



## Surveillance of antituberculosis drug resistance in New Zealand

### Report for January to June 2004

This brief half-yearly report collates and analyses the antimicrobial susceptibility of isolates referred to and isolated in the Mycobacteriology Reference Laboratories at Auckland, Wellington and Waikato Hospitals during the six months January to June 2004.

During the six-month period, 112 isolates of *Mycobacterium tuberculosis* and three *M. bovis* isolates were identified. All isolates were tested for susceptibility to isoniazid, rifampicin, ethambutol, pyrazinamide and streptomycin. The proportion of isolates resistant to each antimicrobial is shown in Table 1.

**Table 1. Resistance to each antimicrobial, January-June 2004**

Antimicrobial	Number tested	Number resistant <sup>1</sup>	Percent resistance <sup>1</sup>
Isoniazid	115	9	7.8
Rifampicin	115	1	0.9
Ethambutol	115	2	1.7
Pyrazinamide	115	8 <sup>2</sup>	7.0
Streptomycin	115	6	5.2

Notes: 1 includes resistance alone or in combination with other antimicrobials  
2 includes the three *M. bovis* isolate

Eighty-four percent (97) of the isolates were fully susceptible to all five antimicrobials tested. The resistance patterns among the 115 isolates are shown in Table 2. One isolate was multidrug resistant (MDR-TB), that is, resistant to at least isoniazid and rifampicin. The patient with MDR-TB came from Thailand and arrived in New Zealand in January 2002.

**Table 2. Distribution of resistance patterns, January-June 2004**

	Number (%)	Resistance pattern <sup>1</sup>	Number (%) of isolates with each pattern
Fully susceptible	97 (84.4)		
Resistant to 1 agent	13 (11.3)	H	4 (3.5)
		Z <sup>2</sup>	5 (4.3)
		S	4 (3.5)
Resistant to 2 agents	3 (2.6)	HS	1 (0.9)
		HZ <sup>3</sup>	2 (1.7)
Resistant to 3 agents	1 (0.9)	HRE <sup>4</sup>	1 (0.9)
Resistant to 4 agents	1 (0.9)	HZSE	1 (0.9)

Notes: 1 H, isoniazid; R, rifampicin; Z, pyrazinamide; E, ethambutol; S, streptomycin  
2 includes one of the three *M. bovis* isolates  
3 *M. bovis* isolates  
4 MDR-TB, multidrug-resistant tuberculosis, that is, resistant to at least isoniazid and rifampicin

The geographic distribution of resistant isolates, based on aggregated health districts, is shown in Table 3.

**Table 3. Geographic distribution of resistance, January-June 2004**

Antimicrobial	Percent resistance (number resistant/number tested) <sup>1</sup>			
	Northern <sup>2</sup>	Midland <sup>2</sup>	Central <sup>2</sup>	Southern <sup>2</sup>
<b>Isoniazid</b>	12.3 (7/57)	6.3 (1/16)	3.5 (1/29)	0 (0/13)
<b>Rifampicin</b>	1.8 (1/57)	0 (0/16)	0 (0/29)	0 (0/13)
<b>Ethambutol</b>	3.5 (2/57)	0 (0/16)	0 (0/29)	0 (0/13)
<b>Pyrazinamide</b>	7.0 (4/57)	12.5 (2/16)	6.9 (2/29)	0 (0/13)
<b>Streptomycin</b>	10.5 (6/57)	0 (0/16)	0 (0/29)	0 (0/13)

Notes: 1 includes resistance alone or in combination with other antimicrobials

2 the Northern area includes the Northland, North West Auckland, Central Auckland, and South Auckland Health Districts; the Midland area includes the Waikato, Tauranga, Eastern Bay of Plenty, Gisborne, Rotorua, Taupo, Taranaki, and Ruapehu Health Districts; the Central area includes the Hawkes Bay, Wanganui, Manawatu, Wairarapa, Hutt, Wellington, and Nelson-Marlborough Health Districts; and the Southern area includes the Canterbury, South Canterbury, West Coast, Otago, and Southland Health Districts

Seven (6.1%) of the total 115 isolates were from cases categorised as tuberculosis reactivations. There were no significant ( $P \leq 0.05$ ) differences in resistance among isolates from new cases compared with isolates from reactivations.

**Acknowledgements:** Ross Vaughan, Mycobacteriology Reference Laboratory, Auckland Hospital; Leo McKnight, Mycobacteriology Reference Laboratory, Wellington Hospital; and Kathryn Coley, Mycobacteriology Reference Laboratory, Waikato Hospital, for supplying their susceptibility test results.

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