

Fever & Neutropenia In Children: the First Hour is "The Golden Hour"

What is febrile neutropenia (FN) ?

- **Fever:**
 - Single axillary temperature $\geq 100.4^{\circ}\text{F}$ (38.3°C) OR
 - $\geq 100^{\circ}\text{F}$ (38°C) lasting 1 hour or more.
- **Neutropenia:** Absolute neutrophil count (ANC) $\leq 500/\text{mm}^3$ OR ANC $\leq 1000/\text{mm}^3$ with expected decline to $\leq 500/\text{mm}^3$ in 24-48 hours.

Lab assessment

- Secure vascular access**
- Obtain blood cultures
 - Complete Blood Count (CBC) and cross-match sample, if indicated
 - Biochemistry: CRP; LFT, RFT if indicated
 - Urine culture and Chest radiograph, if indicated

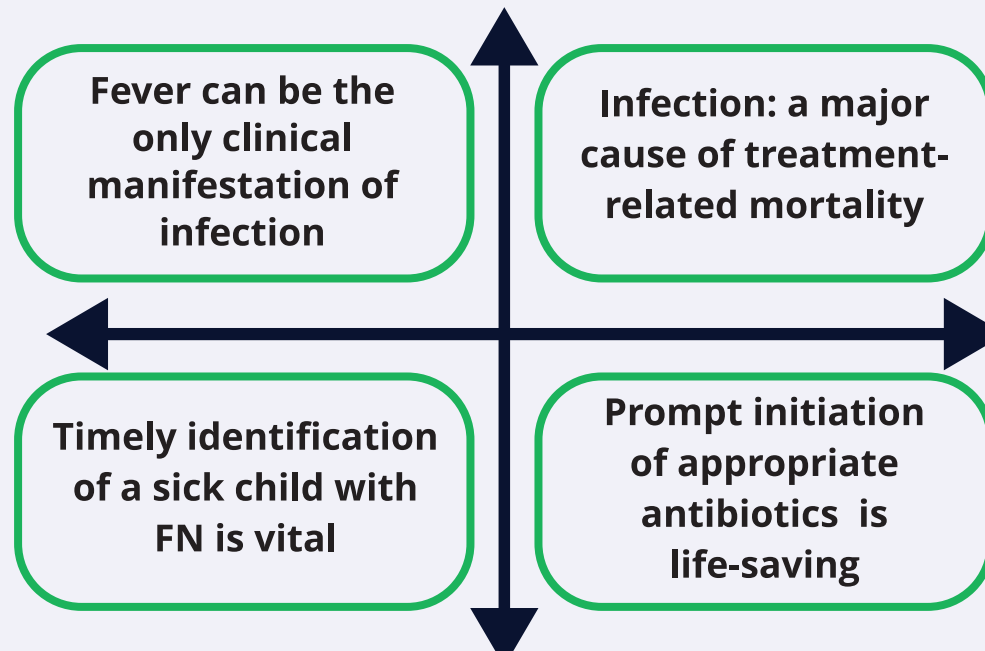
- **Blood product support**
- Give G-CSF if indicated
- Granulocyte transfusion for culture-proven sepsis in profound neutropenia

DO NOT GIVE PARACETAMOL AT HOME BEFORE INITIATING ANTIBIOTICS

When to Add Antifungal Therapy ?

- Empirical antifungal: if fever persists ≥ 96 hours despite broad-spectrum antibiotics.
- High-risk patients: AML/ALL induction, HSCT
- Consider CT of lungs + sinuses to look for invasive fungal disease.

Why is FN important ?



- Serial monitoring of vitals every 30-60 min
- Careful physical examination for any evolving focus of infection
- Optimize antibiotics as per the microbiological report and evolving clinical signs
- Manage shock promptly

High-risk FN

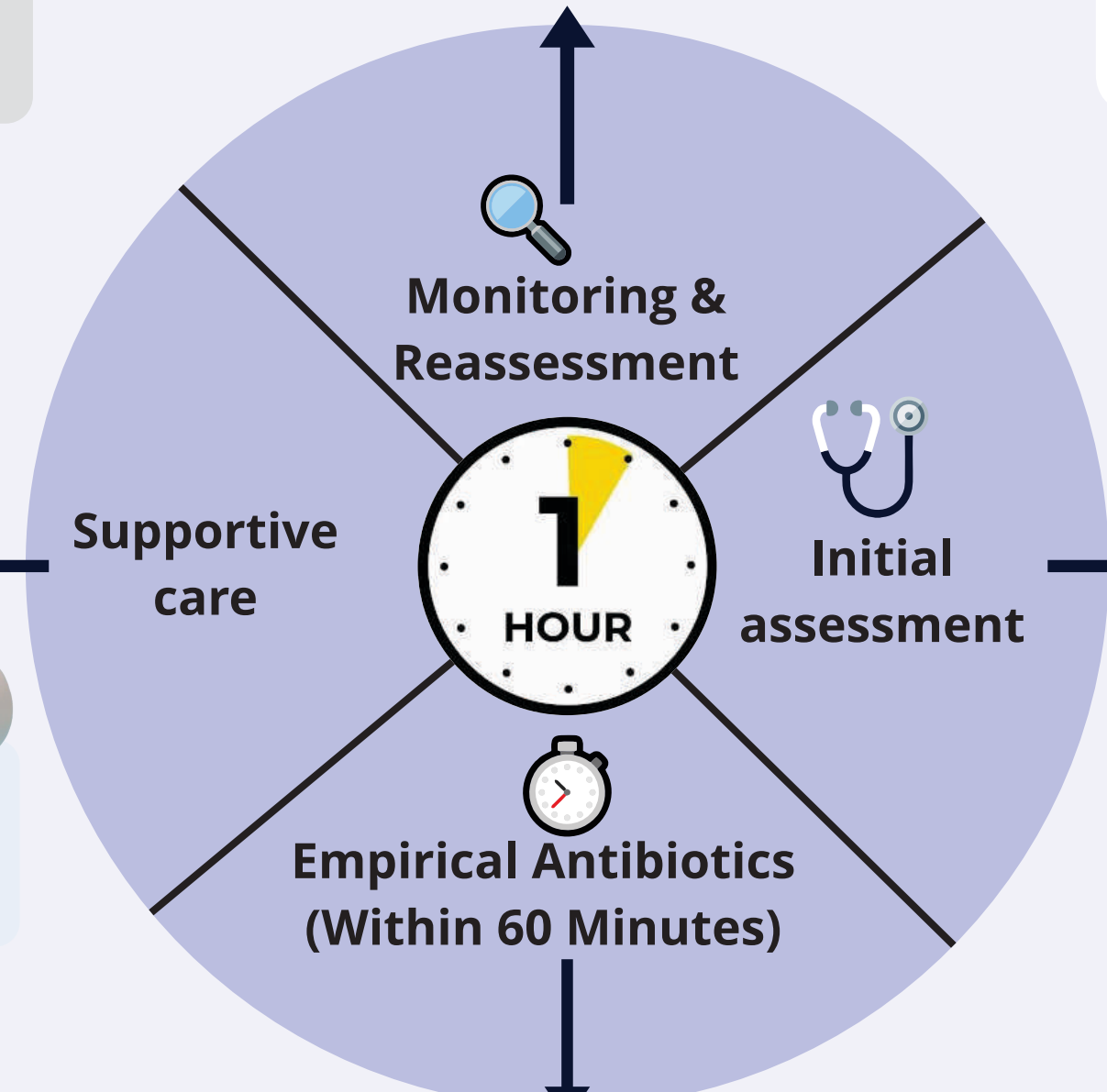
- Type of disease**
- AML
 - ALL in intensive phase
 - NHL
 - Relapse leukemia
 - HSCT recipients
 - Bone marrow failure
 - PID
 - Severe congenital neutropenia
 - Solid tumors receiving myelosuppressive chemotherapy

Timing of chemotherapy
If received within 7 days before the onset of fever

Other factors
Presence of central venous catheter (CVC)

Low Risk FN

- For children in maintenance phase or receiving non-myelosuppressive therapy
- Consider initial outpatient-based management
- Careful monitoring & follow-up is essential
- Ensure easy access to medical review and hospitalization if symptoms evolve



- Assess perfusion & record vitals: HR, RR, BP, CRT, SpO₂
- Obtain detailed history and perform a thorough physical examination
- Evaluate potential infection focus:
 - Mouth
 - Perianal region
 - Abdominal tenderness
 - Lung findings
 - Central line site
 - Skin and soft tissues

What is De-escalation Policy?

- If high rates of resistant pathogens, start antibiotics empirically, covering MDR organisms
- De-escalate therapy based on blood culture reports

- Start IV antibiotics within 60 minutes - double-agent anti-pseudomonal [e.g., cefoperazone sulbactam + amikacin; single-agent ceftriaxone not sufficient]
- Add Gram-positive cover if central line infection is suspected or the patient is hypotensive
- Choose antibiotics based on institutional resistance patterns and review periodically

Few Dos and Don'ts

- Do not modify** Do not modify initial coverage based solely on persistence of fever, if child is otherwise clinically stable
- Escalate** If clinically unstable: escalate empiric antibacterial regimen to cover resistant gram-negative, gram-positive bacteria
- Discontinue** Discontinue double gram-negative, or empiric glycopeptides coverage (if initiated) after 24-72 hours UNLESS this combination is justified by specific microbiologic indication

Few Dos and Don'ts

- Early Recognition & First-Hour Antibiotics:** Pediatricians play a crucial role as first contact-blood culture + IV antibiotics within 60 minutes saves lives.
- Aligned practices:** Pediatricians stabilize and initiate treatment; pediatric oncologists guide risk stratification, escalation, and further management.
- Standardized Protocols:** Shared, uniform FN pathways help avoid delays, reduce errors, and ensure consistent care across centers.



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