THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

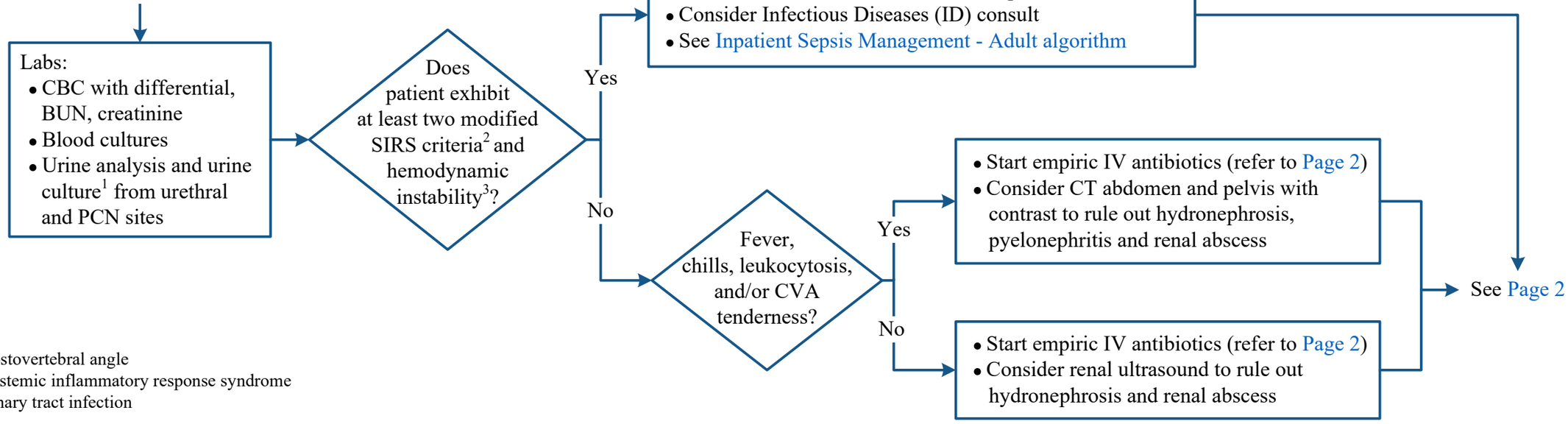
Percutaneous Nephrostomy (PCN) Tube Related Infections

CLINICAL PRESENTATION

Patient presentation suspicious for PCN infection:

- **Lower UTI:** dysuria, frequency, urgency and/or suprapubic pain
- **Upper UTI:** fever/chills, leukocytosis and/or CVA tenderness (with or without lower UTI symptoms)
- **PCN exit site infection:** local signs for erythema, warmth, tenderness and/or purulence

EVALUATION



CVA = costovertebral angle
SIRS = systemic inflammatory response syndrome
UTI = urinary tract infection

[1] For proper collection and labeling of urine specimen, refer to ELSEVIER (Mosby's) Nursing Skills and Procedures (see Appendix A)

[2] Modified SIRS criteria:

- Temperature < 36 or ≥ 38.5°C
- Heart rate ≥ 110 bpm
- Respiratory rate > 24 bpm
- WBC count < 3 or ≥ 15 K/microliter

[3] The patient is considered hemodynamically unstable if systolic blood pressure < 90 mmHg

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Approved by the Executive Committee of the Medical Staff on 10/18/2022

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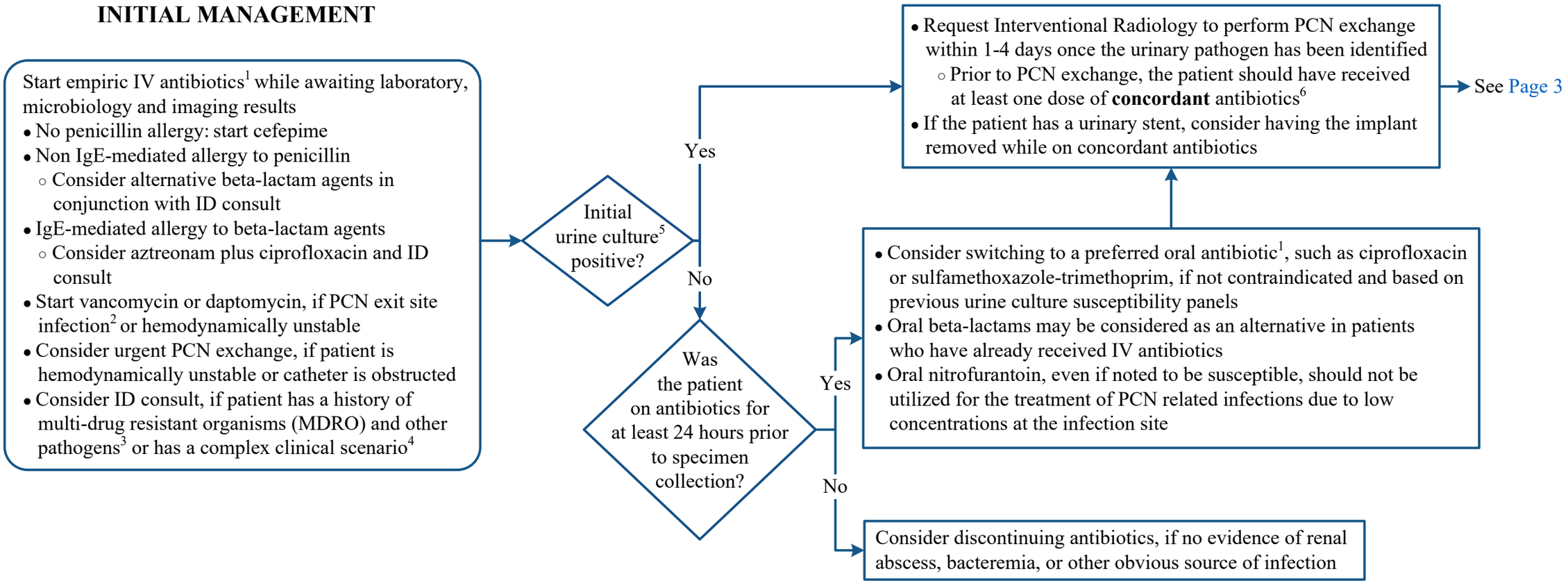
Disclaimer: *This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women. Local microbiology and susceptibility/resistance patterns should be taken into consideration when selecting antibiotics.*

INITIAL MANAGEMENT



[1] For antibiotic therapy consider: medication allergies, history of past infections including multi-drug resistant pathogens, recent antibiotic exposure, creatinine clearance, and significant drug-drug interactions
[2] Observe for local signs for erythema, warmth, tenderness, and/or purulence
[3] MDROs and other pathogens include:
- Enterococcus resistant to vancomycin
- *Staphylococcus aureus*
- *Stenotrophomonas maltophilia*
- Any extended spectrum beta-lactamase (ESBL)-producing gram negative bacilli
- Any carbapenem resistant gram negative bacilli
- All other gram negative bacilli that are resistant to usual recommended first-line agents

[4] Significant renal impairment, antimicrobial allergies, and/or drug-drug interactions
[5] Urine culture collected at initial evaluation, see Page 1
[6] Concordant antibiotics are defined as microbiologically active based on current or previous susceptibilities

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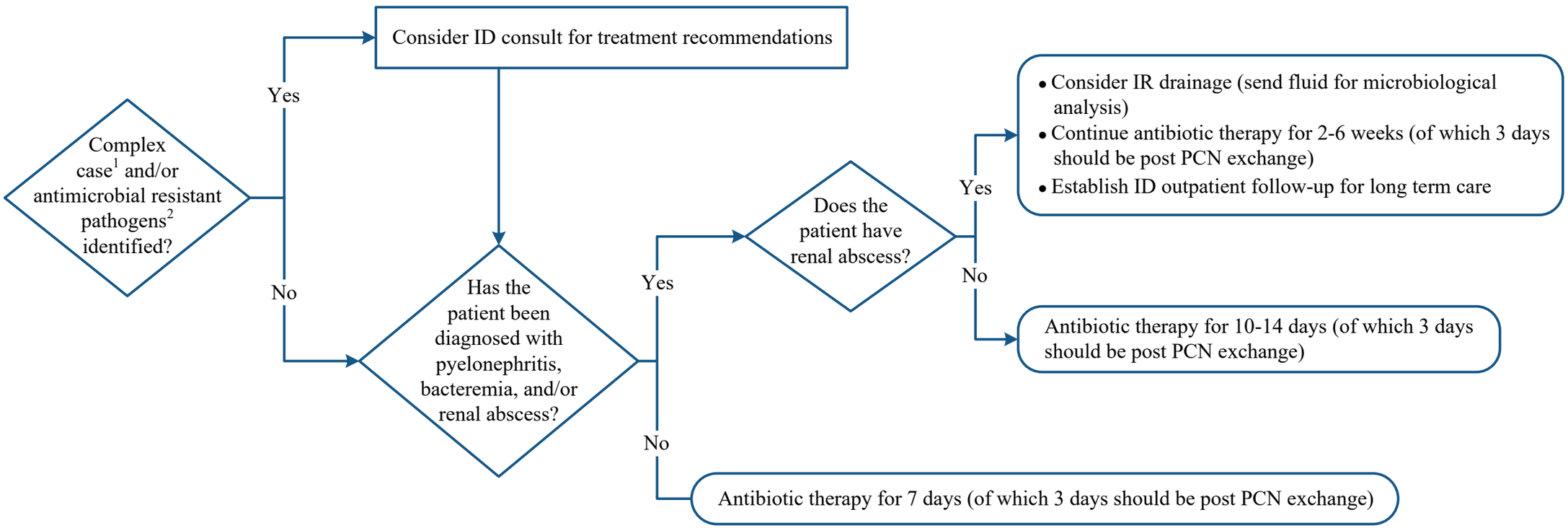
FURTHER MANAGEMENT



[1] Persistent signs of infection, multiple allergies to antibiotics and/or significant drug-drug interactions

[2] MDROs and other pathogens include:

- Enterococcus resistant to vancomycin
- *Staphylococcus aureus*
- *Stenotrophomonas maltophilia*
- Any extended spectrum beta-lactamase (ESBL)-producing gram negative bacilli
- Any carbapenem resistant gram negative bacilli
- All other gram negative bacilli that are resistant to usual recommended first-line agents

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APPENDIX A: Specimen Collection from a Nephrostomy Tube

Note: Collection of a urine specimen from contamination/colonized sites such as the old or used collection bag(s) may lead to inaccurate diagnosis and for this reason the following collection methods should be used.

Supplies:
- Specimen labels
- Non-sterile gloves
- CTU-30 Tubing(s) (optional)
- Drainage Collection (bedside) bag(s)
- Biohazard Bags for Specimens
- Sterile specimen container/cup
- 70% isopropyl alcohol wipes
- Leg bag(s)
- Plastic-back protective pad (*e.g.,* "chux")

Methods for collection (perform one of the following methods to collect a urine specimen):

A. Free flow of urine into a sterile specimen container:
- Confirm patient identity and explain procedure to the patient
- Position patient sitting with the patient's back exposed
- Perform hand hygiene
- Position the plastic-backed protective pad (*e.g.,* "chux") to protect the patient's skin and/or linens
- Don gloves
- Disconnect the connector from proximal (nearest to patient) tube
- Scrub the proximal connector with 70% isopropyl alcohol wipes and let dry (preferably for 15-30 seconds)
- Allow urine to flow freely out of the tube into the sterile cup while ensuring sterility. Note: It may take several minutes for the kidney to produce urine.
- Collect at least 10 mL of urine in the sterile cup; secure top of sterile cup
- Label the specimen cup identifying the source (urine), location (right nephrostomy tube or left nephrostomy tube) and any other labeling requirements per institutional policy
- Repeat urine specimen collection on the contralateral side if indicated
- Discard supplies. Doff gloves and perform hand hygiene.
- Ensure timely transport of specimens to lab using Pneumatic Tube System or specimen pick up by lab as appropriate

B. Free flow of urine into a new drainage collection bag (leg bag or bedside):
- Confirm patient identity and explain procedure to the patient
- Position patient sitting in the upright position or a position of comfort
- Perform hand hygiene
- Position the plastic-backed protective pad to cover the patient's skin and/or linens
- Don gloves
- Disconnect the distal (away from patient) tube from the proximal connector
- Scrub the hub with 70% isopropyl alcohol wipes and let dry (preferably for 15-30 seconds)
- Carefully insert a new collection bag with a new CTU-30 tubing if needed: position collection bag below the kidney level
- Allow urine to flow freely into the collection bag for 15-30 minutes. Urine allowed to collect or sit in a collection bag for more than 1 hour is considered contaminated and is not to be used as a sterile specimen. Collect at least 10 mL of urine in the sterile cup; secure top to sterile cup.
- When at least 10 mL of urine has been collected in the collection bag, open the bag valve over the sterile cup. Ensure the specimen remains sterile. Do not allow the valve or tip of the nephrostomy tube to touch the rim or inside wall of the cup.
- Label the specimen cup identifying the source (urine), location (right nephrostomy tube or left nephrostomy tube) and any other labeling requirements per institutional policy
- Repeat urine specimen collection on the contralateral side if indicated
- Discard supplies. Doff gloves and perform hand hygiene.
- Ensure timely transport of specimens to lab using Pneumatic Tube System or specimen pick up by lab as appropriate

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SUGGESTED READINGS

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DEVELOPMENT CREDITS

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