

Table 1. Response rate per District
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 - 2002

District	Cases	
	Expected	Registered (%)*
Durban	410	776 (189.3)
Pietermaritzburg	139	110 (79.1)
Empangeni	108	120 (111.1)
Port Shepstone	77	52 (67.5)
Ulundi	70	19 (27.1)
Newcastle	44	29 (65.9)
Ladysmith	34	22 (64.7)
Jozini	33	18 (54.4)
Total	915	1146 (125.2)

* Total of 762 culture-confirmed patients required

Table 2. Treatment history of suspect cases by District
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 – 2002

District	Treatment history*						
	No history of prior treatment		History of prior treatment		History unknown		Total
	n	%	n	%	n	%	n
Durban	1182	66.9	559	31.6	26	1.5	1767
Pietermaritzburg	205	60.5	119	35.1	15	4.4	339
Empangeni	398	76.2	122	23.4	2	0.4	522
Port Shepstone	118	71.1	46	27.7	2	1.2	166
Ulundi	28	60.9	18	39.1	0	0.0	46
Newcastle	62	46.3	66	49.3	6	4.5	134
Ladysmith	42	62.7	24	35.8	1	1.5	67
Jozini	37	62.7	14	23.7	8	13.6	59
Total	2072	66.8	968	31.2	60	1.9	3100

* According to patient and/or record

**Table 3. Case detection (microscopy and culture) by District
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 - 2002**

Region	No of suspects*	Microscopy			Culture		
		Smears done**	Smears positive		Cultures done***	Cultures positive	
			n	%		n	%
Durban	1767	1740	787	45.2	1502	776	51.7
Pietermaritzburg	339	333	94	28.2	299	110	36.8
Empangeni	522	513	145	28.3	402	120	29.9
Port Shepstone	166	164	58	35.4	129	52	40.3
Ulundi	46	46	21	45.7	35	19	54.3
Newcastle	134	127	31	24.4	102	29	28.4
Ladysmith	67	65	24	36.9	51	22	43.1
Jozini	59	58	20	34.5	39	18	46.2
Total	3100	3046	1180	38.7	2559	1146	44.8

* All specimens received

** Excludes smears unreadable

*** Excludes cultures contaminated/not done

Ratio of suspects : smear-positive cases = 2.58: 1.00

Ratio of suspects : culture-positive cases = 2.23: 1.00

**Table 4. Demographic profile of culture-confirmed tuberculosis patients (N = 802)
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 – 2002**

Demographics		n	%
Gender	Male	499	62.2
	Female	303	37.8
Age group (years)	0 - 14	3	0.4
	15 - 24	192	23.9
	25 - 34	300	37.4
	35 - 44	196	24.4
	45 - 54	72	9.0
	55 - 64	30	3.7
	65 +	6	0.7
	Unknown	3	0.4
History of prior TB treatment*	No	578	72.1
	Yes	207	25.8
	Unknown	17	2.1
	Retreatment RC	32	15.5
	RF	12	5.8
	RI	46	22.2
	RT	89	43.0
Unknown	28	13.5	
History of incarceration	No	707	88.2
	Currently	5	0.6
	Previously	69	8.6
	Unknown	21	2.6

* 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 KwaZulu-Natal, 2001 – 2002**

Microscopy	n	%
Negative	1866	60.2
Positive	1180	38.1
Not done	54	1.7
Total	3100	100.0
Culture		
Culture	n	%
Negative	1413	45.6
<i>Mycobacterium tuberculosis</i>	802	25.9
MOTT*	3	0.1
Identification not possible	341	11.0
Contaminated/Not done	541	17.5
Total	3100	100.0

* Mycobacteria other than *M.tuberculosis*

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

Microscopy		n	%
Grading	Negative	114	14.2
	2 - 9 AFB* per 100 fields	56	7.0
	10 - 99 AFB per 100 fields (1+)	214	26.7
	10 - 99 AFB in 50 fields (2+)	173	21.6
	More than 10 AFB per field in 20 fields (3+)	238	29.7
	Not done	7	0.9
Total		802	100.0
Culture			
Culture		n	%
Grading	2 - 19 colonies	143	17.8
	20 - 99 colonies (1+)	55	6.9
	100 - 200 colonies (2+)	94	11.7
	Innumerable, discrete (3+)	494	61.6
	Confluent colonies (4+)	16	2.0
	Total		802

* AFB = Acid Fast Bacilli

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

		Culture results		Total	
		Positive (%)	Negative (%)	n	(%)
Microscopy results	Positive (%)	952 (83.7)	51 (3.7)	1003	(39.7)
	Negative (%)	185 (16.3)	1337 (96.3)	1522	(60.3)
Total		1137 (100.0)	1388 (100.0)	2525	(100.0)

Proportion of culture-confirmed cases

smear-positive: 83.7%
smear negative: 16.3%

**Table 8. History of prior treatment for tuberculosis and number of resistant drugs (confirmed *M. tuberculosis* strains)
National survey of tuberculosis drug resistance in KwaZulu-Natal, 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	22	3.7	2.0 – 6.7	17	8.2	4.0 – 15.7	39	4.9	3.1 – 7.6
2 drugs	6	1.0	0.3 – 3.2	9	4.3	1.5 – 10.8	15	1.9	0.8 – 3.9
3 drugs	7	1.2	0.3 – 3.4	8	3.9	1.2 – 10.2	15	1.9	0.8 – 3.9
4 drugs	4	0.7	0.1 – 2.7	4	1.9	0.3 – 7.5	8	1.0	0.3 – 2.7
No resistance	556	93.4	89.8 – 95.9	169	81.6	72.6 – 88.3	725	90.4	87.0 – 93.0
Total	595	100.0		207	100.0		802	100.0	

* Prior treatment according to patient and/or record

Table 9. Antituberculosis drug resistance
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 – 2002

	No history of prior treatment*			History of prior treatment*		
	n	%	(95% CI)	n	%	(95% CI)
Total tested	595	100.0		207	100.0	
Fully susceptible	556	93.4	(89.8 – 95.9)	169	81.6	(72.6 – 88.3)
Any resistance	39	6.6	(4.1 – 10.2)	38	18.4	(11.7 – 27.4)
Mono-resistance						
H	15	2.5	(1.1 – 5.2)	9	4.3	(1.5 – 10.8)
R	1	0.2	(0.0 – 1.9)	2	1.0	(0.1 – 6.0)
E	0	0.0	(0.0 – 1.6)	1	0.5	(0.0 – 5.3)
S	6	1.0	(0.3 – 3.2)	5	2.4	(0.5 – 8.2)
H+R resistance						
HR	0	0.0	(0.0 – 1.6)	4	1.9	(0.3 – 7.5)
HRE	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
HRS	6	1.0	(0.3 – 3.2)	8	3.9	(1.2 – 10.2)
HRSE	4	0.7	(0.1 – 2.7)	4	1.9	(0.3 – 7.5)
H+ other resistance						
HE	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
HS	6	1.0	(0.0 – 3.2)	5	2.4	(0.5 – 8.2)
HES	1	0.2	(0.0 – 1.9)	0	0.0	(0.0 – 4.5)
R+ other resistance						
RE	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
RS	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
RES	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
Other multi-resistance						
ES	0	0.0	(0.0 – 1.6)	0	0.0	(0.0 – 4.5)
Any H resistance	32	5.4	(3.2 – 8.8)	30	14.5	(8.6 – 23.1)
Any R resistance	11	1.8	(0.7 – 4.3)	18	8.7	(4.3 – 16.3)
Any E resistance	5	0.8	(0.2 – 2.9)	5	2.4	(0.5 – 8.2)
Any S resistance	23	3.9	(2.1 – 6.9)	22	10.6	(5.7 – 18.6)

* Prior treatment according to patient and/or record

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

Patient category	Total	Fully susceptible		Any resistance		MDR	
		n	%	n	%	n	%
RC	32	29	90.6	3	9.4	2	6.3
RF	12	7	58.3	5	41.7	2	16.7
RI	46	36	78.3	10	21.7	3	6.5
RT	89	74	83.1	15	16.9	8	9.0
Unknown	28	23	82.1	5	17.9	1	3.6
Total	207	169	81.6	38	18.4	16	7.7

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

Any resistance among
 Unfavourable outcome = 25.9%
 Favourable outcome = 14.9%

MDR among
 Unfavourable outcome = 8.6%
 Favourable outcome = 8.3%

Table 11. Estimated MDR tuberculosis case load, 2001
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 – 2002

	Worst case scenario	Best case scenario
Estimated number of total cases	80533	42631
Proportion retreatment cases	25.8%	25.8%
Proportion new cases	74.2%	74.2%
Estimated number of:		
New cases	59755	31632
Retreatment cases	20778	10999
MDR Prevalence		
New MDR cases	1.7%	1.7%
Retreatment MDR cases	7.7%	7.7%
Estimated number of:		
New MDR cases	1016	538
Retreatment MDR cases	1600	847
Total number of MDR cases expected	2616	1385

**Table 12. HIV status of confirmed tuberculosis patients by gender, previous treatment and drug resistance (N = 728)
National survey of tuberculosis drug resistance in KwaZulu-Natal, 2001 – 2002**

HIV status	Gender						Total	
	Male		Female					
	n	%	n	%	n	%	n	%
Positive	279	61.3	190	69.6	469	64.4		
Negative	176	38.7	83	30.4	259	35.6		
Total	455	100.0	273	100.0	728	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	337	64.1	124	66.7	8	50.0	469	64.4
Negative	189	35.9	62	33.3	8	50.0	259	35.6
Total	526	100.0	186	100.0	16	100.0	728	100.0
	Drug resistance							
	Fully susceptible		Any resistance		MDR		Total	
	n	%	n	%	n	%	n	%
Positive	415	63.2	54	76.1	20	76.9	469	64.4
Negative	242	36.8	17	23.9	6	23.1	259	35.6
Total	657	100.0	71	100.0	26	100.0	728	100.0