Febrile Neutropenia Empiric Treatment Clinical Order Set

(Adapted with Permission by IWK Health Centre July-2019)

Patient: _____ **Age:** _____ **Wt:** _____kg **Date of Wt:** _____

❑ Alert Record Reviewed ❑ No Allergies Known

❑ ALLERGIES - Adverse Reactions-Cautions: _____

DIAGNOSIS: _____

Items preceded by a bullet (●) are active orders. Items preceded by a checkbox (❑) are only actioned if checked (√)

- **Phone pediatric oncologist within 60 minutes of patient arrival.** Time consulted _____ hours

Fluids and Nutrition

- D5W + 0.9% NaCl IV at 1.5 x maintenance _____mL/hour (maximum 150 mL/hour) reassess daily.

Monitoring

- Blood pressure, heart rate, RR, O_2 saturation, and temperature q1h until stable, then q4h

Blood work/Microbiology

- CBC with differential, lactate, electrolytes (Na^+,K^+) and CREAT, within 30 minutes of arrival
- Blood from all CVL lumens (or peripheral if no CVL) for culture and sensitivity within 30 minutes of arrival and prior to starting IV antibiotics

As clinically indicated:

❑ Urinalysis ❑ Urine culture (no PUC samples- all urine cultures must be midstream or catheter only)

❑ NPA for: ❑Influenza/RSV ❑ Extended viral panel (ID approval required)

❑ Other:_____

Repeat daily:

- CBC with differential,(Na^+, K^+ while receiving daily IV fluids, and daily CREAT if receiving vancomycin or tobramycin)
- Blood cultures from all lumens for culture and sensitivity **if** temperature is greater than or equal to 38°C one hour apart or greater than or equal to 38.3 °C, or if patient appears unwell.

Diagnostic Imaging:

❑Chest X-ray ❑ Other: _____

Medications: Alternate antibiotics through each lumen once daily. ***All patients should receive antibiotics within 60 minutes or less of arrival as indicated below. Antibiotic doses below may require adjustment for renal function.***

STABLE:

If NO penicillin allergy:

❑ piperacillin-tazobactam _____ mg IV q8h (80 mg/kg/dose, max: 4000 mg/dose)
(Dosing based on piperacillin component)

If penicillin allergy:

❑ ceFEPIME _____ mg IV q8h (50 mg/kg/dose, max: 2000 mg/dose) **OR**

❑ ceftazidime _____mg IV q8h (50 mg/kg/dose, max: 2000 mg/dose) **AND** vancomycin (see dosing below)

UNSTABLE: patients and those requiring the addition of vancomycin (see reverse for more reference) and
If ceFEPIME unavailable for penicillin allergy **ADD** the following **(to be started immediately after blood cultures drawn**):

❑ vancomycin _____mg IV q6h (less than 12 years of age: 12.5 mg/kg/dose, max: 1000 mg/dose)

❑ vancomycin 1000 mg IV q12h (equal to or greater than 12 years of age)

- Vancomycin- Pre (trough) level pre 4th or 5th dose

AND (if patient is UNSTABLE)

❑ tobramycin _____mg IV q24h (equal to or less than 6 years of age: 10 mg/kg/dose, max: 400 mg/dose pre-level)

❑ tobramycin _____mg IV q24h (older than 6 years: 8 mg/kg/dose, max: 400 mg/dose pre-level)

- Tobramycin- Post (peak) level 30 minutes after first infusion complete.

DATE (dd/mm/yyyy)	Time (24hr/hh:mm)	Prescriber Signature	Printed Surname/Registration#
DATE (dd/mm/yyyy)	Time (24hr/hh:mm)	Verified By (Signature)	Printed Surname

Febrile Neutropenia Orders and Algorithm (Do Not Scan to Pharmacy)

STABLE PATIENT

YES

Piperacillin-Tazobactam**

If any of the following…

- HSCT less than 100 days and/or active GVHD*
- AML
- Infant less than 12 months with ALL
- Down syndrome
- Burkitt's Lymphoma Group C Induction
- Mucositis

Treat with **Piperacillin-Tazobactam** ** AND **Vancomycin**

Call Pediatric Oncologist

After 48 hours, is patient clinically well and afebrile (in the previous 24 hours) with negative cultures and ANC rising?

YES

Stop all antibiotics

If positive culture, continue 10 days from 1st negative culture using broad spectrum appropriate antibiotics****

NO

Piperacillin-Tazobactam
AND **Tobramycin*****
AND **Vancomycin**
AND call Pediatric Oncologist

At 48 hours, is patient clinically well and afebrile in the previous 24 hours with negative cultures?

NO

YES

Stop Tobramycin

At 72 hours, is patient remaining clinically well with negative cultures and afebrile in the previous 24 hours?

NO

YES

Stop Vancomycin

At 96 hours, is patient remaining clinically well, afebrile in the previous 24 hours with negative cultures from the last fever and ANC 0.5 x 10^9/L and rising?

NO

YES

Consider stopping all antibiotics in consultation with Pediatric Oncologist

Continue antibiotics as per clinical judgment and call Pediatric Oncologist

If positive culture, continue 10 days from 1st negative culture using broad spectrum appropriate antibiotics****

Criteria for unstable patients may include but are not limited to:

Sepsis Syndrome

- Tachycardia
- Vomiting
- New infiltrates on Chest x-ray
- Hypoxia (O_2 sats less than 94% on room air)
- Evidence of local infection
- Hypotension
- Altered mental status
- Abdominal pain

*	Hematopoietic stem cell transplant (HSCT); Graft vs Host Disease (GVHD)
**	If penicillin **ALLERGIC OR** receiving high-dose methotrexate **OR** receiving leucovorin rescue use ceFEPIME instead of Piperacillin-Tazobactam If no ceFEPIME available, use ceftazidime and vancomycin.
***	Any patient with hearing loss (sensorineural hearing loss 30 dBHL or greater at one or more frequencies between 250 Hz-4000 Hz) **OR** renal impairment (i.e. GFR 60 mL/min/1.73m^2 or less, serum creatinine 1.5 times upper limit of normal for age) **AVOID** aminoglycoside and contact pediatric hematologist/oncologist or infectious disease specialist. In these cases antibiotics of choice are meropenem (60 - 120mg/kg/day IV q8h maximum 6 g/day) AND vancomycin.
****	Redraw culture from all lumens to ensure negative before discontinuation of antibiotics.