

## Extended-spectrum $\beta$ -lactamases (ESBLs) in Enterobacteriaceae confirmed in 2003

In 2003, ESBL-producing Enterobacteriaceae from 305 patients were confirmed by either the NCCLS disc or MIC confirmatory tests, or the double-disc synergy (Jarlier) test. The majority of the confirmed ESBL producers were *Escherichia coli* (see table below). The Hawkes Bay ESBL *E. coli* outbreak strain continued to be isolated throughout the year, with the strain being isolated from 99 people. A summary of the ESBL-producing Enterobacteriaceae isolates, which have been confirmed since 1997, is shown in the table.

*Confirmed ESBL-producing Enterobacteriaceae, 1997-2003*

	Year						
	1997	1998	1999	2000	2001	2002	2003
Number confirmed isolates	15	16	15	27	83	230	305
Species							
<i>Escherichia coli</i>	9	7	9	12	64	146	240
<i>Klebsiella pneumoniae</i>	5	3	2	6	5	26	13
<i>K. oxytoca</i>			1 <sup>1</sup>	3 <sup>1</sup>		4 <sup>2</sup>	1 <sup>2</sup>
<i>Enterobacter</i> spp			3	5	10	46	44
Other <i>Enterobacteriaceae</i>	1	6		1	4	8	7
Site							
Blood/CSF	0	0	2	4	7	14	10
Urine	11	7	9	14	38	125	172
Faeces <sup>4</sup>				0	5	47	84
Other	4	9	4	9	38	91	39

<sup>1</sup> Some of these *K. oxytoca* isolates may be hyperproducers of chromosomal K1  $\beta$ -lactamase rather than an ESBL.

<sup>2</sup> In 2002, in addition to the four ESBL-producing *K. oxytoca* isolates, six *K. oxytoca* isolates that were hyperproducers of K1  $\beta$ -lactamase were identified. Similarly, in 2003, two *K. oxytoca* hyperproducers of K1  $\beta$ -lactamase were identified.

<sup>3</sup> Site data not available.

<sup>4</sup> Isolates from faecal/rectal specimens are included in the 'other' category for the years 1997-1999

The 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* and *K. oxytoca*. Among the 254 ESBL-producing isolates of these species confirmed in 2003, 1.6% (4) would not have been identified if only cefotaxime discs were used and 21.3% (54) would have been missed if only ceftazidime discs were used. These results emphasise the importance of using both cephalosporins in this test.