Background: It has been suggested that teaching hospitals may have elevated rates of antimicrobial resistance, possibly due to the selective pressure exerted on their local pathogens by the more intensive treatments undertaken in these centres.

Methods: In 2001 and 2002, 29 laboratories throughout the UK and Eire collected a total of 483 isolates of S. aureus, 475 Klebsiella spp. and 386 Enterobacter spp. from blood as part of the BSAC Bacteraemia Resistance Surveillance Programme. MICs were determined and interpreted by BSAC methodology in a central laboratory. Resistance rates were compared between 20 laboratories predominantly serving teaching hospitals and 9 serving exclusively non-teaching hospitals by the exact binomial method, corrected for multiple tests.

Results: Percentage resistance rates (shown in the charts) were very similar for all agents in S. aureus and for all but GEN and TZP in Enterobacter spp. Resistance rates in Klebsiella spp. were considerably higher in teaching centres for all agents, and the difference was significant overall (adjusted p = 0.002), although not for any individual drug. Other differences between Klebsiella isolates from teaching and non-teaching hospitals are shown in the table. The smaller proportion from patients ≥75 years in teaching than in non-teaching hospitals was also seen for S. aureus (29.0 vs. 37.5%) and Enterobacter (18.0 vs. 33.3%) so is unlikely to account for the difference in resistance rates.

The greater proportion of presumed hospital-acquired isolates (HAI, from patients in hospital more than 48 hours) in teaching hospitals does not explain the difference either. Looking only at HAI, the difference in resistance rates is generally increased for Klebsiella and remains insignificant for the other two species. The higher proportion in teaching hospitals of Klebsiella isolates from surgical and haematology/oncology departments may be significant. This difference, like that in resistance rates, was more pronounced in HAI: 25.9% of Klebsiella were from surgery and 24.4% from haematology/oncology in teaching hospitals (n = 193) vs. 14% and 12% respectively in non-teaching hospitals (n = 43).

Conclusion: Teaching hospitals have elevated resistance rates in Klebsiella spp. but not in S. aureus or, for most drugs, in Enterobacter spp. The causes of increased resistance in teaching hospitals are not known but clearly do not affect all species equally. The contribution of clonal outbreaks to the burden of resistance in different species is a possible relevant factor.

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Collecting Laboratories: England: Ashford PHL; City Birmingham; Bristol PHL; Northfield PHL; Birmingham University; Sheffield PHL; Southampton PHL; St Mary’s London; Sunderland Royal (2002); Truro PHL; UCH, London; West Suffolk Hospital (2002).

Ireland: Alltragevin Londonery, Beaumont Dublin, Belfast City, Cork University, Scotia; Glasgow Royal, Ninewells Dundee (2001); Victoria Kirkcaldy (2002).

Wales: Bangor PHL, Cardiff PHL.

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