

Table 1. Response rate per District
National survey of tuberculosis drug resistance in the Free State, 2001 - 2002

District	Cases	
	Expected	Registered (%)*
DC 16 (Xhariep)	10	1 (10.0)
DC17 (Motheo)	346	301 (87.0)
DC 18 (Lejweleputswa)	239	226 (94.6)
DC 19 (Thabo Mfutsanyane)	211	94 (44.5)
DC 20 (Northern Free State)	114	134 (117.5)
Total	920	756 (82.2)

* Total of 762 culture-confirmed patients required

**Table 2. Treatment history of suspect cases by District
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

District	Treatment history*						
	No history of prior treatment		History of prior treatment		History unknown		Total
	n	%	n	%	n	%	n
DC 16 (Xhariep)	19	82.6	3	13.0	1	4.3	23
DC17 (Motheo)	745	66.2	369	32.8	11	1.0	1125
DC 18 (Lejweleputswa)	621	67.3	296	32.1	6	0.7	923
DC 19 (Thabo Mfutsanyane)	215	67.2	97	30.3	8	2.5	320
DC 20 (Northern Free State)	401	72.0	150	26.9	6	1.1	557
Total	2001	67.9	915	31.0	32	1.1	2948

* According to patient and/or record

**Table 3. Case detection (microscopy and culture) by District
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

Region	No of suspects*	Microscopy			Culture		
		Smears done**	Smears positive		Cultures done***	Cultures positive	
			n	%		n	%
DC 16 (Xhariep)	23	23	0	0.0	20	1	5.0
DC17 (Motheo)	1125	1118	270	24.2	993	301	30.3
DC 18 (Lejweleputswa)	923	910	185	20.3	799	226	28.3
DC 19 (Thabo Mfutsanyane)	320	319	87	27.3	269	94	34.9
DC 20 (Northern Free State)	557	551	121	22.0	455	134	29.5
Total	2948	2921	663	22.7	2536	756	29.8

* All specimens received

** Excludes unreadable smears

*** Excludes contaminated cultures

Ratio of suspects : smear-positive cases = 4.41

Ratio of suspects : culture-positive cases = 3.35

**Table 4. Demographic profile of culture-confirmed tuberculosis patients (n = 628)
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

Demographics		n	%
Gender	Male	375	59.7
	Female	253	40.3
	Unknown	0	0.0
Age group (years)	0 - 14	4	0.6
	15 - 24	84	13.4
	25 - 34	207	33.0
	35 - 44	195	31.1
	45 - 54	102	16.2
	55 - 64	28	4.6
	65 - 99	6	1.0
	Unknown	2	0.3
History of prior TB treatment*	No	449	71.5
	Yes	174	27.7
	Unknown	5	0.8
	<i>Retreatment RC</i>	80	46.0
	<i>RF</i>	2	1.5
	<i>RI</i>	36	20.7
	<i>RT</i>	44	25.3
<i>Unknown</i>	12	6.9	
History of incarceration	No	513	81.7
	Currently	2	0.3
	Previously	106	16.9
	Unknown	7	1.1

* 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 the Free State, 2001 – 2002**

Microscopy	n	%
Negative	2258	76.6
Positive	663	22.5
Not done	27	0.9
Total	2948	100.0
Culture		
Culture	n	%
Negative	1780	60.4
<i>Mycobacterium tuberculosis</i>	628	21.3
MOTT*	9	0.3
Identification not possible	119	4.0
Contaminated	412	14.0
Total	2948	100.0

* Mycobacteria other than tubercle bacilli

**Table 6. Grading of bacteriology results (confirmed *M. tuberculosis* strains)
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

Microscopy		n	%
Grading	Negative	162	25.8
	2 - 9 AFB* per 100 fields	59	9.4
	10 - 99 AFB per 100 fields (1+)	106	16.9
	10 - 99 AFB in 50 fields (2+)	111	17.7
	More than 10 AFB per field in 20 fields (3+)	190	30.3
	Total	628	100.0
Culture		n	%
Grading	2 - 19 colonies	174	27.7
	20 - 99 colonies (1+)	50	8.0
	100 - 200 colonies (2+)	58	9.2
	Innumerable, discrete colonies (3+)	301	47.9
	Confluent colonies (4+)	45	7.2
	Total	628	100.0

* AFB = Acid Fast Bacilli

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

		Culture results		Total	
		Positive (%)	Negative (%)	n	(%)
Microscopy results	Positive (%)	572 (75.9)	17 (1.0)	589	(23.4)
	Negative (%)	182 (24.1)	1744 (99.0)	1926	(76.6)
Total		754 (100.0)	1761 (100.0)	2515	(100.0)

Proportion of culture-confirmed cases

smear-positive: 75.9%
smear negative: 24.1%

**Table 8. History of prior treatment and number of resistant drugs (confirmed *M. tuberculosis* strains)
National survey of tuberculosis drug resistance in the Free State, 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	25	5.5	3.0 – 9.6	11	6.3	2.5 – 14.2	36	5.7	3.5 – 9.1
2 drugs	7	1.5	0.5 – 4.4	4	2.3	0.4 – 8.8	11	1.8	0.7 – 4.1
3 drugs	6	1.3	0.3 – 4.1	0	0.0	0.0 – 5.3	6	1.0	0.2 – 3.0
4 drugs	1	0.2	0.0 – 2.5	1	0.6	0.0 – 6.2	2	0.3	0.1 – 2.0
No resistance	415	91.4	86.8 – 94.6	158	90.8	82.2 – 95.7	573	91.2	87.4 – 94.0
Total	454	100.0		174	100.0		628	100.0	

* Prior treatment according to patient and/or record

Table 9. Antituberculosis drug resistance
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002

	No history of prior treatment*			History of prior treatment*		
	n	%	(95% CI)	n	%	(95% CI)
Total tested	454	100.0		174	100.0	
Fully susceptible	415	91.4	(86.8 – 94.6)	158	90.8	(82.2 – 95.7)
Any resistance	39	8.6	(5.4 – 13.2)	16	9.2	(4.3 – 17.8)
Mono-resistance						
H	15	3.3	(1.5 – 6.8)	7	4.0	(1.2 – 11.2)
R	3	0.7	(0.1 – 3.2)	2	1.1	(0.1 – 7.1)
E	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
S	7	1.5	(0.5 – 4.4)	2	1.1	(0.1 – 7.1)
H+R resistance						
HR	1	0.2	(0.0 – 2.5)	2	1.1	(0.1 – 7.1)
HRE	2	0.4	(0.2 – 2.8)	0	0.0	(0.0 – 5.3)
HRS	4	0.9	(0.2 – 3.5)	0	0.0	(0.0 – 5.3)
HRSE	1	0.2	(0.0 – 2.5)	1	0.6	(0.0 – 6.2)
H+ other resistance						
HE	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
HS	6	1.3	(0.3 – 4.1)	2	1.1	(0.1 – 7.1)
HES	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
R+ other resistance						
RE	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
RS	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
RES	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
Other multi-resistance						
ES	0	0.0	(0.0 – 2.1)	0	0.0	(0.0 – 5.3)
Any H resistance	29	6.4	(3.7 – 10.6)	12	6.9	(2.8 – 15.0)
Any R resistance	11	2.4	(0.9 – 5.6)	5	2.9	(0.6 – 9.7)
Any E resistance	3	0.7	(0.1 – 3.2)	1	0.6	(0.0 – 6.2)
Any S resistance	18	4.0	(1.9 – 7.6)	5	2.9	(0.6 – 9.7)

* Prior treatment according to patient and/or record

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

Patient category	Total	Fully susceptible		Any resistance		MDR	
		n	%	n	%	n	%
RC	80	74	92.5	6	7.5	1	1.3
RF	2	2	100.0	0	0.0	0	0.0
RI	36	34	94.4	2	5.6	0	0.0
RT	44	37	84.1	7	15.9	2	4.5
Unknown	12	11	91.7	1	8.3	0	0.0
Total	174	158	90.8	16	9.2	3	1.7

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

Any resistance among
 Unfavourable outcome = 5.3%
 Favourable outcome = 10.5%

MDR among
 Unfavourable outcome = 0.0%
 Favourable outcome = 2.4%

**Table 11. Estimated MDR tuberculosis case load, 2001
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

	Worst case scenario	Best case scenario
Estimated number of total cases	17225	11961
Proportion retreatment cases	27.7%	27.7%
Proportion new cases	72.3%	72.3%
Estimated number of		
New cases	12454	8648
Retreatment cases	4771	3313
MDR Prevalence		
New MDR cases	1.8%	1.8%
Retreatment MDR cases	1.7%	1.7%
Estimated number of:		
New MDR cases	224	156
Retreatment MDR cases	81	56
Total number of MDR cases expected	305	212

**Table 12. HIV status of confirmed tuberculosis patients by gender, previous treatment and drug resistance (n = 628)
National survey of tuberculosis drug resistance in the Free State, 2001 – 2002**

HIV status	Gender						Total	
	Male		Female					
	n	%	n	%		n	%	
Positive	241	70.7	166	73.8		407	71.9	
Negative	100	29.3	59	26.2		159	28.1	
Total	341	100.0	225	100.0		566	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	289	71.4	115	73.2	3	75.0	407	71.9
Negative	116	28.6	42	26.8	1	25.0	159	28.1
Total	405	100.0	157	100.0	4	100.0	566	100.0
	Drug resistance							
	Fully susceptible		Any resistance		MDR		Total	
	n	%	n	%	n	%	n	%
Positive	367	71.1	40	80.0	8	72.7	407	71.9
Negative	149	28.9	10	20.0	3	27.3	159	28.1
Total	516	100.0	50	100.0	11	100.0	566	100.0