

An Outbreak of Invasive Group A Streptococcal Infections in Injection Drug Users

Presentation 655
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Across the Globe
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Abstract

Background: Opioid addiction is a major public health problem, and New Hampshire has the second highest overdose death rate in the nation (34.3 deaths per 100,000 population in 2015). In October 2016, the Infectious Disease (ID) service at an acute care hospital in central New Hampshire was consulted on 4 cases of *S. pyogenes* a.k.a. Group A Streptococcal (GAS) septicemia in injection drug users (IDUs) within less than a week. The cluster was reported to the NH Division of Public Health Services (DPHS) and an outbreak investigation was begun.

Methods: Additional case finding was instituted by signage in areas of at-risk populations, press releases, and a statewide health alert network (HAN) bulletin to clinicians. DPHS interviewed possible cases using a standardized questionnaire, and cases of invasive GAS reported in the previous 3 months were reviewed. The initial 4 isolates were collected for pulsed field gel electrophoresis (PFGE) and whole genome sequencing (WGS).

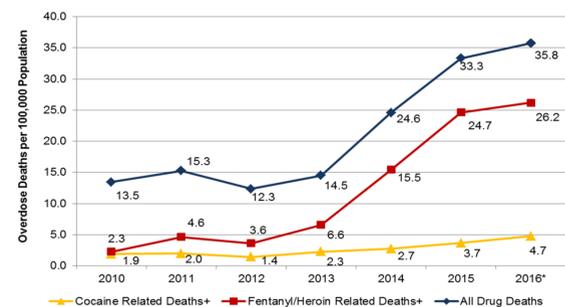
Results: A total of 11 cases of invasive GAS infection in IDUs were identified, 82% of which occurred within the month of October. The most common associated diagnosis was septicemia (90%), followed by cellulitis (67%), sepsis (55%), and pneumonia (18%). Ten (90%) patients were also co-infected with hepatitis C and a majority (55%) were homeless. Three quarters of the initial cases had identical isolates by PFGE and WGS. Two of these individuals were found to have a social connection. Of the 4 sentinel cases, all completed 10 days of parenteral antibiotics with clinical improvement. However, long term outcomes were poor, largely due to sequelae of substance addiction.

Conclusion: An invasive GAS outbreak was identified in a cluster of IDUs and associated with homelessness, with a majority presenting with septicemia or sepsis. Close cooperation between local clinicians and DPHS was crucial to identifying and determining the scope of this outbreak. GAS is not a well-known but life threatening pathogen in IDUs, and clinicians need increased awareness, especially during an outbreak.

Background

- New Hampshire is in the grips of an opioid epidemic, with one of the highest overdose death rates in the nation
- During one week, the ID service at one acute care hospital was consulted on 4 cases of Group A strep (GAS) septicemia in injection drug users (IDUs)

NH Overdose Deaths by Year per 100,000 Population
Data Source: NH Medical Examiner's Office



*2016 numbers are based on an analysis as of May 5, 2017. 3 cases still pending.
+Cocaine and Fentanyl/Heroin Related Deaths are not mutually exclusive. Several deaths involved both categories.

Outbreak Investigation

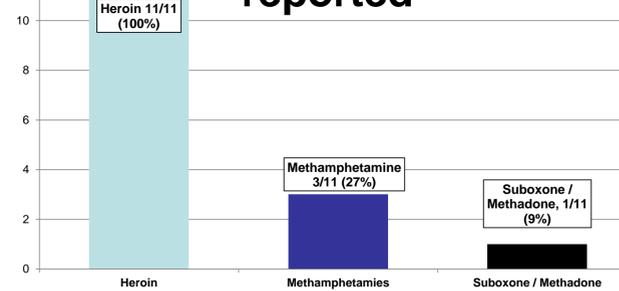
- The NH Department of Public Health Services (DHPS) was notified
- Signs were placed in homeless shelters and service organizations, advising urgent care for fever in IDUs
- A statewide health alert network (HAN) bulletin was issued
- DPHS interviewed potential cases using a standard questionnaire

Characteristics of invasive GAS cases

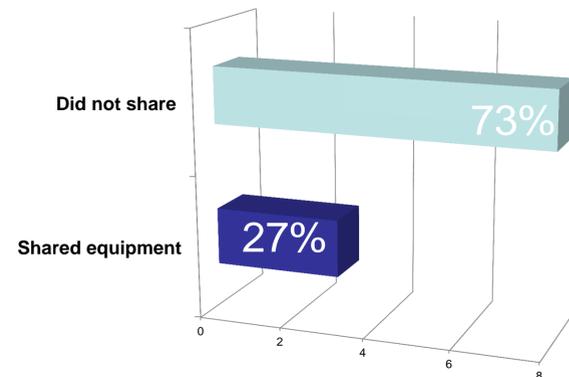
Cases Identified	11
Age:	
Range	19-55 years
Median	32 years
Sex:	
Male	9 (82%)
Female	2 (18%)
Homelessness	6 (55%)
Known history of incarceration	1 (9%)
Known injection drug use	11 (100%)
Date(s) of presentation	Aug 2016-Oct 2016*
*82% of cases occurred during October 2016	

Substance Use

All cases (100%) admitted to heroin use, although polysubstance use was also reported

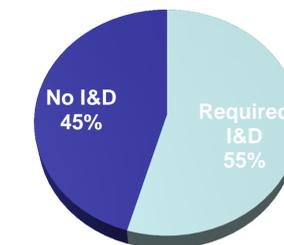
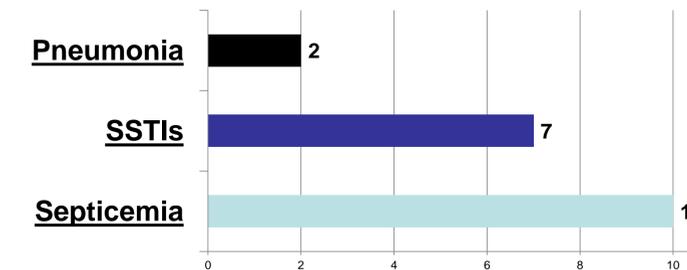


More than one quarter admitted to shared equipment (needles, spoons, cookers, water, or filters)



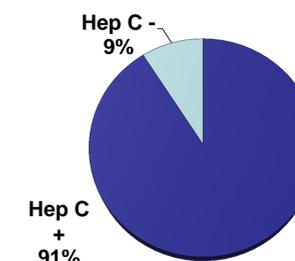
Associated Diagnoses

The most common associated diagnoses were septicemia, skin & soft tissue infections (SSTIs), and pneumonia



More than half required incision and drainage procedures

More than 90% of cases were also hepatitis C positive.



Strain Analysis

- 75% of the initial cluster had identical isolates by PFGE and WGS
- Two were found to have a social connection.

Outcomes

- The initial cluster all completed 10 days of IV antibiotics
- Long term outcomes were poor, due to sequelae of substance addiction (including incarceration, overdose, and death from overdose)

Conclusions

- An cluster of invasive GAS infections in IDUs was identified, associated with homelessness, with the majority presenting with septicemia
- Most were also hepatitis C positive
- Close cooperation between local clinicians and the state health department was *critical* to identify and determine the scope of this outbreak
- Increased awareness of invasive GAS infection in IDUs, especially in an outbreak setting, is warranted