Submission Type	Breakout/Quick/Lightning/Poster
ID	11277
Abstract Type	Breakout
Abstract Title	*Chlamydia Psittaci* Outbreak Among Poultry Processing Plant Employees — Georgia, 2018

Abstract

BACKGROUND: In September 2018, the Georgia Department of Public Health (GDPH) was notified of 3 poultry slaughter plant employees hospitalized with laboratory-confirmed *Chlamydia psittaci* infection (psittacosis). During the next 6 weeks, 27 more employees developed illness consistent with psittacosis. *C. psittaci* can be found in respiratory and fecal secretions of birds and can be inhaled through aerosolization. The last psittacosis outbreak among U.S. poultry plant workers occurred in 1986. We investigated to evaluate risk factors for illness and guide worker safety practices.

METHODS: Cases were identified through screening surveys and GDPH notification. Cases were defined as respiratory illness in a poultry plant employee who worked after August 13 with either *C. psittaci* infection laboratory-confirmed by PCR (confirmed), physician-diagnosed pneumonia (probable), or fever (>101°F) or chills plus ≥2 of the following symptoms: headache, cough, or myalgia (suspected). A case-control study was conducted. Control subjects were randomly selected from all 662 hourly workers across all 3 shifts. Case-patients and control subjects were administered a survey in person or by telephone to assess work environment, live bird exposure, symptoms, and personal protective equipment usage. All cases were included in the analysis.

RESULTS: We identified 30 case-patients (8 confirmed, 12 probable, and 10 suspected) and 141 control subjects. Case-patients reported symptom onset during August 17–October 22; mean age was 44 years (range: 22–58 years). Frequently reported symptoms included cough (83%), fever (80%), and chills (67%). Pneumonia was diagnosed among 67% of case-patients; 47% were hospitalized (1 ICU patient). Significant risk factors for illness included working second shift (odds ratio [OR]: 5.68; 95% CI: 2.35, 13.73), handling live and recently slaughtered chickens before the acid wash or chill step (OR: 6.84; 95% CI: 1.98, 23.60), working in the evisceration area (OR: 2.60; 95% CI: 1.17, 5.81), and eviscerating chickens (OR: 3.09; 95% CI: 1.34, 7.09). Always wearing dust masks was reported by 40% of case-patients and 35% of control subjects, but was not associated with illness (OR: 1.21, 95% CI: 0.54, 2.72).

CONCLUSIONS: Second shift workers who handled live or recently slaughtered birds and eviscerated birds were at greater risk for illness. Employees infrequently used dust masks, but it was not associated with illness. Employee training on mask usage and use of N95 respirators might increase protection. Psittacosis is rarely reported among poultry workers, but can cause severe illness. Study findings will be shared with state and federal animal health partners to increase industry awareness.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Occupational Exposure; Zoonotic Diseases; Outbreaks
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10986
Abstract Type	Breakout
Abstract Title	Coccidioidomycosis in U.S. Residents Returning from House-Building Trips in Baja California, Mexico, June–July, 2018

Abstract

BACKGROUND: On August 8, 2018, New York City health authorities notified CDC of two high school students hospitalized following house-building trips to Baja California, Mexico. By October 15, 2018, both students and six additional travelers were diagnosed with coccidioidomycosis, a disease caused by inhalation of a soil-borne fungus found in parts of the U.S. and Mexico. A seroepidemiologic survey was conducted to identify potential sources and inform prevention measures.
METHODS: We identified 209 people who traveled to the area during June–July 2018, performed serum *Coccidioides* antibody enzyme immunoassays, and conducted interviews in person or by online questionnaire. Interviews included questions on activities, exposures, symptoms, and prior knowledge of coccidioidomycosis.
RESULTS: We interviewed 109 (52%) travelers, of whom 48 (44%) reported coccidioidomycosis symptoms. Among 75 with antibody testing, 13 (17%) were seropositive, of whom 12 (92%) were symptomatic. Fourteen (29%) with symptoms sought healthcare, and four were hospitalized, including one in intensive care, for a median of seven days (range 3–12). Travelers who worked on a particular house (odds ratio [OR] 5.7, 95% confidence interval [CI] 1.2–54.9), performed backfilling of the foundation (OR 2.8, 95% CI 1.1–7.4), or took no precautions against dust generation (OR 9.4, 95% CI 1.3–424.1) had higher odds of developing symptoms compared with those who did not perform such functions. Only six (6%) travelers had ever heard of coccidioidomycosis.
CONCLUSIONS: Almost one in five travelers Baja California, Mexico showed serological evidence of coccidioidomycosi infection, and over one-third exhibited symptoms compatible with coccidioidomycosis, likely from foundation work at a particular house. Further investigation is needed to determine reasons this site posed elevated risk. Despite engaging in dust-generating activities in a coccidioidomycosis-endemic area, nearly all travelers were unaware of the risk. Service organizations performing soil-disturbing activities in endemic areas should educate travelers and implement prevention measures.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Infectious Diseases; Outbreaks
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10990
Abstract Type	Breakout
Abstract Title	Five Years of Acute Flaccid Myelitis Surveillance- Colorado, 2014-2018

Abstract

BACKGROUND: Acute flaccid myelitis (AFM) is a rare neurological condition that affects the gray matter of the spinal cord resulting in limb weakness and/or cranial nerve dysfunction. First described in California in 2012, Colorado and other states experienced a surge of AFM cases in the late summer and early fall of 2014 during a nationwide outbreak of enterovirus D68 (EV-D68). In Colorado, AFM has been explicitly reportable since 2015. During 2018, Colorado experienced an outbreak of enterovirus A71 (EV-A71) that included multiple AFM cases.

METHODS: We describe five years of AFM surveillance in Colorado, including demographic and clinical features. We also discuss efforts to increase and challenges surrounding provider awareness and reporting of AFM.

RESULTS: A total of 31 confirmed and probable AFM cases have been reported in Colorado since 2014, with notable peaks during 2014 (N=11) and 2018 (N=17). Only one case of AFM was reported each year from 2015 through 2017. The median age of case patients during 2014 was 13 years compared to a median age of 2 years in 2018. Most case patients were male (77%). No deaths were reported. A respiratory prodrome was typical in 2014; during 2018, gastrointestinal illness or hand foot and mouth lesions were more common. Testing practices changed over time, but in 2014, 3 patients (27%) tested EV-D68 positive while in 2018, 12 patients (80%) tested EV-A71 positive and 2 (12%) tested EV-D68 positive. Since 2014, Colorado performed outreach to improve surveillance and encourage reporting of AFM. Activities included Health Alert Network bulletins, “Dear Provider” letters and emails to a small number of specialist providers (infectious disease, neurology, radiology), presentations, and publications. In 2018, an innovative provider contact database was used to send “Dear Provider” letters to more than 1,100 specialist physicians. At least one case was reported as a result of this expanded outreach.

CONCLUSIONS: AFM is an emerging illness of public health concern due to its severity, lack of well-defined risk factors, and absence of effective treatment. Differences in age, clinical presentation, and outcomes were observed between seasons and highlight the need for continued surveillance. Early patient outcomes were poorer when associated with EV-D68; long-term follow-up is not standard. Surveillance for AFM is particularly challenging without an AFM-specific ICD-10 code or confirmatory lab test. Efficient and rapid reporting largely relies on provider awareness and close working relationships between providers, medical facilities, and the health department.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Children and Adolescents; Surveillance; Infectious Diseases
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10941
Abstract Type	Breakout
Abstract Title	Increase in Invasive Group a Streptococcus Infections Among High-Risk Populations—Denver, 2013-2017

Abstract

BACKGROUND: Group A *Streptococcus* (GAS) causes illnesses from pharyngitis to severe invasive disease, including bacteremia, sepsis, and necrotizing fasciitis (NF). As part of CDC's Emerging Infections Program (EIP), Colorado conducts active surveillance on invasive GAS (iGAS), a reportable condition in the metropolitan Denver area. Rates of iGAS increased in the metropolitan Denver area from 4.3/100,000 in 2013 (n = 110) to 13.7/100,000 in 2017 (n = 379). People experiencing homelessness (PEH), people who inject drugs (PWID), and residents of long-term care facilities (LTCFs) are at a higher risk for infections with GAS. We sought to describe the role of these risk factors in the overall increase in iGAS. **METHODS**: We defined an iGAS case as illness with isolation of GAS from either a normally sterile site, or a wound accompanied by NF or streptococcal toxic shock syndrome. Case data during 2013—2017 were collected in the Colorado Electronic Disease Reporting System and through medical chart abstraction, and data were queried to identify people belonging to any of three risk groups (LTCF residents, PEH or PWID). CDC's *Streptococcus* laboratory determined *emm* types for available isolates, and determined genomic relatedness using whole-genome sequencing where applicable. **RESULTS**: During 2013—2017, of 1152 iGAS cases identified, 92(8%) were in LTCF residents, 169 (15%) in PEH and 83 (7%) in PWID. Forty-five cases were in people identified as both PEH and PWID. The proportion of iGAS cases in people in at least one risk group increased from 17/110 (15%) in 2013 to 164/379 (43%) in 2017. This increase was associated with emergence of three previously rare *emm* types in Colorado - *11.10* , *49* and *82* . Among 152 cases in PWID or PEH with isolates available, 50 (33%) were due to *emm49* and 30 (20%) due to *emm82* . Isolates from a multi-LTCF outbreak were identified as *emm11.10* and were genomically highly related (average pairwise single nucleotide polymorphism distance: 2.8). **CONCLUSIONS**: The increased incidence of iGAS in the Colorado EIP catchment area since 2013 has been disproportionately in three high-risk populations: LTCF residents, PWID and PEH. Emergence of previously rare *emm* types in these populations could have contributed to this increase. Response has included visits to affected LTCFs to provide infection control guidance and interviews with hospitalized PWID or PEH with iGAS infection to understand risk factors for infection.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Infectious Diseases; Outbreaks; Underserved Populations
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11148
Abstract Type	Breakout
Abstract Title	Number of Poultry Processing Plant Employees and Psittacosis Reporting in Counties—United States, 1992–2017

Abstract

BACKGROUND: In 2018, the first outbreak of *Chlamydia psittaci* infection (psittacosis) among poultry processing plant employees in 30 years was reported. Humans can present with flu-like symptoms and sometimes pneumonia. *C. psittaci* poultry-to-human transmission is considered rare in the United States. However, the outbreak highlighted diagnostic challenges of psittacosis and under-recognized *C. psittaci* exposure risks among poultry processing plant employees, especially in smaller poultry processing plants. We assessed if presence of poultry processing plant employees increased the likelihood of reporting psittacosis to the National Notifiable Diseases Surveillance System (NNDSS).

METHODS: We used a zero-inflated Poisson model consisting of a logistic model (any cases) and a Poisson count model (case count) to predict NNDSS psittacosis case reporting (confirmed and probable; 1992–2017 total) by county-level exposures: 1990–2010 population mean (decennial U.S. Censuses), 1998–2016 poultry processing plant employee mean and its square (Wholedata Establishment and Employment database), and imported poultry/psittacine bird port presence (proxy for bird exposure outside poultry processing plants; Code of Federal Regulations).

RESULTS: During 1992–2017**,** 468 psittacosis cases were reported from 263 of 3,144 (8.4%) U.S. counties (84.4% [222/263] had ≤2 cases; range: 1–14). Poultry processing plant employees were reported in 681 counties; 62.0% of these counties had 1–150 employees (median: 39; range: 1–6628). County population (odds ratio: 5.8; P <.001) predicted reporting any cases. County population (count ratio [CR]: 3.3; P = .001), bird ports (CR: 1.6; P = .006), and having up to 150 compared to no poultry processing plant employees (CR: 1.5–1.7; P <.050) predicted higher reported case counts; having >150 poultry processing plant employees did not predict higher reported case counts.

CONCLUSIONS: Our model suggests counties with 1–150 poultry processing plant employees or a bird port reported more psittacosis cases. Failure to detect this association with >150 employees may be related to differences in poultry processing plant work environment. Better understanding of psittacosis burden and occupational exposure risks can inform and prioritize prevention strategies.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	NNDSS; Zoonotic Diseases; Occupational Exposure
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11066
Abstract Type	Breakout
Abstract Title	Outbreak of Enterovirus A71 Among Colorado Children, 2018

Abstract

BACKGROUND: In May 2018, the Colorado Department of Public Health and Environment (CDPHE) was notified by Children's Hospital Colorado (CHCO) of an increase in enterovirus (EV) infections with neurologic complications. Early testing at CDC identified enterovirus A71 (EV-A71) in 6 of 8 specimens. Like other EVs, EV-A71 infections are typically mild, but EV-A71 may cause meningitis, encephalitis, or acute flaccid myelitis (AFM). EV-A71 has caused large-scale outbreaks in the Asian Pacific region, but is uncommon in U.S.
METHODS: We responded to an outbreak of EV-A71 associated neurologic illness in children from the spring through the fall of 2018. A case was defined as a person ≤18 years of age with a specimen PCR positive for EV-A71 and central nervous system disease including meningitis, encephalitis, AFM, ataxia, or myoclonus on or after March 1, 2018. Specimens from patients with an acute febrile illness and neurological symptoms that tested positive for enterovirus were sent to CDC lab for EV typing. Outreach was conducted to urge coroners, physicians, and hospital infection preventionists to report patients with a febrile neurological illness and collect specimens for EV testing.
RESULTS: Forty-four Colorado residents met the outbreak case definition. Cases ranged in age from 2 weeks to 15 years with a median age of 21 months. Twenty nine (66%) cases were white, non-Hispanic. Thirty-three cases (79%) were male. Thirty-one children who tested positive for EV-A71 met criteria for encephalitis, 39 had meningitis, 23 had vomiting or diarrhea, 18 had abnormal MRIs, 16 had lesions consistent with hand, foot and mouth disease, and 10 had acute flaccid myelitis (AFM). Forty-two cases occurred in the Denver Metro area, with 3 cases occurring in one child care facility. No other social, environmental, or geographic similarities were noted among cases.
CONCLUSIONS: While outbreaks of EV-A71 are well described in the Asian-Pacific region, this is the largest reported outbreak of EV-A71 associated neurologic illness in the United States. EV infections are not routinely reportable to public health and limited information is available about circulating strains of EV, burden and spectrum of disease, and risk factors for infection and severe outcomes. Routine surveillance of enterovirus infections would improve our understanding of the burden of neurologic illness, including AFM, meningitis, and encephalitis, that may be associated with these infections.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Surveillance; Infectious Diseases; Children and Adolescents
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11304
Abstract Type	Breakout
Abstract Title	Psittacosis Outbreak at a Chicken Slaughter Plant — Virginia, 2018

Abstract

BACKGROUND: On August 31, 2018, a hospital notified the Virginia Department of Health (VDH) that 2 people who worked at a chicken slaughter plant were hospitalized with fever, cough, and pneumonia. Polymerase chain reaction (PCR) detected *Chlamydia psittaci,* a zoonotic pathogen which can cause psittacosis, a respiratory illness in humans. Sixty psittacosis cases were reported in the United States during 2008–2017. VDH and CDC investigated to determine outbreak source and prevent additional illnesses. **METHODS**: VDH collected environmental samples, observed work practices, and conducted a cohort study, surveying workers about illness and exposures. Clinical specimens from ill workers were sent to CDC for PCR testing. Among anyone who worked at the plant during August 1–September 7, 2018, a case was defined as illness with any of the following: a clinical specimen PCR-positive for *C. psittaci* ; physician-diagnosed pneumonia; or fever or chills with ≥2 symptoms of headache, cough, and muscle aches. **RESULTS**: VDH identified 50 cases among 141 workers. Overall, 23/50 (46%) ill workers had pneumonia. Of clinical specimens from 13 workers, 5 were PCR-positive for *C. psittaci* . Workers ever in the evisceration area were more likely to be ill compared with unexposed workers (Relative Risk: 2.1; 95% CI: 1.1–3.8). *C. psittaci* was not detected in any of 62 environmental samples, including 10 from the evisceration area. Repositioning cooling fans, misting birds on entry, and inspecting evisceration equipment were recommended to reduce aerosol formation and exposure. No cases were identified with onset later than September 8. **CONCLUSIONS**: This is the largest psittacosis outbreak associated with a chicken slaughter plant in the US. Exposure to the evisceration area increased illness risk among workers. Environmental sampling results did not suggest ongoing contamination with *C. psittaci* . Recommendations to prevent future illnesses focused on reducing worker exposure to contaminated aerosols at the plant.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Zoonotic Diseases; Occupational Health; Outbreaks
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11077
Abstract Type	Quick
Abstract Title	Acute Flaccid Myelitis in Minnesota Children

Abstract

BACKGROUND: Acute flaccid myelitis is rare but serious cause of sudden onset limb weakness, especially in children, and should be considered in the differential diagnosis. From September 2018 to November 2018, the Minnesota Department of Health (MDH) was notified of 6 children hospitalized in the Minneapolis-St. Paul region with symptoms consistent with acute flaccid myelitis (AFM). All six patients were confirmed as AFM cases by the Centers for Disease Control and Prevention (CDC).
METHODS: Cases of acute flaccid myelitis were identified and evaluated clinically. An epidemiological investigation was completed by the Minnesota Department of Health in conjunction with the Center for Disease Control and Prevention.
RESULTS: The median patient age was 6.0 years (range 1.3– 9.2). All experienced fever and upper respiratory signs and symptoms (e.g., rhinorrhea, cough) beginning a median of eight days (range 5–11) prior to weakness onset. Four patients presented with marked weakness of proximal muscle groups in one arm, while distal motor function was largely preserved. Two patients presented with single leg weakness that became bilateral with rapid ascending paralysis requiring mechanical ventilation. In all patients, limb weakness was first noted in the morning after waking. Magnetic resonance imaging (MRI) showed spinal cord grey matter involvement in all nine patients, largely in the anterior horns. The extent of grey matter involvement did not always correlate with deficits seen on physical exam. Cerebrospinal fluid (CSF) pleocytosis was present in three of five patients. One nasal wash specimen from Case 2 was positive for EV-D68 and a second specimen for EV-D68 and parechovirus A6 by RT-qPCR; CSF from this patient was also positive for EV-D68.
CONCLUSIONS: Despite all patients reporting upper respiratory signs and symptoms, testing for viruses that commonly cause upper respiratory infections was positive from non-sterile specimens in only two cases. Identification of EV-D68 in the CSF of Case 2 is considered the cause of AFM in this patient, and does provide further support for the neurotropic potential of this virus. Detection of a pathogen in the CSF may be related to the severity and prolonged nature of illness in this patient; however, host or other factors contributing to the severity are unknown. Public health classification of AFM cases involves expert review of clinical and imaging findings; however, it is important that clinical care not be delayed pending case classification.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Infectious Diseases; Children and Adolescents; Surveillance
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11388
Abstract Type	Quick
Abstract Title	Acute Flaccid Myelitis Surveillance in the United States, 2018

Abstract

BACKGROUND: Acute flaccid myelitis (AFM) is a rare but serious neurologic condition that results in paralysis of one or more limbs over the course of several hours to days. Standardized surveillance for AFM began nationally in 2015. After limited AFM activity in 2017, CDC started receiving increased reports of AFM beginning in August 2018.
METHODS: Health departments report cases meeting the clinical criteria for AFM, defined as acute onset of flaccid limb weakness, to CDC using a standardized form. Confirmed cases of AFM are patients who met the clinical criteria and have magnetic resonance imaging (MRI) showing spinal cord lesions largely restricted to gray matter and spanning one or more vertebral segments. Cerebrospinal fluid (CSF), respiratory, and stool specimens were tested for enteroviruses (EV), rhinoviruses (RV), and parechoviruses at CDC.
RESULTS: From January 1, 2018 through January 4, 2019, 193 cases of AFM from 39 states were classified as confirmed; 88% had limb weakness onset between August and November with a peak in September. The median age was 5.0 years (range, 6 months–81 years), 94% were <18 years, 116 (60%) were male, and 187 (97%) were hospitalized. A preceding respiratory or febrile illness in the four weeks before weakness onset was reported in 183 (95%) patients. Only upper limbs were affected in 89 (46%), while 48 (25%) reported all four extremities affected; 152 (79%) cases had CSF pleocytosis (white blood cell count >5 cells/mm^3). No fatalities were reported among cases with onset in 2018. CSF specimens were submitted from 60 cases; one was positive for EV-A71 and one for EV-D68. Respiratory specimens were tested from 111 cases and 28 (25%) were positive for EV-D68, 10 (9%) for EV-A71, 7 (63%) for non-specified RV, and 6 (5%) for non-specified EV/RV. Of 87 cases with stool specimens tested, 1 (1%) was positive for EV-D68, 2 (2%) for EV-A71, 3 (4%) for coxsackieviruses, 1 (1%) for echovirus 11, 4 (5%) for parechoviruses, 2 (4%) for non-specified EV/RV, and none for poliovirus.
CONCLUSIONS: Similar to 2014 and 2016, AFM activity was high in 2018, with cases peaking in September. Most cases were pediatric and had a preceding respiratory or febrile illness. The clinical presentation and laboratory results suggest an association with a viral infection, including enteroviruses. Additional research is needed to further explore this association and better characterize the pathogenesis of AFM.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Infectious Diseases; Surveillance; Emerging Infections
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10554
Abstract Type	Quick
Abstract Title	Barriers to TB Evaluation and Treatment Among Immigrants and Refugees-Arizona, 2015—2017

Abstract

BACKGROUND: Approximately, one third of the world's population has latent tuberculosis infection (LTBI), the non-contagious infection of *Mycobacterium tuberculosis* without clinical symptoms or radiologic or bacteriologic evidence of active TB disease. The estimated lifetime risk of TB reactivation among persons with LTBI is 10%, with the majority of cases developing within the first five years of infection. Most TB disease is due to reactivation of LTBI. Most TB disease in the United States is among refugees and immigrants from TB prevalent countries, due to such factors as low socioeconomic status, forced displacement, and poor living conditions. To provide proper care for persons immigrating into the United States, CDC developed the Electronic Disease Notification System(EDN) to notify health departments and screening clinics of the arrival of refugees and immigrants with health conditions requiring medical follow-up including Tuberculosis. Conditions requiring follow-up after arrival into the United States are called Class B conditions
METHODS: Using EDN data from 2015–2017, the Arizona Department of Health Services (ADHS) assessed the main barriers to TB evaluation and treatment among refugees and immigrants who came into Arizona with a TB Class B condition.
RESULTS: During 2015–2017, 1,413 Class B individuals came to Arizona and were included in the EDN database. Of those, 60% (852) had an evaluation initiated by the local health department, 839 (59%) persons completed an evaluation; 37% (314/839) of whom were diagnosed with LTBI and referred for treatment. Of those diagnosed with LTBI and referred for treatment, 58% (182/314) did not initiate treatment; 56% (102/182) of whom declined treatment against provider advice.
CONCLUSIONS: Due to the inability to evaluate and treat individuals at risk for LTBI, there were substantial missed opportunities to prevent TB reactivation. Barriers to TB evaluation and treatment among immigrants and refugees calls for improved efforts among all public health partners.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Disease Prevention; Barriers to Care; Special/Vulnerable Populations
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10775
Abstract Type	Quick
Abstract Title	Enhanced Surveillance for Histoplasmosis in 10 States: Preliminary Results

Abstract

BACKGROUND: Histoplasmosis is often described as the most common endemic mycosis in the United States. However, much remains unknown about its epidemiology in the general population because most information comes from studies of high-risk patients or outbreak investigations. Histoplasmosis is not nationally notifiable, and no multistate data exists about cases identified using the 2016 CSTE standardized case definition. We are conducting enhanced surveillance to improve understanding of its epidemiology and effects on patients and to improve surveillance practices and educational efforts.
METHODS: State and local health department professionals in 10 states (Arkansas, Delaware, Indiana, Kentucky, Louisiana, Michigan, Minnesota, Nebraska, Pennsylvania, and Wisconsin) where histoplasmosis is reportable interviewed consenting histoplasmosis patients identified through routine surveillance beginning July 1, 2018, using CSTE probable and confirmed case definitions. Interviewers asked about exposures, symptoms, underlying conditions, healthcare use, treatment, and outcomes using a standardized questionnaire. Histoplasmosis diagnostic test information was extracted from health departments' surveillance systems or patients' medical records. Data were aggregated at CDC.
RESULTS: As of November 9, 2018, 45 patients (29 [64%] probable and 16 [36%] confirmed) were interviewed. Thirty-one (70%) were male, 40 (89%) were white, median age was 54 years (range, 11–83), and 14 (31%) were immunosuppressed. Fatigue, (n=32, 71%), cough (n=25, 56%), and fever (n=24, 53%) were the most commonly reported symptoms. Median time from seeking healthcare to diagnosis was 21 days (range, 1–113). Positive histoplasmosis laboratory test results included antibody tests (n=27 patients, 60%), antigen tests (n=13, 29%), and culture (n=8, 18%). Abnormal chest imaging was the most common reason for testing (n=21 patients, 47%). Before being tested, 64% saw a healthcare provider ≥3 times, and 52% received antibacterial medication. Forty-nine percent were hospitalized, 44% received antifungals, and 72% said that histoplasmosis interfered with their daily activities (for a median of 30 days [range, 2–300]). Possible exposures in the month before onset included gardening or other handling of plants (58%), digging in soil (38%), contact with bird or bat guano (31%), and construction or demolition (29%). Five patients (11%) had heard of histoplasmosis before their illness.
CONCLUSIONS: Histoplasmosis can cause severe and prolonged illness that is often initially misdiagnosed. Based on the high rates of hospitalization and culture positivity, milder cases likely go undiagnosed and unreported. Diagnostic delays and antibacterial use (ineffective for histoplasmosis), were common, and general awareness was low, indicating the need for improved messaging to healthcare providers and the public.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Epidemiology; Surveillance; Emerging Infections
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	11455
Abstract Type	Quick
Abstract Title	Extrapulmonary Nontuberculous Mycobacteria Infections — Minnesota, 2013–2017

Abstract

BACKGROUND: Approximately 80 species of nontuberculous mycobacteria (NTM) causing disease are found environmentally and in animal reservoirs. Typically, pulmonary NTM infections are sporadic; extrapulmonary infections are commonly outbreak-associated. Recent sources of extrapulmonary NTM (ENTM) outbreaks in Minnesota include contaminated heater-cooler units used during cardiac surgery and contaminated hormone injections. We examined patient demographics and characteristics of laboratory-confirmed ENTM isolates to assess potential value of systematic laboratory-based ENTM surveillance in Minnesota.
METHODS: The Minnesota Department of Health requested laboratory data from *Mycobacterium* testing during 2013–2017 from 3 Minnesota reference laboratories that characterize *Mycobacterium* isolates. Using the CSTE case definition, we excluded *M. tuberculosis* complex, *M. bovis* and *M. leprae* isolates, and isolates from feces, lung, bronchoalveolar lavage, tracheal secretion, and sputum.
RESULTS: Of 4,017 NTM isolates, 415 (10.3%) were ENTM, representing an estimated burden of 15/1,000,000 people/year in Minnesota. Thirty-one species or complexes were identified; most common were *M. avium* or *M. avium* complex (30.6%), *M. chelonae* (21.7%), *M. fortuitum* or *M. fortuitum* complex (9.2%), and *M. abscessus* or *M. abscessus* complex (8.0%). Most common specimen collection sites included skin and soft tissue (41.2%), neck lymph node or tissue (14.5%), blood (13.5%), sinus (8.9%), and joint fluid (2.2%). The patient's median age was 55 years (range: 3–98 years); 19.1% were from patients aged <18 years, 19.3% aged 18–44 years, 26.1% aged 45–64 years and 35.5% aged ≥65 years. Sex was documented for 244 (58.8%) patients; 126 (51.6%) were males. County information was available for 315 isolates (75.9%); approximately half (48.5%) of patients resided in metropolitan Minneapolis-Saint Paul.
CONCLUSIONS: Laboratory data can be used for ENTM surveillance in Minnesota. Implementing laboratory-based surveillance could detect ENTM cases, provide a mechanism for obtaining clinical and epidemiological information, and enable earlier identification of potential healthcare transmission or community clusters.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Surveillance; Infectious Diseases; Healthcare Associated Infections (HAI)
Consider for Different Presentation?	Yes
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Submission Type	Breakout/Quick/Lightning/Poster
ID	10689
Abstract Type	Quick
Abstract Title	Invasive Group a Streptococcus in Arizona, 2014-2017

Abstract

BACKGROUND: In Arizona, invasive group A *Streptococcus* (iGAS) has been reportable since 1990. The number of cases of iGAS has been consistently increasing in Arizona, with a 143% increase between 2014 and 2017. The Arizona Department of Health Services assessed iGAS reports to characterize the cases and potential economic impact of disease increase.
METHODS: iGAS cases reported by laboratories and providers between 2014-2017 were analyzed. Facilities with at least three-fold increases in iGAS case reports were contacted to assess any changes in reporting practices or testing protocols. Case-patients were cross-matched to the Arizona Hospital Discharge Database (AHDD) and the Arizona Death Database (DD). The AHDD was used to calculate the total hospital charges for each matched iGAS case and assess outcomes of disease, such as hospital and emergency room utilization and severe disease presentation. Mortality rates were assessed using the DD.
RESULTS: The number of iGAS cases reported in 2014, 2015, 2016 and 2017 was 250, 344, 555 and 608, respectively. None of the six contacted facilities reported any changes in iGAS reporting practices, diagnostic tests performed or testing protocols. High rates of iGAS were observed in infants under 1 year and individuals aged 45 years and older. Males were more affected by the increase in iGAS cases, comprising 57% of cases as compared to 50% of the overall population. The Native American population was also disproportionately affected, comprising 10-14% of cases as compared to 4% of the overall Arizona population. Of the 1770 cases reported, 1496 (84.5%) matched to the AHDD, indicating utilization of hospital or emergency room services. Approximately 10% of the cases were diagnosed with necrotizing fasciitis or toxic shock syndrome in 2017, compared to 8% during 2014. The total hospital charges for iGAS cases increased by 170% between 2014 and 2017, total charges exceeding $55 million in 2017. Approximately 12% of iGAS cases died within one month of sample collection.
CONCLUSIONS: Arizona is experiencing annual increases in reported iGAS cases. This increase in cases represents significant economic burden and causes severe presentations and mortality in a notable proportion of cases. Reasons for the increase in reported iGAS cases are unknown, and no changes in reporting practices or diagnostics were identified. Preliminary genomic analyses suggest the introduction of a new virulent emm type, such as emm59, may be contributing to the increase, and further studies to investigate circulating serotypes and potential clusters are warranted.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Infectious Diseases; Epidemiology
Consider for Different Presentation?	Yes
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Submission Type	Roundtable
ID	11649
Abstract Type	Roundtable
Abstract Title	Adapting Fungal Disease Surveillance to a Changing Environment: Tracking Coccidioidomycosis, Histoplasmosis, and Blastomycosis

Abstract

Key Objectives:

- Outline changes underway in fungal disease surveillance, including proposed case definitions
- Discuss recent epidemiological trends in endemic mycoses
- Describe efforts to improve and update understanding of the geographical ranges of these diseases
- Identify opportunities for enhanced standardized surveillance to inform awareness and prevention efforts
- Strategize about ways to address key knowledge gaps in endemic mycoses

Brief Summary:

Over half of states require reporting of at least one of the so-called endemic mycoses, specifically the fungal diseases coccidioidomycosis, histoplasmosis, and blastomycosis. The endemic regions of these diseases have been incompletely defined and may be changing in the face of shifting environmental conditions. Public health surveillance is a key way to identify populations at risk, allowing targeted clinician and public outreach, which is important because these diseases are widely underdiagnosed, often mistaken as a bacterial or viral respiratory illnesses. Standardized surveillance is actively being revamped. The nearly decade-old case definition for coccidioidomycosis, already a nationally notifiable disease, is under revision, and the first consensus case definition for blastomycosis is being debated. The first histoplasmosis consensus case definition was approved by CSTE in 2016, and feedback is needed on its implementation. Incidence of coccidioidomycosis has varied dramatically (>2-fold) over the past decade, with a substantial increase in the past few years. Several jurisdictions have been investigating possible locally-acquired disease in regions previously thought to be non-endemic. For histoplasmosis, state-based surveillance has identified a substantial number of cases in states not thought to be endemic (e.g., Minnesota, Wisconsin, and Michigan) based on decades old maps and skin testing. Blastomycosis is perhaps the least understood of these diseases, and a new epidemic focus was recently identified in central New York. Environmental conditions are a key driver of the incidence of these diseases, but a far better understanding of these links is needed. Single-jurisdiction enhanced surveillance efforts, including patient interviews about exposures and clinical features, have yielded important insights into these diseases. Harmonized, systematic cross-jurisdiction enhanced surveillance could help address many unanswered questions and prevent illness and death. A discussion among states, territories, and CDC about surveillance for these diseases could lead to improved data collection and new opportunities for collaboration.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Climate and Health; Surveillance; Emerging Infections
Consider for Different Presentation?	No
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Submission Type	Roundtable
ID	10723
Abstract Type	Roundtable
Abstract Title	Bacterial and Fungal Infections As a Complication of Injection Drug Use (IDU)

Abstract

Key Objectives:
1) Review current knowledge regarding burden and epidemiology of bacterial and fungal infections among people who inject drugs (PWID), and limitations of current surveillance efforts 2) Share states' and other jurisdictions' efforts to address this public health problem 3) Discuss best practices for accessing and analyzing data on non-reportable IDU-associated infections 4) Discuss the role that health departments can play in investigating and preventing bacterial and fungal infections among PWID, and collaboration between public health and healthcare

Brief Summary:
Bacterial and fungal infections associated with drug use are increasing. A 2018 article showed that the percentage of invasive methicillin-resistant *Staphylococcus aureus* (MRSA) cases associated with IDU increased from 4.1% in 2011 to 9.2% in 2016. New York's Emerging Infections Program showed that 10% of investigated invasive *S. aureus* (iSA) infections were identified as being in PWID and that among young adults, rates of iSA infections associated with IDU have doubled. North Carolina's Division of Public Health found a more than twelvefold increase in the incidence of hospital discharge diagnoses for drug dependence combined with endocarditis between 2010 and 2015. These infections are likely also a significant problem for other jurisdictions experiencing increases in IDU in association with the opioid crisis. The opioid crisis is a priority topic for both the Department of Health and Human Services (HHS) and the Office of the Surgeon General, and was declared a Public Health Emergency under Federal law in October 2017. A comprehensive response to the crisis includes addressing the injection of drugs such as heroin and synthetic opioids. Improved treatment services and better data are two components of HHS's 5-point Strategy to Combat the Opioid Crisis; however many barriers exist to providing services to and conducting surveillance among PWID. Some challenges unique to preventing bacterial and fungal infections include education about appropriate skin cleansing, particularly among the homeless; understanding the importance of sterile injection equipment in preventing bacterial and fungal infections; access to resources for promoting hygiene and proper wound care; and management of substance use disorder during and after healthcare encounters for infection, especially during long treatment courses for infections such as endocarditis. This round table session offers an important opportunity to share practices currently utilized by state and jurisdictional health departments to identify, track, treat and prevent bacterial and fungal infections associated with IDU, explore the feasibility of developing best practices, and discuss next steps towards developing and implementing successful strategies.

Submission Complete?	Yes
Committee	Infectious Disease
Topic	Emerging & Miscellaneous Infectious Diseases
Keywords	Substance Use; Infectious Diseases; Substance Abuse
Consider for Different Presentation?	No
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