Incidence rates falling slowly

Cases per 100,000 population

- Africa
- South-East Asia
- World
- Western Pacific
- Eastern Mediterranean
- Europe
- Americas

Cases in millions

- 1990: 9.2 in 2007
Latest global TB Estimates - 2006

- **All forms of TB**
  - Greatest number of cases in Asia; greatest rates per capita in Africa
  - Estimated number of cases: 9.15 million
  - Estimated number of deaths: 1.65 million

- **Multidrug-resistant TB (MDR-TB)**
  - Estimated number of cases: 489,000
  - Estimated number of deaths: 120,000

- **Extensively drug-resistant TB (XDR-TB)**
  - Estimated number of cases: 40,000
  - Estimated number of deaths: 20,000

- **HIV-associated TB**
  - Estimated number of cases: 700,000
  - Estimated number of deaths: 200,000

Greatest number of cases in Asia; greatest rates per capita in Africa.
MDR-TB among new cases 1994-2007

* Sub-national averages applied to China, Russia, Indonesia.

MDR-TB is resistance to isoniazid and rifampicin
Drug susceptible TB Cure rate 95+% 
MDR-TB Cure rate 67%

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

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2/3 of the MDR-TB burden in 3 countries
% MDR TB among new and previously treated patients by region

MDR% among New

MDR-TB among Rtmt

Global
Africa
Americas
Eastern
Eastern Mediterranean
Central and Eastern Europe
South East Asia
Western Pacific
Extensively drug-resistant tuberculosis as a cause of death in patients co-infected with tuberculosis and HIV in a rural area of South Africa

Summary

Background The epidemics of HIV-1 and tuberculosis in South Africa are closely related. High mortality rates in co-infected patients have improved with antiretroviral therapy, but drug-resistant tuberculosis has emerged as a major cause of death. We assessed the prevalence and consequences of multidrug-resistant (MDR) and extensively drug-resistant (XDR) tuberculosis in a rural area in KwaZulu Natal, South Africa.

Methods We undertook enhanced surveillance for drug-resistant tuberculosis with sputum culture and drug susceptibility testing in patients with known or suspected tuberculosis. Genotyping was done for isolates resistant to first-line and second-line drugs.

Results From January 2005 to March 2006, sputum was obtained from 1589 patients. We detected MDR tuberculosis in 22 patients, of whom 13 had XDR tuberculosis. Prevalence among HIV-infected patients with culture-confirmed tuberculosis was 39% (185 patients) for MDR and 6% (99) for XDR tuberculosis. Only 55% (24 of 47) of patients with XDR tuberculosis were smear-positive and drug-susceptible.

XDR = Resistance to at least INH and RIF (MDR) PLUS resistance to fluoroquinolones, AND one of the second-line injectable drugs (amikacin, kanamycin, or capreomycin)

Of 17,690 isolates from 49 countries during 2000-2004 20% were MDR and 2% were XDR

XDR found in:
USA: 4% of MDR
Latvia: 19% of MDR
S Korea: 15% of MDR

% XDR-TB among MDR in European countries (n = 27)

* Reporting periods vary generally 3 year average
Countries with confirmed cases of XDR-TB as of November 2008

Based on information provided to WHO Stop TB Department - June 2008
MDR-TB treatment levels compared to estimated burden

489,000 estimated cases

- 443 treated in Green Light Committee programs
- 34 countries report treatment, standard unknown
- No treatment reported. Some treatment probably obtained, quality unknown
Estimated HIV prevalence in new TB cases, 2006

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MDR-TB and HIV in Ukraine

<table>
<thead>
<tr>
<th>Civilian sector</th>
<th>Penitentiary sector</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>New cases</td>
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<tr>
<td>n=924</td>
<td>n=78</td>
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<tr>
<td>Previously</td>
<td>Previously</td>
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<tr>
<td>treated cases</td>
<td>treated cases</td>
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<tr>
<td>n=369</td>
<td>n=125</td>
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<tr>
<td>MDR rates</td>
<td>MDR rates</td>
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<tr>
<td>15.5</td>
<td>21.8</td>
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<td>(95% CLs)</td>
<td>(95% CLs)</td>
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<tr>
<td>(13.1 to 17.8)</td>
<td>(12.4 to 31.2)</td>
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<td>(36.4 to 46.5)</td>
<td>(43.9 to 61.7)</td>
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</tbody>
</table>

Independent predictors for MDR-TB

- History of previous treatment: OR: 4.0 (95%CLs 3.1-5.1)
- Imprisonment: OR: 1.5 (95%CLs 1.1-2.0)

- HIV status: OR: 1.7 (95% CLs 1.3-2.3)

Abstract to the 38th World Conference on Lung Health. 8-12 November 2007. Cape Town, South Africa
Achieving Global Plan targets requires more rapid scale-up in China and India.

Only 17,000 (~3%) MDR-TB patients receiving quality-assured treatment annually.

MDR-TB treatment plans vs Global Plan targets, 2008

Only 17,000 (~3%) MDR-TB patients receiving quality-assured treatment annually.

- **GP** = Global Plan
- **CP** = Country Plan

- **SE ASIA**
- **EUROPE**
- **W PACIFIC**
- **AFRICA**
- **AMERICAS**
- **EMR**
Conclusions
IVth Global Report on anti-TB Drug Resistance Surveillance

- Patients with drug resistance in 2004 resistant to more drugs than in 1994
- MDR increasing in several countries, XDR-TB emerging
- MDR rates in new cases approaching 25% in several Eastern European countries
- 2 population based surveys HIV+ TB more likely to have MDR-TB
Incidence of MDR TB: 500,000 cases annually

- Good reasons for development of new drugs
  - Average DR case in 2004 resistant to significantly more drugs than in 1994
  - XDR-TB apparently rising, and cases of total drug resistance reported
  - Necessary to address MDR in FSU (programme reform insufficient)
  - Preventive therapy (recommended for PLH) will not work for MDR-TB infection

- What kind of new drugs?
  - Shorter treatment duration vital in low-income and high HIV settings
  - ART compatible
  - Quality controlled

- To be delivered in high quality programs and systems
  - MDR and XDR-TB are much more complex, difficult to manage and expensive to treat
  - With clear national level strategic plans, aiming at 75% cure rate
1–3 April 2009, Beijing, China

"To allow this form of tuberculosis to spread would be a setback, effectively taking treatment options back to the pre-antibiotic era."
Dr Margaret Chan, Director-General WHO

WHO Ministerial Meeting on MDR-TB & XDR-TB Response
“Failure to act now to contain the threat posed by XDR-TB will have devastating consequences for patients with TB, particularly those co-infected with HIV/AIDS.”

See Editorial page 964