



Response: Discovery of colistin-resistant bacteria in a patient in Denmark, as reported by *The Mail*, 4 December 2015

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This is a worrying report as colistin is often the last resort antibiotic to treat serious infections by multiple drug-resistant bacteria. The finding that this new type of resistance has now been found in bacteria isolated from food and one patient in Denmark as far back as 2012 means that this type of resistance may be widespread. Indeed, this finding questions whether it originated in China.

Bacteria are able to transfer resistance from one bacterium to another by exchanging circular pieces of DNA called plasmids that carry the colistin-resistance gene. The bacteria from Denmark were also resistant to another type of drug, meaning that the options for treatment were further reduced.

This type of resistance can be easily transferred between bacteria and as we know from other types of drug-resistance, this means that it can easily spread throughout the world. The finding that this type of resistance can be shared by different bacteria, irrespective of whether from food, an animal or a person is further evidence that the same drugs should not be used in veterinary and human medicine. To reduce the likelihood this type of drug resistance being shared by bacteria all use of colistin must be minimised as soon as possible and all unnecessary use stopped.

There are some antibiotics and combinations of drugs that could be used to treat infections by bacteria with the colistin-resistance plasmid, so hopefully the post-antibiotic era is not upon us yet. However, this is a wake-up call to the world to make available much more funding to find new treatments – some compounds with good activity in the test tube offer promise, but without funding to test them to ensure their safety in people and how to minimize resistance emergence, problems with difficult or untreatable infections will become more common.

Now more than ever we need rapid accurate diagnostics to indicate when antibiotics should be used, so that doctors use these drugs only when really needed. Until that time global surveillance for this type of resistance is essential so that infection control measures can be put in place to prevent the spread of these colistin-resistant bacteria. Until new treatments are available, we must use the knowledge we have to start 'stemming the tide of AMR' now – good infection control to prevent the spread of antibiotic resistance combined with only using antibiotics when needed (antimicrobial stewardship).

This report adds to the never-ending list of ways bacteria become drug-resistant. However, until new treatments are available, we must use the knowledge we have to start 'stemming the tide of AMR' now – good infection control to prevent the spread of antibiotic resistance combined with only using antibiotics when needed (antimicrobial stewardship). We hope that our MOOC produced in partnership with the University of Dundee (<https://www.futurelearn.com/courses/antimicrobial-stewardship>) will help those who prescribe antibiotics to use them wisely. For those interested in the global effort against AMR may wish to look at the supplement about antibiotic-resistance published in the UK Newspaper, The Independent on [November 18th 2015](#).