**Case: sepsis secondary to ulcer:**

39 y/o F with PMHx of DM1, depression, anxiety, and obesity c/o R foot wound x 5 months. Pt denies fever, CP, SOB, head ache, dizziness, or loss of consciousness. Physical exam revealed right med malleolar ulcer, purulent discharge on palpation, b/l edema, and tachycardia with hypotension. CMP shows increased BUN/Crtn, Stage 5 renal failure (eGFR 5), and BSL 225. Pt reports hx of hives from Augmentin. What would be the appropriate course of empirical antibiotics for this pt?

**Regarding the patient’s reported hx of “hives” from Augmentin:**

According to DHHS, history of "hives" or "rash" are among the most commonly reported reactions, but may have been from a childhood viral exanthem rather than a drug allergy. Even if there were an immunoglobulin E (IgE)-mediated penicillin reaction, penicillin allergy wanes over time. This means that years later, patients are unlikely to be allergic.([5](https://psnet.ahrq.gov/web-mm/delayed-sepsis-management-due-ambiguous-allergy#references))

* Unverified penicillin allergy leads to increased treatment failures and delay to first antibiotic dose in sepsis patients.
* Most patients who have a history of penicillin allergy are not allergic when the allergy is formally evaluated.
* Even patients with true, IgE-mediated penicillin allergy can safely receive most cephalosporins, and all carbapenems and monobactams.

**Regarding patient’s renal status:**

According to patient’s CMP they have an eGFR of 6, which places them in Stage 5 renal failure. Cat 5 RF) will call for reduced dosage, rate, and may outright preclude the use of some classes of antibiotics

**Empirical antibiotics for early signs of sepsis from foot ulcer:**

According to UpToDate, patients with signs of sepsis should be treated empirically with antibiotics that will cover both GR+ and Gr- bacteria. The most common pathogen from foot ulcers would be *S. aureus*, a staphylococcal gram positive organism. Until proven otherwise, we should cover for the possibility of MRSA as well as *P. aeruginosa*, a highly resistant Gr – organism.

For typical empirical coverage for such cases, inpatient IV Vancomycin plus a strong cephalosporin or carbapenem are indicated for both Gr + and – coverage, respectively, until blood cultures return and coverage can be modified.

**Vancomycin:** indicated in Sepsis/septic shock as a component of empiric therapy or pathogen-specific therapy for MRSA. Administer IV 15-20 mg/kg/dose (usual maximum: 2 g/dose initially) Q 8-12 hrs; adjust dose to obtain a trough concentration of 15 to 20 mcg/mL. Administer within 1 hour of identifying sepsis. Usual duration of therapy is 7 to 10 days.

***Based on our patients body weight and renal status:*** initial loading dose (25 mg/kg) should *not* be reduced, but the subsequent continuous IV titration 1250 mg total over 24 hrs.

**Meropenem:** Indicated in Sepsis and septic shock (broad-spectrum empiric therapy, including *P. aeruginosa*). Administered IV 1-2 g Q 8 hrs alone or in combination with other appropriate agents. Initiate therapy as soon as sepsis or septic shock is suspected. Usual duration is 7 to 10 days or longer depending on response.

For skin and soft tissue infection (moderate to severe infection, necrotizing infection, select surgical site infections [intestinal, GU tract]), broad-spectrum empiric coverage, including *P. aeruginosa*:administer IV 1 g Q 8 hrs as part of an appropriate combination regimen. Usual duration is 10 to 14 days. For necrotizing infection, continue until further debridement is not necessary, patient has clinically improved, and patient is afebrile for ≥48 hours.

***Based on our patients body weight and renal status:*** give full adult dose over 24 hours instead of Q 8 hrs.

**Sources:**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3255391/>

<https://www.uptodate.com/contents/allergy-to-penicillin-and-related-antibiotics-beyond-the-basics>

<https://www-uptodate-com.york.ezproxy.cuny.edu/contents/evaluation-and-management-of-suspected-sepsis-and-septic-shock-in-adults?search=sepsis%20treatment&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1>