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Multidrug-resistant and extensively drug-resistant tuberculosis

The issue

Tuberculosis (TB) can usually be treated with a course of four standard, or first-line, anti-TB drugs. If these are misused or mismanaged (that is, when drugs are taken in the wrong combination, are fewer than those prescribed, or are taken in insufficient doses or not at the proper time), multidrug-resistant TB (MDR-TB) can develop. MDR-TB is a form of disease resistant to the most important anti-TB drugs, i.e. isoniazid and rifampicin. MDR-TB takes longer to treat with second-line drugs, which are more expensive and have more side-effects. If these drugs are also misused or mismanaged, extensively drug-resistant TB (XDR-TB) can develop. Because XDR-TB is resistant to first- and second-line drugs, treatment options are seriously limited and so are the chances of cure.

There is probably no difference between the speed of transmission of MDR-TB or XDR-TB and those of any other forms of TB. The spread of TB bacteria depends on factors such as the number and concentration of infectious people in any one place and the time of exposure, along with the presence of people with a higher risk of being infected, such as those with HIV.

MDR-TB requires considerably more expensive and prolonged treatment and extensive patient supervision and support, than normal TB and has a higher fatality rate. Several countries with good TB control programmes have shown that up to 50–60% of people with MDR-TB can be cured. Much lower rates of success can be achieved in people with XDR-TB. Success also depends on the severity of the disease and whether the patient's immune system is compromised.

The facts

- The 13 countries with the highest prevalence of MDR-TB in the world are all in the WHO European Region.
- It is estimated that there are nearly 70 000 cases of MDR-TB in Europe, of which 95% are in eastern Europe. They represent an average of 15% of all cases in the subregion, with peaks in some countries that are the highest rates in the world.
- Of the cases of MDR-TB, a significant proportion have XDR-TB, which is almost untreatable.
- Trends in western Europe are greatly affected by immigration but generally remain low without any major increases. This is largely also true of the central European countries. In eastern Europe, there are trends showing a gradual decrease in MDR-TB where there is good TB control in place, such as in the Baltic states. Where TB control remains poor, the numbers rise.

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- The first two cases of extremely drug-resistant TB (XXDR-TB) have been documented in Europe. This is a form of TB that is resistant to all first- and second-line drugs and so is virtually impossible to cure.
- Drug-resistant TB often occurs in socially vulnerable groups such as the homeless, alcohol and substance abusers and travellers. MDR-TB among prison inmates, particularly in countries of the former Soviet Union, also constitutes a considerable problem. In addition, certain population subgroups such as prisoners and injecting drug users are at risk of HIV infection as well as MDR-TB.

The policy considerations

Countries can prevent drug-resistant TB by ensuring that the work of their national TB control programmes, and all practitioners working with people with TB, is carried out according to the *International standards for tuberculosis care*.[1] These include, in particular:

- providing proper diagnosis and treatment to all TB patients, including those with drug-resistant TB;
- ensuring regular, timely supplies of all anti-TB drugs;
- properly managing anti-TB drugs and providing support to patients to maximize adherence to prescribed regimens; and
- caring for people with MDR-TB and XDR-TB in centres with proper ventilation, and minimizing contact with other patients (particularly those with HIV), especially in the early stages before treatment has had a chance to reduce the infectiousness.

Meanwhile, countries should promote the broad dissemination of *The patients' charter for tuberculosis care*,[2] which lists the rights and responsibilities of TB patients and their families.

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[1] *International Standards for Tuberculosis Care*. The Hague, Tuberculosis Coalition for Technical Assistance, 2006 (http://www.who.int/tb/publications/2006/istc_report.pdf, accessed 6 July 2007).
[2] *The patients' charter for tuberculosis care*. Viols en Laval, World Care Council, 2006 (http://www.stoptb.org/globalplan/assets/documents/IP_OMS_Charte_GB_Epreuve.pdf, accessed 6 July 2007).