

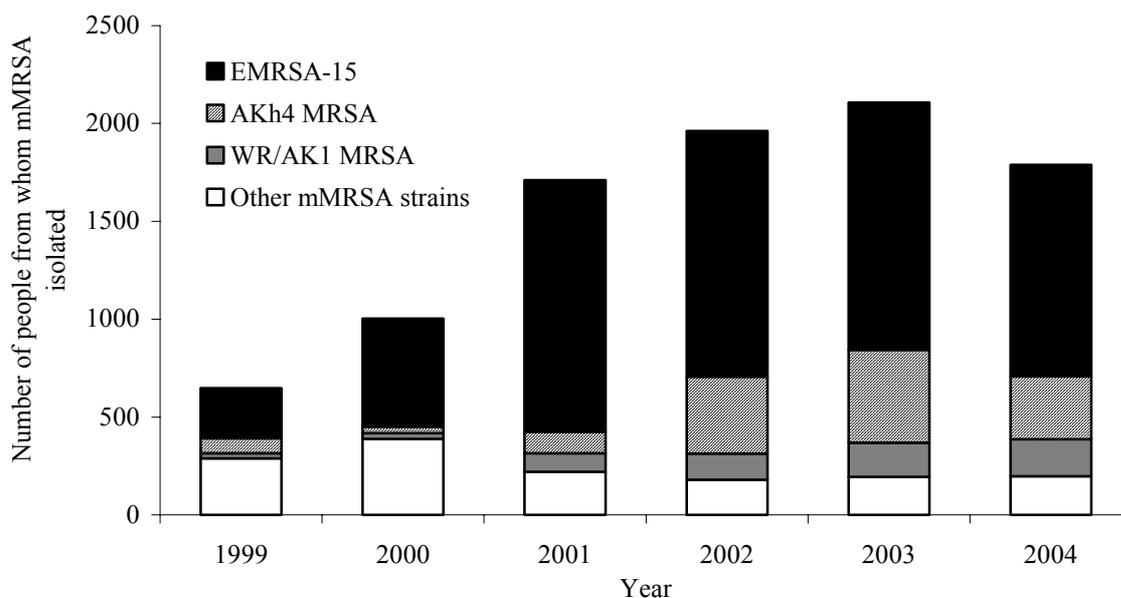
M R S A R E P O R T

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Annual summary of the national surveillance of multiresistant methicillin-resistant *Staphylococcus aureus*, 2004

During 2004, multiresistant methicillin-resistant *Staphylococcus aureus* (mMRSA) from 1788 people (1688 patients and 100 healthcare workers) were referred to ESR. mMRSA are defined as MRSA resistant to two or more classes of antibiotics in addition to β -lactams. The incidence of mMRSA decreased in 2004 by 15.1%, from 56.3 per 100 000 in 2003 to 47.8 per 100 000 in 2004 (Figure 1). Information on whether mMRSA was causing infection or colonising was reported for 1270 of the patients from whom mMRSA was isolated; 67.7% were infected and 32.3% were colonised.

Figure 1. Multiresistant MRSA isolations, 1999-2004



Almost three-quarters (72.7%) of the 1688 patients with mMRSA were reported to be hospital patients. Patients were classified as hospital patients if they were in a healthcare facility (including residential-care facility) when MRSA was isolated or had been in a healthcare facility in the previous three months. Among the 100 healthcare workers, 66 had patient contact at the time mMRSA was isolated from them. mMRSA was isolated during pre-employment screening of the other 34 healthcare workers.

The mMRSA strains that were predominant in 2004 are shown in Table 1. EMRSA-15 was the most common strain and accounted for about the same proportion (60.4%) of mMRSA isolations as it did in 2003 (59.9%). The majority of patients with EMRSA-15 and AKh4 MRSA were reported to be hospital patients: 78.1% and 89.1%, respectively.

Table 1. Most commonly isolated multiresistant MRSA strains, 2004¹

Strain ² (origin)	Number of people the strain isolated from (% of all mMRSA isolations)
EMRSA-15 (UK)	1080 (60.4)
AKh4 (Australia)	321 (18.0)
WR/AK1	190 (10.6)
EMRSA-16 (UK)	25 (1.4)

¹ Includes strains isolated from more than 20 people.
² For a description of the strains see the following *MRSA Report* issues: EMRSA-15, 99/3; AKh4, 01/50; WR/AK1, 98/38; and EMRSA-16, 99/32.

The hospitals and other healthcare facilities in which the EMRSA-15 and AKh4 MRSA strains were isolated in 2004 are shown in Table 2. EMRSA-15 was most frequently isolated in healthcare facilities in the greater Auckland, Waikato, and Hawkes Bay areas. In 2004, compared to 2003, EMRSA-15 was more frequently isolated in healthcare facilities in the Rotorua, Tauranga and Whakatane areas, and less frequently isolated in healthcare facilities in the Auckland and Hawkes Bay areas. AKh4 MRSA was largely confined to healthcare facilities in the greater Auckland area.

As has been noted in previous years, compared with other mMRSA strains, EMRSA-15 is more frequently isolated from older patients and less frequently isolated from younger patients (Figure 2). Many of the private healthcare facilities in which EMRSA-15 was isolated were residential-care facilities for the elderly.

Figure 2. Multiresistant MRSA isolations by patient age, 2004

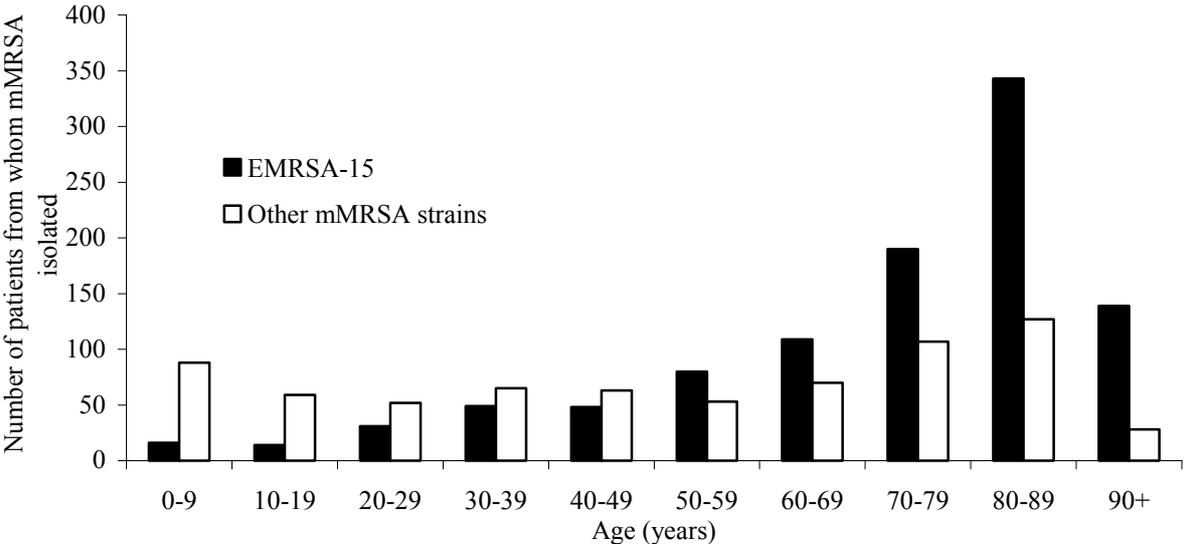


Table 2. Healthcare facilities with patients and staff with EMRSA-15 and AKh4 MRSA, 2004

Healthcare facility ¹	Number of people EMRSA-15 isolated from (% of all EMRSA-15 isolations in healthcare facilities, n=1043 ²)	Number of people AKh4 MRSA isolated from (% of all AKh4 MRSA isolations in healthcare facilities, n=336 ²)
Whangarei Hospital		8 (2.4)
North Shore Hospital	77 (7.4)	82 (24.4)
Waitakere Hospital	18 (1.7)	
Auckland City Hospital	98 (9.4)	77 (22.9)
Starship Children's Hospital	6 (0.6)	
Middlemore Hospital	160 (15.3)	49 (14.6)
Other Auckland HCFs ³	269 (25.8)	42 (12.5)
Waikato Hospital	91 (8.7)	22 (6.5)
Other Hamilton HCFs ³	38 (3.6)	
Thames Hospital	12 (1.2)	
Tauranga Hospital	7 (0.7)	
Rotorua Hospital	13 (1.2)	
Other Rotorua HCFs ³	7 (0.7)	
Whakatane Hospital	13 (1.2)	
Taranaki Base Hospital		8 (2.4)
Hawkes Bay Hospital	43 (4.1)	
Other Hawkes Bay HCFs ³	21 (2.0)	
Palmerston North Hospital	6 (0.6)	8 (2.4)
Hutt Hospital	9 (0.9)	
Wellington Hospital	39 (3.7)	
Kenepuru Hospital	10 (1.0)	
Other Wellington HCFs ³	16 (1.5)	
Christchurch Hospital	13 (1.2)	5 (1.5)
Oamaru HCF ³	6 (0.6)	
Dunedin Hospital	6 (0.6)	

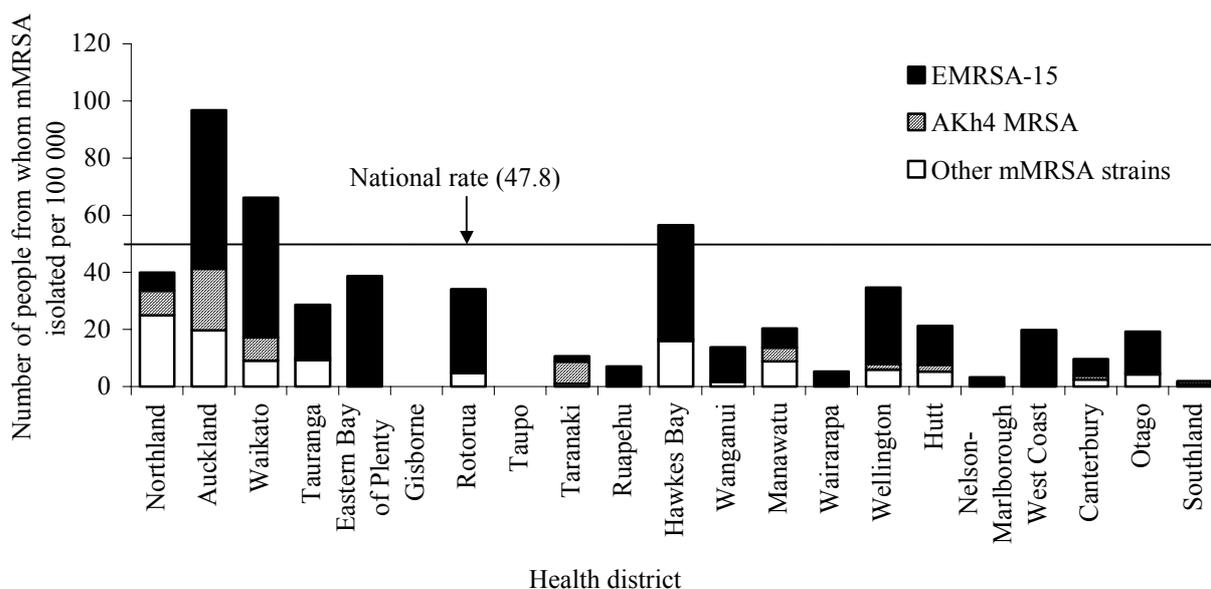
¹ Hospitals and other healthcare facilities (HCFs) with ≥5 patients or staff with EMRSA-15 or AKh4 MRSA are listed in the table. EMRSA-15 was also isolated from people in Whangarei Hospital (4 patients or staff), Northland HCFs (3), National Women's Hospital (1), Raglan HCF (4), Matamata HCF (1), Cambridge HCF (1), Te Kuiti Hospital (1), Tokoroa Hospital (2), Tokoroa HCF (1), Waihi HCF (1), Tauranga HCFs (2), Whakatane HCFs (3), Taranaki Base Hospital (2), Wairoa Hospital (1), Taumarunui Hospital (1), Taumarunui HCF (1), Wanganui Hospital (3), Wanganui HCF (1), Palmerston North HCFs (4), Masterton Hospital (3), Greytown HCF (1), Lower Hutt HCF (3), Waikanae HCF (1), Paraparaumu HCF (1), Nelson Hospital (2), Wairau Hospital (1), Greymouth Hospital (4), Christchurch HCF (1), Ashburton Hospital (1), Ashburton HCF (1), Timaru Hospital (1), Timaru HCF (1), Oamaru Hospital (3), Dunedin HCFs (3), and Balclutha Hospital (1).

AKh4 MRSA was also isolated from people in Whangarei HCF (3), Waitakere Hospital (4), Starship Children's Hospital (1), Thames Hospital (1), Hamilton HCFs (3), Te Aroha HCF (2), Tauranga Hospital (1), New Plymouth HCF (1), Hawkes Bay Hospital (2), Taumarunui Hospital (3), Palmerston North HCF (1), Hutt Hospital (4), Lower Hutt HCFs (3), Wellington Hospital (4), Kenepuru Hospital (1), and Southland Hospital (1).

² The same person may be recorded in more than one healthcare facility.

³ An aggregated total for private healthcare facilities in the area, many of whom have withheld publication of their name.

Figure 3. Incidence of multiresistant MRSA by health district, 2004



The geographic distribution of mMRSA in 2004 displayed the usual pattern, with the highest rate in the Auckland health districts (Figure 3). The next highest rates were in the Waikato and Hawkes Bay health districts and were comprised predominantly of EMRSA-15 isolations. Compared with 2003, rates decreased in the Auckland and Hawkes Bay health districts. Rates increased in the Eastern Bay of Plenty and Rotorua health districts, mainly due to an increase in the incidence of EMRSA-15.

The susceptibility of mMRSA isolates referred in 2004 was not routinely tested. However, based on previous testing, the typical resistance patterns of the most common strains are shown in Table 3. In addition to multiresistant EMRSA-15 isolates, which are typically resistant to ciprofloxacin and erythromycin, non-multiresistant (ciprofloxacin-resistant and erythromycin-susceptible) isolates also occur. These non-multiresistant EMRSA-15 are not included in the above analyses of mMRSA. In 2004, non-multiresistant EMRSA-15 were isolated from 456 people in addition to the 1080 people with multiresistant EMRSA-15 (Table 1).

Table 3. Resistance patterns of the most common multiresistant MRSA

Strain	Resistance pattern ¹
EMRSA-15	Cip Em ²
AKh4	Cip Cl Co Em Gm Te
WR/AK1	Fa Mu ^{HL 3}
EMRSA-16	Cip Em

¹ Cip, ciprofloxacin; Cl, clindamycin; Co, co-trimoxazole; Em, erythromycin; Fa, fusidic acid; Gm, gentamicin; Mu^{HL}, high-level mupirocin; Te, tetracycline.

² EMRSA-15 also has inducible clindamycin resistance.

³ Some isolates of WR/AK1 also have erythromycin resistance.