

Table S13. Operational definitions of key study terms

Term	Definition
Severe febrile neutropenia (FN)	Fever $\geq 38.3^{\circ}\text{C}$ once or $\geq 38^{\circ}\text{C}$ sustained ≥ 1 hour with ANC < 500 cells/ mm^3 .
Febrile neutropenia (FN) Recovery	The first day on which fever resolution is maintained for ≥ 48 consecutive hours without recurrence, following the onset of febrile neutropenia.
Fever resolution	Achievement of sustained defervescence, defined as oral or axillary temperature consistently $< 38.0^{\circ}\text{C}$ for at least 24 consecutive hours without new antimicrobial escalation.
ANC recovery	First day of ANC ≥ 500 cells/ mm^3 sustained ≥ 48 hour.
MDR infection	Nonsusceptibility to ≥ 1 agent in ≥ 3 antimicrobial categories according to the CDC definition.
Source of infection	Classified based on primary site: Oropharyngeal infection, skin, and soft tissue infection (SSTI), upper respiratory tract infection (URTI), lower respiratory tract infection (LRTI), gastrointestinal tract infection (GI), urinary tract infection (UTI), sepsis of unknown origin, and Disseminated infection.
GT inclusion criteria	ANC < 500 cells/ mm^3 , receipt of active treatment aiming for remission or recovery, proven or probable invasive infection unresponsive to appropriate antimicrobial therapy, and anticipated marrow recovery in the near future
GT exclusion criteria	Irreversible marrow failure with no further treatment, non-neutropenic sepsis, pyrexia of unknown origin, and isolated viral infection.

Timing of GT	Time from febrile neutropenia onset to first GT. Categorized as early (≤ 3 days), intermediate (4–7 days), or delayed (>7 days) after persistent infection despite ≥ 48 –72 hours of antimicrobial therapy.
G-CSF administration	G-CSF given during the febrile neutropenia period. If G-CSF started before FN, considered as same day of FN onset. G-CSF duration was calculated until resolution of fever or ANC recovery, whichever occurred first.
CMV reactivation	Detection of CMV DNA in plasma by quantitative PCR within 2 to 6 weeks following granulocyte transfusion (GT), based on clinical laboratory data available in the medical record. Routine weekly CMV surveillance was not uniformly performed.
Disease status	<p>Active disease: Not in complete remission (CR) at the time of infection. Remission: Achieving CR based on standard disease-specific criteria:</p> <ul style="list-style-type: none"> • AML/ALL: Bone marrow blasts $<5\%$ with hematologic recovery and no evidence of circulating blasts. • SAA: ANC >500 cells/mm³, platelet $>20,000$/mm³ without transfusion. • BAL: Marrow remission criteria per lineage involvement.