Guidance on management of uncomplicated bloodstream infections from Gram-negative organisms

Candidates for Short Course & Oral Therapy:

Patients with Gram-negative bloodstream infection (GN-BSI) that meet all of the following criteria may be candidates for both treatment with 7 days of total antimicrobial therapy and early switch from IV to oral antibiotics:

- ❑ Infection from an organism other than *Salmonella* spp., *Acinetobacter* spp., or *Stenotrophomonas* spp.
    - **Recommend ID consultation** for noted exceptions.
- ❑ No evidence of endovascular infection, unresected osteomyelitis, central nervous system infection or retained prosthetic material at the site of infection.
    - **Recommend ID consultation** for noted exceptions.
- ❑ Patient is clinically improving on current antibiotics; hemodynamically stable without vasopressor use
- ❑ Causative organism is known to be susceptible to at least one recommended oral agent
- ❑ Patient is able to tolerate oral (PO) medications without concern for poor gastrointestinal absorption
- ❑ Adequate source control has been achieved, if needed. Examples include:
    - **UTI:** exchange or removal of urinary catheter, nephrostomy tubes or urinary stents present when infection developed, resolution of any known obstruction
    - **Intra-abdominal infection:** drainage of abscesses/infected fluid collections, debridement of infected tissues
    - **Skin and soft tissue infection:** Drainage of abscesses or fluid collections, debridement or amputation of necrotic tissues
    - **Line associated bacteremia:** Removal or exchange of catheter if failure to improve or if persistently positive blood cultures (see below for repeat blood culture guidance).
        - **If line is retained, patient can be a candidate for oral antibiotic therapy, however a longer duration may be required.**
    - If uncertain about source control, **consult ID**

Repeat blood cultures

Repeat blood cultures are not routinely recommended. If required, obtain at least 48 hours after starting appropriate antibiotic therapy

Consider in patients with:

- Persistent fevers
- Concern for endovascular infection
- Retained intravascular catheters or prosthetic devices

- No clinical improvement on appropriate therapy

Oral therapy antibiotic choice and doses recommended for IV-PO switch

Treatment selection should be guided by antibiotic susceptibility data. It is important that bioavailable oral agents are used at doses that will achieve adequate concentrations to treat systemic infection.

Preferred oral therapies for uncomplicated GN-BSI:

- Levofloxacin 750mg PO daily
- Trimethoprim/sulfamethoxazole (TMP/SMX) 7-10 mg/kg TMP based on Adjusted Body Weight (AdjBW) rounded to nearest double strength (DS, 160mg) tablet size:
    - 40-49kg AdjBW: 1 DS tablet BID PO
    - 50-69kg AdjBW: 1 DS tablet TID PO
    - 70-95kg AdjBW: 2 DS tablet BID PO
    - >95kg AdjBW: call antimicrobial stewardship pharmacist
- AdjBW is equal to ideal body weight (IBW) plus 40% of the difference between total and IBW

Alternative therapies, in order of preference (utilize if patient has a medication contraindication or non-susceptible organism to preferred agents, and organism is susceptible)

- Amoxicillin 1g TID PO*
- Cephalexin 1g TID PO or Cefadroxil 1g BID PO**
- Amoxicillin/clavulanate 875/125mg TID PO

*Ampicillin susceptibility can be utilized to determine susceptibility to oral amoxicillin.

Cefazolin susceptibility can be utilized to determine susceptibility to oral cephalosporins (cephalexin and cefadroxil). **Ceftriaxone should not be utilized as a surrogate for susceptibility of oral cephalosporins.

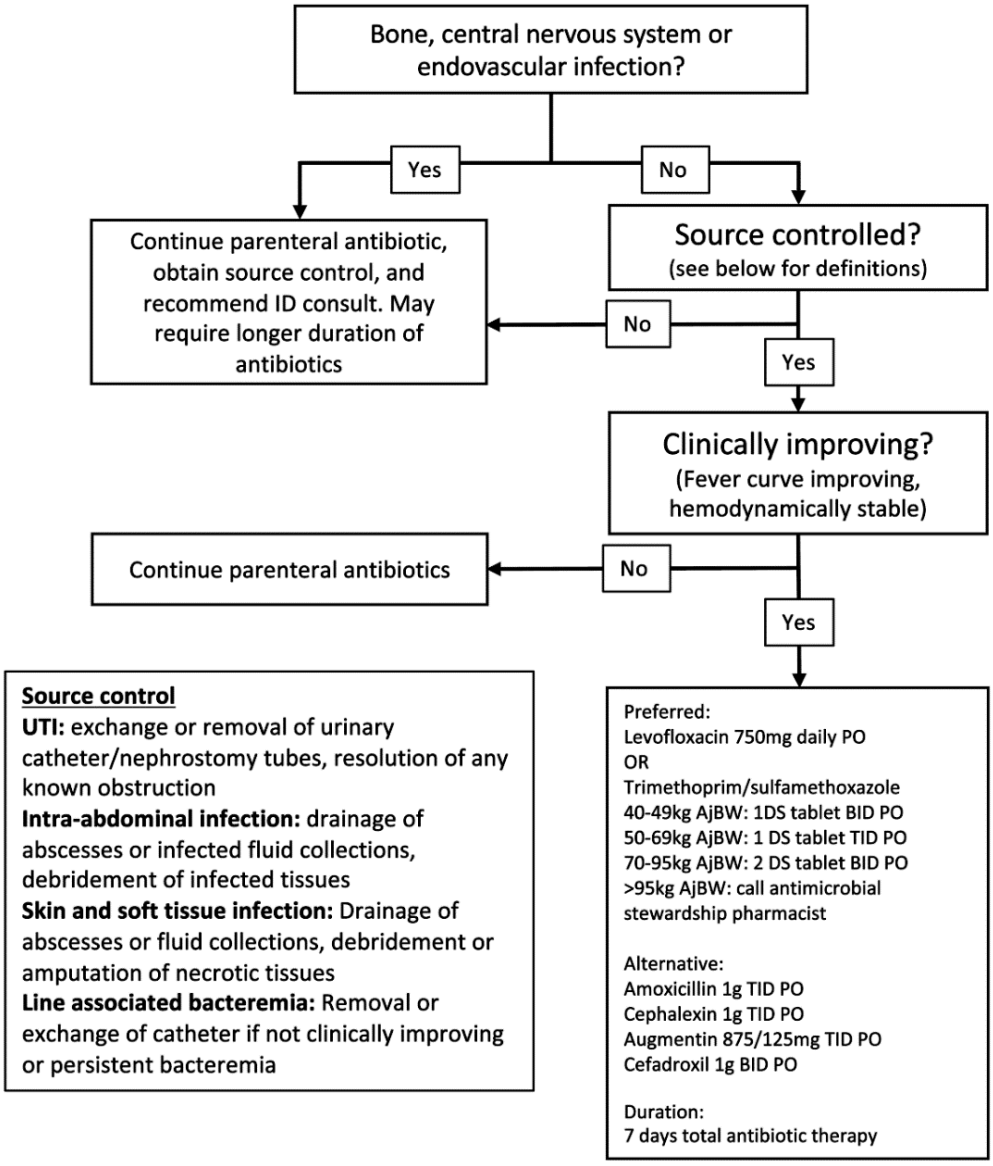
Agents generally not recommended as oral therapy for GN-BSI:

Penicillin VK	Doxycycline
Cefuroxime	Fosfomycin
Cefdinir	Nitrofurantoin
Cefpodoxime	

Duration of therapy

Several studies have demonstrated that treatment durations of 7 days result in outcomes equivalent to 14 days in uncomplicated GN-BSI (both oral and intravenous antibiotics). Bacteremia secondary to pyelonephritis may require a longer duration of 10-14 days if utilizing trimethoprim-sulfamethoxazole or a beta-lactam agent for definitive therapy.

Figure 1: Treatment decision algorithm



Note: Antibiotic selection should be guided by antibiotic susceptibility

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