Neutropenic Fever Inpatient Adult Treatment (Solid Tumors/Lymphoma/Myeloma)

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. Based on general principles, local microbiology and susceptibility/resistance patterns should be taken into consideration when selecting antibiotics. This algorithm should not be used to treat pregnant women.

Note: This algorithm should not be used for patients receiving CAR cell therapy.

Patient presents with fever or develops fever at MD Anderson

- Patient exhibits two or more of the qSOFA criteria?
  - Yes → See Adult Sepsis Management Algorithm and use Sepsis order set
  - No → Does patient meet outpatient therapy criteria?
    - Yes → See Neutropenic Fever Outpatient Treatment for Solid Tumor Patients Algorithm
    - No → See Neutropenic Fever Inpatient Treatment for Solid Tumor Patients Algorithm

1 ANC less than 1 K/microliter and temperature greater than or equal to 38.3°C or equal to 38°C for 1 hour or longer.
2 qSOFA criteria:
  - Altered mental status
  - Respiratory rate greater than or equal to 22 bpm
  - Systolic blood pressure less than or equal to 100 mmHg

3 Patient must meet all of the following criteria for outpatient treatment:
  - Solid tumor
  - Able to tolerate oral medications
  - Able to tolerate fluids
  - Does not use PEG as primary route for nutrition and medications
  - Temperature greater than or equal to 38.3°C
  - ANC less than or equal to 1 K/microliter done within 24 hours
  - No confirmed focus of infection
  - Lives within 1 hour travel time of MDACC
  - Has a 24 hour caregiver
  - Has access to transportation and telephone at residence
  - Not currently on antibiotics
  - 15 years old or older
  - No quinolone allergy for oral regimens
  - Patient is considered low risk
  - No multi-resistant organism colonization

Does patient have pneumonia?

- Yes → See Pneumonia in Adult Patients with Cancer Algorithm
- No → See Page 2 for Antibiotic Regimen

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ANTIMICROBIAL THERAPY RECOMMENDATIONS
(Adjust doses for patients with renal/hepatic dysfunction)
Gram negative coverage antibiotics should be given first

Consider the following when selecting antibiotics (antibiotics should be given within 2 hours):
- Recent culture and sensitivity results
- History of multi-drug resistant organism (MDRO) infection
- Suspected line infection
- Antibiotic history and prophylaxis
- Source of infection if identified
- Organ dysfunction
- Mucositis

1. MDROs include:
   - Enterococcus resistant to vancomycin
   - Staphylococcus aureus resistant to methicillin (oxacillin)
   - Pseudomonas resistant to ciprofloxacin
   - Stenotrophomonas maltophilia
   - Any extended spectrum beta-lactamase (ESBL) producing gram negative bacilli
   - Any carbapenem resistant gram negative bacilli
   - All other gram negative bacilli, resistant to 3 of the 4 groups:
     - Ceftazidime and/or cefepime
     - Piperacillin/tazobactam
     - Imipenem and/or meropenem
     - Ciprofloxacin or levofloxacin

2. Chills, rigors with infusion through catheter, cellulitis or discharge around the line entry site

3. Gram negative coverage antibiotics may be infused via y-site with other antibiotics if compatible

4. Consider meropenem if patient has any of the following:
   - Non-IgE-mediated allergy to alternative agents
   - Recent treatment (of at least 3 days duration) with cefepime or piperacillin/tazobactam within past 30 days
   - Infection with ESBL organism
   - Infection with organism only susceptible to carbapenem

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1Consider narrowing therapy based on cultures and sensitivities (e.g., discontinue vancomycin if no gram positive organisms are identified and patient does not have cellulitis).
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**SUGGESTED READINGS**


*Continued on next page*
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SUGGESTED READINGS - continued


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DEVELOPMENT CREDITS

This practice consensus algorithm is based on majority expert opinion of the Neutropenic Fever Work Group at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

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