

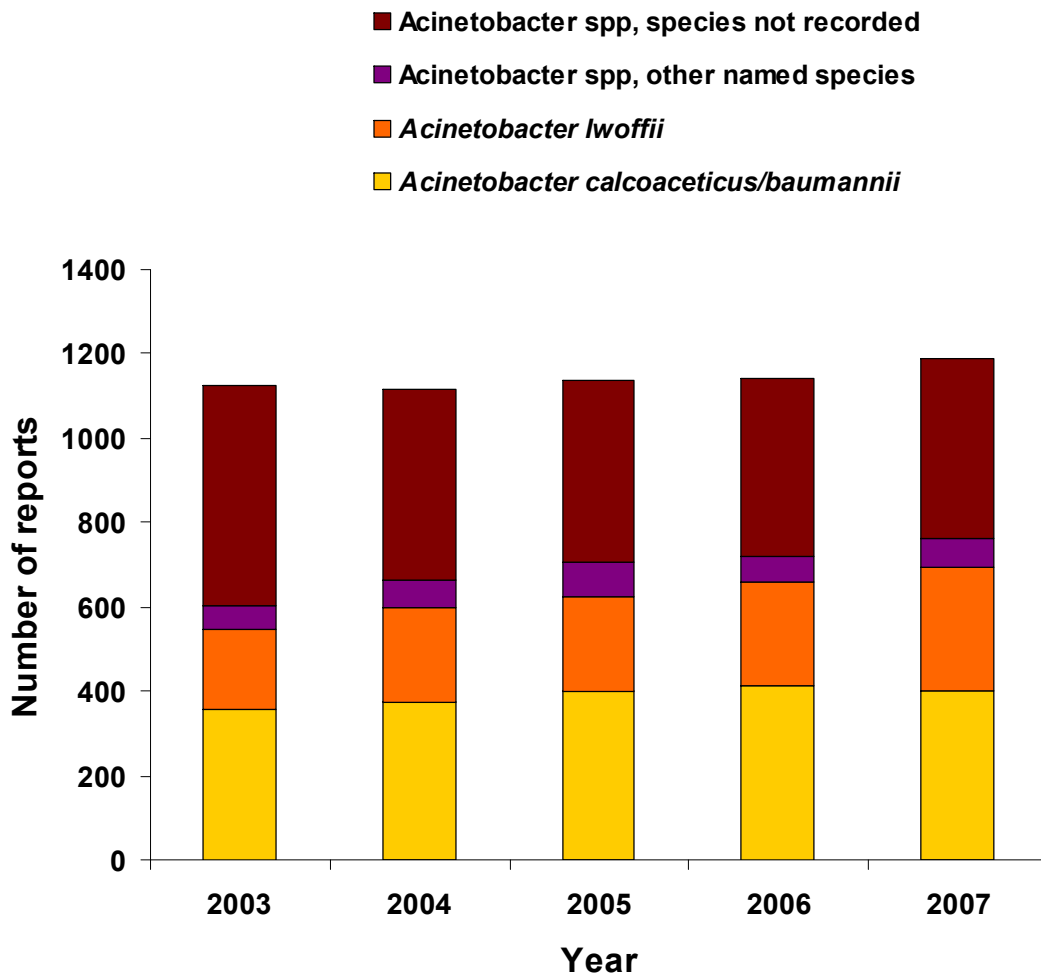
## *Acinetobacter* spp bacteraemia, England, Wales, and Northern Ireland: 2003 to 2007

This report contains data voluntarily reported to the Health Protection Agency for *Acinetobacter* spp. bacteraemia in England, Wales, and Northern Ireland: 2003 to 2007. These analyses are based on data extracted from our voluntary surveillance database on the 8<sup>th</sup> January 2008 for the period between 2003 and 2007. The data presented here differ in some instances from data in earlier publications due to the addition of late reports to the database.

### Trends in total reports

There is a 5.4% increase (Figure 1 and Table 2) in the total reports of *Acinetobacter* spp. bacteraemia reported via the voluntary surveillance scheme in 2007 (1187 reports), compared to 2003 (1126 reports). This increase is lower than the 24% increase in reports for all bacteraemia (85,354 to 105,928) via the voluntary surveillance scheme during the same time period (provisional as of 8/Jan/2008). In comparison with data reported in 2006, there was a marginal increase (4.1%) in the number of reports of *Acinetobacter* spp. bacteraemia in 2007. The increase in reports of *Acinetobacter* spp. bacteraemia may be due to either increased incidence and/or increased ascertainment. Reports for 2007 are provisional as of 8 January, 2008 and the number of reported cases of bacteraemia may increase slightly due to late reporting.

Figure 1. *Acinetobacter* spp bacteraemia reports: 2003 to 2007\*



\* Data extracted 8 January 2008.

### Completeness of laboratory reports

The number of laboratories voluntarily reporting data for *Acinetobacter* spp. bacteraemia has decreased marginally from 173 in 2003 to 162 in 2007 (Table 1). However, during this period there were increases in the percentage of laboratories either identifying *Acinetobacter* isolates to species level or reporting drug susceptibility data. The percentage of laboratories identifying *Acinetobacter* isolates to species level increased from 76% in 2003 to 88% in 2007 while the percentage reporting drug susceptibility data increased from 78% in 2003 to 91% in 2007. The percentage of laboratories identifying *Acinetobacter* species and reporting drug susceptibility data increased from 61% in 2003 to 79% in 2007.

It is important to note the majority of participating laboratories are relying on phenotypic identification systems which are less reliable than molecular methods; the latter are not available in most routine diagnostic laboratories. Data collection and analyses are further complicated by the fact reports of *A. lwoffii* may be due to contamination of blood cultures. In contrast with *A. calcoaceticus/baumannii* which, being frequently resistant to multiple antibiotics, is often associated with substantial patient morbidity, *A. lwoffii* is not usually pathogenic to humans with an estimated 20 to 25% of healthy individuals carrying this organism as part of normal skin flora. Participating laboratories are requested to report microbiology data for only clinically significant cases.

**Table 1. Laboratories reporting *Acinetobacter* spp. bacteraemia: 2003 to 2007\***

	2003	2004	2005	2006	2007
<b>Number of reporting laboratories</b>	<b>173</b>	<b>166</b>	<b>171</b>	<b>172</b>	<b>162</b>
Laboratories identifying to species level	76%	83%	81%	82%	88%
Laboratories reporting susceptibility data	78%	87%	84%	87%	91%
Laboratories identifying to species level and reporting susceptibility data	61%	71%	67%	71%	79%

\* Data extracted 8 January 2008.

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### Species-specific data

Table 2 gives a breakdown of reported *Acinetobacter* spp bacteraemias by species from 2003 to 2007:

- The percentage of *Acinetobacter* isolates identified to species level increased from 53% in 2003 to 64% in 2007.
- In 2007, the majority of *Acinetobacter* isolates identified to species level were attributed to *A. calcoaceticus/baumannii*, accounting for 52% of these reports (a decrease from 60% reported in 2003).
- *Acinetobacter lwoffii* was the second most frequently reported bacteraemia, accounting for 38% of reports identified to species level (compared with 31% reported in 2003).
- Of the remaining *Acinetobacter* isolates identified to species level in 2007, 5% were attributed to *A. junii*; and 3% to *A. haemolyticus*.

**Table 2. Reports of *Acinetobacter* spp bacteraemia, by species: 2003-2007\***

	2003	2004	2005	2006	2007
<i>Acinetobacter calcoaceticus/baumannii</i>	359	374	400	413	399
<i>Acinetobacter lwoffii</i>	186	224	223	246	293
<i>Acinetobacter junii</i>	25	26	43	33	41
<i>Acinetobacter haemolyticus</i>	24	20	26	20	24
<i>Acinetobacter</i> spp, other named species	8	18	15	6	7
<i>Acinetobacter</i> spp, species not recorded	524	455	431	422	423
<b><i>Acinetobacter</i> spp total</b>	<b>1126</b>	<b>1117</b>	<b>1138</b>	<b>1140</b>	<b>1187</b>

\* Data extracted 8 January 2008.

### Antibiotic susceptibility data

Tables 3 and 4 present antibiotic susceptibility data for *A. calcoaceticus/baumannii* and *A. lwoffii*, respectively.

**Table 3. Antibiotic susceptibility data for reports of *A. calcoaceticus/baumannii* bacteraemia, England, Wales, and Northern Ireland: 2003 to 2007\***

<i>A. calcoaceticus/baumannii</i>		2003	2004	2005	2006	2007
<b>Total reports:</b>		<b>359</b>	<b>374</b>	<b>400</b>	<b>413</b>	<b>399</b>
<b>Gentamicin</b>	<b>% Non-susceptible</b>	<b>22%</b>	<b>26%</b>	<b>23%</b>	<b>26%</b>	<b>21%</b>
	Reports with susceptibility data	237	285	276	313	331
<b>Amikacin</b>	<b>% Non-susceptible</b>	<b>11%</b>	<b>16%</b>	<b>21%</b>	<b>26%</b>	<b>22%</b>
	Reports with susceptibility data	85	91	115	187	199
<b>Tobramycin</b>	<b>% Non-susceptible</b>	<b>12%</b>	<b>14%</b>	<b>23%</b>	<b>25%</b>	<b>32%</b>
	Reports with susceptibility data	51	50	71	93	114
<b>Ciprofloxacin</b>	<b>% Non-susceptible</b>	<b>30%</b>	<b>36%</b>	<b>30%</b>	<b>36%</b>	<b>30%</b>
	Reports with susceptibility data	231	266	269	319	326
<b>Imipenem</b>	<b>% Non-susceptible</b>	<b>7%</b>	<b>5%</b>	<b>9%</b>	<b>21%</b>	<b>24%</b>
	Reports with susceptibility data	82	73	94	126	173
<b>Meropenem</b>	<b>% Non-susceptible</b>	<b>3%</b>	<b>13%</b>	<b>20%</b>	<b>35%</b>	<b>22%</b>
	Reports with susceptibility data	95	128	126	175	175
<b>Cefotaxime</b>	<b>% Non-susceptible</b>	<b>80%</b>	<b>86%</b>	<b>74%</b>	<b>88%</b>	<b>82%</b>
	Reports with susceptibility data	121	156	165	206	184
<b>Ceftazidime</b>	<b>% Non-susceptible</b>	<b>53%</b>	<b>69%</b>	<b>71%</b>	<b>70%</b>	<b>67%</b>
	Reports with susceptibility data	176	191	171	233	258

\* Data extracted 8 January 2008.

For *A. calcoaceticus/baumannii*, the only statistically significant changes in susceptibility (measured by chi-square test for trend and controlling for inter-laboratory variation), from 2003 to 2007, were observed for imipenem (7% to 24%;  $P=0.018$ ), and meropenem (3% to 22%;  $P<0.0001$ ). There were no statistically significant trends for gentamicin (21%), amikacin (22%), tobramycin (32%), ciprofloxacin (30%), cefotaxime (82%), or ceftazidime (67%).

**Antibiotic susceptibility data (continued)**

**Table 4. Antibiotic susceptibility data for reports of *A. lwoffii* bacteraemia, England, Wales, and Northern Ireland: 2003 to 2007\***

<i>A. lwoffii</i>		2003	2004	2005	2006	2007
<b>Total reports:</b>		<b>186</b>	<b>224</b>	<b>223</b>	<b>246</b>	<b>293</b>
<b>Gentamicin</b>	<b>% Non-susceptible</b>	<b>3%</b>	<b>1%</b>	<b>1%</b>	<b>5%</b>	<b>4%</b>
	Reports with susceptibility data	137	150	154	191	235
<b>Amikacin</b>	<b>% Non-susceptible</b>	<b>3%</b>	<b>5%</b>	<b>0%</b>	<b>2%</b>	<b>2%</b>
	Reports with susceptibility data	40	44	54	87	124
<b>Tobramycin</b>	<b>% Non-susceptible</b>	<b>8%</b>	<b>0%</b>	<b>0%</b>	<b>10%</b>	<b>7%</b>
	Reports with susceptibility data	12	27	25	29	44
<b>Ciprofloxacin</b>	<b>% Non-susceptible</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>	<b>6%</b>	<b>5%</b>
	Reports with susceptibility data	119	144	151	190	225
<b>Imipenem</b>	<b>% Non-susceptible</b>	<b>2%</b>	<b>0%</b>	<b>0%</b>	<b>4%</b>	<b>0%</b>
	Reports with susceptibility data	46	34	57	72	110
<b>Meropenem</b>	<b>% Non-susceptible</b>	<b>3%</b>	<b>0%</b>	<b>4%</b>	<b>4%</b>	<b>3%</b>
	Reports with susceptibility data	33	65	67	73	120
<b>Cefotaxime</b>	<b>% Non-susceptible</b>	<b>27%</b>	<b>20%</b>	<b>32%</b>	<b>23%</b>	<b>23%</b>
	Reports with susceptibility data	63	74	99	120	143
<b>Ceftazidime</b>	<b>% Non-susceptible</b>	<b>24%</b>	<b>23%</b>	<b>21%</b>	<b>13%</b>	<b>25%</b>
	Reports with susceptibility data	75	91	121	148	187

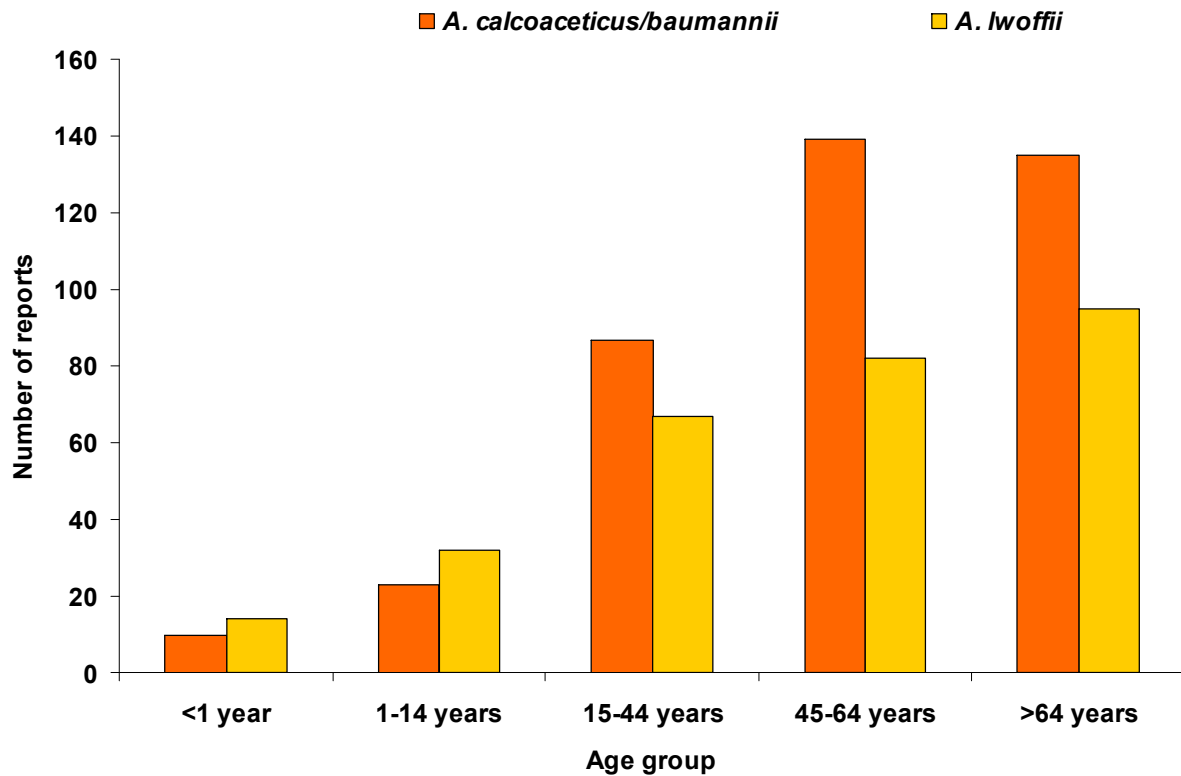
\* Data extracted 8 January 2008.

For *A. lwoffii*, there were no statistically significant changes in resistance rates between 2003 and 2007 for gentamicin (4% resistant in 2007), amikacin (2%), tobramycin (7%), ciprofloxacin (5%), imipenem (0%), meropenem (3%), cefotaxime (23%), or ceftazidime (25%).

**Age distribution by species**

Figure 2 shows the age and sex distribution of bacteraemia reports for *A. calcoaceticus/baumannii* and *A. lwoffii* in 2007. While *A. lwoffii* was more frequently reported amongst children (<15 years of age) than *A. calcoaceticus/baumannii*, it was less frequently reported amongst those patients aged 15 years and over.

**Figure 2. *A. calcoaceticus/baumannii* and *A. lwoffii* bacteraemia reports in 2007, by age\***



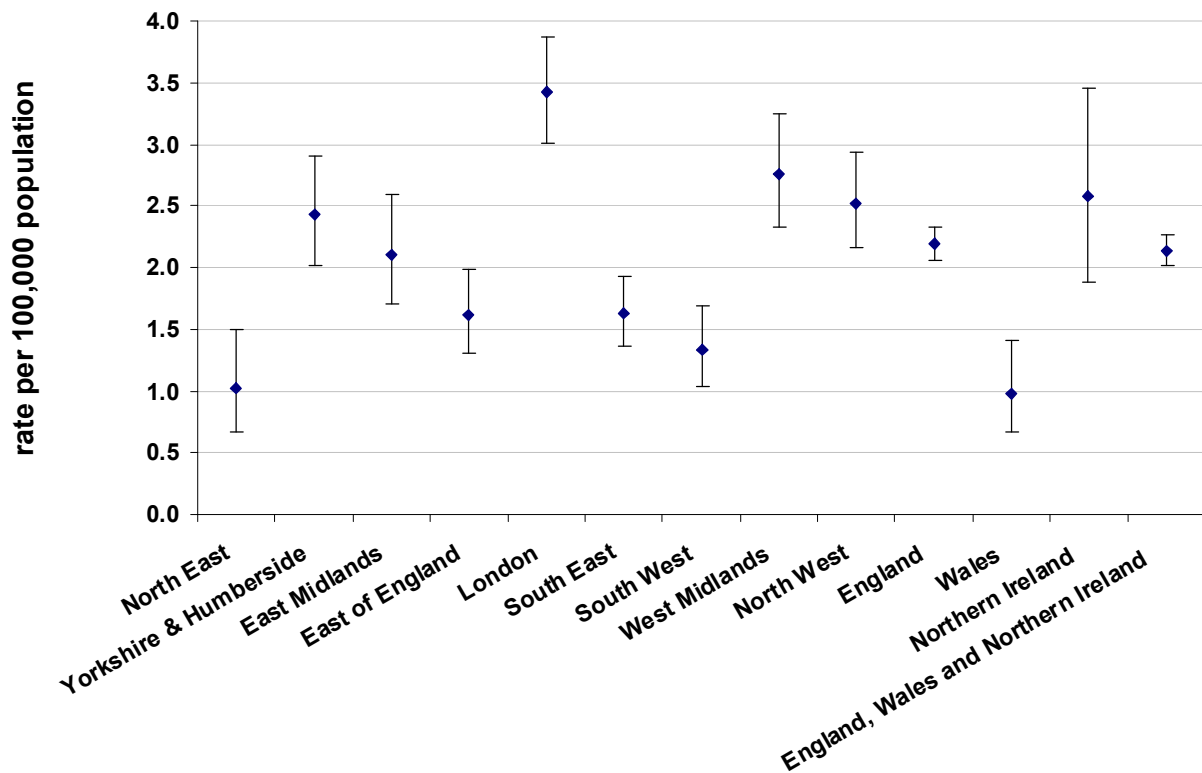
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## *Acinetobacter* spp bacteraemia, England, Wales, and Northern Ireland: 2003 to 2007

### Distribution by region

Figure 3 shows regional distribution of *Acinetobacter* spp. bacteraemia in 2007. Regions with high incidence include London (3.42 per 100,000 population), West Midlands (2.76/100,000), and North West (2.52/100,000). Regions/countries with low incidence include Wales (0.98/100,000), North East (1.02/100,000), and South West (1.33/100,000). The overall reported incidence for England, Wales, and Northern Ireland is 2.14 per 100,000 population. It is important to note that regional incidence rates are affected by completeness of regional reporting as well as the regional distribution of specialist care units.

**Figure 3. Region-specific rates\* of *Acinetobacter* spp bacteraemia: England, Wales, and Northern Ireland, 2007**



\* Data extracted 8 January 2008.