case's family, personal contacts, and any identified or concerned NICU visitors. At the onset of the investigation the three institutions held a joint press conference. The investigation began in early January 2017 and ended late April 2017.

**Results.**

	Total
Infants potentially exposed	68
Families contacted	68
Infants evaluated	62
Infants put on INH prophylaxis	31
Infants tested at 10–12 weeks	47
Infants tested positive	0
Employees tested	183
Employees tested positive	0

**Conclusion.** An after-action review revealed strengths, weaknesses and lessons learned. One successful decision was the planned press conference that provided media and public with transparent, consistent messages. A weakness was the inability to identify visitors since there was no NICU visitor log. Therefore visitors other than parents could not be individually contacted about exposure and screening. This investigation successfully involved three different community institutions and was conducted with minimal disruption and public concern.

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**671. Hepatitis A Outbreak Among Persons Experiencing Homelessness—Maricopa County, Arizona, 2017**

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**Background.** Hepatitis A virus (HAV) outbreaks can occur in settings with poor sanitation and crowding, including homeless shelters. On March 29, the Maricopa County Department of Public Health identified three confirmed HAV cases among homeless persons using services at one campus. We sought to determine outbreak source and scope and prevent further spread.

**Methods.** Cases were defined as having symptoms of acute hepatitis and a positive IgM anti-HAV test in persons with a history of homelessness or exposure or epidemiologic link to the campus and onset in 2017. Case-finding included enhanced surveillance with outreach to campus staff and healthcare providers who serve homeless persons. In-person interviews were conducted with campus HAV vaccination clinic attendees on April 4 and 11. To assess factors associated with HAV infection, a case-control study was conducted; campus clients or staff without a HAV diagnosis were controls. An environmental inspection was conducted. CDC performed HAV molecular sequencing.

**Results.** Twelve cases were identified, one by facility reporting, three by health-care reporting, and eight by enhanced surveillance. Illness onsets were February 15–April 27; mean age was 47 years; 50% were male. The patient with the earliest onset arrived ~February 5 from San Diego, California, an area with an ongoing HAV outbreak. No campus food safety concerns were identified; educational flyers, soap, and alcohol-based hand sanitizer were provided to the campus. HAV vaccine was administered to 221 (22%) of ~1,000 clients and 105 (42%) of 250 staff who chose to attend the clinics. Ten cases and 343 controls were enrolled in the case-control study; not all questions were answered. Neither eating meals on campus ( $P = 0.71$ ) nor sleeping on campus ( $P = 0.75$ ) were associated with HAV. Fewer cases (57%) than controls (78%) reported always washing their hands before eating ( $P = 0.18$ ). HAV isolated from 3 cases was molecularly identical to San Diego isolates.

**Conclusion.** Molecular and epidemiologic data support that this HAV outbreak among homeless persons was associated with the San Diego outbreak. Crowding and suboptimal hygiene practices might have facilitated campus transmission. Expedient vaccination might have slowed spread; surveillance is ongoing.

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**672. Comparative Analysis of Incidence and Outcomes of Acute Hepatitis A (HAV) and B Virus Infections (HBV) in Children Aged ≤ 20 years in the United States (US)**

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**Background.** HAV and HBV are amongst the most common vaccine preventable diseases and may be associated with morbidity and health care costs. The epidemiology and impact of acute HAV and HBV infection in pediatric hospitalizations is poorly defined relative to other populations.

**Methods.** A cohort study was undertaken with the 2012 Kids' Inpatient Database that encompasses a stratified random sample of community and non-rehabilitation based hospitalizations across the US of pediatric patients aged ≤ 20 years. The primary outcome was incidence of acute HAV and HBV-related hospitalizations. Risk factors of age, sex, and race, and outcomes of length of stay (LOS), and costs were compared between persons with HAV and HBV infection. ICD-9 codes of 070.0–070.31 were utilized to capture acute HAV and HBV cases. Continuous and discrete outcomes between HAV and HBV were calculated with linear and logistic regression (with weighting), respectively.

**Results.** A total of 424 cases of acute viral hepatitis A (48.3%), B (50.5%), and co-infection (1.2%) occurred, corresponding to a national overall incidence rate of 8.9 cases per 100,000 persons (aged ≤ 20 years). HBV acquisition was associated with a higher mean age than HAV (15.4 vs. 13.1 years,  $P < 0.001$ ). A greater proportion of patients with HBV compared with HAV were female (70.1% vs. 41.2%,  $P < 0.001$ ). The distribution of race was significantly different with disproportionate numbers of HBV compared with HAV cases in Blacks and Asians ( $P < 0.001$ ). LOS (6.93 vs. 4.38 days,  $P = 0.02$ ) and hospitalization costs (\$58,211 vs. \$30,758,  $P = 0.03$ ) were both significantly greater in HBV than HAV cases.

**Conclusion.** We demonstrated that acute HAV and HBV cases differed in demographic factors of sex, age, and race, and that HBV was associated with greater LOS and costs. Although the incidence was low, enhanced vaccine efforts are indicated for further prevention of these infections in children.

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**673. Emerging Azithromycin Resistance among Nontyphoidal Salmonella Isolates in the United States**

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**Background.** Antimicrobial resistance among nontyphoidal *Salmonella* (NTS) is a serious public health threat. Resistance to azithromycin, a clinically-important antimicrobial, has historically been rare in NTS in the United States but is often plasmid-mediated. We evaluated trends and assessed characteristics of national NTS isolates with azithromycin resistance.

**Methods.** In 2011–2016, US health departments submitted every 20th NTS isolate for surveillance and additional outbreak isolates to CDC's National Antimicrobial Resistance Monitoring System laboratory, where they were tested for antimicrobial susceptibility by broth microdilution to 14 drugs, including azithromycin. Resistance to azithromycin was defined by a minimum inhibitory concentration of ≥32 µg/mL based on the current Clinical and Laboratory Standards Institute's investigational breakpoint for *Salmonella* Typhi. A subset of isolates underwent whole genome sequencing; sequences were screened for the presence of resistance determinants. Epidemiological characteristics were reviewed when available.