

Epidemiology of Tuberculosis in Russia, 2010

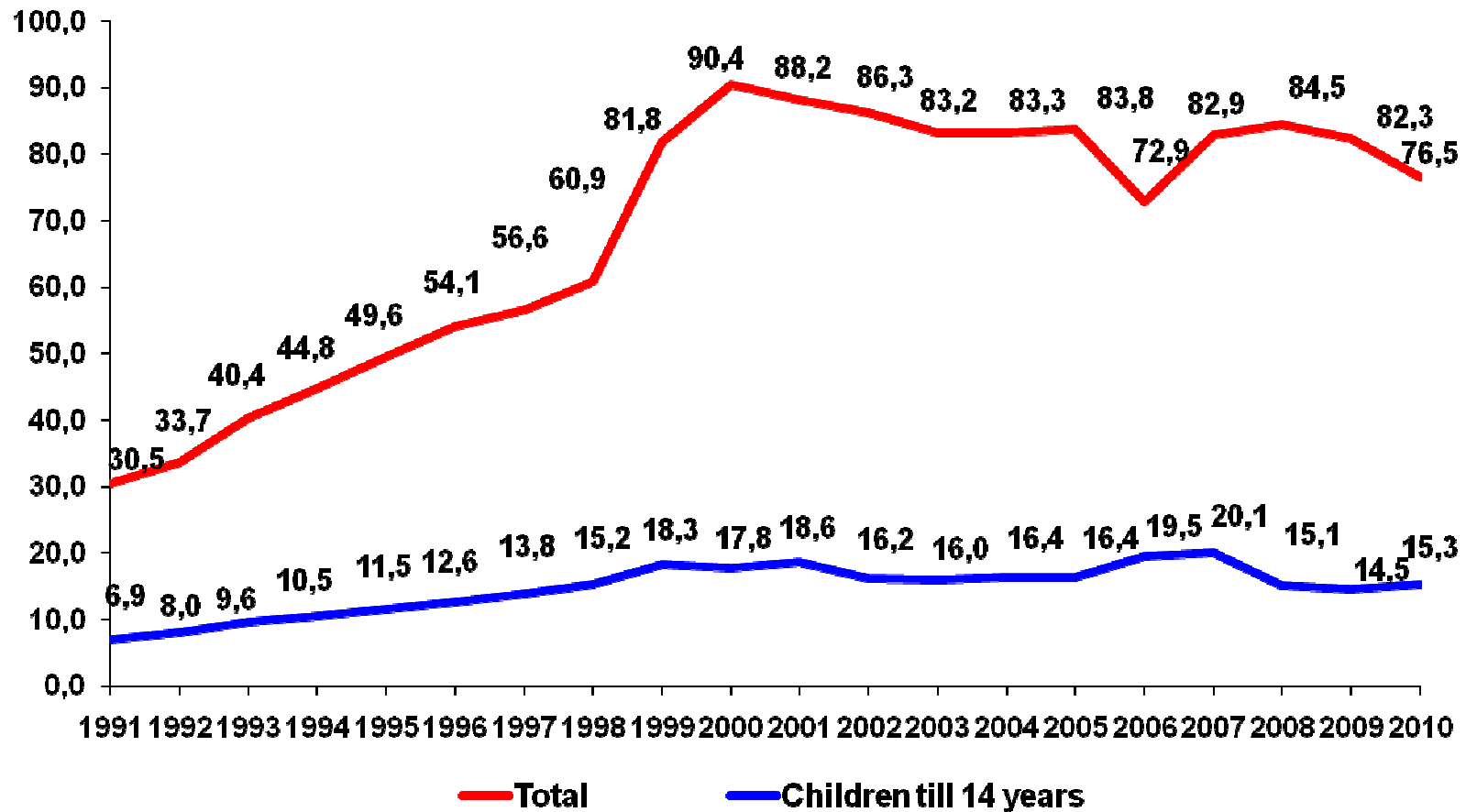
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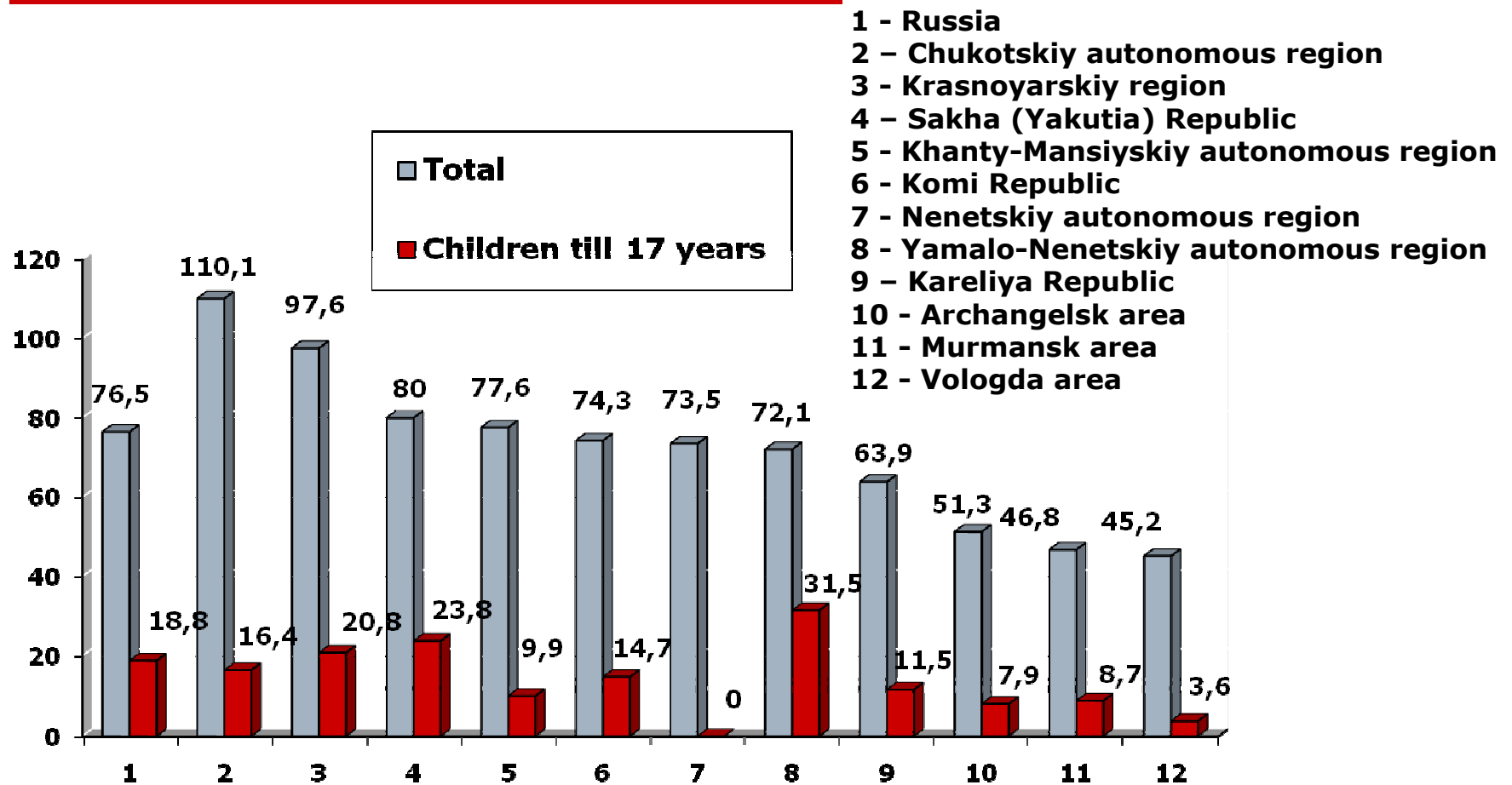
Copenhagen

2011

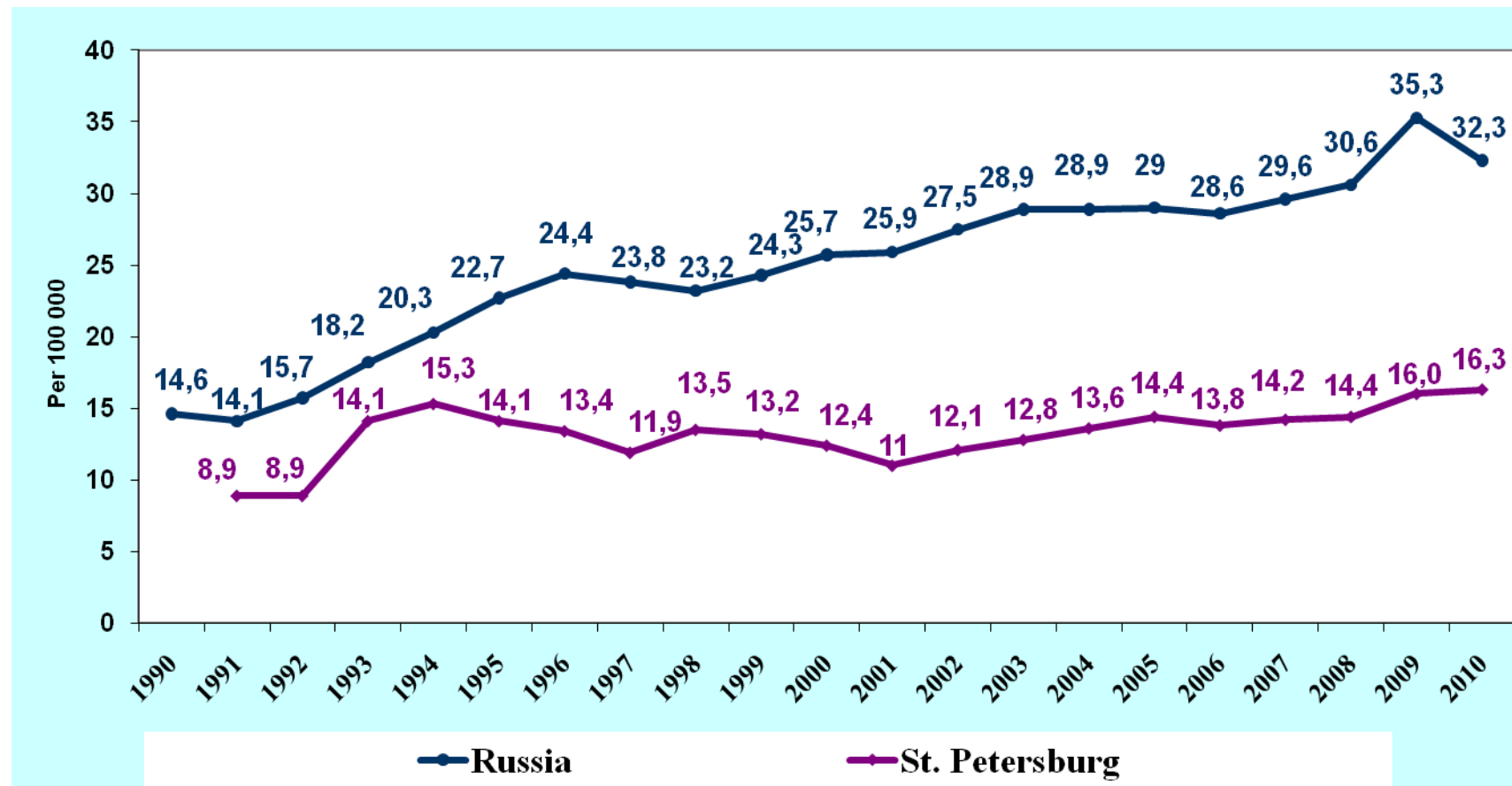
Tuberculosis notification rates in Russia, 1991-2010 (per 100 000)



Tuberculosis notification rates in Circumpolar Regions of Russia, 2010 (per 100 000)

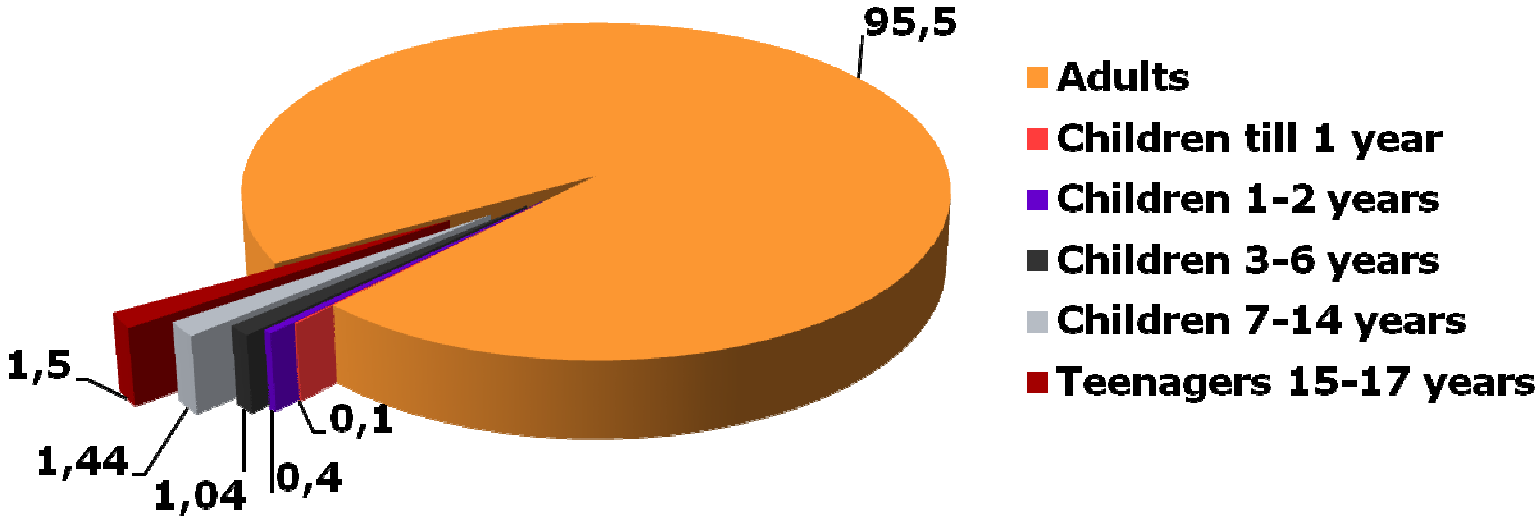


Tuberculosis notification BK+ rates in Russia and St. Petersburg, 1990-2010 (per 100 000)

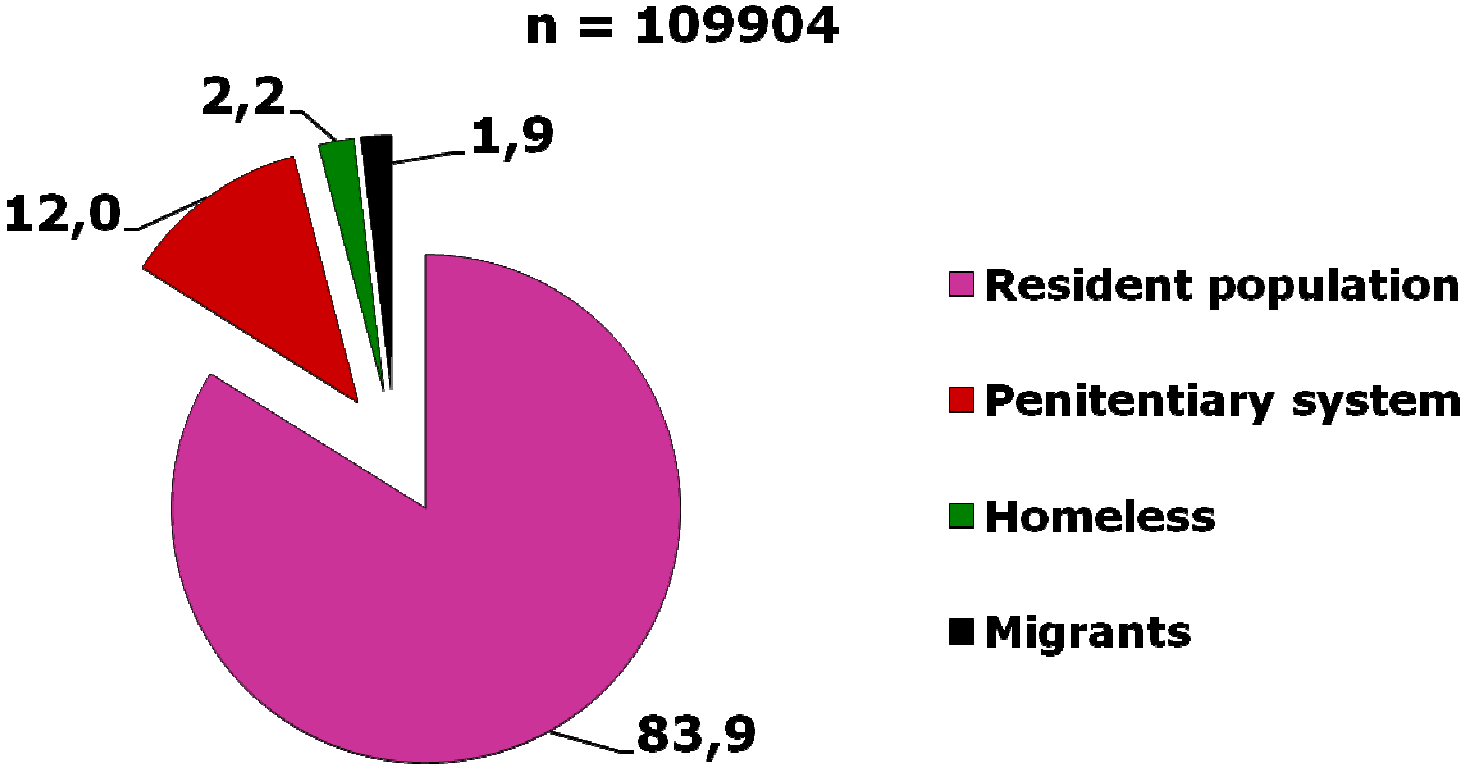


Distribution of TB patients by age group in Russia, 2010 (%)

n = 108524



Distribution of TB patients by risk groups in Russia, 2010 (%)



TB mortality rate among new cases in Russia, 2010 (per 100 000)

- Total in Russia – 2,57**
 - Krasnoyarskiy region – 6,26**
 - Kareliya Republic – 4,96**
 - Archangelsk area – 4,36**
 - Komi Republic – 3,56**
 - Chukotskiy autonomous region – 2,04**
 - Khanty-Mansiyskiy autonomous region – 1,90**
 - Vologda area – 1,56**
 - Murmansk area – 1,55**
 - Sakha (Yakutia) Republic – 1,16**
 - Yamalo-Nenetskiy autonomous region – 1,10**
 - Nenetskiy autonomous region – 0,00**
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MDR-TB rate among new cases in Russia, 2010 (%)

- Primary TB patients – 17,4**
 - Previously treated TB patients – 34,7**
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Percent of patients with TB+HIV in St. Petersburg, 2010

Tuberculosis cases total - 4920

Number of new cases TB+HIV – 617

Percent of patients with TB+HIV – 12,5

Vaccination against tuberculosis of newborn (0-30 days), %

	2008	2009	2010
Russia	96,2	96,1	95,7
North-West Region	96,1	95,9	95,6
Yamalo-Nenetskiy autonomous region	97,4	98,2	97,6
Chukotskiy autonomous region	98,3	98,0	98,1
Sakha (Yakutia) Republic	98,0	97,8	98,1

Other TB Preventive Measures in St. Petersburg, 2010

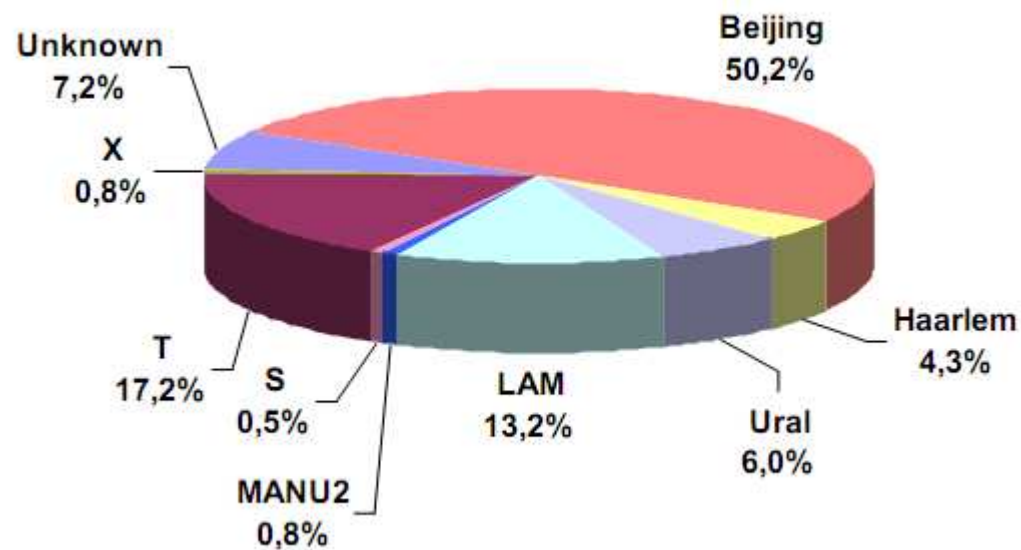
- The number of new cases - **1 976**
 - Hospitalised primary TB patients - **89,1%**
 - Contacting with the patients who had rentgeno-fluorographic inspection **92,7%** (children - **93,5%** teenagers - **95,2%**)
 - Tubelculinodiagnostic of contacting with TB patients - **92,8%**
 - Preventive treatment of contacting with TB patients - **81,7%**
 - Final disinfection - **97,8%**
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Molecular characterization of *Mycobacterium tuberculosis* population in Russia

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Prevalence of different genotype family strains in Russia defined by spoligotyping



T – T1, T2, T3, T4, T5, T1_RUS2, T5_RUS1
LAM – LAM1, LAM4, LAM9
H – H1, H2, H3, H4

Analysis of spoligotyping data shows high prevalence of Beijing genotype family strains in Russia

To further differentiate strains within *M. tuberculosis*, IS6110 –based and MIRU-VNTR typing are used

Designations according to SpolDB4, <http://www.pasteur-guadeloupe.fr:8081/SITVITDemo/outilsConsultation.jsp>

(*M. tuberculosis* strains isolated from newly diagnosed patients, 2005-2010)

Russian experience: Beijing genotype family strains

- High prevalence (>50% of strains)
 - Associated with higher rate of IS6110-PFLP and MIRU-VNTR-based clustering (a potential measure of increased virulence)
 - **Beijing** (122 of 158) > non-Beijing (49 of 135) – **2.5** fold in newly diagnosed patients – **3.2** fold
 - MDR phenotype in 48.6% of Beijing genotype strains versus 29.4% of non-Beijing strains (P<0,0001)
 - RIF-resistance mostly due to *rpoB531* Ser→Leu substitutions
 - INH-resistance due to *katG315* Ser→Thr substitutions
 - Cause severe tuberculosis (Skvortzova et al., 2005; Sapozhnikova et al., 2004)
 - Identified in (Narvskaya et al., 2002, 2003)
 - MDR TB outbreaks
 - Chains of nosocomial transmission
 - Episodes of exogenous re-infection
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Conclusion (1)

- Tuberculosis in Russia is Important Social and Medical Problem**
 - Some Territories of Circumpolar Region of Russia have very high TB notification rates**
 - MDR-tuberculosis growth in regions of Russia**
 - High level TB+HIV is noted**
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Conclusion and further questions to be addressed through research (2)

- **Ongoing transmission of MDR Beijing family strains presents real threat for public health in Russia and worldwide**
 - **Very important to rapidly identify clinically and epidemiologically significant Beijing genotype strains together with detection of RIF conferring mutations profiles**
 - **Better understanding of differences in virulence between *M. tuberculosis* genotypes could be important with regard to efforts of TB control, treatment of individual patients and development of improved vaccines**
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