

OUTCOMES OF BLOODSTREAM INFECTIONS IN PATIENTS WITH FEBRILE NEUTROPENIA

A retrospective observational analysis of admission-level outcomes and organism-specific mortality

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4,855

raw records

4,764

unique admissions

589

culture-positive admissions

30.9%

mortality in culture-positive admissions

BACKGROUND & OBJECTIVE

Febrile neutropenia is a major complication in patients receiving cancer therapy. Bloodstream infection (BSI) can substantially worsen outcomes. This study evaluated admission-level mortality among febrile-neutropenia admissions according to culture status and described organism-specific mortality.

METHODS

- Retrospective observational analysis of 4,855 source records.
- Analysis unit: unique admission; 91 repeated rows were collapsed.
- Culture-positive admission: any row with CULTURE_POSITIVE = "YES".
- Primary outcome: all-cause in-hospital mortality.
- Organism-specific mortality calculated among admissions in which the organism was recorded.
- Polymicrobial admissions may contribute to more than one organism category.
- Main organism display restricted to ≥5 admissions.

OVERALL OUTCOMES

Culture-positive

182/589

30.9% died

Culture-negative

476/4175

11.4% died

KEY FINDINGS

- Culture-positive admissions represented 12.4% of unique febrile-neutropenia admissions.
- Admission-level mortality was 30.9% in culture-positive admissions versus 11.4% in culture-negative admissions.
- Candida albicans: 12/16 (75.0%) mortality among organisms with ≥5 admissions.
- Acinetobacter baumannii: 6/12 (50.0%) — not the highest in this admission-level analysis.

ORGANISM-SPECIFIC MORTALITY

Admissions with ≥5 recorded admissions

Organism	Adm.	Deaths	Mort.
Candida albicans	16	12	75.0%
Enterococcus faecium	23	16	69.6%
Candida tropicalis	16	11	68.8%
Stenotrophomonas maltophilia	9	6	66.7%
Pseudomonas aeruginosa	42	21	50.0%
Acinetobacter baumannii	12	6	50.0%
Staphylococcus haemolyticus	20	9	45.0%
Klebsiella pneumoniae	56	25	44.6%
Escherichia coli	170	72	42.4%
Staphylococcus aureus	40	16	40.0%

LIMITATIONS

- Retrospective single-dataset analysis; associations do not establish causation.
- Organism categories reflect the organism strings recorded in the source dataset.
- Small organism-specific denominators can produce unstable mortality percentages.
- Polymicrobial admissions are not mutually exclusive across organism categories.
- Alternative BSI denominators may yield different headline percentages.

CONCLUSION

Among febrile-neutropenia admissions, culture-positive admissions had higher observed in-hospital mortality than culture-negative admissions. Organism-specific mortality varied considerably, with Candida albicans showing the highest observed mortality among organisms with ≥5 admissions.

DATA SNAPSHOT

Unique admissions	4,764
Culture-positive	589 (12.4%)
Culture-negative	4,175 (87.6%)
Deaths: culture-positive	182 (30.9%)
Deaths: culture-negative	476 (11.4%)

INTERPRETATION

Culture-positive admissions had a markedly higher observed in-hospital mortality than culture-negative admissions. Organism-specific findings showed substantial variation; Candida albicans had the highest observed mortality among organisms meeting the ≥5-admission threshold.

MORTALITY BY ORGANISM

Candida albicans	75.0
Enterococcus faecium	69.6
Candida tropicalis	68.8
Stenotrophomonas malto...	66.7
Pseudomonas aeruginosa	50.0
Acinetobacter baumannii	50.0
Staphylococcus haemoly...	45.0
Klebsiella pneumoniae	44.6
Escherichia coli	42.4
Staphylococcus aureus	40.0

SCIENTIFIC NOTE

The main organism table displays categories with ≥5 admissions. Rare organisms with 1–4 admissions were excluded from the main mortality chart because percentages such as 100% may reflect very small denominators and are not stable estimates.