

Waiting for follow-up blood cultures is not always needed for diagnosis of central line-associated bloodstream infections (CLABSI)

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Current blood culture protocol for febrile neutropenia at the haematology ward

1

Patient

central venous catheter (CVC)

70%: neutrophil count $<0.5 \times 10^9/L$

fever ($T \geq 38.5^\circ C$)

2

Diagnostics

3-4 sets of blood cultures (central and peripheral)

Empirical antibiotics

piperacillin-tazobactam or meropenem

Not effective against 50-90% of CNS

3

Coagulase-negative staphylococci (CNS) in blood culture:

Contaminant or causative agent?

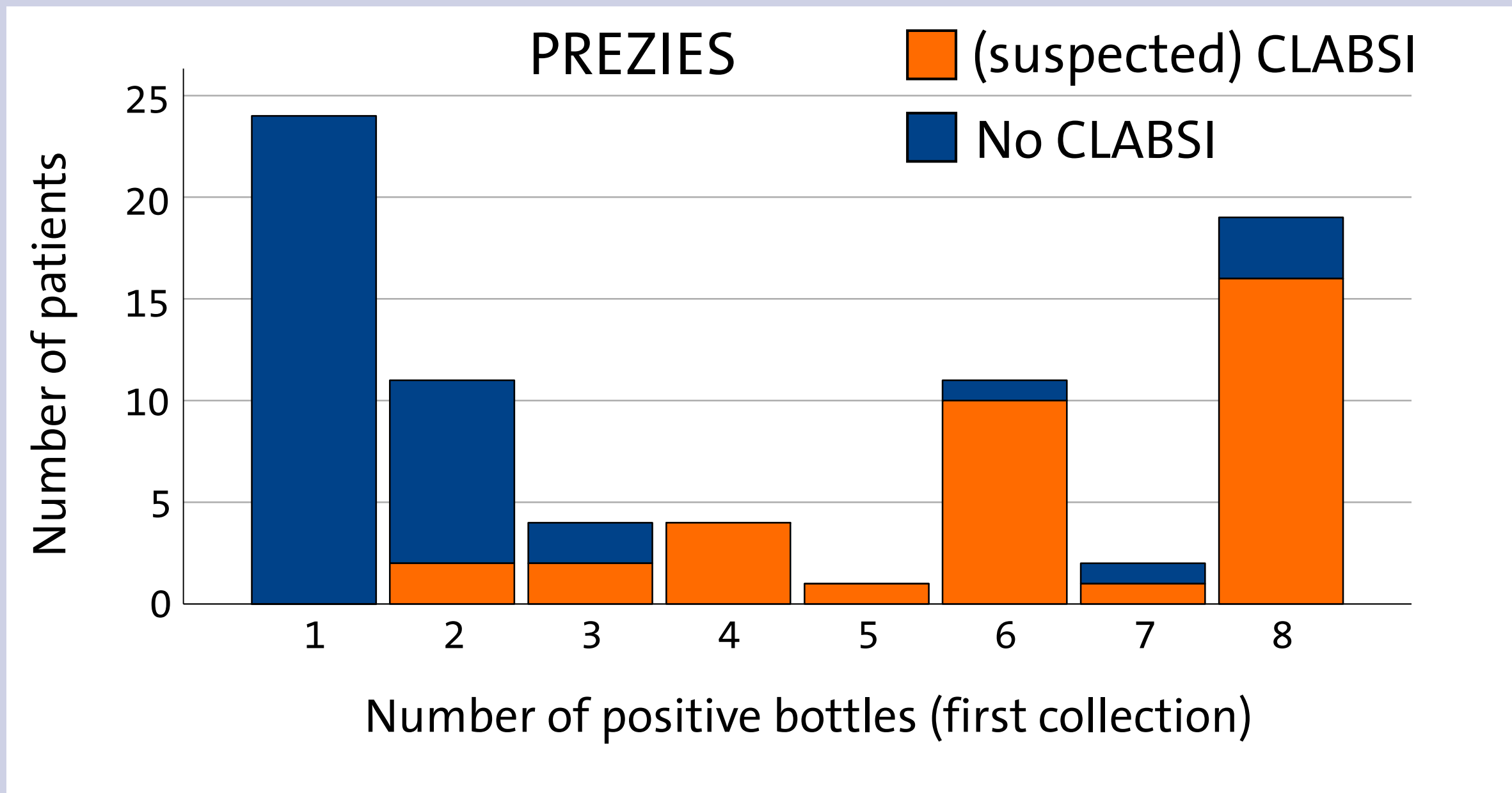
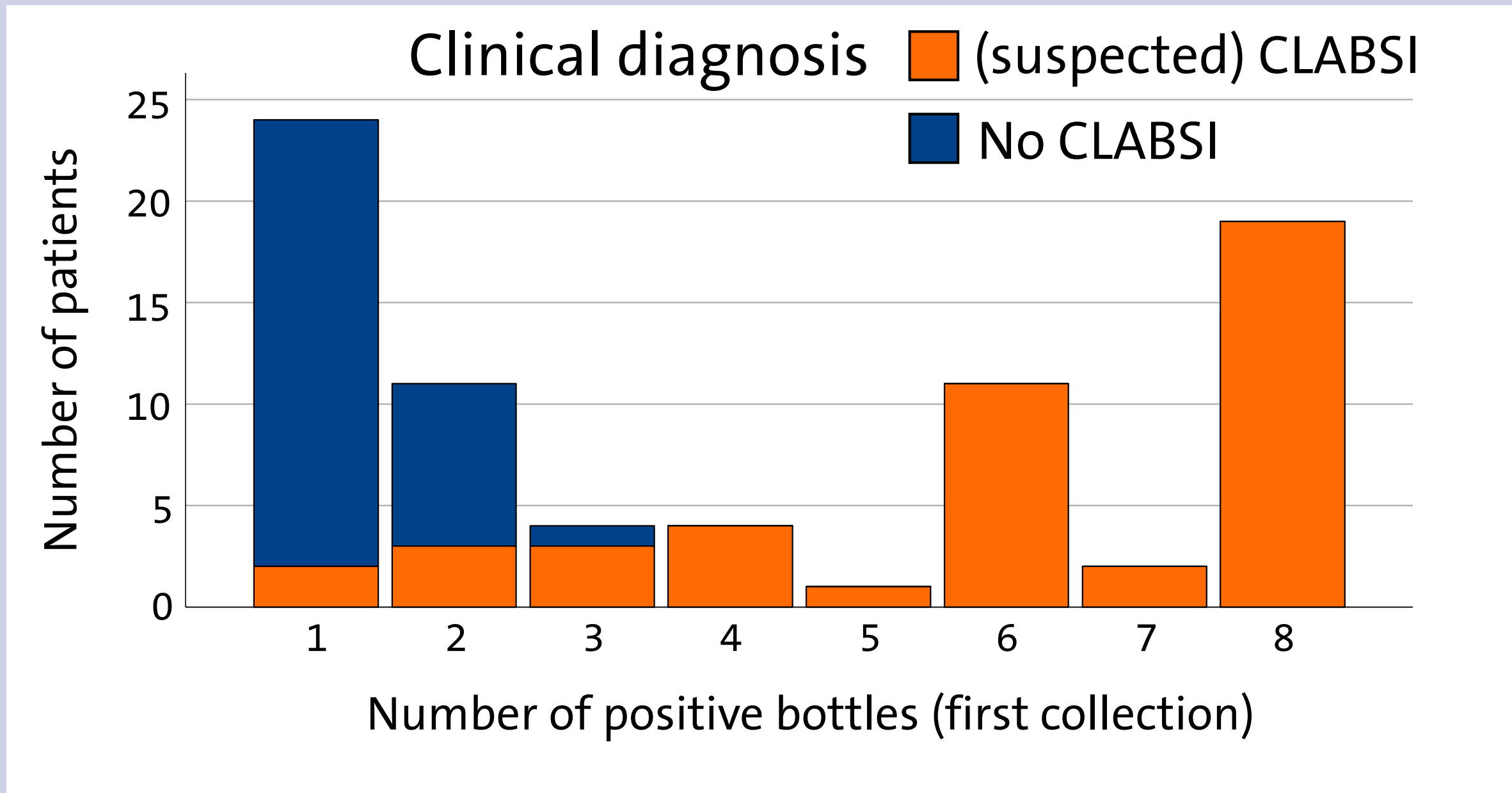
Repeat blood cultures!

4

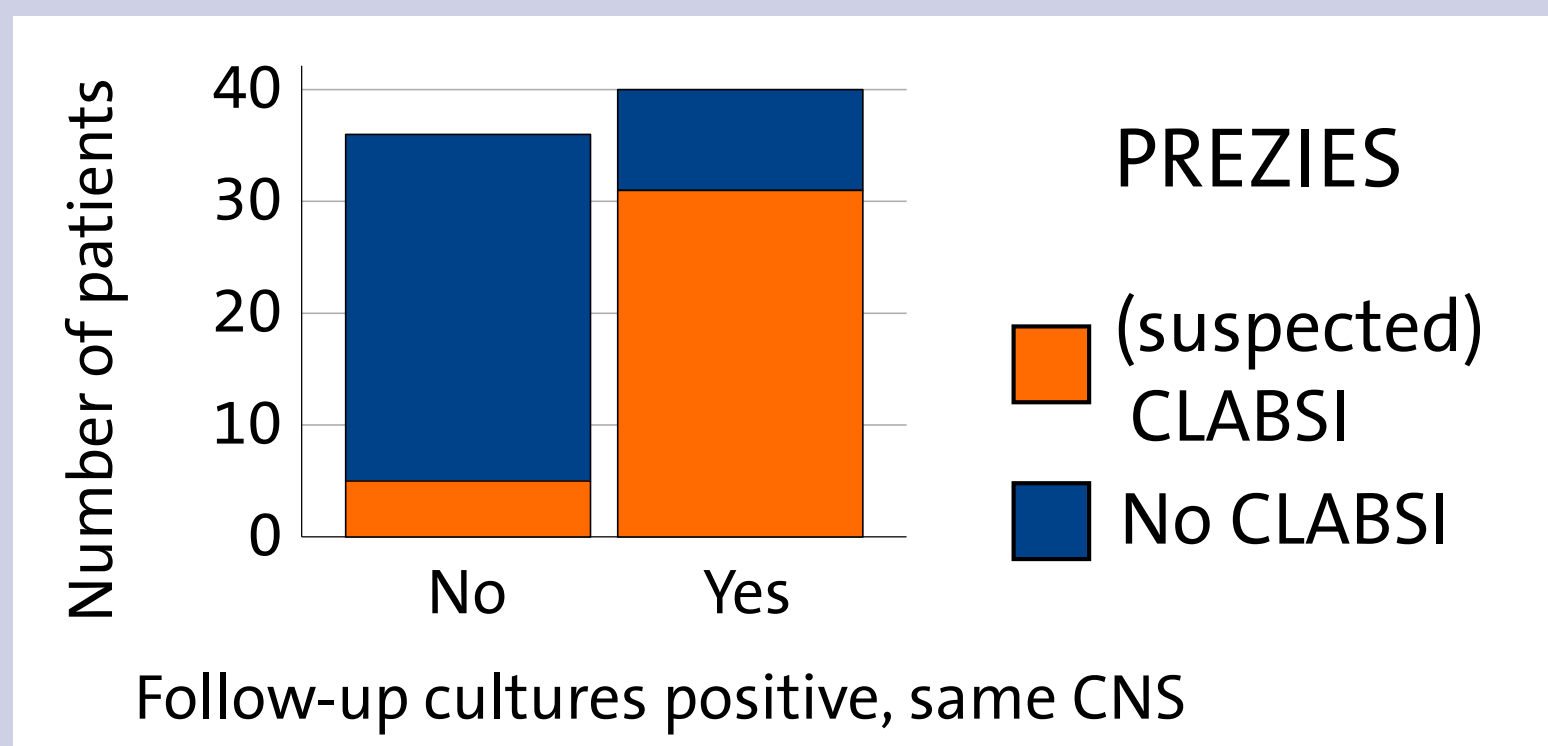
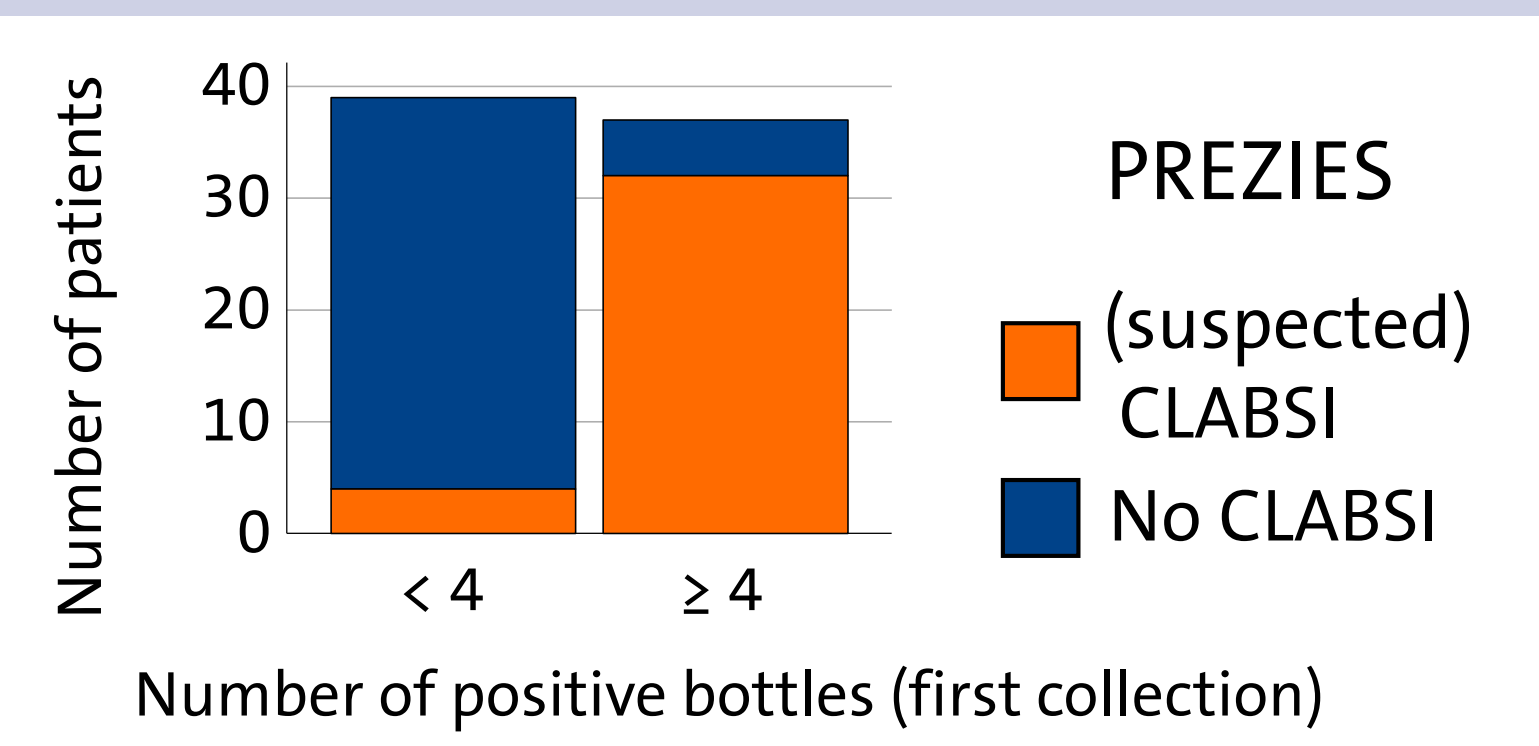
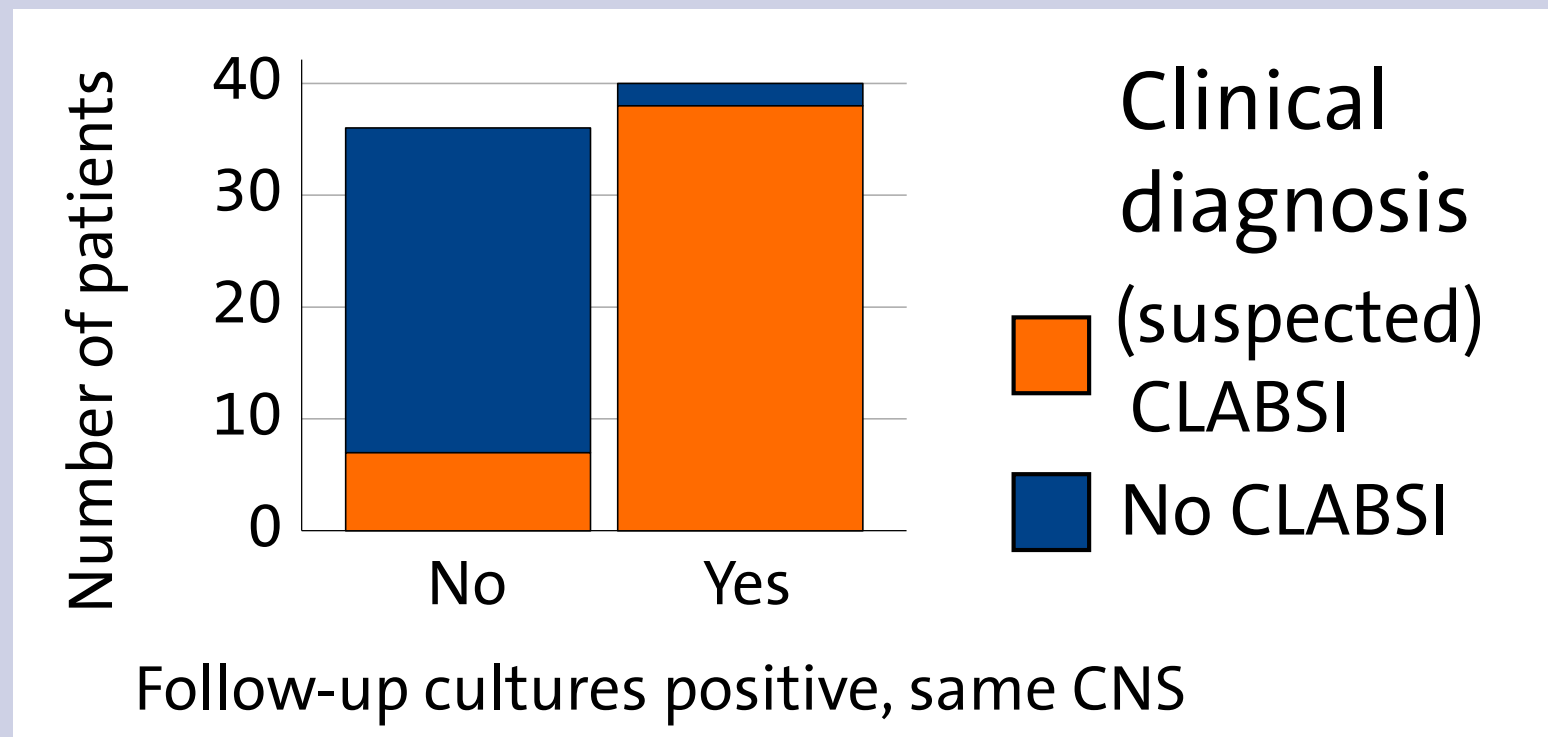
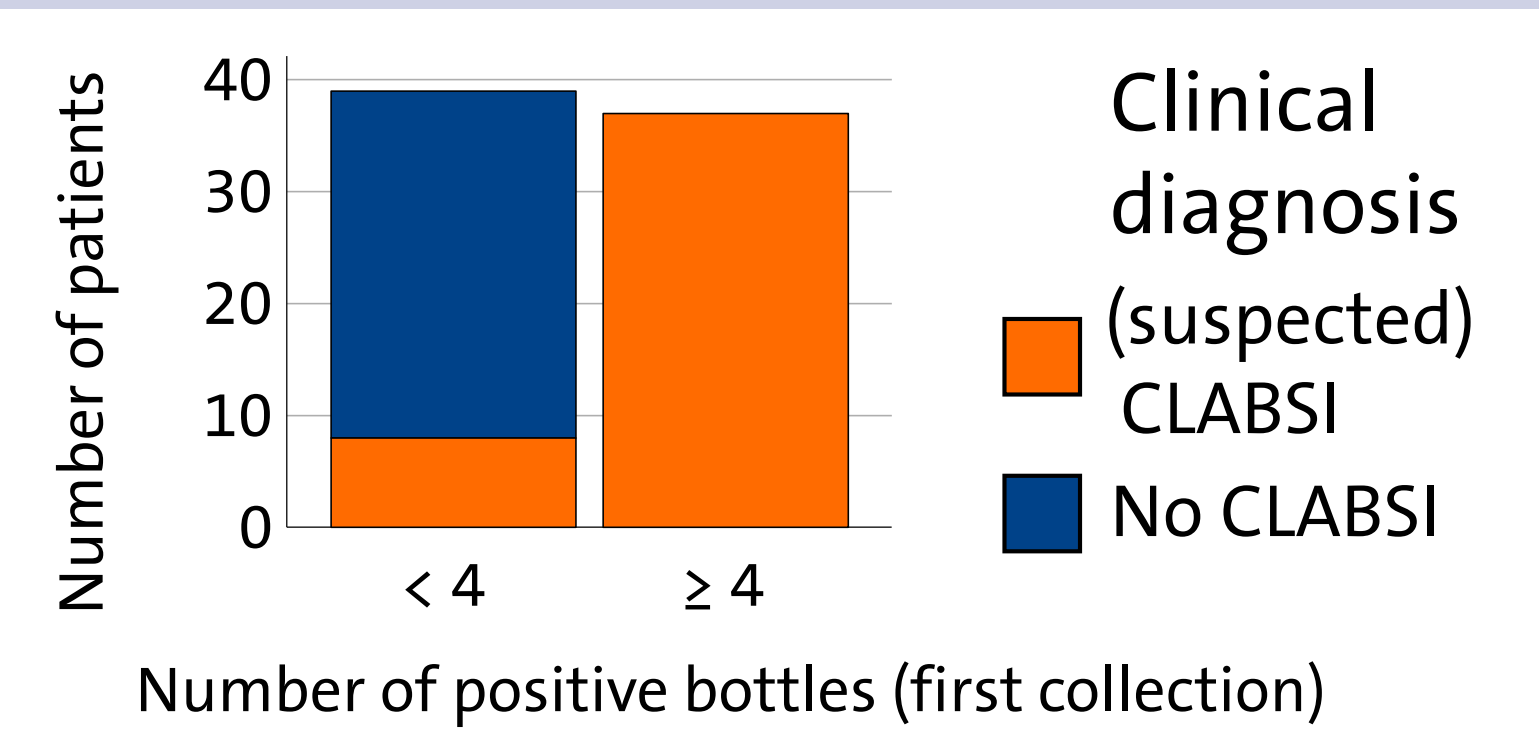
If same species of CNS in blood cultures from 2 separate days:

Treatment with vancomycin (or line removal)

Look-back 2019-2024: 76 patients whose blood cultures grew coagulase-negative staphylococci (CNS)



Four or more positive bottles	Follow-up cultures positive
Clinical diagnosis - sensitivity: 82%	Clinical diagnosis - sensitivity: 84%
Clinical diagnosis - specificity: 100%	Clinical diagnosis - specificity: 94%
PREZIES - sensitivity: 89%	PREZIES - sensitivity: 86%
PREZIES - specificity: 88%	PREZIES - specificity: 78%



Clinical diagnosis was based on the doctors' notes in the patient record. PREZIES = criteria for line-associated infections adapted from the Dutch national prevalence of hospital infections surveillance programme (PREvalentie van ZIEkenhuisinfecties): clinical symptoms (fever) AND positive peripheral blood culture AND absence of other infection with identical microorganism AND one of the following: line tip culture >15 colony-forming units with same micro-organism OR differential time to positivity ≥ 2 hours OR fever disappears within 24h after CVC removal OR fever disappears within 48h after start of antibiotic treatment.

Conclusion: 4 or more positive bottles is equivalent to positive follow-up cultures with the same CNS