

## Emergence of Drug-Resistant TB at a South African Mine

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[Karen Hunter] Hello. I'm Karen Hunter. With me today is Dr. Dixie Snider, senior advisor in CDC's Office of the Director. We're talking about a paper in the February 2010 issue of CDC's journal, *Emerging Infectious Diseases*. The article looks at the increase in drug-resistant tuberculosis and the emergence of extensively drug-resistant TB at a gold mine in South Africa. Welcome, Dr. Snider.

[Dixie Snider] Thank you, Karen. It's good to be here.

[Karen Hunter] Dr. Snider, the authors of this paper describe a drug-resistant TB outbreak at a South African gold mine between 2003 and 2005. Would you start by describing the outbreak, specifically the drug resistance that was seen?

[Dixie Snider] During that period, the authors examined 3,003 patients with tuberculosis and, of that number, 128 had drug resistance and of the 128 – alarmingly - 108 had multiple drug-resistant tuberculosis and then a subset of those had extensively drug-resistant tuberculosis, five cases, but then a number of other cases had resistance to quite a number of drugs.

[Karen Hunter] Drug-resistant TB poses more of a concern than TB that's susceptible to first-line drugs. Explain why drug-resistant TB is so troubling to health officials.

[Dixie Snider] It's troubling for health officials from a variety of perspectives. First of all, people with drug-resistant tuberculosis often do not respond to the drugs and they die. They also are more likely to continue to transmit tuberculosis to other people and the other people develop tuberculosis. And it becomes difficult to choose appropriate treatment regimens that will prevent tuberculosis from killing that individual, but also spreading tuberculosis that is drug-resistant tuberculosis in the community.

[Karen Hunter] I understand that extensively drug-resistant TB is of particular concern and that it seems to be more common in South Africa than in other places. Why is that?

[Dixie Snider] Well, I think, one has to recognize that since the 1990s, we have known that people who are infected with HIV, the AIDS virus, are more susceptible to tuberculosis. There is a lot of HIV infection in South Africa, as there is in many other countries of the world. In this outbreak in South Africa, a large proportion of those who had drug-resistant tuberculosis also were infected with the AIDS virus. Consequently, they had very poor outcomes, a very high death rate in that group that was HIV infected with drug-resistant tuberculosis. They died because they were not on appropriate therapy for their tuberculosis and because they weren't on appropriate therapy for the HIV infection.

[Karen Hunter] The authors note that the large number of cases occurred, despite there being a well-functioning TB control plan there. How can something like that happen?

[Dixie Snider] The authors, I think, do an excellent job of pointing out several of the factors that may have contributed to the ongoing outbreak of tuberculosis in that particular area. First of all, the individuals worked in a gold mine and being in the mine in close quarters is a situation in which tuberculosis is transmitted very easily. In addition, an extremely high proportion of these people shared the same living quarters. And, thirdly, people who had tuberculosis were put on a common tuberculosis ward and what that meant was that people with drug-resistant tuberculosis were mixed with people who had tuberculosis that was originally susceptible to the drugs but then got re-infected, as we say, with the drug-resistant strain. So more attention, as they point out, to isolation precautions, more attention to treating the HIV infection may have helped avert the problem.

[Karen Hunter] Do these findings have any implications for other places trying to control tuberculosis?

[Dixie Snider] They certainly do. In 2006, CDC published in our *Mortality and Morbidity Weekly Report* a survey that was done by CDC and the World Health Organization which showed that multi-drug resistant tuberculosis and extensively drug-resistant tuberculosis were fairly widespread, especially in less developed countries. And so there are many programs around the world that are facing this problem of multidrug resistant tuberculosis, extensively drug resistant tuberculosis combined with HIV infection and, consequently, all countries need to adjust our TB control policies to treat people appropriately, to develop more rapid methods for doing drug susceptibility testing and to treating people's HIV infection immediately when we start the treatment of tuberculosis. And through that, I think that we can start to get a handle on this bad situation.

[Karen Hunter] Thanks Dr. Snider. I've been talking today with CDC's Dr. Dixie Snider about a paper that appears in the February 2010 issue of CDC's journal, *Emerging Infectious Diseases*. You can see the entire article online at [www.cdc.gov/eid](http://www.cdc.gov/eid).

If you'd like to comment on this podcast, send an email to [eideditor@cdc.gov](mailto:eideditor@cdc.gov). That's eideditor – one word - at cdc.gov. I'm Karen Hunter, for *Emerging Infectious Diseases*.

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