

## CORRESPONDENCE

## Using the BTS CAP audit to evaluate local data

We read Dr Lim and Dr Woodhead's update on the British Thoracic Society (BTS) 2009/2010 community acquired pneumonia (CAP) audit with interest and noted the high inpatient mortality rate of 18.3%.<sup>1</sup> As a contributing site, we received a useful summary of our data in comparison with the national data and local mortality rates for severe CAP (CURB65 3-5) were 21.4% versus 42.6% nationally. This provoked an examination of local severe CAP admissions between December 2009 and May 2011 (n=169) that found 25% mortality with age, gender and comorbidity distributions similar to national audit data. We suspect variations in case definitions may be important in understanding differences between local and national data.

The *Thorax* report focuses on adherence to local antibiotic guidelines. Nationally, 55.5% of patients received antibiotics in line with local prescribing policies (64% in severe CAP), but there was no association between adherence and mortality.<sup>1</sup> From our 18-month severe CAP data, over 89% of our patients received antibiotics in line with local policy.

Local policies are assumed to reflect BTS guidelines, which advise intravenous co-amoxiclav plus clarithromycin as the first choice in severe CAP.<sup>2</sup> Locally, we recommend intravenous benzylpenicillin plus clarithromycin in severe CAP as advocated by the British Society for Antimicrobial Chemotherapy.<sup>3</sup> They suggest that it is 'likely to apply the least bacterial ecological pressure while still being clinically effective' and they refer to the 'collateral damage' of resistance and *Clostridium difficile* infection, which results from injudicious broad-spectrum antibiotic use.<sup>3</sup> Locally, the spectre of *C difficile* was a key factor when arriving at our antibiotic policy and although this represents only one of a range of measures we have implemented, our *C difficile* rates have remained low since adopting this policy.

Studies have shown narrow-spectrum agents to be as effective as broader-spectrum antibiotics in severe CAP.<sup>4</sup> A large Australian study comparing benzylpenicillin with ceftriaxone, in combination with a macrolide or doxycycline, found similar outcomes in severe CAP.<sup>4</sup> Furthermore, the benzylpenicillin group had lower 30-day mortality (though high-risk patients were more likely to receive ceftriaxone).<sup>4</sup> British data in this area are lacking and further high quality studies and in-depth interrogation of the BTS audit are desirable.

The BTS audit was excellent but national data should be interpreted carefully, as forming case definitions is difficult. Local

data should inform locally appropriate policies, as suggested by Mandell, and this may include narrow-spectrum agents, which combine efficacy with favourable complication profiles.<sup>5</sup>

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**Competing interests** None.

**Contributors** All authors have read and approved the letter.

**Provenance and peer review** Not commissioned; internally peer reviewed.

Accepted 25 August 2011  
Published Online First 20 September 2011

*Thorax* 2012;**67**:832.  
doi:10.1136/thoraxjnl-2011-200876

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## Authors' response

We read with interest the comments of Dr Singh and colleagues.<sup>1</sup> We note that in the data submitted from their local population they found a lower mortality for patients with high severity community acquired pneumonia (CAP) (CURB65 score 3–5) than was found in the National cohort.<sup>2</sup> It is not possible to precisely explain this difference from the available information, but there are a number of likely explanations. The first is sampling error, which will be inevitable when small numbers of cases are submitted from a large number although their local data collected over a longer time period than the British Thoracic Society (BTS) audit suggest that their lower mortality score is real. A differential response to treatment is a consideration, but since

only selected aspects of patient care were documented in the audit, this aspect cannot be properly examined. The most likely explanation of all is probably case selection, which may be slightly different in each contributing centre as we alluded to in the paper. Contributors may have used a number of different methodologies to identify and corroborate CAP cases, but data on how this was done were not collected. The 2010/2011 audit may go some way in answering this difference since additional data, such as nursing home residence, were obtained.

High severity (CURB65 score 3–5) CAP has a mortality of between 15% and 40%, so treatment should primarily be used that is most likely to limit this mortality. Ideally, antibiotic recommendations would be based on robust randomised controlled comparative treatment trials, but unfortunately such trials are lacking in this area. What data are available are mainly from weak, non-robust trials or retrospective or observational data such as the study referred to by the authors.<sup>3</sup> It is therefore impossible to be certain that one antibiotic regime is categorically preferable to another in this setting. The ecological importance of good antibiotic stewardship is acknowledged in the BTS guidelines and where possible narrow spectrum agents have been recommended in preference to broad spectrum agents.<sup>4</sup> Since only one-third of admissions for CAP are of high severity, we consider the choice of penicillin plus clarithromycin by Singh *et al* compared with the BTS recommendation of co-amoxiclav plus clarithromycin to be one that is unlikely to make a significant difference to antibiotic resistance or *Clostridium difficile* rates. Of much more importance as a driver of resistance and *C difficile* rates are the failures to accurately diagnose CAP and to accurately assess CAP severity. These result in overuse of antibiotics, including combination regimens primarily indicated for high severity CAP, in patients who should not require such broad therapy as identified in the audit. Penicillin plus clarithromycin may be as effective as co-amoxiclav plus clarithromycin in high severity CAP, but there are no robust trial data to demonstrate this. Co-amoxiclav has the advantage of a broader antibacterial coverage, which is important for this severely ill group and easy conversion to an oral formulation for the continuation phase of treatment. We acknowledge that local data on resistance and *C difficile* rates may mean that an antibiotic choice other than that recommended in the BTS guidelines may be appropriate for that local setting.

We agree with the authors that National audit data should be interpreted carefully as the data collection processes at each contributing centre may not be as robust as in carefully conducted cohort studies by interested experts, but one of the strengths of the National cohort is its size. For the first