

Burden of antibiotic resistance in Europe

October 11 2011

Hospital associated infections (HAI) are often in the headlines, but what is the burden of mortality, morbidity and costs due to HAIs? In this week's *PLoS Medicine*, Marlieke de Kraker, Peter Davey and Hajo Grundmann, on behalf of the BURDEN (Burden of resistance and disease in European nations) study group, report the results of a prospective clinical investigation into the societal burden of HAIs from 31 European countries.

The researchers combined prospective data on the burden of methicillin-resistant *Staphylococcus aureus* (MRSA) and third-generation cephalosporin-resistant *Escherichia coli* bloodstream infections with 2007 prevalence data from the European [Antibiotic Resistance Surveillance System](#) (EARSS) to calculate [excess mortality](#), excess hospital stay, and hospital expenditure. Data from 1293 hospitals in 31 countries revealed that an estimated 5,503 excess deaths were associated with bloodstream infections caused by MRSA (with the UK and France predicted to experience the highest excess mortality) and 2,712 excess deaths from bloodstream infections caused by third-generation cephalosporin-resistant *E. coli* (predicted to be the highest in Turkey and the UK). The researchers also found that bloodstream infections caused by MRSA and third-generation cephalosporin-resistant *E. coli* contributed an excess of 255,683 and 120,065 extra bed-days respectively. This translated to an estimated extra cost of 62.0 million Euros (92.8 million international dollars) attributable to these infections.

By looking at trends in their analyses they also estimate that 97,000 resistant [bloodstream infections](#) and 17,000 associated deaths could

occur in 2015, with associated increases in hospital stay and costs. They finish by saying that 'Forecasts about changes in the coming years are disturbing; despite anticipated gains in the control of MRSA, the persistently increasing number of infections caused by third-generation cephalosporin-resistant Gram-negative pathogens is likely to outweigh this achievement soon.'

More information: de Kraker MEA, Davey PG, Grundmann H, BURDEN study group (2011) Mortality and Hospital Stay Associated with Resistant *Staphylococcus aureus* and *Escherichia coli* Bacteremia: Estimating the Burden of Antibiotic Resistance in Europe. PLoS Med 8(10): e1001104. [doi:10.1371/journal.pmed.1001104](https://doi.org/10.1371/journal.pmed.1001104)

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Citation: Burden of antibiotic resistance in Europe (2011, October 11) retrieved 3 May 2024 from <https://medicalxpress.com/news/2011-10-burden-antibiotic-resistance-europe.html>

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