Infection Care Pathway: Oncology

Prevention

Assessment

Treatment

Prevention

Systemic Antibacterial and Antifungal Prophylaxis

PJP Prophylaxis

Assessment: Onset of FN

Fever:
- single oral temperature ≥ 38.3°C or ≥ 38°C for 1 hour or more
- single axillary temperature ≥ 37.8°C or ≥ 37.5°C for 1 hour or more

Neutropenia:
- ANC < 0.5 x 10^9/L or expected to fall below 0.5 x 10^9/L within next 48 hours

Obtain aerobic blood cultures from all lumens of CVC
Obtain peripheral blood cultures for patients who do not have a CVC

Obtain microbiological evaluation (e.g. urine culture, viral testing) of sites of clinically suspected infection

Do not obtain chest X-ray in absence of respiratory signs or symptoms

Treatment: Empiric Antibacterial Therapy

Do not delay antibiotic administration to obtain investigations

Risk Stratification
(high-risk or low-risk FN)

Initial Empiric Antibacterial Therapy
Low-risk FN
High-risk FN

Continuation of Therapy

Cessation of Therapy

Assessment: Prolonged FN and Empiric Antifungal Therapy

Assess risk for invasive fungal disease (IFD)

High risk for IFD:
- AML
- ALL/LLy excluding Maintenance

Low risk for IFD:
- not high risk

Initiate or continue caspofungin on day 5 of FN

Consider initiating caspofungin on day 7 or later of FN

Initiate investigations on or around day 5 of FN

Initiate investigations on day 7 or later of FN

Investigations

Investigations

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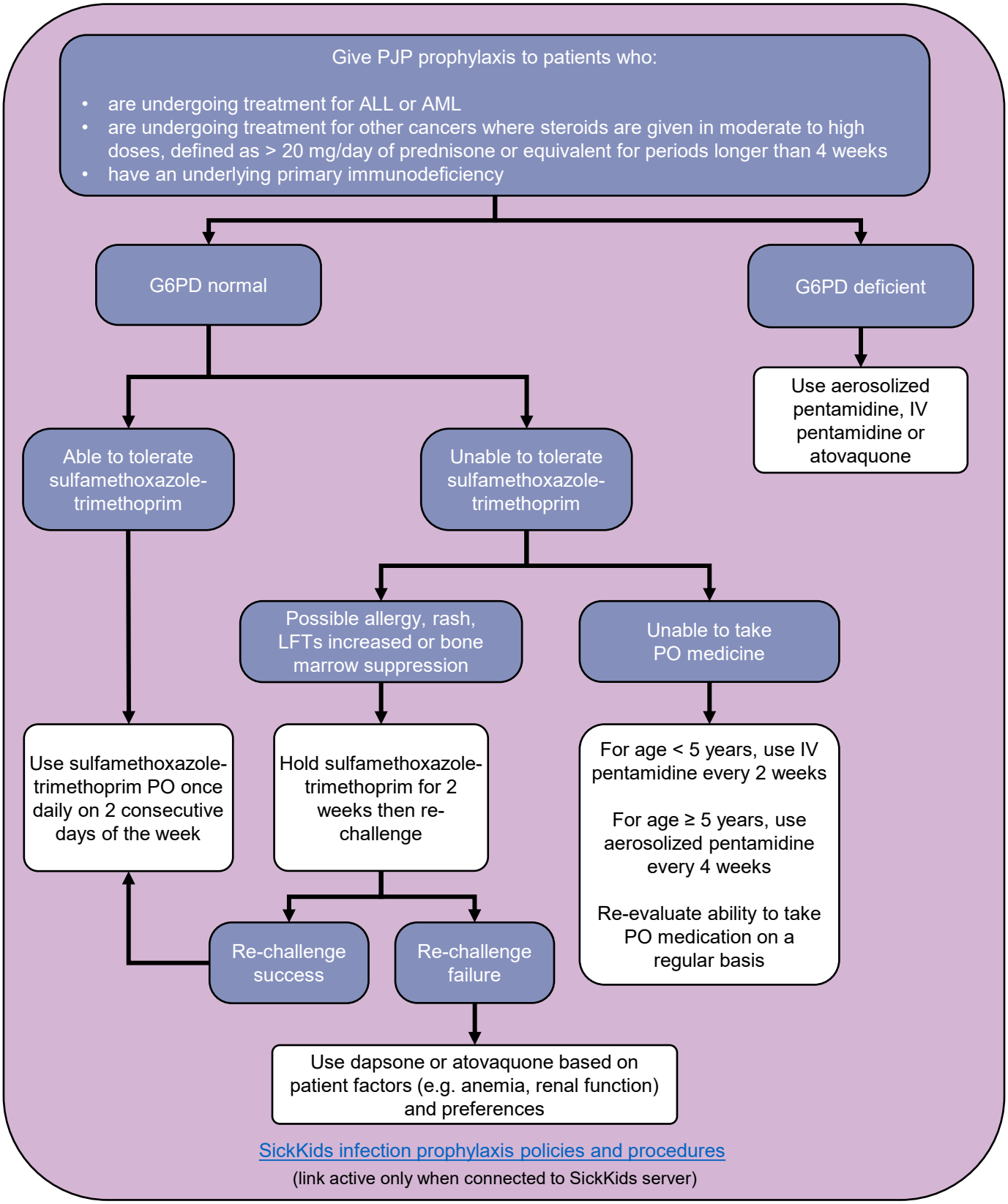
PJP Prophylaxis



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Systemic Antibacterial and Antifungal Prophylaxis

Start levofloxacin (antibacterial prophylaxis) and caspofungin (antifungal prophylaxis) on day 5 of each block of systemic chemotherapy (initiation may be deferred until ANC < 0.5 x 10^9/L) for patients receiving the following therapy:

Diagnosis	Protocol/SOC	Treatment Block
AML (including Down syndrome) • **Upfront AML except APL** • **Relapsed AML**	All protocols	All blocks
Down syndrome ALL or lymphoblastic lymphoma (LLy)	SOC SR B-ALL AALL 1731 (SR or LLy)	Induction, Delayed Intensification
	SOC HR B-ALL AALL 1731 (DS-high) SOC T and Advanced B LLy	Induction, Consolidation, Delayed Intensification
Infant ALL	SOC Infant ALL	Induction, Interim Maintenance Part 2
Relapsed ALL	SOC Relapsed ALL	Induction and post-Induction, intensive, non-blinatumomab blocks
Ph+ ALL	SOC Ph+ ALL	Consolidation block 1, 2, 3
	AALL 1631	SR Arm A or HR Consolidation block 1, 2, 3

Discontinue levofloxacin and caspofungin when ANC ≥ 0.1 x 10^9/L post nadir

When empiric antibacterial therapy (e.g. onset of FN) is initiated, hold levofloxacin and resume if still neutropenic post completion of empiric therapy

When empiric antifungal therapy (e.g. prolonged FN) is required, continue caspofungin and assess need for alternate antifungals

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Risk Stratification: Initial Onset of FN

High-risk FN

- history of sepsis within the previous 6 months
- age < 12 months
- Down syndrome
- HSCT patient within 6 months of transplant and/or receiving immunosuppressants
- diagnosis of:
  - AML
  - Burkitt lymphoma or leukemia
  - ALL in Induction or Delayed Intensification
  - high-risk neuroblastoma
  - relapsed leukemia
  - progressive solid tumor with bone marrow involvement
  - CNS tumor patients receiving aggressive radiation sparing protocols for embryonal tumors
- presents with any one or more of the following:
  - sepsis syndrome
  - hypotension
  - tachypnea
  - hypoxia (O_2 saturation < 94% on room air)
  - new infiltrates on chest X-ray
  - altered mental status
  - severe mucositis
  - vomiting
  - abdominal pain
  - evidence of significant local infection (e.g. tunnel infection, peri-rectal abscess, cellulitis)

→ Initial Empiric Antibacterial Therapy

Low-risk FN

No high risk factors

→ Initial Empiric Antibacterial Therapy

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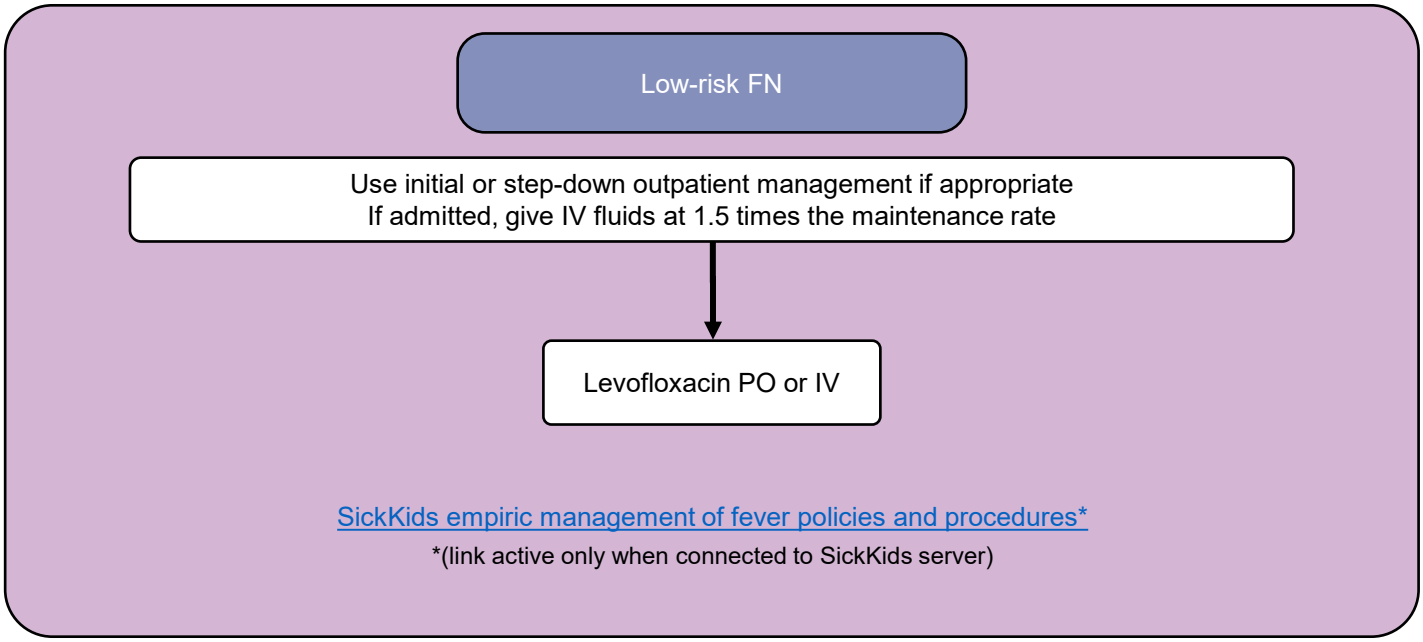
Initial Empiric Antibacterial Therapy



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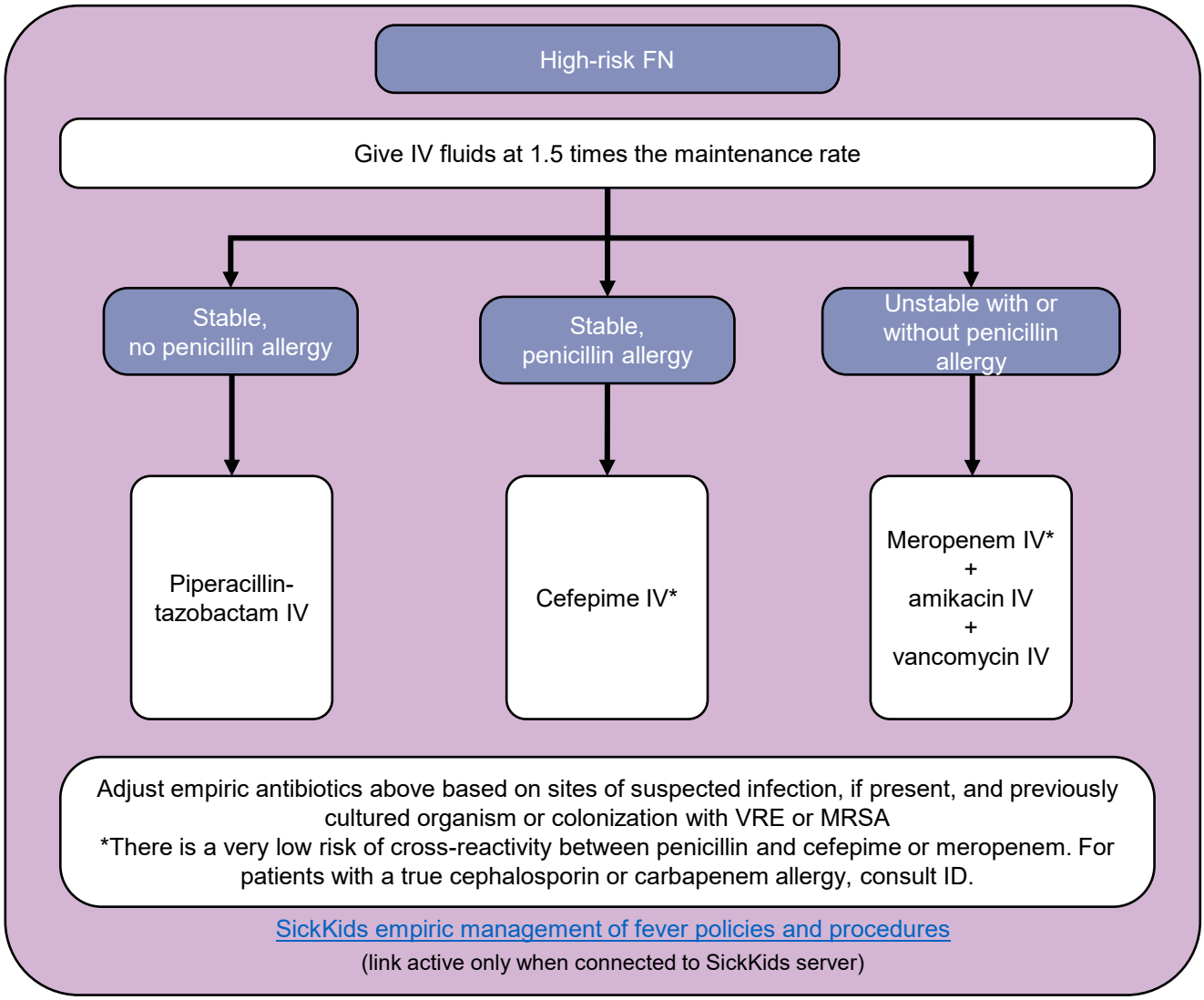
Initial Empiric Antibacterial Therapy



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Continuation of Therapy

Clinical Status

Becomes clinically unstable

Meropenem IV*
+
amikacin IV
+
vancomycin IV

Becomes clinically stable

Redraw CVC cultures only once at 24 to 36 hours for patients with persistent fever and negative initial blood culture (two sets of blood cultures within first 48 hours). Repeat blood cultures only if there is a clinical status change (e.g. hypotension).

For patients who were initially unstable, step down to regimen for stable inpatients at 48 hours

Do not modify initial empiric antibacterial regimen based solely on persistent fever

Evaluate for evolving infection at specific sites

Micro-biologic status

Preliminary Gram-positive bacteremia	Preliminary Gram-negative bacteremia	Other (e.g. wound, cellulitis)
Continue empiric antibacterial therapy and add vancomycin until identification and sensitives are available Repeat CVC cultures daily until negative	Continue empiric antibacterial therapy and consider adding amikacin if any clinical concerns until sensitivities are available Repeat CVC cultures daily until negative	Continue empiric antibacterial therapy and add targeted therapy as indicated

Do not stop empiric antibacterial therapy until cessation criteria are met

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* For patients with penicillin allergy, there is a very low risk of cross-reactivity between penicillin and meropenem. For patients with a true carbapenem allergy, consult ID.

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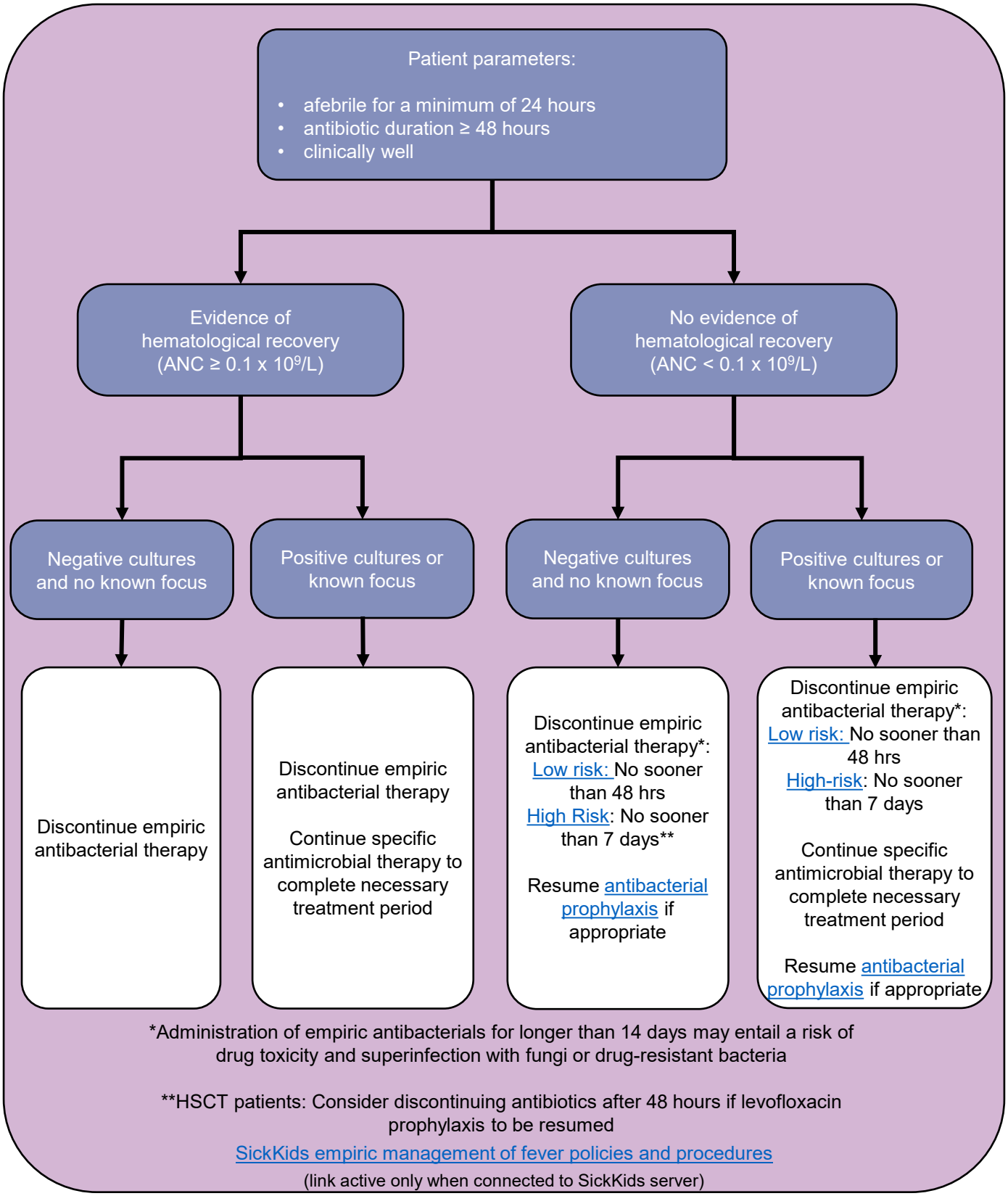
Cessation of Therapy



*Administration of empiric antibacterials for longer than 14 days may entail a risk of drug toxicity and superinfection with fungi or drug-resistant bacteria

**HSCT patients: Consider discontinuing antibiotics after 48 hours if levofloxacin prophylaxis to be resumed

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Investigations: Prolonged FN

Obtain chest CT

Obtain abdominal ultrasound

If there is any suspicion of IFI of the sinonasal area, obtain sinus CT in children aged 2 years and older and consider ENT consult

If there is any suspicion of pulmonary IFD:
- obtain serum galactomannan
- consider BAL with galactomannan

For other clinically suspected sites of IFD, obtain imaging and consider sampling where feasible

Do not obtain β-D-glucan or blood fungal PCR

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