



PHE Gateway number: 2013-499

To: Chief Executive Officer  
CC: Director of Nursing  
Medical Director

Health Protection and  
Medical Directorate

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Dear Chief Executive Officer,

**Re: Addressing the infection risk from carbapenemase-producing Enterobacteriaceae and other carbapenem-resistant organisms**

We are taking the unusual step of writing directly to you to ask for your essential support and action to address the risk posed to trusts and other healthcare organisations by carbapenemase-producing Enterobacteriaceae and other carbapenem-resistant organisms. Carbapenemase-producing Enterobacteriaceae represent one of the most serious emerging infectious disease threats that we currently face, and the failure to control their spread now, while we still have the opportunity, could have substantial human health and financial consequences. Infections caused by these bacteria are extremely difficult to treat as they are resistant to carbapenems, which are considered 'last resort' antibiotics. Management of these infections is not only more difficult, affecting patient outcomes, but also significantly more costly for the healthcare system.

In order to minimise the wide spread of these multidrug-resistant infections across England we would be grateful if you could ensure, as a matter of highest priority and urgency, that the recently published national '**Acute trust toolkit for the early detection, management and control of carbapenemase-producing Enterobacteriaceae**'<sup>1</sup> is embedded into clinical practice within your Trust.

Additionally, to ensure that trusts are fully informed about the need to address this risk and to embed the toolkit, next week NHS England will be circulating a Stage 2 Patient Safety Alert entitled '**Addressing rising trends and outbreaks in carbapenemase-producing Enterobacteriaceae**'. Further resources and information that will support you in addressing the issue in your Trust have also been included in the 'Key Information' appended to this letter.

These infections are already causing national concern due to the observed increasing trends in numbers of infections, outbreaks and clusters. Public Health England's (PHE) Antimicrobial Resistance and Healthcare Associated Infection Reference Unit has worked with carbapenemase-producing organisms since 2000 and is seeing year-on-year increases in these infections, currently confirming up to 25 positive samples per week that have been submitted by trust laboratories on a voluntary basis. PHE will continue to monitor the situation nationally and will make data on affected trusts available to professional colleagues and the public, including through publication, to support national efforts to address the public health threat.

<sup>1</sup> Acute trust toolkit for the early detection, management and control of carbapenemase-producing Enterobacteriaceae available at:  
[http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1317140378529](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317140378529)



## Public Health England

It is important that we learn lessons from other countries that have been affected by these bacteria, e.g. Israel, Italy and Greece, and note in particular the difference in impact on patient safety and healthcare systems between addressing<sup>2</sup> and failing to address<sup>3</sup> the problem at an early stage. Failure to act promptly has the potential to paralyse healthcare delivery (with resultant human and financial costs) as organisations struggle to control and reverse an escalating problem caused by a delayed response.

In the UK, we have a window of opportunity to prevent widespread problems caused by these organisms. Whilst we are seeing increasing numbers of carbapenemase-producing Enterobacteriaceae, we have not yet reached the escalated situation seen in other countries, although continuing significant levels in one part of North West England are having an impact on services. We are at a point in time when, if we act quickly and decisively, we can minimise the negative impact of these organisms.

We appreciate that application of the toolkit will be challenging in terms of both organisational capability and capacity, but unless each trust and healthcare organisation meets this challenge head on, the consequences of failing to act will be far greater.

We appreciate your support in this important matter and trust that collectively we will be able to address this issue in England.

Yours sincerely,

**Dr Paul Cosford**  
Medical Director and  
Director for Health Protection, PHE

**Sir Bruce Keogh**  
Medical Director  
NHS England

Withdrawn: October 2020

<sup>2</sup> Containment of a country-wide outbreak of carbapenem-resistant *Klebsiella pneumoniae* in Israeli hospitals via a nationally implemented intervention. Clin Infect Dis 2011 Apr 1;52(7):848-55 Schwaber MJ et al National Center for Infection Control, Israel Ministry of Health, Tel Aviv, Israel

<sup>3</sup> An outbreak of infection due to beta-Lactamase *Klebsiella pneumoniae* Carbapenemase 2-producing *K. pneumoniae* in a Greek University Hospital: molecular characterization, epidemiology, and outcomes Souli M et al Clin Infect Dis. 2010 Feb 1;50(3):364-73



## Key information

### Enterobacteriaceae

Enterobacteriaceae are a large family of bacteria that usually live harmlessly in the gut of all humans and animals. However, these organisms are also some of the most common causes of urinary tract, intra-abdominal and bloodstream infections. They include species such as *Escherichia coli*, *Klebsiella* spp. and *Enterobacter* spp.

### Acute trust toolkit for the early detection, management and control of carbapenemase-producing Enterobacteriaceae

The toolkit provides expert advice on the management of carbapenemase-producing Enterobacteriaceae, to prevent or reduce spread of these bacteria into (and within) health care settings, and between health and residential care settings. It provides practical advice for clinicians and staff at the frontline in acute care settings. The toolkit is intended to provide a framework to support local risk assessment, providing the minimum interventions required to safeguard patient safety and prevent an escalation of the problem. Some trusts that are already experiencing problems have applied even more stringent interventions. Every scenario will be different and trusts may wish to seek additional advice from their local PHE Centres and Regional Public Health Microbiologists.

### Additional resources

You may also already be aware of the existing guidance for best practice on laboratory testing published by British Society for Antimicrobial Chemotherapy (BSAC)<sup>4</sup> and a UK Standards for Microbiology Investigations document<sup>5</sup>, which provide further support to address this issue.

### Additional information about the threat

A recent US report on antimicrobial resistance from the Centers for Disease Control and Prevention (CDC)<sup>6</sup> acknowledged the significance of these infections and graded the organisms as “an urgent threat” - the highest level used to express a threat.

<sup>4</sup> BSAC antibiotic susceptibility testing guidance <http://bsac.org.uk/wp-content/uploads/2012/02/AST-testing-and-Reporting-guidance-v1-Final.pdf>

<sup>5</sup> Laboratory Detection and Reporting of Bacteria with Carbapenem-Hydrolysing  $\beta$ -lactamases (Carbapenemases). [http://www.hpa.org.uk/webc/HPAwebFile/HPAweb\\_C/1317138520481](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317138520481)

<sup>6</sup> CDC Report: Antibiotic Resistance Threats in the United States, 2013: <http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf>