ICR-NPF-021

Oncology / infectious · critical care

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CRITICAL CARE ORDER SET

Neutropenic Fever

An oncologic emergency. Draw blood cultures from every lumen and a peripheral site, then give the first broad-spectrum antibiotic within 60 minutes — never wait on the workup. Layer MRSA and double Gram-negative coverage onto an antipseudomonal backbone by risk, support the failing circulation, and engage ID and Heme/Onc early. Adapt every dose to your institutional antibiogram, prior colonization, and the patient in front of you.

PATIENT	MRN	ANC / CRCL	MALIGNANCY / REGIMEN
ALLERGIES	**FIRST ANTIBIOTIC TIME**	**ORDERING CLINICIAN**	**CODE STATUS**

DEFINITION **ANC < 500/µL** (or expected < 500 within 48 h) **AND** a single temperature **≥ 38.3 °C** or **≥ 38.0 °C sustained ≥ 1 h**.

01 Triage, isolation & initial orders

DIAGNOSIS / PROBLEM LIST

- [ ] Neutropenic fever (per definition above)
- [ ] Underlying malignancy / chemotherapy-induced neutropenia

NURSING / MONITORING

- [ ] Vital signs **q15 min × 1 h**, then **q1h × 4 h**, then **q4h** if stable (ICU-standard if unstable)

- [ ] Continuous cardiac & pulse oximetry monitoring if hypotensive, tachycardic, or septic
- [ ] Strict intake & output **q1h** (q4h if on the floor and stable); daily weight

Neutropenic precautions

- [ ] Private room; mask for patient during transport
- [ ] Neutropenic / low-bacteria diet per institutional policy
- [ ] Contact precautions if diarrhea or suspicion for *C. difficile*

Isolation

- [ ] Droplet + contact if respiratory symptoms or known viral pathogen
- [ ] Airborne if suspected TB, measles, varicella, etc., per clinical context

02 Immediate sepsis workup — STAT, within 1st hour

DO NOT DELAY Draw cultures **but give the first antibiotic dose within 60 min** — the workup must not postpone therapy.

Cultures

- [ ] **Blood cultures:** 2 sets (aerobic + anaerobic) from 2 separate peripheral sites **PLUS 1 set from each lumen** of any central venous catheter
- [ ] Urine culture (clean catch / straight cath) if urinary device, symptoms, or no clear source
- [ ] Sputum / tracheal aspirate / BAL if respiratory symptoms or infiltrate
- [ ] Wound / line-site cultures if erythema, tenderness, or drainage
- [ ] Stool: *C. difficile* toxin / PCR if diarrhea; bacterial stool panel if indicated

Laboratory studies

- [ ] CBC with differential
- [ ] CMP (incl. LFTs, creatinine)
- [ ] Lactate (initial + repeat 2–4 h if elevated)
- [ ] Coags: PT/INR, aPTT, fibrinogen, D-dimer if DIC concern
- [ ] CRP and/or procalcitonin (per protocol)
- [ ] Peripheral smear if blasts / TLS / MAHA concern

- [ ] Type & screen (crossmatch if indicated)
- [ ] If TLS risk: uric acid, LDH, phosphorus, calcium

Imaging

- [ ] Chest x-ray for all with respiratory symptoms or no obvious source

CT CHEST / ABDOMEN / PELVIS WITH CONTRAST IF

- [ ] Persistent fever ≥ 72 h on appropriate therapy, or concern for deep-seated infection (typhlitis, abscess, fungal)
- [ ] Additional imaging as indicated (sinus CT, MRI brain, etc.)

03 Source control & supportive procedures

- [ ] Assess central line sites; remove CVC if high suspicion of CLABSI and patient stable enough to tolerate (per ID / Onc input)

IF MUCOSITIS

- [ ] Oral exam q shift; saline or sodium-bicarbonate swish-and-spit rinses

IF DIARRHEA & ABDOMINAL PAIN

- [ ] Surgical consultation if concern for neutropenic enterocolitis (typhlitis) or perforation

04 Empiric antimicrobial therapy

≤ 60 MIN Start broad-spectrum IV antibiotics **within 60 minutes** of recognition. Tailor to local antibiogram and prior colonization / infection history.

4.1 First-line · no immediate MRSA or resistant GN risk

PICK ONE ANTIPSEUDOMONAL B-LACTAM

- [ ] Piperacillin–tazobactam 4.5 g IV q6h

OR

- [ ] Cefepime 2 g IV q8h

OR

- [ ] Meropenem 1 g IV q8h (or imipenem–cilastatin 500 mg IV q6h)

ADJUST Renal dose adjustment per CrCl; use extended-infusion strategies per institutional policy.

4.2 Add MRSA coverage · if ANY trigger

TRIGGERS

- [ ] Hemodynamic instability / severe sepsis / shock
- [ ] Pneumonia (esp. cavitary / MRSA risk)
- [ ] Suspected catheter-related infection
- [ ] Skin / soft-tissue infection
- [ ] Known MRSA colonization / prior MRSA

ADD ONE

- [ ] **Vancomycin IV** — load `20–25 mg/kg`, then `15–20 mg/kg q8–12h`; trough / AUC- & renal-guided

IF VANCOMYCIN UNSUITABLE

- [ ] Daptomycin IV **(not for pneumonia)**
- [ ] Linezolid IV if lung source with high MRSA suspicion and vancomycin contraindicated

4.3 Double Gram-negative coverage · consider for MDR risk

ADD A SECOND AGENT IF

- [ ] Septic shock / high-risk instability; known ESBL / KPC / MDR GN; high-resistance environment or recent resistant infection

EXAMPLES

- [ ] Add amikacin `15–20 mg/kg IV q24h` (or gentamicin)
- [ ] Add ciprofloxacin `400 mg IV q8–12h` (if no prior FQ prophylaxis & local susceptibility acceptable)
- [ ] Use carbapenem (meropenem) instead of pip-tazo / cefepime for ESBL risk

05 Antifungal & antiviral therapy

5.1 Empiric antifungal · not routine at presentation

CONSIDER IF

- [ ] Persistent fever ≥ `4–7 days` despite appropriate broad-spectrum antibiotics

- [ ] High-risk prolonged neutropenia (ANC < 500 for > 7 days, AML induction, allo-HCT)
- [ ] New pulmonary infiltrates / sinus disease suspicious for mold
- [ ] Positive galactomannan / β-D-glucan or other invasive fungal evidence

CHOICES — PER ID / ONC & LOCAL PRACTICE

- [ ] Voriconazole `6 mg/kg IV q12h × 2`, then `4 mg/kg IV q12h`
- [ ] Liposomal amphotericin B `3–5 mg/kg IV daily`
- [ ] Echinocandin — caspofungin `70 mg IV load`, then `50 mg IV daily`

5.2 Antiviral

- [ ] Influenza season / compatible symptoms: oseltamivir `75 mg PO q12h` (adjust for CrCl)
- [ ] HSV / VZV mucocutaneous disease: acyclovir IV `5 mg/kg IV q8h` (renal-adjusted)

06 Hemodynamic & organ support

FLUIDS — IF HYPOTENSIVE OR LACTATE ≥ 2 MMOL/L

- [ ] Crystalloid bolus — balanced crystalloid (or NS) `30 mL/kg IV within first 3 h`
- [ ] Maintenance — balanced crystalloid `75–100 mL/h`; adjust for HF / CKD

VASOPRESSORS — MAP < 65 DESPITE FLUIDS / FLUID-LIMITED

- [ ] **Norepinephrine** via central line — start `0.02–0.05 µg/kg/min`, titrate to MAP ≥ 65 mmHg
- [ ] Add vasopressin or epinephrine per sepsis protocol if needed
- [ ] Arterial line for continuous BP monitoring in ICU-level care

RESPIRATORY SUPPORT

- [ ] O_2 to keep SpO_2 ≥ **92%** (or per chronic baseline); low threshold for HFNC / intubation in septic shock

07 Hematologic & oncologic management

G-CSF (filgrastim)

- [ ] Filgrastim `5 µg/kg/day SC or IV`

INDICATIONS — PER ONC / ID

- [ ] High-risk neutropenia with sepsis / shock; expected prolonged neutropenia (> 7–10 days); elderly / comorbid / pneumonia / hypoxia

Transfusions

RBC	Hgb `< 7 g/dL` (higher if symptomatic ischemia / CAD)
Platelets — routine	`< 10,000/µL`
Platelets — fever / mucositis	`< 20,000/µL`
Platelets — procedure / bleeding	`< 50,000/µL`

- [ ] Irradiated, leukoreduced products for oncology / transplant patients as indicated

08 Prophylaxis & adjunctive orders

GI prophylaxis

- [ ] PPI or H2 blocker per protocol if additional indications present

VTE prophylaxis

- [ ] Enoxaparin `40 mg SC daily` (30 mg if CrCl < 30)
- [ ] Hold if platelets < 50,000/µL, active bleeding, high risk → use SCDs

Electrolytes & nutrition

- [ ] Daily BMP, Mg, Phos (more often if unstable); correct K / Mg / Phos aggressively
- [ ] Early nutrition consult; enteral feeding if prolonged NPO

Oral care

- [ ] Saline / sodium-bicarb rinses **q4h** while awake; avoid alcohol-based mouthwash; topical anesthetics for severe mucositis

09 De-escalation & duration

REASSESS AT 48–72 H

- [ ] Narrow based on cultures & susceptibilities
- [ ] Stop vancomycin if no MRSA source and cultures negative

If no source, cultures negative, patient stable

Continue broad-spectrum agent until ALL of:

- [ ] Afebrile ≥ 48 h, clinically stable, and neutrophil recovery (ANC > 500/μL and rising)
- [ ] In high-risk / prolonged neutropenia, may continue until ANC recovery — individualize with Heme / ID

10 Consults

- [ ] **Infectious Diseases** — all high-risk / complicated cases
- [ ] **Hematology / Oncology** — neutropenia, chemo timing, G-CSF
- [ ] **Critical Care** — evolving organ dysfunction or shock
- [ ] **Surgery** — typhlitis, perforation, abscess, necrotizing infection