Extended-spectrum β-lactamases (ESBLs) in Enterobacteriaceae confirmed in 2005

During 2005 there was a change to the national surveillance of ESBL-producing Enterobacteriaceae. Prior to August 2005, hospital and community laboratories were asked to refer all ESBL-producing Enterobacteriaceae to ESR. This ceased from 1 August 2005 and the intention is that in future years the national surveillance of ESBL-producing Enterobacteriaceae will be based on one-month surveys.

This report for 2005 is based on ESBL-producing Enterobacteriaceae referred to ESR from 1 January to 31 July 2005 and data has been annualised for any comparisons with previous full-year data. During the 7 months January to July, ESBL-producing Enterobacteriaceae from 430 patients were referred to ESR and confirmed by either the CLSI confirmatory tests or the double-disc synergy (Jarlier) test. The majority of the confirmed ESBL producers were *Escherichia coli*, although the proportion that were *Klebsiella* was higher than in earlier years (see table). During the year, an outbreak strain of ESBL-producing *K. pneumoniae* was identified in the Auckland area. This outbreak strain produced CTX-M15 ESBL. CTX-M15 ESBL has also been identified in an outbreak strain of ESBL-producing *E. coli* in the Auckland area and another outbreak strain of ESBL-producing *E. coli* in Hawkes Bay.

A summary of the ESBL-producing Enterobacteriaceae isolates, which have been confirmed since 1999, is shown in the table.

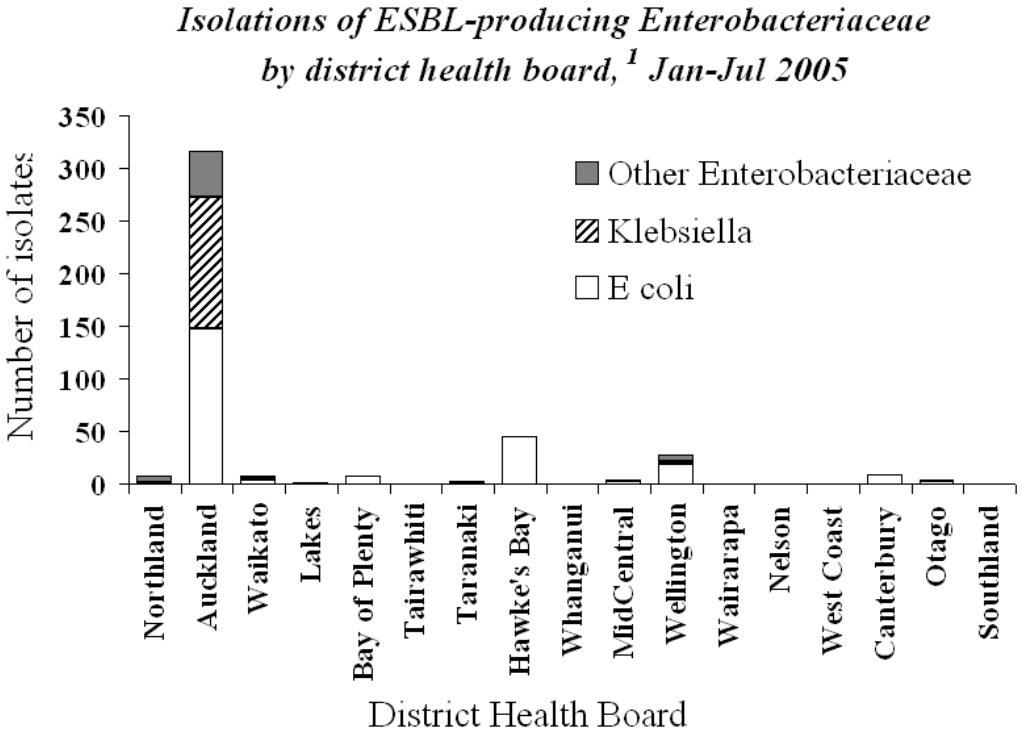
Confirmed ESBL-producing Enterobacteriaceae, 1999-2005

	Year						
	1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005[1]**
Number confirmed isolates	15	27	83	230	305	389	737
Species							
Escherichia coli	9	12	64	146	240	282	408
Klebsiella spp	3	9	5	30	14	50	228
Enterobacter spp	3	5	10	46	44	49	86
Other Enterobacteriaceae		1	4	8	7	8	15
Site							
Blood/CSF	2	4	7	14	10	19	27
Wounds[2]			10	13	10	23	21
Urine	9	14	38	125	172	227	429
Faeces[2]			5	47	84	76	185
Other	4	9	23	31	29	44	75

1 Annualised data based on isolates referred and confirmed between 1 January and 31 July 2005

2 Isolates from wounds and faecal/rectal specimens are included in the 'other' category for the years 1999 and 2000

Most of the ESBL producers referred in 2005 were from the Auckland area (see figure).



1 Based on the location of the referring laboratory. The three Auckland District Health Boards (Waitemata, Auckland and Counties Manukau), two Wellington District Health Boards (Capital and Coast, and Hutt), and two Canterbury District Health Boards (Canterbury and South Canterbury) are combined.

The CLSI/NCCLS disc confirmatory test compares the inhibition zones obtained with cefotaxime and ceftazidime discs alone and in combination with clavulanic acid. It is important to use both cefotaxime and ceftazidime. This test is specified for the confirmation of ESBL production in *E. coli*, *Klebsiella pneumoniae, K. oxytoca* and *Proteus mirabilis.* Among the 371 ESBL-producing isolates of these species confirmed between January and July 2005, 0.8% (3) would not have been identified if only cefotaxime discs were used and 13.5% (50) would have been missed if only ceftazidime discs were used. These results emphasise the importance of using both cephalosporins in this test.