

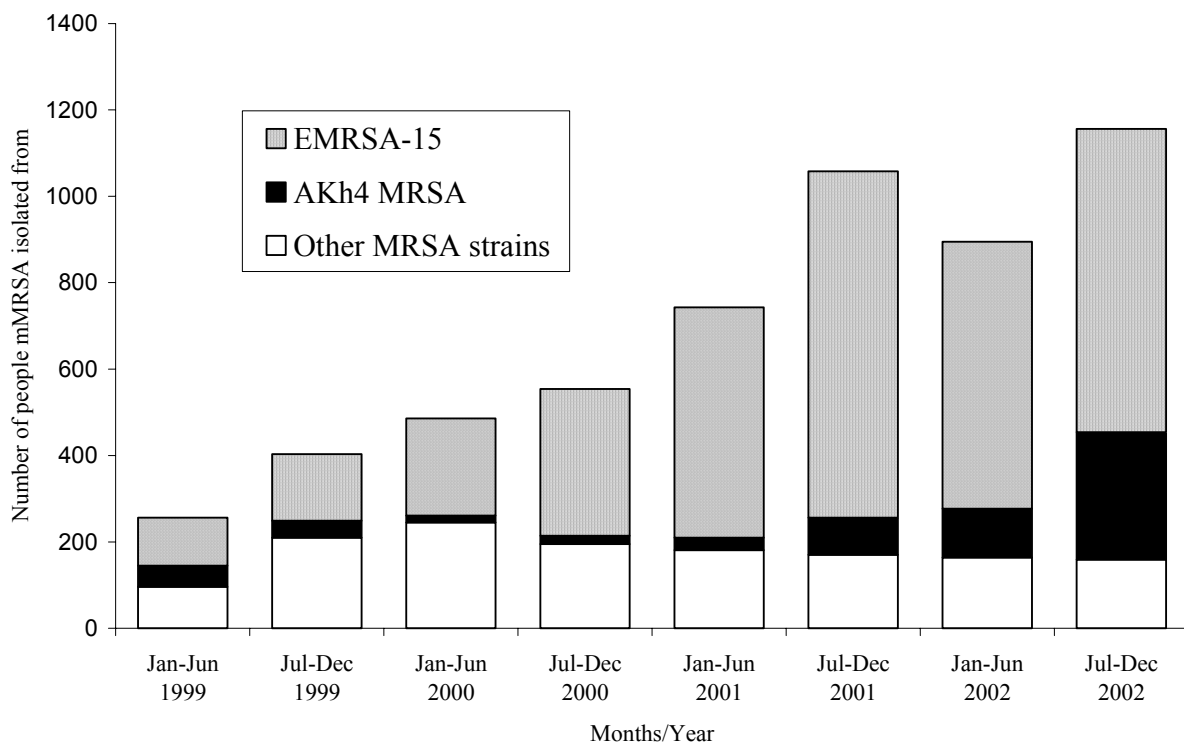
M R S A R E P O R T

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Annual summary of the national surveillance of multiresistant methicillin-resistant *Staphylococcus aureus*, 2002

During 2002, multiresistant methicillin-resistant *Staphylococcus aureus* (mMRSA) from 1961 people (1827 patients and 134 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 increase in the incidence of mMRSA in 2002 was smaller than in recent years: increasing 14.6% from 45.8 per 100,000 in 2001 to 52.5 per 100,000 (Figure 1). Information on whether mMRSA was causing infection or colonising was reported for 1256 of the people from whom mMRSA was isolated; 79.1% were infected and 20.9% were colonised.

Figure 1. Multiresistant MRSA isolations, 1999-2002



Nearly three-quarters (73.7%) of the 1827 patients with mMRSA were reported to be hospital patients. Patients were classified as hospital patients if they either were in a healthcare facility (including residential-care facility) when MRSA was isolated or had been in a healthcare facility in the three months before MRSA was isolated. Among the 134 healthcare workers, 99 had patient contact at the time mMRSA was isolated from them. mMRSA was isolated during pre-employment screening of the other 35 healthcare workers.

The mMRSA strains that were predominant in 2002 are shown in Table 1. The predominance of the EMRSA-15 strain declined in 2002: from accounting for 75.0% of mMRSA isolations in 2001 to 63.9% in 2002. There was a concomitant rise in the AKh4 strain, which increased from 7.7% of isolations in 2001 to 20.0%. The majority of patients with these two strains were reported to be hospital patients: 78.0% and 88.4% for EMRSA-15 and AKh4, respectively.

Table 1. Most commonly isolated multiresistant MRSA strains, 2002¹

| Strain ² (origin) | Number of people the strain isolated from (% of all mMRSA isolations) |
|------------------------------|---|
| EMRSA-15 (UK) | 1254 (63.9) |
| AKh4 (Australia) | 393 (20.0) |
| WR/AK1 | 134 (6.8) |
| WSPP1 (Western Samoa) | 31 (1.6) |
| EMRSA-16 (UK) | 23 (1.2) |

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; WSPP1, 94/5; and EMRSA-16, 99/32.

The hospitals and other healthcare facilities in which the EMRSA-15 and AKh4 strains were isolated in 2002 are shown in Table 2. The number of hospitals and healthcare facilities in which EMRSA-15 was isolated increased in 2002, although many of the isolations appeared to be sporadic with only a small number (<5) of isolations in many of the facilities (Table 2, footnote 1). EMRSA-15 continued to be most frequently isolated in healthcare facilities in the greater Auckland, Hawkes Bay, and greater Wellington areas. The AKh4 strain 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, 2002

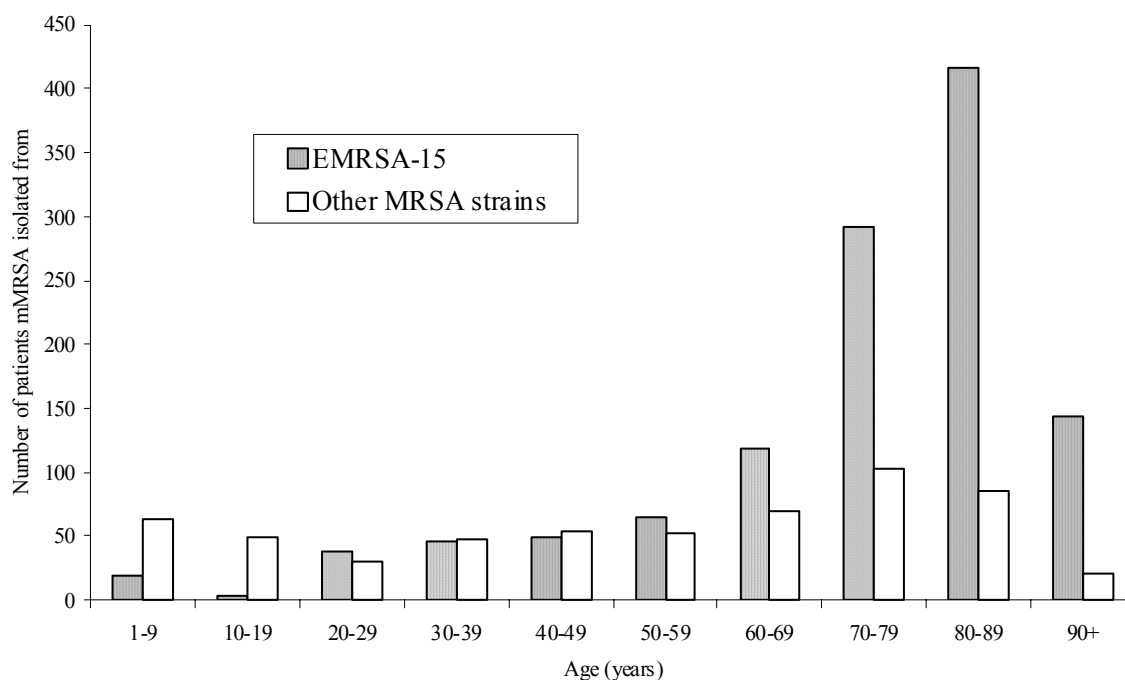


Table 2. Healthcare facilities with patients and staff with EMRSA-15 and AKh4 MRSA, 2002

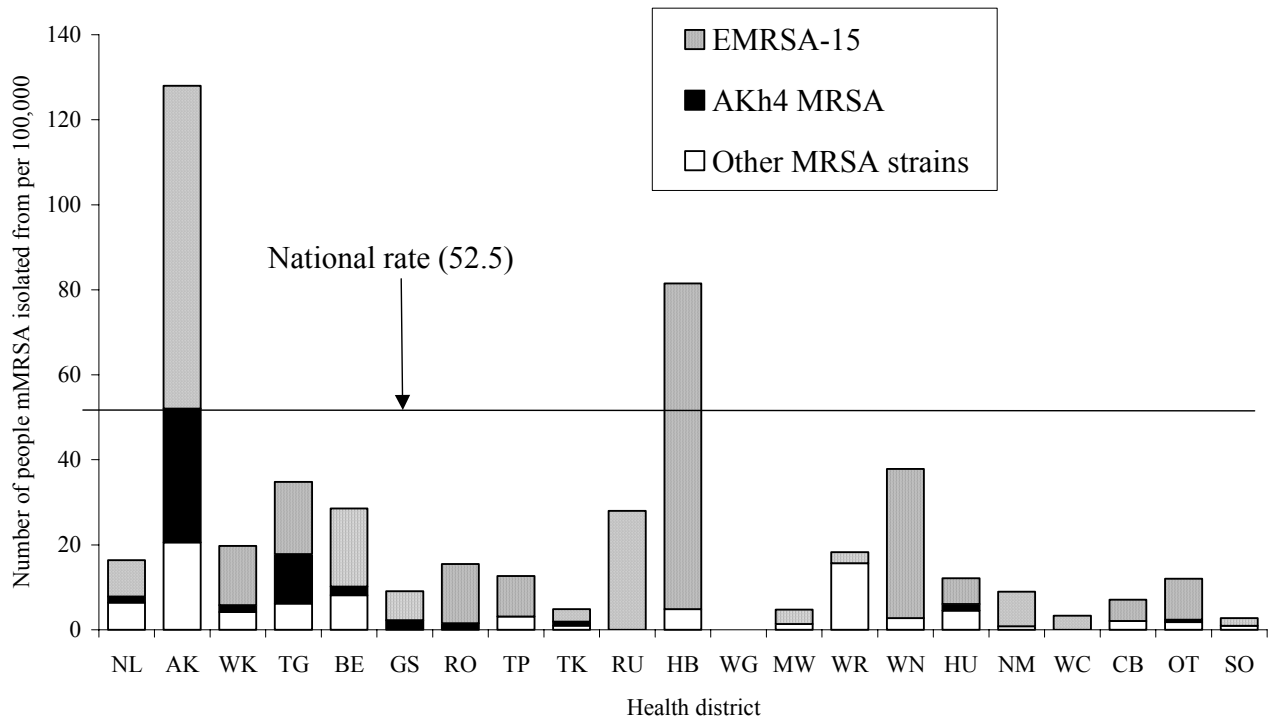
| Healthcare facility¹ | Number of people EMRSA-15 isolated from (% of all EMRSA-15 isolations in healthcare facilities, n=1195²) | Number of people AKh4 MRSA isolated from (% of all AKh4 MRSA isolations in healthcare facilities, n=400²) |
|--|--|---|
| Whangarei Hospital | 6 (0.5) | |
| North Shore Hospital | 88 (7.4) | 49 (12.3) |
| Waitakere Hospital | 48 (4.0) | 6 (1.5) |
| Auckland Hospital | 155 (13.0) | 51 (12.8) |
| Starship Children's | 5 (0.4) | |
| Green Lane Hospital | 15 (1.3) | |
| Middlemore Hospital | 206 (17.2) | 210 (52.5) |
| Other Auckland HCFs ³ | 302 (25.3) | 50 (12.5) |
| Waikato Hospital | 18 (1.5) | 5 (1.3) |
| Other Hamilton HCFs ³ | 11 (0.9) | |
| Thames Hospital | 5 (0.4) | |
| Tauranga Hospital | 18 (1.5) | 14 (3.5) |
| Whakatane Hospital | 6 (0.5) | |
| Rotorua Hospital | 5 (0.4) | |
| Taupo Hospital | 5 (0.4) | |
| Hawkes Bay Hospital | 85 (7.1) | |
| Other Hawkes Bay HCFs ³ | 21 (1.8) | |
| Palmerston North Hospital | 6 (0.5) | |
| Hutt Hospital | 6 (0.5) | |
| Wellington Hospital | 41 (3.4) | |
| Kenepuru Hospital | 44 (3.7) | |
| Other Wellington HCFs ³ | 33 (2.8) | |
| Blenheim Hospital | 6 (0.5) | |
| Christchurch Hospital | 9 (0.8) | |
| Dunedin Hospital | 6 (0.5) | |
| Waikari Hospital | 7 (0.6) | |

¹ Hospitals and other healthcare facilities (HCFs) with ≥ 5 patients or staff with EMRSA-15 are listed in the table. EMRSA-15 was also isolated from people in Kaitaia Hospital (1 patient or staff), Kaeo HCF (1), National Women's Hospital (4), Tauranga HCF (1), Waihi Hospital (1), Waihi HCF (2), Whakatane HCFs (3), Rotorua HCFs (3), Tokoroa Hospital (1), Taupo HCFs (2), Taumarunui Hospital (1), Taumarunui HCF (3), New Plymouth Hospital (2), Palmerston North HCF (1), Masterton Hospital (1), Lower Hutt HCF (1), Nelson Hospital (1), Burwood Hospital (2), Christchurch HCF (1), Greymouth Hospital (1), Timaru Hospital (1), Timaru HCFs (2), Dunedin HCF (1), and Southland Hospital (1). AKh4 MRSA was also isolated from people in Whangarei Hospital (1), Greenlane Hospital (2), Thames Hospital (1), Whakatane Hospital (1), Rotorua Hospital (1), Rotorua HCF (1), Gisborne Hospital (1), Hawkes Bay Hospital (1), New Plymouth Hospital (1), Lower Hutt Hospital (3), Christchurch Hospital (1), and Dunedin Hospital (1). In these lists, private HCFs are not named, as many have withheld publication of their name.

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, 2002



The geographic distribution of mMRSA in 2002 displayed the usual pattern, with the highest rate in the Auckland health districts (Figure 3). The next highest rates were in the Hawkes Bay and Wellington Health Districts and were comprised predominantly of EMRSA-15 isolations. Compared with 2001, rates have continued to rise in the Auckland health districts, decreased in Tauranga Health District, and remained about the same in the Hawkes Bay and Wellington Health Districts.

The susceptibility of mMRSA isolates referred in 2002 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 2002, non-multiresistant EMRSA-15 were isolated from 270 people in addition to the 1254 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 Tc |
| WR/AK1 | Fa Mu ^{HL} |
| WSPP | - 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; Tc, tetracycline.

² EMRSA-15 also has inducible clindamycin resistance.

³ Multiresistant WSPP MRSA are most commonly erythromycin resistant and either mupirocin or fusidic acid resistant. However, most WSPP MRSA remain non-multiresistant.