Institutional Infection Control in Russia

Dr. GRIGORY VOLCHENKO
Chief Doctor
Vladimir Oblast TB Dispensary
Center of Excellence for TB Infection Control

The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Vladimir Oblast (Region), Russia

- Population ~ 1.5 mln
- WHO pilot project since 1999
- TB Infection control project since 2002
- Both civil and penitentiary TB control sectors involved
# Occupational TB notification rate among HCW in TB Facilities in Russia

<table>
<thead>
<tr>
<th>Region/facility</th>
<th>Authors, publication date</th>
<th>Timing</th>
<th>TB notification rate</th>
</tr>
</thead>
</table>
MDR TB Transmission in Tomsk


• Retrospective study of the role of non-adherence and default and the acquisition of multidrug resistance

• Substance abuse was a strong predictor of non-adherence (OR 7.3 (2.89-18.46)
  o But non-adherence NOT associated with MDR-TB

• MDR-TB occurred among adherent patients who had been hospitalized in the course of therapy compared to those treated as out-patients
  o OR 6.34 (1.34 - 29.72) - began treatment in hospital
  o OR 6.26 (1.02 - 38.35) - hospitalized later during treatment
Starting point, Vladimir, November 2002

'TB is not a medical problem. It is one of economics and organization.'

By David Filipov, Globe Staff | May 29, 2003

VLADIMIR, Russia -- Nikolai Bogdanov hobbled painfully down the dark, moldy corridor of the tuberculosis ward, through the thick clouds of cigarette smoke, past dozens of men in flannel shirts, jeans, and slippers, many of them with faces as gaunt and hollow as his own.

Once in his doctor's office on that chilly November day, Bogdanov sat deferentially on the edge of the couch and spoke in a thin voice about his worst mistake, one that has made him a symbol of how Russia's TB epidemic has become so intractable and so dangerous. It was a mistake that cost him his life.

Bogdanov recalled how in April the night fevers had returned -- a sign that he had suffered a relapse of the tuberculosis he contracted in 1997 while hospitalized with a pancreatic infection. The doctors in Vladimir, an industrial city about 100 miles east of Moscow, wanted to hospitalized him right away, but the 36-year-old electrician refused to go.

The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Vladimir Regional TB Dispansery, Russia
TB Infection Control Program in Vladimir, 2001 - 2012

- Separation of TB patients according to sputum smear status, drug resistance and treatment regimen
- Risk related facility zoning (high, medium, low) with signage
- 24/7 Upper Room UVGI fixtures in high and medium risk areas
- Mechanical ventilation designed, installed, commissioned and maintained
- Personal respiratory protection program (FFP2(3) respirators, masks)
- Laboratory biosafety program
Implementation of Rapid Molecular Diagnostics (Xpert MTB/Rif) for improved case finding and separation, earlier effective treatment and hospitalization reduction.
TB Infection Control Program in Penitentiary Facilities

- The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Occupational TB Incidence among HCWs of TB services
Vladimir region, Russia

The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Vladimir Center of Excellence for TB Infection Control

- Established in July 2008 by Central TB Research Institute (V. Erokhin) and Vladimir TB Dispansery
- Supported by Paul Jensen, CDC and WHO/Euro
- Presenters from Vladimir, CTRI, WHO, CDC
- 6 - 8 courses per year for administrators, TB specialists, chief nurses, laboratory managers, engineers, BSC certifiers and architects from Russia, Eastern Europe and Central Asia states
- Supported TB IC courses and seminars in other regions of Russia, Kazakhstan, Belarus, Tajikistan, Azerbaijan, Armenia, Myanmar, Nepal
- Key message: We are able to substantially reduce TB transmission risk for patients and staff
Training sessions in Vladimir CoE for TB IC

The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Vladimir scientific and practical TB IC impact

- Introduction of Upper Room UVGI in FSU countries
- Negative pressure sputum collection booths
- In-duct UVGI exhaust air decontamination from high risk areas
- Cost effectiveness comparison of environmental controls study (ventilation, upper room UVGI, air cleaners)
- Sustainable personal respiratory protection program
- To be completed in 2013 – mechanically ventilated M(X)DR department with 3 separated zones
- Training TB IC engineering laboratory
- Development of diagnostic, separation and treatment algorithms based on rapid molecular diagnostic method (Xpert MTB/Rif)
The Global Crisis of Drug-Resistant TB and Leadership of BRICS Countries: Challenges and Opportunities
Specific TB IC Problems for Russia (1)

- Cold climate
- Long term hospitalization with poor isolation tradition; neglect of administrative infection control principles is quite common
- Weak PHC involvement in TB outpatient services
- Lack of airborne TB transmission oriented precautions in current national regulations
- Investments for TB control often lack prioritization
Specific TB IC Problems for Russia (2)

- Not rational use of UVGI (open lamp fixtures)
- Effective respiratory protection is not common, often staff use surgical masks
- Massive investments into Hi Tech waste disposal and sewage disinfection equipment
- Lack of expertise and experience in ventilation design, construction, commissioning and maintenance
Challenges

- Cold climate and limited usefulness of natural ventilation
- Weak primary care services and community involvement
- Long term tradition of mostly hospital based care (“over-hospitalism”)
- Increasing incidence of DR TB and HIV

Opportunities

- Electricity is affordable and available
- Federal and regional funding improved substantially during last 10 years
- First and Second Line TB Drugs supply is sufficient during last 3 – 4 years
- Rapid molecular diagnostics are becoming available on regional and district level
- HCW TB IC related knowledge and skills updated
- Priority based TB IC investments are highly effective
Problems to be solved

- Risk of MDR TB transmission in household cold climate settings for patients on SLD treatment – criteria for hospitalization / discharge
- Enforcement of out-patient primary health care and community supported treatment (paradigm shift for most Former Soviet Union states)
- Sustainability of IC interventions
What makes TB IC Program Successful

• TB IC strategy consisting of short- and long-term components should be based on comprehensive risk, resource and regulations assessment and TB control services trends.

• Expert support, advocacy and resource mobilization are essential for the TB IC program sustainability.

• Engineering controls and personal respiratory protection can be feasible only if based on effective administrative controls and applied in the highest priority settings.