

# Cefiderocol for treating severe aerobic Gram-negative bacterial infections: technology evaluation to inform a novel subscription-style payment model

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## Plain language summary

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## Plain language summary

This project tested new methods for estimating the value to the NHS of an antimicrobial, cefiderocol, so its manufacturer could be paid fairly even if very little drug is used in order to reduce the risk of bacteria becoming resistant to the product.

Clinicians said that the greatest benefit of cefiderocol is when used for complicated urinary tract infections and pneumonia acquired within hospitals caused by two types of bacteria (called *Enterobacteriales* and *Pseudomonas aeruginosa*), with a resistance mechanism called metallo-beta-lactamase.

Because there were no relevant clinical trial data, we estimated how effective cefiderocol and alternative treatments were by doing a systematic literature review of studies that grew bacteria from infections in the laboratory and tested the drugs on them. We linked this to data estimating the long-term health and survival of patients. Some evidence was obtained by asking clinicians detailed questions about what they thought the effects would be based on their experience and the available evidence. We included the side effects of the alternative treatments, some of which can cause kidney damage.

We estimated how many infections there would be in the UK, whether they would increase over time and how resistance to treatments may change over time. Clinicians told us that they would also use cefiderocol to treat intra-abdominal and bloodstream infections, and some infections caused by another bacteria called *Stenotrophomonas*. We estimated how many of these infections there would be, and assumed the same health benefits as for other types of infections.

The total value to the NHS was calculated using these estimates. We also considered whether we had missed any additional elements of value. We estimated that the value to the NHS was £18–71 million over 20 years. This reflects the maximum the NHS could pay for use of cefiderocol if the health lost as a result of making these payments rather than funding other NHS services is not to exceed the health benefits of using this antimicrobial. However, these estimates are uncertain due to limitations with the evidence used to produce them and assumptions that had to be made.

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## This article

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