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Health Notification

Multi-Drug Resistant Tuberculosis (MDR-TB)

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Four cases of multi-drug-resistant (MDR) tuberculosis (TB) in residents of Philadelphia have been identified during the last year. ***The purpose of this notification is to remind clinicians to promptly identify and report all suspect and confirmed cases of TB to the Tuberculosis Control Program, at 215-685-6873, and to be alert to the possibility of MDR-TB.***

Recent Philadelphia Cases of MDR-TB

At least 4 cases of multi-drug resistant tuberculosis have been identified since June 2006 in Philadelphia. These are the first MDR-TB cases reported in Philadelphia since a single case was identified in June 2003. Recent immigrants appear to be at particular risk. The four MDR-TB cases are from Russia, Ukraine, Columbia and Bangladesh.

These cases are geographically dispersed throughout the city. At present, none of the cases are known to be epidemiologically linked to any other case. All have pulmonary TB. Three cases presented to local hospitals with TB symptoms and were AFB smear positive and TB culture positive. The fourth case was asymptomatic but a routine PPD was positive and subsequent chest X-ray was abnormal. Follow-up sputum smears were AFB negative but cultures were positive for *Mycobacterium tuberculosis*. All cultures were sent for routine drug susceptibility panels, which detected multi-drug resistant strains of TB.

MDR-TB is TB infection with a strain resistant to isoniazid and rifampin. The four Philadelphia cases of MDR-TB also demonstrated resistance to the following drugs:

- Case #1 - ethambutol, streptomycin
- Case #2 - ethambutol, streptomycin, kanamycin, PZA,
- Case #3 - ethambutol, streptomycin, ethionamide, rifabutin
- Case #4 - ethambutol, streptomycin, ethionamide, ofloxacin, PZA,

XDR-TB

Extensively drug resistant TB (XDR-TB) is a rare type of MDR-TB. XDR-TB is defined as TB, which is resistant to isoniazid and rifampin, plus resistant to any fluoroquinolone and at least one of three injectable second-line drugs -- amikacin, kanamycin, or capreomycin. No cases of XDR-TB have been identified in Philadelphia.

Recommendations

The Philadelphia Department of Public Health makes the following recommendations:

- Evaluate all individuals who present with 2 weeks of cough and fever for active TB, particularly those at high risk of infection, such as patients with HIV, homelessness, substance use, and those immigrating from high TB incidence areas. Obtain clinical specimens for AFB smear and culture. If clinical suspicion of TB is high, patients should be treated empirically with the standard four-drug antituberculous regimen, pending results of cultures.
- Remember that 50% of patients with pulmonary TB may have negative smears. Therefore, a negative smear does not rule out TB. Furthermore, although smear-negative patients are less contagious, they may still spread TB. It is estimated that one of six TB patients acquires infection from a smear-negative contact.
- Report all TB cases to the Philadelphia Department of Public Health, Tuberculosis Control Program, within 24 hours of the time the diagnosis is first suspected. Suspected and confirmed TB patients may be reported by telephone to the TB Control Program at 215-685-6873.
- Treat suspected TB cases with a standard regimen of isoniazid, rifampin, pyrazinamide, and ethambutol while awaiting culture and susceptibility results.
- **Suspect drug resistance** if patients are not getting better on standard first line treatment for TB (i.e., isoniazid, rifampin, pyrazinamide, ethambutol).
- All isolates of *M. tuberculosis* should be tested for susceptibility to first line antituberculous drugs. If testing is not available at your facility, isolates may be submitted to either the Philadelphia Public Health Laboratory or the Pennsylvania Bureau of Laboratories for testing.
- If susceptibility results reveal isoniazid resistance, treatment with rifampin (or rifabutin), ethambutol and pyrazinamide should be continued for 6-9 months, unless other drug resistance is identified.
- Consultation with the Tuberculosis Control Program is advised for management of all patients with MDR-TB and their contacts; treatment of such patients is not standardized.
- Ensure adherence to TB treatment by encouraging patients to have directly-observed therapy (DOT). The Department of Public Health can provide this service free of charge. Contact the TB Control Program to set up DOT.
- Initial cultures from all TB cases processed at the Philadelphia Public Health TB Lab are sent for DNA analysis as part of CDC's National TB Genotyping Project. We encourage all providers to take advantage of these services.