Fosfomycin Suggested Usage in ESBL+ and *Enterococcus* UTI

- **Fosfomycin** is useful for UTI, but **NOT** useful for pyelonephritis or other indications due to poor drug distribution.
  - Due to high cost ($157 per dose), use is limited to ESBL+ and resistant *enterococcus* UTI (traditional agents are preferred for less resistant infections unless confirmed allergies are present)
  - Sensitivities are not readily available at most institutions. Literature suggests the following:
    - ESBL+ *E.coli*: >95% susceptible
    - ESBL+ *K. pneumonia*: 80-93% susceptible
    - *Enterococcus* (including VRE): >95% susceptible
    - SNF residents should be expected to have lower susceptibilities.
  - Outcomes are better for uncomplicated UTI vs. complicated UTI
    - One study found a clinical cure rate of 100% for uncomplicated VRE UTI vs 76% for complicated VRE UTI
  - FHS hospitals will stock at least 1 fosfomycin dose
  - FHS outpatient pharmacies will stock 3 doses of fosfomycin
  - Beta-lactam antibiotics are not reliable treatment options for ESBL+ organisms even if they are reported as sensitive

**Definition of complicated UTI:** UTI in the presence of an anatomic abnormality, a functional abnormality, or urinary catheter.

- Factors that may increase risk of failing therapy: diabetes, pregnancy, ≥7 days of symptoms before seeking care, hospital-acquired infection, renal failure, urinary tract obstruction, presence of catheter/stent/nephrostomy tube, recent urinary tract instrumentation, functional abnormality

<table>
<thead>
<tr>
<th>Fosfomycin for OUTPATIENT UTI (Not for use in pyelonephritis)</th>
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<tbody>
<tr>
<td><strong>Uncomplicated ESBL+/enterococcus UTI:</strong></td>
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<tr>
<td>o <strong>Enterococcus</strong> (including VRE) and ESBL+ <em>E.coli</em>: 1st line oral agent</td>
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<tr>
<td>- Dose: 3 grams PO x1</td>
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<tr>
<td>o ESBL+ <em>K. pneumonia</em>: Increase dose to 3 grams po q48hrs x3 doses due to higher resistance</td>
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<tr>
<td><strong>Complicated UTI:</strong> 2nd line agent for complicated UTI caused by resistant <em>enterococcus</em> (i.e. resistant to amoxicillin or confirmed amoxicillin allergy), ESBL+ <em>E.coli</em>, and ESBL+ <em>K. Pneumoniae</em>. <strong>Recommend requesting fosfomycin E-test on the sample to confirm sensitivity.</strong></td>
</tr>
<tr>
<td>o IV ertapenem is 1st line treatment for <em>E.coli</em> and <em>K. Pneumoniae</em> (unless resistant). IV vancomycin is 1st line agent for enterococcus (unless resistant)</td>
</tr>
<tr>
<td>o Fosfomycin dose: 3 grams PO q48hrs x3 doses</td>
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</tbody>
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Fosfomycin for INPATIENT UTI (Not for use in pyelonephritis)

- **Uncomplicated UTI:**
  - **Enterococcus** (e.g. VRE): 1st line oral agent if amoxicillin and nitrofurantoin are resistant or not appropriate (i.e. fosfomycin can be used in place of linezolid).
    - Dose: 3 grams PO x1
  - **ESBL+ E.coli:** Consider as oral alternative if meropenem is not appropriate, or if patient has inpatient status solely to receive IV antibiotics (i.e. if patient can be discharged after fosfomycin dose)
    - Dose: 3 grams PO x1
  - **ESBL+ K. Pneumoniae:** Consider as 2nd-3rd line oral agent if meropenem cannot be used
    - Dose: 3 grams PO q48hrs x3 doses

- **Complicated UTI:**
  - Consider as 2nd line oral agent (failure rates are higher with complicated infection).
  - **Recommend requesting fosfomycin E-test on the sample to confirm sensitivity.**
    - Dose: 3 grams PO q48hrs x3 doses

**References:**