

Outpatient parenteral antibiotic therapy (OPAT) pathway for the management of adults over 18 with pyelonephritis or febrile urinary tract infection (UTI)

This pathway is intended for use by **OPAT services** for patients referred directly from the community or by emergency departments, acute receiving units or assessment centres

1. Assessment and inclusion criteria

History suggestive of pyelonephritis or febrile urinary tract infection (UTI)
PLUS initial intravenous (IV) antibiotic therapy judged to be appropriate due to clinical status
OR no suitable oral antibiotic treatment options due to resistance or allergy to oral antibiotic therapy.

2. Suitability for pyelonephritis or febrile UTI OPAT pathway

Step 1: Exclusion criteria

- National early warning score (NEWS2) score over 2
- Children under 18
- Uncontrolled comorbidities requiring inpatient assessment
- Pregnancy
- Non-febrile lower UTI
- Suspected renal tract calculi, prostatitis, epididymitis or pelvic or gynaecological infection
- Pneumonia (may be confused with pyelonephritis)
- Suspected or proven Gram-positive infections

If exclusion criteria identified discuss with OPAT consultant

Step 2: Consider logistics of treatment

- Ambulant and self-caring or appropriate carer support
- Access to transportation and able to attend OPAT service
- Access to OPAT does not result in unacceptable delay of treatment

Exclude from OPAT if criteria not met

3. Investigations or procedures

- **Microbiology.** Review previous culture and sensitivities. Suspected or proven Gram-positive infections are excluded from pathway—discuss with OPAT consultant
- **Confirm and document recent antimicrobial therapy,** clarify antibiotic allergy status and potential drug–drug or drug–food interactions
- **Take** urine culture and blood cultures **plus** urea and electrolytes, full blood count, liver function tests, C-reactive protein
- **Record** weight and height and **calculate** creatinine clearance
- **Replace indwelling urinary catheter** (if applicable)

4. Treatment (see antibiotic choice flow chart, page 2)

Administer IV antibiotic as per microbiology results (if known) and allergy status:

1. **Microbiology not known and no documented Gram-negative gentamicin or amikacin resistance in urine or blood in previous 6 months*:** IV gentamicin or amikacin as per local guidance.
2. **Current or previously documented Gram-negative gentamicin or amikacin resistance in urine or blood in previous 6 months*:** Ceftriaxone 2 g (if ceftriaxone sensitive) **OR** ertapenem 1 g (if ceftriaxone resistant and ertapenem sensitive). Reduce ertapenem dose to 500 mg daily if creatinine clearance less than 30 mL/min.
3. **Antibiotic allergy or pseudomonal infection:** Discuss IV and IV to oral switch (IVOST) options with OPAT consultant.

Review daily and consider IV to oral switch (IVOST) as per microbiology results and local guidance: Gentamicin or amikacin may be continued up to 5 days with therapeutic drug monitoring (TDM). If IV therapy still required and TDM not possible, gentamicin or amikacin resistance or other contraindication to aminoglycosides, give ceftriaxone or ertapenem daily depending on microbiology and allergy status and review IVOST options daily.

Complete 5-7 days of treatment (IV and oral) depending on progress. Review and consider extending therapy and urology referral if suspected renal abscess or slow to improve.

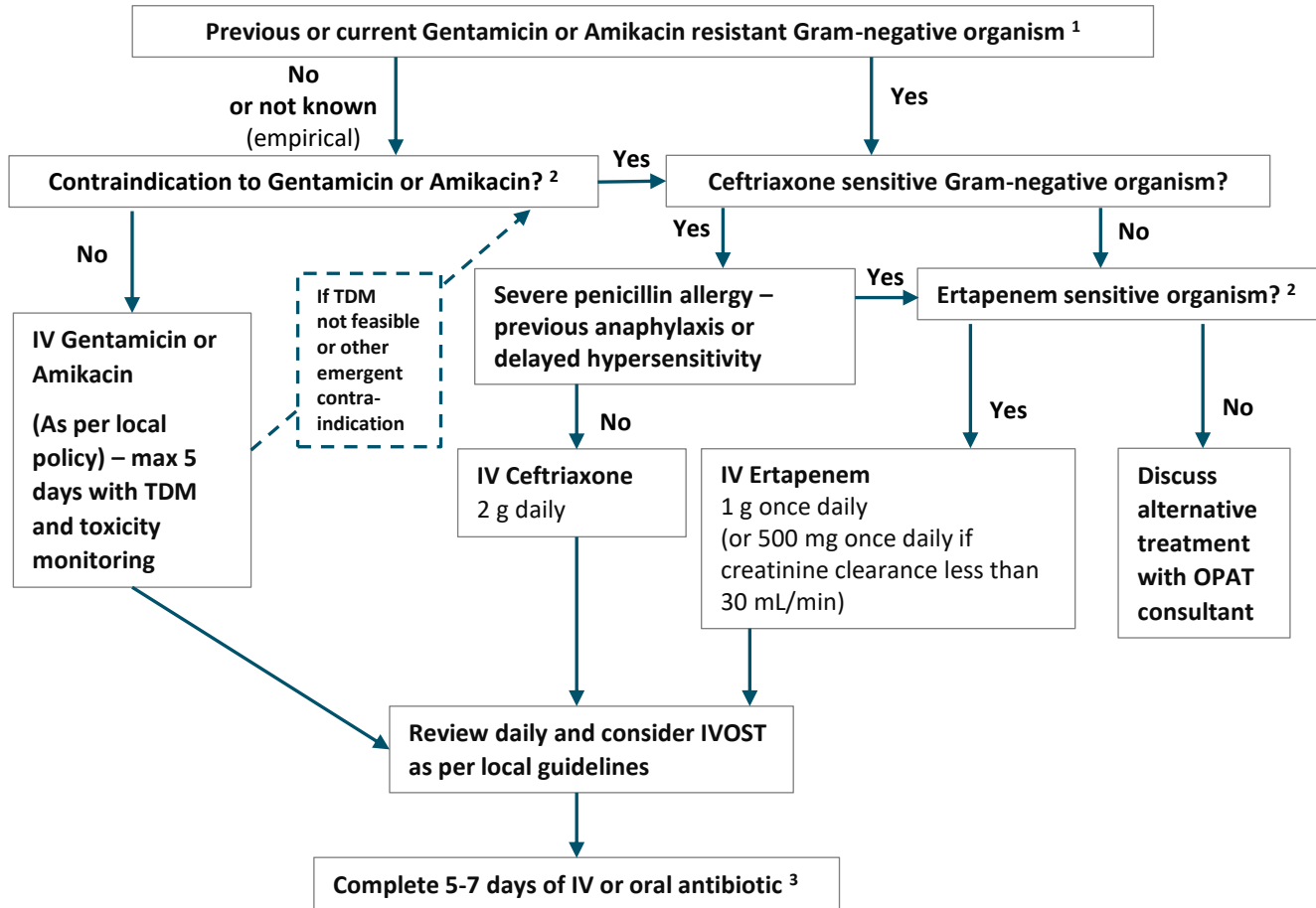
Additional advice

- Ensure adequate hydration and analgesia (paracetamol or ibuprofen if no contraindications)
- Discuss further investigation including need for imaging and urology referral with OPAT consultant
- Discuss at OPAT multi-disciplinary team (MDT) meeting. Consider routine infectious diseases clinic follow up as appropriate
- Ensure treatment plan and clinical outcome is communicated with the patient's GP

*Treat most recent isolate related to this clinical episode

OPAT antibiotic flow chart for pyelonephritis or febrile UTI

Review patient and microbiology results daily for suitability for IVOST



Notes:

- When reviewing microbiology results include community urine culture results.
- Gentamicin, amikacin and ertapenem - check BNF, local guidance and manufacturer information for comprehensive list of cautions and contraindications.
 - Gentamicin and amikacin - avoid in previous aminoglycoside ototoxicity, myasthenia gravis or previous ototoxicity or known genetic predisposition.
 - Ertapenem - avoid concurrent use with sodium valproate because of increased seizure risk.
- Consider renal ultrasound or computed tomography of kidneys, ureters and bladder (CT KUB) as outpatient or before OPAT discharge if symptoms (fever or pain) slow to improve. Extend therapy if suspected renal abscess and seek urgent urology review.