

# Ceftazidime/avibactam: key points from the NICE evidence review

## Effectiveness

- There is RCT data for 2 licensed indications for ceftazidime/avibactam: complicated intra-abdominal infections and complicated urinary tract infections.
- In a pooled analysis of RECLAIM 1 & 2 in adults with complicated intra-abdominal infection, ceftazidime/avibactam + metronidazole was non-inferior to meropenem for clinical cure at test-of-cure visit.  
Results: 83% (429/520) compared with 85% (444/523), respectively (difference -2.4%, 95% CI -6.90% to 2.10%).
- In a pooled analysis of RECAPTURE 1 & 2 in adults with complicated urinary tract infection, ceftazidime/avibactam was non-inferior to doripenem (not available in the UK) for:
  - per patient favourable microbiological response at test-of-cure visit.  
Results: 77% (304/393) compared with 71% (296/417), respectively (difference 6.4%, 95% CI 0.33% to 12.36%).
  - (a) patient-reported symptom resolution at day 5 and (b) combined symptom resolution and microbiological eradication at test-of-cure visit.  
Results: (a) 70% (276/393) compared with 66% (276/417) (difference 4%, 95% CI -2.39% to 10.42%);  
(b) 71% (280/393) compared with 65% (269/417) (difference 6.7%, 95% CI 0.30% to 13.12%).
- In REPRISE, the proportions of participants with complicated intra-abdominal infection and complicated urinary tract infection with ceftazidime-resistant pathogens with a clinical cure at the test-of-cure visit were similar with (a) ceftazidime/avibactam and (b) best available treatment.  
Results: (a) 91% (140/154), 95% CI 85.6% to 94.7%;  
(b) 91% (135/148), 95% CI 85.9% to 95%.

## Resource impact

- For a treatment course of 5–14 days, depending on the indication, the cost ranges from £1285.50 to £3599.40, excluding VAT (BNF, October 2017), any procurement discounts and administration costs.
- The acquisition cost of ceftazidime/avibactam is higher than other intravenous antimicrobials that are commonly used for complicated intra-abdominal infections, complicated urinary tract infections and hospital-acquired pneumonia.

First published November 2017.  
See the full evidence review for more  
information: [www.nice.org.uk](http://www.nice.org.uk)

NICE advice is not formal NICE guidance and  
does not contain recommendations for practice.

## Safety

- The SPC reports the most common adverse events (1 in  $\geq 20$  people receiving ceftazidime/avibactam) as being nausea, diarrhoea and a positive Coombs (direct antiglobulin) test.
- Other common adverse events (1 in  $\geq 100$  people) include headache, dizziness, maculopapular rash, eosinophilia, thrombocytosis, thrombocytopenia candidiasis, vomiting, abdominal pain, raised liver function tests, urticaria, pruritus, pyrexia and infusion-site reactions.
- The SPC includes the following special warnings and precautions: hypersensitivity reactions, *C. difficile*-associated diarrhoea (ranging from mild to life threatening), renal impairment, nephrotoxicity, positive direct Coombs test and risk of haemolytic anaemia.
- The SPC states that dose should be reduced according to the degree of renal impairment, so close monitoring of renal function is advised as this can change quickly, especially at the start of treatment.

## Patient factors

- Ceftazidime/avibactam is administered by intravenous infusion over 2 hours.
- In REPRISE, RECLAIM 1 & 2 and RECAPTURE 1 & 2, adverse events leading to stopping study medicine were 0.6% (1/164), 2.6% (14/529) and 1.4% (7/511) in the ceftazidime/avibactam with or without metronidazole groups compared with 1.2% (2/168) in best available treatment group, 1.3% (7/529) in the meropenem group and 1.2% (6/509) in the doripenem group, respectively.
- Each vial of ceftazidime/avibactam 2g/0.5g contains 6.44 mmol of sodium (approximately 148 mg). This should be considered when giving to people on a sodium-controlled diet.
- The SPC states that infusion site reactions were common (1 in  $\geq 100$  people).

## Resistance

- Ceftazidime/avibactam is a new antimicrobial, therefore data on resistance and impact in clinical practice in the UK are limited. See [Public Health England local antimicrobial resistance indicators](#).
- Ceftazidime/avibactam is active against ceftazidime-resistant and many carbapenem-resistant clinical isolates of *Enterobacteriaceae* and *P aeruginosa* when assessed in vivo and in vitro.