

Table 1. Response rate per Region
National survey of tuberculosis drug resistance in Limpopo Province, 2001 - 2002

Region	Cases	
	Expected	Registered (%)*
Bushveld	85	74 (87.1)
Western Region	117	82 (70.1)
Central Region	167	65 (38.9)
Northern Region	204	20 (9.8)
Lowveld Region	124	83 (66.9)
Southern Region	126	134 (106.3)
Bushbuckridge	98	162 (165.3)
Total	921	620 (67.3)

* Total of 762 culture-confirmed patients required

Table 2. Treatment history of suspect cases by Region
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002

Region	Treatment history*						
	No history of prior treatment		History of prior treatment		History unknown		Total
	n	%	n	%	n	%	n
Bushveld	228	72.8	52	16.6	33	10.5	313
Western Region	165	80.9	37	18.1	2	1.0	204
Central Region	243	74.8	79	24.3	3	0.9	325
Northern Region	78	79.6	17	17.3	3	3.1	98
Lowveld Region	222	61.3	140	38.7	0	0.0	362
Southern Region	360	73.9	112	23.0	15	3.1	487
Bushbuckridge	403	80.9	93	18.7	2	0.4	498
Total	1699	74.3	530	23.2	58	2.5	2287

* According to patient and/or record

**Table 3. Case detection (microscopy and culture) by Region
National survey of tuberculosis drug resistance in Limpopo Province, 2001 - 2002**

Region	No of suspects*	Microscopy			Culture		
		Smears done**	Smears positive		Cultures done***	Cultures positive	
			n	%		n	%
Bushveld	313	311	69	22.2	269	74	27.5
Western Region	204	203	84	41.4	171	82	48.0
Central Region	325	322	72	22.4	276	65	23.6
Northern Region	98	98	19	19.4	78	20	25.6
Lowveld Region	362	360	89	24.7	302	83	27.5
Southern Region	487	486	135	27.8	404	134	33.2
Bushbuckridge	498	495	138	27.9	448	162	36.2
Total	2287	2275	606	26.6	1948	620	31.8

* All specimens received

** Excludes smears unreadable

*** Excludes cultures contaminated/not done

Ratio of suspects : smear-positive cases = 3.76 : 1.00

Ratio of suspects : culture-positive cases = 3.14 : 1.00

**Table 4. Demographic profile of culture-confirmed tuberculosis patients (n = 539)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

Demographics		n	%
Gender	Male	334	62.0
	Female	205	38.0
Age group (years)	0 - 14	4	0.7
	15 - 24	85	15.8
	25 - 34	173	32.1
	35 - 44	128	23.7
	45 - 54	87	16.1
	55 - 64	26	4.8
	65 - 99	30	5.6
	Unknown	6	1.1
History of prior TB treatment*	No	442	82.0
	Yes	88	16.3
	Unknown	9	1.7
	<i>Retreatment RC</i>	39	44.3
	<i>RF</i>	3	3.4
	<i>RI</i>	21	23.9
	<i>RT</i>	16	18.2
	<i>Unknown</i>	9	10.2
History of incarceration	No	470	87.2
	Currently	2	0.4
	Previously	65	12.1
	Unknown	2	0.4

* According to patient and/or record

Retreatment categories

RC = after cure

RF = after failure

RI = after interruption

RT = after treatment completion

**Table 5. Microscopy and culture results (all specimens)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

Microscopy	n	%
Negative	1669	73.0
Positive	606	26.5
Not done	12	0.5
Total	2287	100.0
Culture		
Culture	n	%
Negative	1328	58.1
<i>M. tuberculosis</i>	539	23.6
MOTT*	2	0.1
Identification not possible	79	3.5
Contaminated	339	14.8
Total	2287	100.0

* Mycobacteria other than tubercle bacilli *M. tuberculosis*

**Table 6. Grading of bacteriology results (confirmed *M. tuberculosis* strains)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 - 2002**

Microscopy		n	%
Grading	Negative	93	17.3
	2 - 9 AFB* per 100 fields	39	7.2
	10 - 99 AFB per 100 fields (1+)	87	16.1
	10 - 99 AFB in 50 fields (2+)	93	17.3
	More than 10 AFB per field in 20 fields (3+)	227	42.1
	Total	539	100.0
Culture			
Grading	2 - 19 colonies	122	22.6
	20 - 99 colonies (1+)	31	5.8
	100 - 200 colonies (2+)	43	8.0
	Innumerable, discrete (3+)	287	53.2
	Confluent colonies (4+)	56	10.4
	Total	539	100.0

* AFB = Acid Fast Bacilli

**Table 7. Comparison of microscopy and culture results (both results available)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

		Culture results		Total	
		Positive (%)	Negative (%)	n	(%)
Microscopy results	Positive (%)	514 (83.0)	17 (1.3)	531	(27.4)
	Negative (%)	105 (17.0)	1302 (98.7)	1407	(72.6)
Total		619 (100.0)	1319 (100.0)	1938	(100.0)

Proportion of culture-confirmed cases

smear positive: 83.0%
smear negative: 17.0%

**Table 8. History of prior treatment and number of resistant drugs confirmed (*M. tuberculosis* strains)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

Resistance to	Treatment history						Total		
	No history of prior treatment*			History of prior treatment*					
	n	%	95% CI	n	%	95% CI	n	%	95% CI
1 drug	13	2.9	1.2 – 6.3	8	9.1	3.0 – 22.6	21	3.9	2.0 – 7.2
2 drugs	11	2.4	1.0 – 5.7	4	4.5	0.8 – 16.7	15	2.8	1.3 – 5.7
3 drugs	3	0.7	0.1 – 3.2	3	3.4	0.4 – 15.1	6	1.1	0.3 – 3.5
4 drugs	5	1.1	0.2 – 3.8	0	0.0	0.0 – 10.0	5	0.9	0.2 – 3.2
No resistance	419	92.9	88.5 – 95.8	73	83.0	68.0 – 92.1	492	91.3	87.1 – 94.2
Total	451	100.0		88	100.0		539	100.0	

* According to record and/or patient

Table 9. Antituberculosis drug resistance
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002

	No history of prior treatment*			History of prior treatment*		
	n	%	(95% CI)	n	%	(95% CI)
Total tested	451	100.0		88	100.0	
Fully susceptible	419	92.9	(88.5 – 95.8)	73	83.0	(68.0 – 92.1)
Any resistance	32	7.1	(4.2 – 11.5)	15	17.0	(7.9 – 32.0)
Mono-resistance						
H	6	1.3	(0.3 – 4.2)	4	4.5	(0.8 – 16.7)
R	0	0.0	(0.0 – 2.1)	3	3.4	(0.4 – 15.1)
E	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 10.0)
S	7	1.6	(0.5 – 4.5)	1	1.1	(0.0 – 11.8)
H+R resistance						
HR	3	0.7	(0.1 – 3.2)	3	3.4	(0.4 – 15.1)
HRE	1	0.2	(0.0 – 2.5)	2	2.3	(0.1 – 13.5)
HRS	2	0.4	(0.0 – 2.8)	1	1.1	(0.0 – 11.8)
HRSE	5	1.1	(0.2 – 3.8)	0	0.0	(0.0 – 10.0)
H+ other resistance						
HE	4	0.9	(0.2 – 3.5)	0	0.0	(0.0 – 10.0)
HS	4	0.9	(0.2 – 3.5)	1	1.1	(0.0 – 11.8)
HES	0	0.0	(0.0 - 2.1)	0	0.0	(0.0 – 10.0)
R+ other resistance						
RE	0	0.0	(0.0 - 2.1)	0	0.0	0.0 – 10.0)
RS	0	0.0	(0.0 - 2.1)	0	0.0	0.0 – 10.0)
RES	0	0.0	(0.0 - 2.1)	0	0.0	0.0 – 10.0)
Other multi-resistance						
ES	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 10.0)
Any H resistance	25	5.5	(3.1 – 9.6)	11	12.5	(5.0 – 26.7)
Any R resistance	11	2.4	(1.0 – 5.7)	9	10.2	(3.6 – 24.0)
Any E resistance	10	2.2	(0.8 – 5.4)	2	2.3	(0.1 – 13.5)
Any S resistance	18	4.0	(2.0 – 7.7)	3	3.4	(0.4 – 15.1)

* Prior treatment according to patient and/or record

**Table 10. Prevalence of resistance among retreatment patient categories
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

Patient category	Total	Fully susceptible		Any resistance		MDR	
		n	%	n	%	n	%
RC	39	33	84.6	6	15.4	1	2.6
RF	3	3	100.0	0	0.0	0	0.0
RI	21	17	81.0	4	19.0	2	9.5
RT	16	12	75.0	4	25.0	2	12.5
Unknown	9	8	88.9	1	11.1	1	11.1
Total	88	73	83.0	15	17.0	6	6.8

RC = Retreatment after cure
 RF = Retreatment after failure
 RI = Retreatment after interruption
 RT = Retreatment after completion

Any resistance among
 Unfavourable outcome = 16.7%
 Favourable outcome = 18.2%

MDR among
 Unfavourable outcome = 8.3%
 Favourable outcome = 5.5%

Table 11. Estimated MDR tuberculosis case load, 2001
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002

	Worst case scenario	Best case scenario
Estimated number of total cases	26703	14605
Proportion retreatment cases	16.3%	16.3%
Proportion new cases	83.7%	83.7%
Estimated number of:		
New cases	22350	12224
Retreatment cases	4353	2381
MDR Prevalence		
New MDR cases	2.4%	2.4%
Retreatment MDR cases	6.8%	6.8%
Estimated number of:		
New MDR cases	536	293
Retreatment MDR cases	296	162
Total number of MDR cases expected	832	455

**Table 12. HIV status of confirmed tuberculosis patients by gender, previous treatment and drug resistance (N = 479)
National survey of tuberculosis drug resistance in Limpopo Province, 2001 – 2002**

HIV status	Gender							
	Male		Female		Total			
	n	%	n	%	n	%		
Positive	141	48.5	110	58.5	251	52.4		
Negative	150	51.5	78	41.5	228	47.6		
Total	291	100.0	188	100.0	479	100.0		
	Previous treatment for tuberculosis							
	No history of prior treatment		History of prior treatment		History of prior treatment unknown		Total	
	n	%	n	%	n	%	n	%
Positive	211	54.4	36	43.4	4	50.0	251	52.4
Negative	177	45.6	47	56.6	4	50.0	228	47.6
Total	388	100.0	83	100.0	8	100.0	479	100.0
	Drug resistance							
	Fully susceptible		Any resistance		MDR		Total	
	n	%	n	%	n	%	n	%
Positive	226	51.8	25	58.1	9	56.3	251	52.4
Negative	210	48.2	18	41.9	7	43.8	228	47.6
Total	436	100.0	43	100.0	16	100.0	479	100.0