PEDIATRIC EMERGENCY DEPARTMENT CLINICAL GUIDELINE:
FEVER AND NEUTROPENIA

Population: Patients with known or suspected neutropenia and fever > 38.5°C (101°F)
- Patients at highest risk include those with known cancer and recent chemotherapy
- Includes patients with a history of fever at home who present without fever at triage

Triage: Should be placed into an examination room (preferably the isolation room if available) on arrival and triage is completed in the room
- The Attending is notified at the time of the arrival
- The Attending evaluates the patient initially at arrival and completes the Fever and Neutropenia order set in order to expedite timely care

History and Physical Examination:
- General appearance and assessment of vital signs (including pulse oximetry)
- Rapid Cardiopulmonary assessment
- Detailed history, including:
  - Primary oncologic diagnosis (including if relapsed disease)
  - Chemotherapy received within the previous 2 weeks, namely those agents that are myelosuppressive, including oral agents
  - Other current immunosuppressive medications
  - Recent antimicrobial exposure (including prophylaxis)
  - Infection history
  - Co-morbidities
- Site-specific history and physical, including:
  - Alimentary canal (oral mucosa, pharynx, esophagus, bowel, rectum)
  - Skin
  - Vascular access sites
  - Perivaginal/perirectal areas
- General physical examination for evidence of focal infection
  - Mouth and oral pharynx
  - Skin
  - Catheter line site
- Review of systems
  - URI symptoms
  - Sinus tenderness/symptoms
  - Odynophagia
  - Nausea and/or emesis
  - Abdominal pain
  - Diarrhea
  - Shortness of breath/cough
  - New rash/skin lesions
  - Headache/neck stiffness/altered mentation
- Evaluation of perfusion, degree of pallor
- Neurological evaluation

Diagnostic evaluation:
- CBC with differential and calculation of ANC (Absolute Neutrophil Count)
- ER 1 and ER2
**Blood culture**
- If there is an indwelling line (central line/PortaCath) you may draw from this line, and an additional peripheral culture is not necessary.

**Type & Screen**
- U/A and Urine culture
  - Do not catheterize patients who may be neutropenic
  - Do not withhold antibiotics waiting for patients to produce urine
  - Do not perform rectal exams or rectal temperatures on patients who may be neutropenic

**CXR if indicated (cough, crackles, tachypnea, abdominal pain)**
- Attempts should be made to access the medical records. The medical record often contains detailed clinic notes and discharge summaries with a wealth of information (i.e., lab summaries, discharge medications, dosages, prior complications).

**Therapeutic interventions:**
- Establish IV access
  - D5 NS @ maintenance (1200cc/m²/d)
  - Patients with evidence of decreased perfusion may be bolused with 10-20cc/kg of NS
  - Excess fluids should be avoided
- Administer parenteral antibiotics stat
  - Antibiotics should be ordered at the same time as triage and prior to waiting for the results returning from the lab.
  - **Ceftazidime 50mg/kg (max 2g)**
    - ID approval is not needed for ceftazidime for patients with febrile neutropenia
    - preferred agent for initial management of pediatric febrile neutropenia
  - Consider **gentamicin** in those with septic physiology or suspicion of resistant gram-negative organism
  - Consider adding Vancomycin 15mg/kg/dose
    - Suspected catheter-related infection
    - Suspected bacterial meningitis
    - Concern for bacterial pneumonia
    - Blood culture positive for Gram-positive organism prior to final identification
    - Presence of septic physiology
    - Known colonization with MRSA with history of previous invasive infection
    - Skin and/or soft tissue infection
  - Consider adding Azithromycin if infiltrate on CXR (10mg/kg x 1d, 5mg/kg/d x 4)
  - Consider addition of anaerobic coverage with clindamycin or metronidazole for those with: severe mucositis, suspected sinusitis, intra-abdominal process (e.g. typhlitis), or perirectal pathology

**Antipyretics:**
- Acetaminophen 15 mg/kg/dose q 4hrs
  - Only give orally
  - Do not give rectally
- Do not give ibuprofen

**Notification of Hematology-Oncology Service**
- The Hematology-Oncology service should be notified of all oncology patients.

**REFERENCES:**


DISCLAIMER: This clinical guideline has been developed for the purpose of unifying the general emergency care of patients with fever and neutropenia. It is intended to aid, rather than substitute for, professional judgment. It is not intended to serve as a rigid protocol or a written proxy for the standard of care. Failure to comply with this guideline does not represent a breach of the standard of care.