

Tuberculosis Outbreak Investigations in the U.S.

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[Tanya Johnson] Hello. I'm Tanya Johnson. With me today is Dr. Kiren Mitruka, a medical officer with the Tuberculosis Outbreak Investigations team here at CDC, and co-author of a paper in the March 2011 issue of CDC's journal, Emerging Infectious Diseases. This paper looks at tuberculosis outbreak investigations in the United States from 2002 through 2008. Welcome, Dr. Mitruka.

[Kiren Mitruka] Thank you, Tanya.

[Tanya Johnson] How common is tuberculosis in the United States and do outbreaks occur?

[Kiren Mitruka] There were 11,545 TB cases reported in the United States in 2009. Although progress has been made toward eliminating TB in the U.S., TB outbreaks continue to occur and remain a serious public health issue. Understanding the characteristics of challenging outbreaks can really help us recognize and prevent situations that result in these outbreaks. In addition, it allows us to focus TB prevention and control strategies on the specific groups of people most likely to be involved in outbreaks. By reviewing reports of multiple investigations we gained more of a big picture perspective of what, if anything, these outbreaks might have in common.

[Tanya Johnson] Have you reviewed all of the tuberculosis outbreak investigations in the United States from 2002 through 2008?

[Kiren Mitruka] No, we only looked at the outbreak investigations that CDC was directly involved with. CDC responds only to TB outbreaks when state and local public health departments request assistance in conducting epidemiologic investigations and identifying key control measures. We don't go in unless we're asked. Generally, health departments ask for help with outbreaks that are particularly challenging to control and for which health departments might feel they've exceeded their surge capacity. When CDC is asked to assist, we conduct an onsite investigation that will last about two to three weeks. CDC investigators help describe the epidemiology of the outbreak, which means describing the person, place, and time pattern of the outbreak and its contributing factors. We also find additional cases, identify transmission sites, prioritize contacts for screening, and implement control measures.

[Tanya Johnson] You mentioned surge capacity. What is that?

[Kiren Mitruka] Surge capacity refers to the resources, such as available staff, that a health department or other agency can use to respond to an unexpected event or public health emergency.

[Tanya Johnson] The word outbreak always sounds so ominous. Did these outbreaks involve large numbers of people becoming infected with tuberculosis?

[Kiren Mitruka] Not necessarily. An outbreak can actually involve a small number of cases of a disease. It's important to remember that in public health the term outbreak is used to describe any emergence of a disease in larger numbers or in different places than we would expect to see it. The investigations we reviewed defined an outbreak as at least three culture-confirmed TB cases that were linked by both genotype, that is, by genetic fingerprint, and epidemiology.

[Tanya Johnson] How does the number of investigations CDC is involved in compare with the overall number of TB outbreaks in the U.S.?

[Kiren Mitruka] While CDC monitors the number and certain characteristics of individual TB cases in the United States, it does not monitor all outbreaks, so I can't give you a precise answer to that question. CDC and state public health departments are collaborating in the development of a surveillance system that uses information on the genetic fingerprint of TB strains combined with case characteristics to identify and monitor outbreaks. Multiple cases with similar characteristics and matching genotypes in a population or geographic area might indicate an outbreak, which would then require further investigation to confirm.

[Tanya Johnson] What were some of the major concerns related to TB outbreaks that you have identified?

[Kiren Mitruka] Although people born outside the U.S. have more TB compared to people born in the U.S., outbreaks that overwhelm local and state public health resources appear to usually involve primarily U.S.-born people. For these people, substance abuse, such as illegal drug use or alcohol abuse, was the most common TB risk factor. The epidemiologic link for many people was going to drug houses, which are places substance abusers go to obtain or use illegal drugs.

[Tanya Johnson] Thanks, Dr. Mitruka. I've been talking with CDC's Dr. Kiren Mitruka about a paper that appears in the March 2011 issue of CDC's journal, Emerging Infectious Diseases. You can see the entire article online at www.cdc.gov/eid. If you'd like to comment on this podcast, send an email to eideditor@cdc.gov. That's e-i-d editor – one word - at-c-d-c dot gov. I'm Tanya Johnson, for Emerging Infectious Diseases.

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