



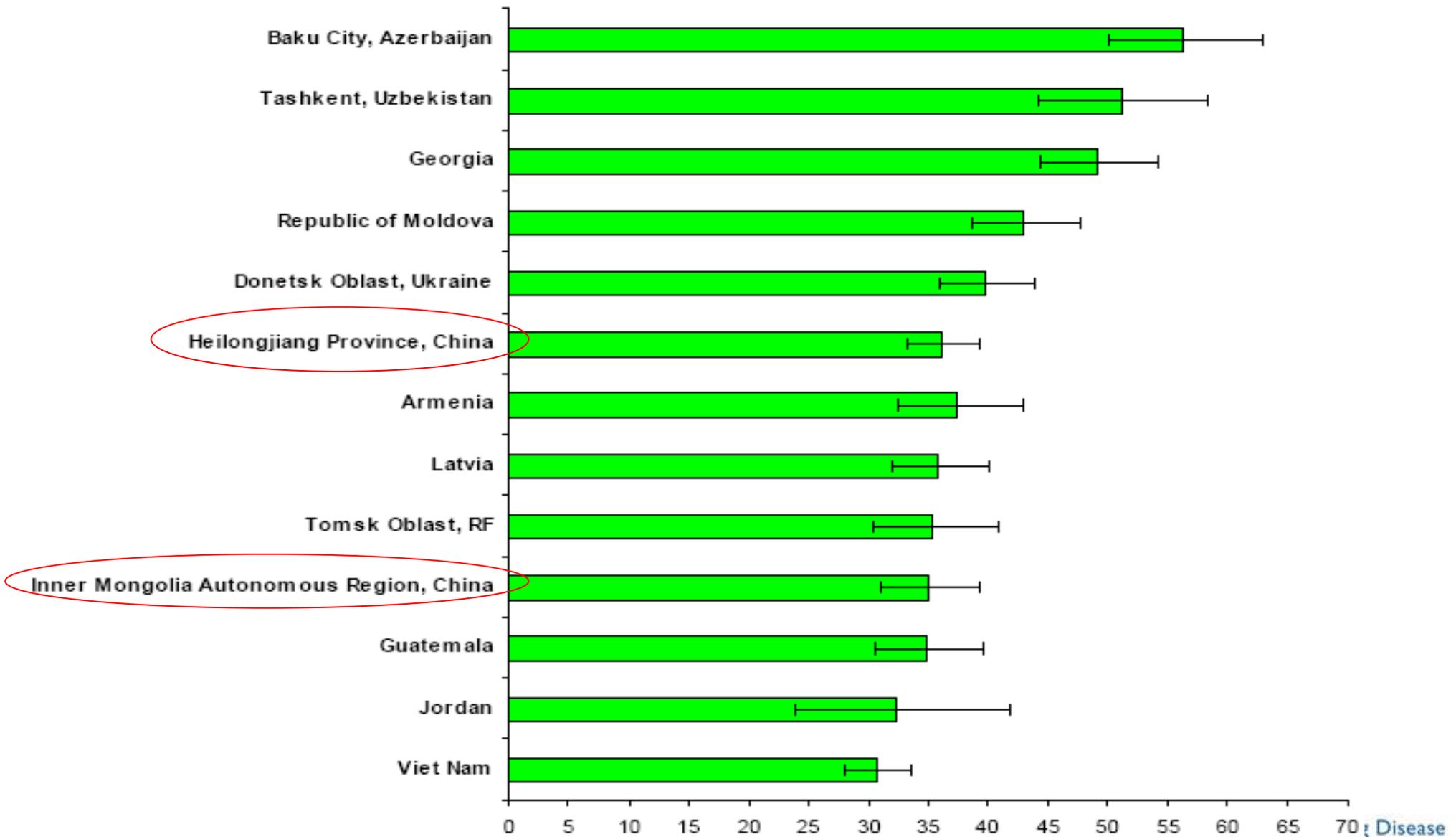
**International Union Against
Tuberculosis and Lung Disease**
Health solutions for the poor

MDR-TB in China

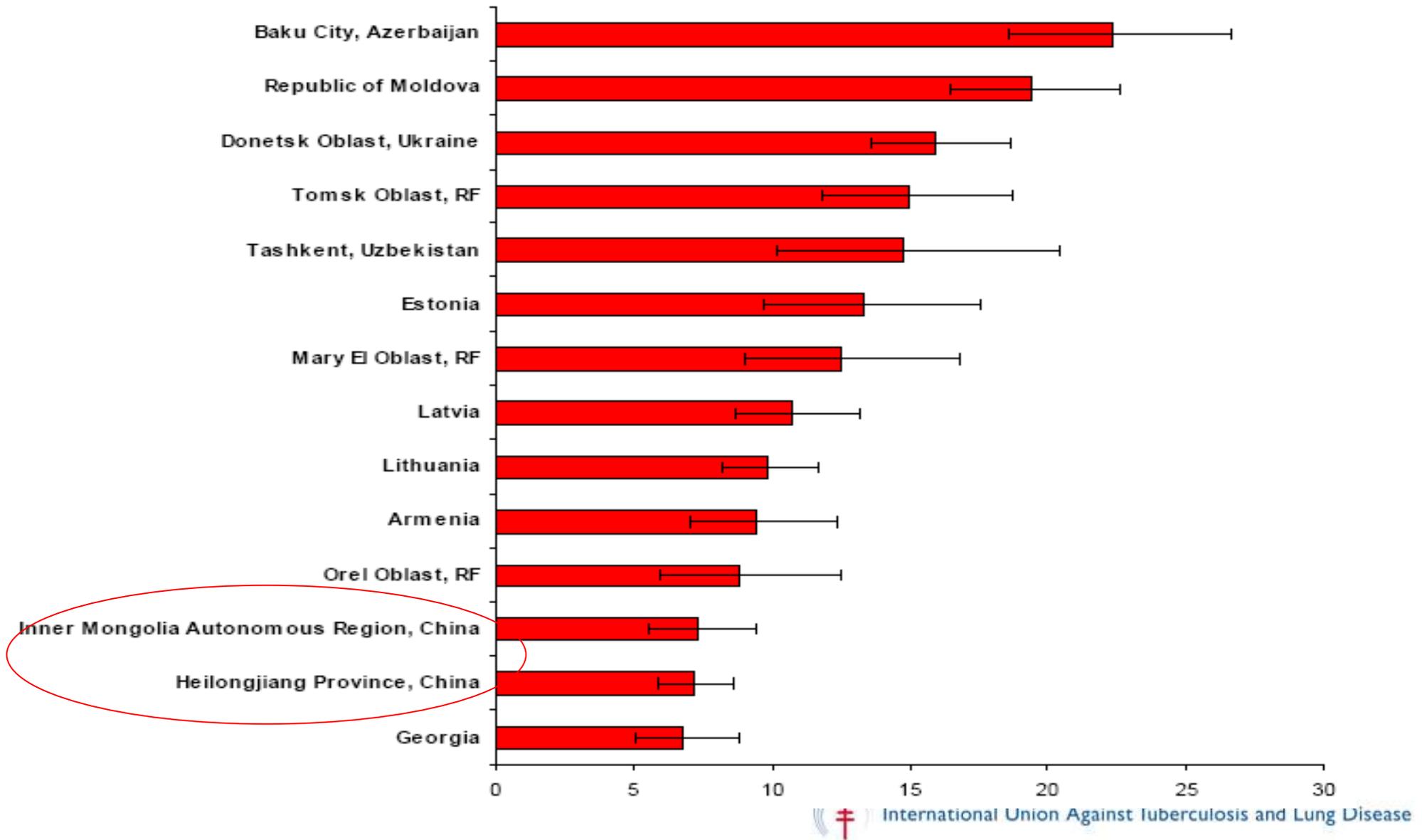
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31 Oct 2011, Lille, France

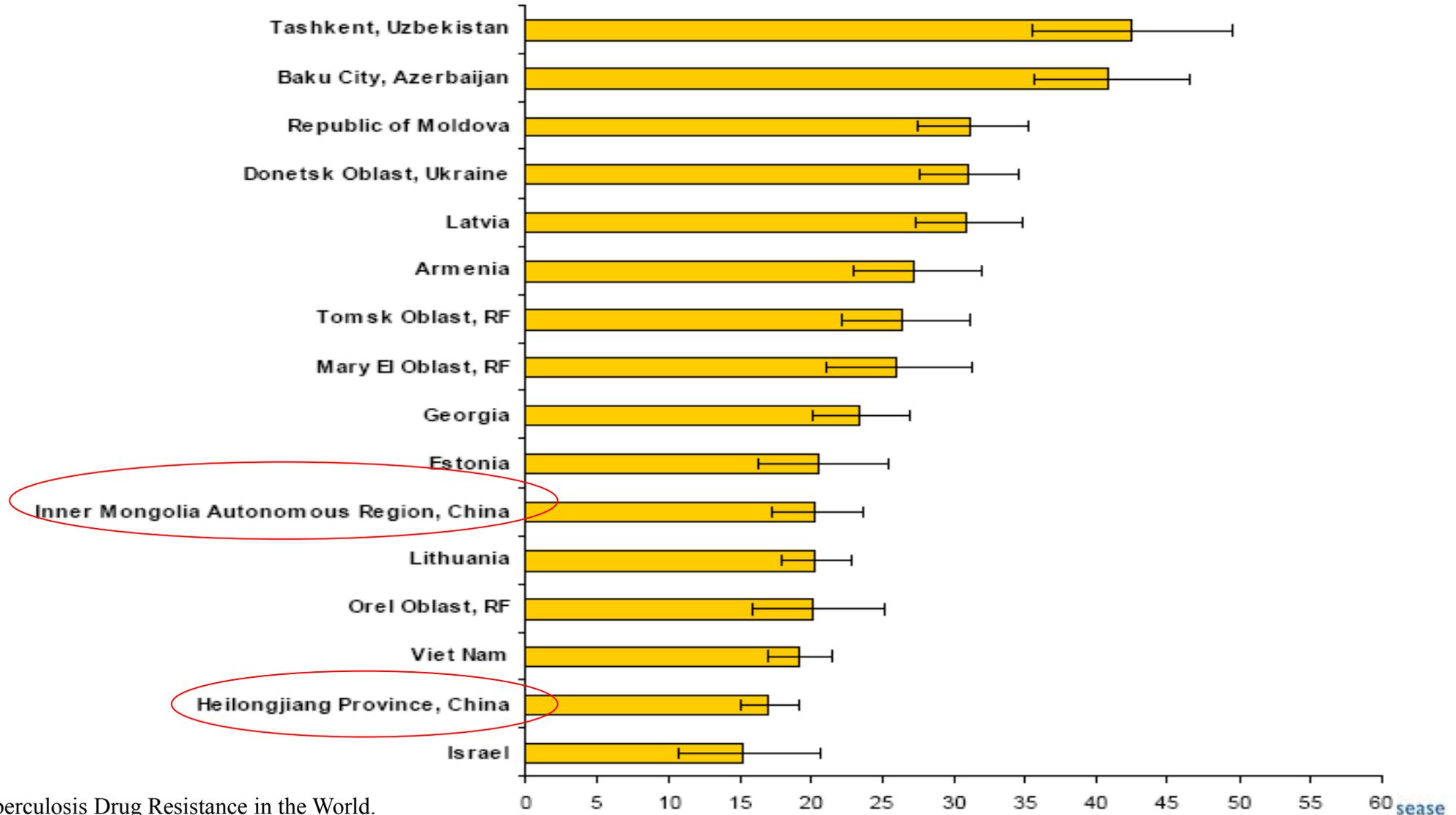
Prevalence of Any Resistance $\geq 30\%$ Among New Cases, 2002–2007



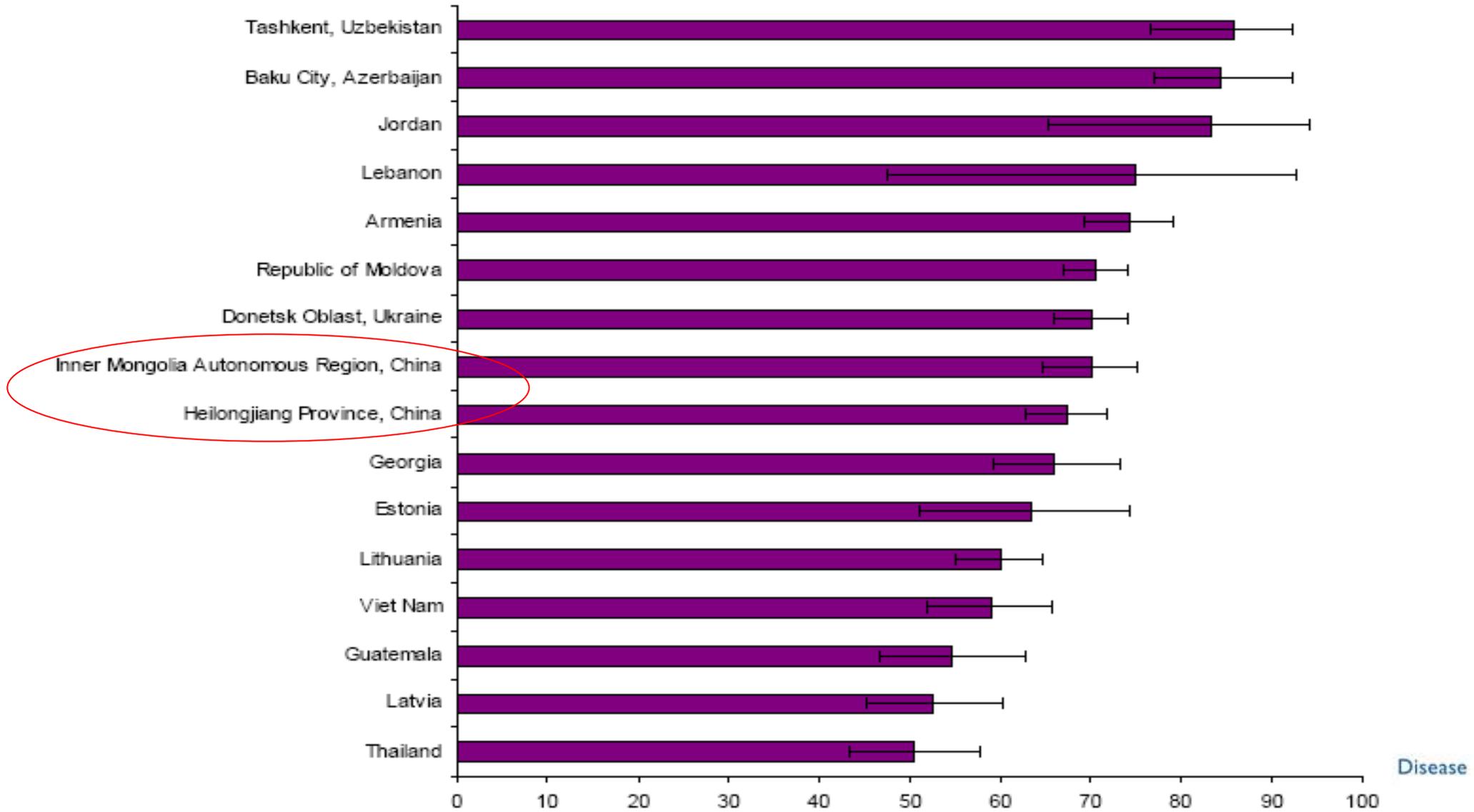
MDR Prevalence $\geq 5\%$ among New Cases 2002-2007



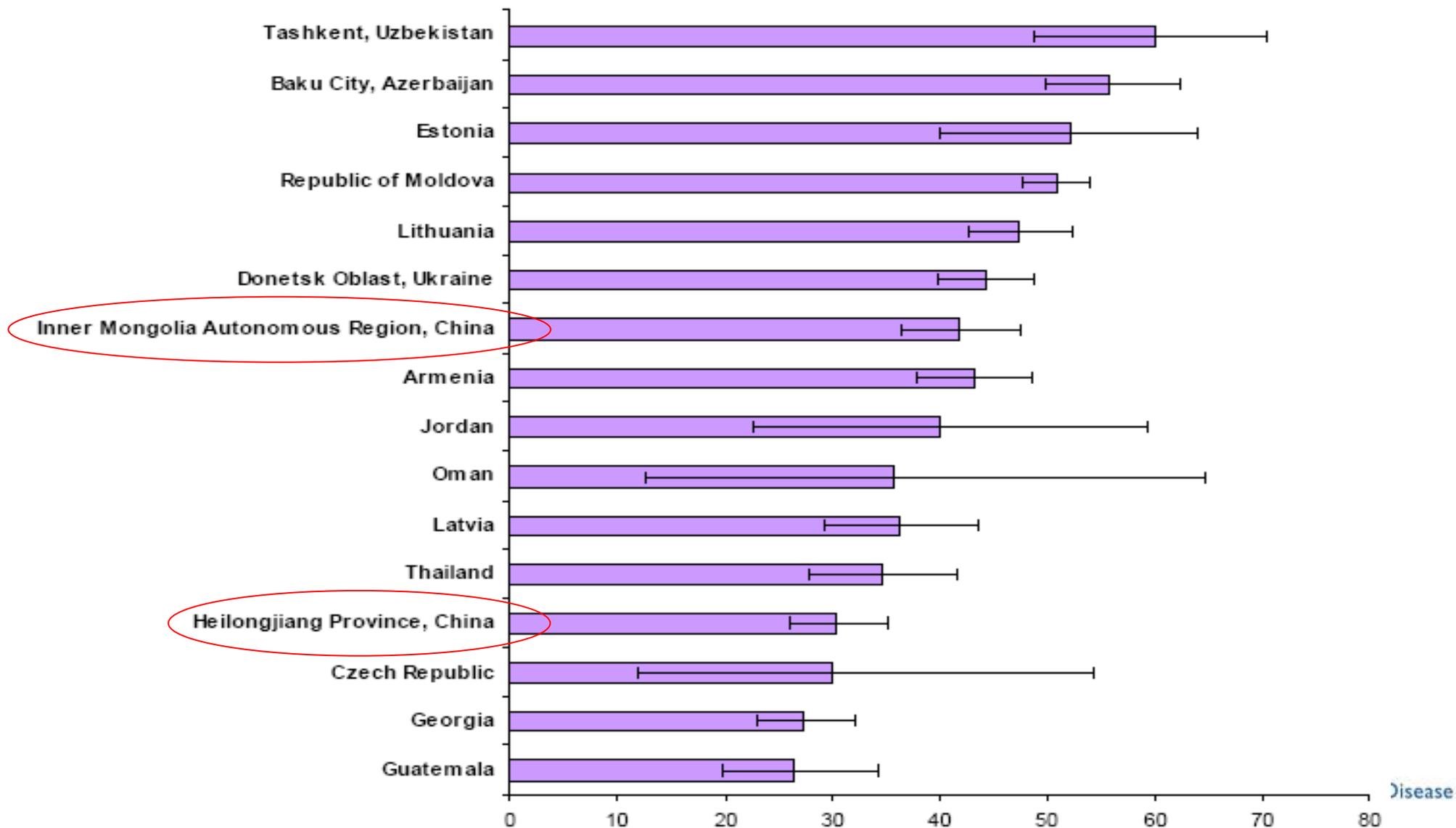
Prevalence of INH resistance $\geq 15\%$ among new cases, 2002-2007



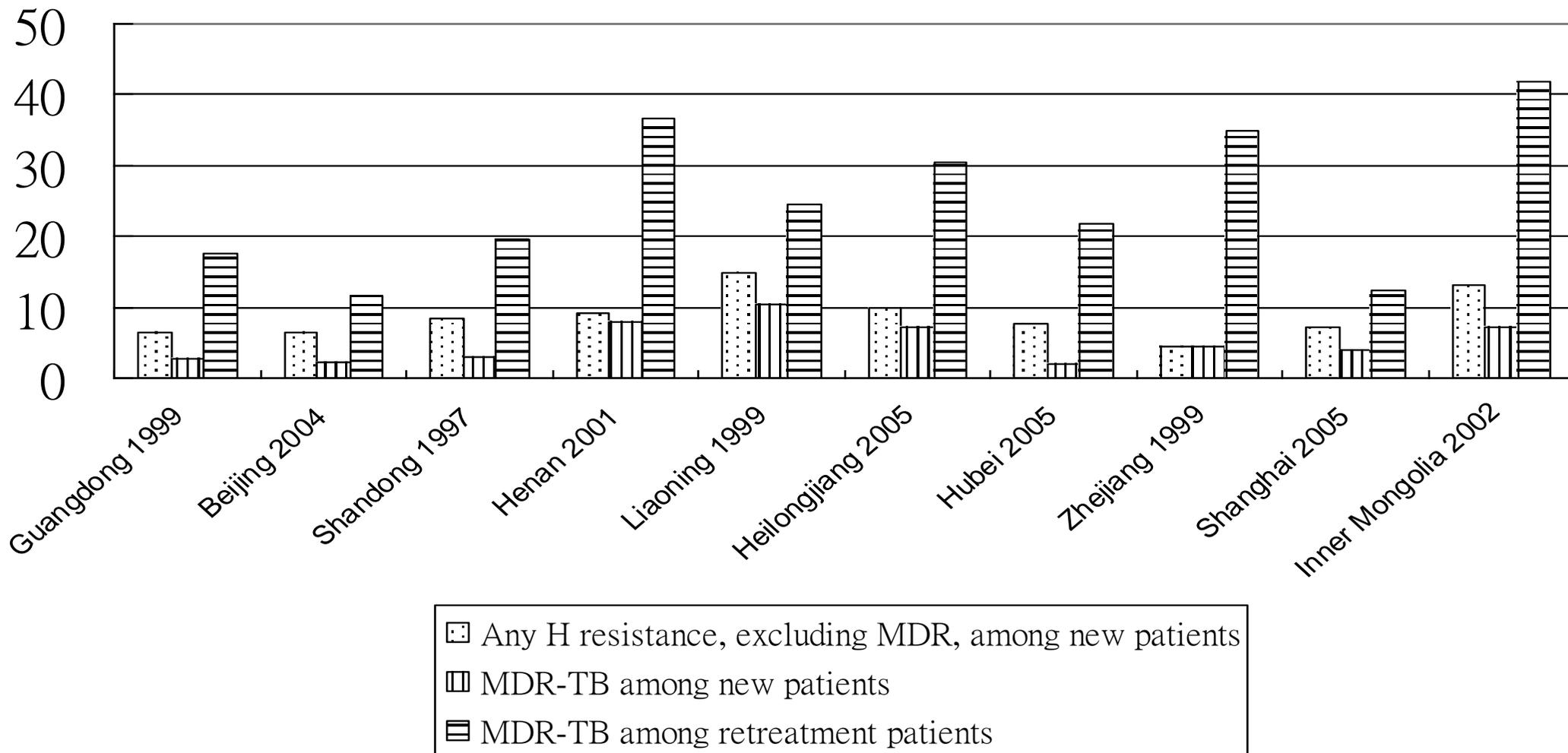
Prevalence of Any Resistance $\geq 50\%$, Previously Treated Cases, 2002-2007



Prevalence of MDR $\geq 30\%$, Previously Treated Cases, 2002-2007



Anti-tuberculosis drug resistance in China



National Drug Resistance Survey China, 2007

- **MDR-TB**
 - new patients: 5.7% (4.6 – 7.1)
 - previously treated patients: 25.6% (21.7 – 30.0)
 - overall: 8.3% (7.1 – 9.7)
 - 27.4% (23.1-32.1) were fluoroquinolone-resistant MDR-TB
 - 7.2% (4.9 – 10.2) MDR-TB are XDR-TB

Global estimated number of incident MDR-TB cases in 2008

- The global estimated number of incident MDR-TB cases in 2008 is 440,000 (range 390000 – 510000).
- 50% of MDR-TB cases worldwide are estimated to occur in China and India.

Estimated number of MDR-TB cases emerging annually in China and India

	MDR-TB among new (%)	MDR-TB among previously treated (%)	MDR-TB among incident new and relapse, n=	Incident acquired MDR-TB, n=	MDR-TB among incident total TB, n=
China	5.7%	25.6%	84000	15000	100000
India	2.3%	17.2%	55000	43000	99000

- the probability of acquired MDR-TB= (the probability of MDR-TB in previously treated patients – the probability of MDR-TB in new patients)

Tuberculosis notification in China and India, 2009

	Estimated case detection rate 2009	Total notified TB N=	New total (smear positive) N=	Retreatment Total (Relapse) N=	Retreatment exclude relapse N=	Proportion Retreatment
China	75%	982,303	922,720 (449,152)	59,583 (42,537)	17,046	6.1%
India	67%	1,533,308	1,243,552 (624,617)	289,756 (108,361)	181,395	18.9%

Case Studies

- Isoniazid、 Rifapentine
- HRZE for one week - liver problem
 - HE 、 Rifapentine for 5 days - blurred vision
 - H 、 Rifapentine for 6 months
- HRZE for 4 months,
 - Rifapentine and PASINIAZID for 11 months
 - Add EMB and SM,
 - HRZE, Amikacin, Clarithromycin



MDR-TB in China: contributing factors

- Previously treated TB cases registered and treated as new cases
- Intermittent therapy without DOT
- 85% successful rate as a political target
- Rifapetine and PAS-INH
 - In the treatment of new and previously treated cases
- Use of quinolone in the treatment of respiratory tract infection



MDR-TB in China: contributing factors

- Use of quinolone in the treatment of tuberculosis
 - Add quinolone in Cat II
- Lack of a mechanism to monitor clinical practice in general hospitals
- Less-than-recommended dosage of quinolone and second line injectables
 - adverse effect due to inadequate quality of drugs
 - Instruction by the pharmaceutical company



MDR-TB coverage in China

Province		2006.10	2007.10	2008.10	2009.10
五轮	湖北	1	2	5	5
	广东	1	3	6	6
	浙江			1	5
	河南			1	5
	山东			1	5
	内蒙古			1	5
七轮	黑龙江			1	3
	江苏			1	3
	四川				1
	湖南				1
	福建				1
	河北				1
合计		2	5	17	41

Examinations of MDR-TB Suspects in a program

Province	Suspects examined N=	Culture			DST	Results of DST			M+/C-
		Pos	Neg	Not avail- able		MDR	Not MDR	Not avail- able	
	A	B	C	D	E	F	G	B/(A-D) *100%	
1	3802	1976	980	846	1919	503	1185	231	33.2%
2	2369	1871	365	133	1867	456	1204	207	16.3%
3	1307	751	305	251	745	157	521	67	28.9%
4	1368	817	371	180	817	144	367	306	31.2%
5	411	259	33	119	253	58	65	130	11.3%
6	2075	1383	509	183	1218	193	798	227	26.9%



Examinations of MDR-TB Suspects in a program

Type of case	Examined N=	Culture results			DST	Results of DST		
		Pos	Neg	Not available		MDR	Not MDR	Not available
New	4397	2674	735	994	2530	134	1802	598
Relapse	4512	3166	824	513	3087	758	1865	450
Treatment after default	154	116	24	14	113	15	89	9
Treatment after Cat I failure	1242	723	379	139	713	209	421	83
Treatment after Cat II failure	1413	1046	188	179	1039	463	417	159
Smear positive at 3 months, New	296	118	141	37	118	28	73	17

