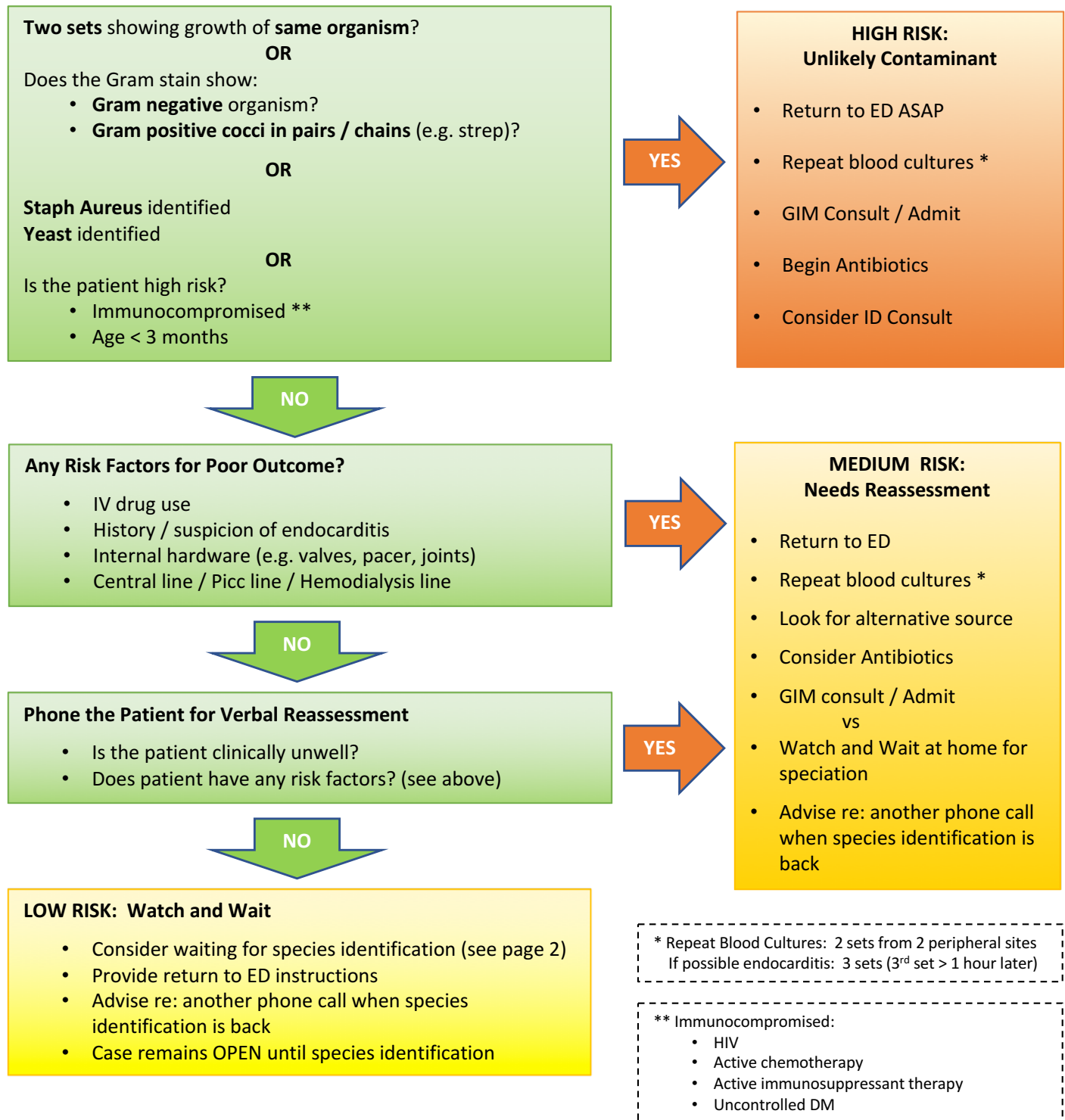


St Joseph's Health Centre Emergency Department Positive Blood Culture Algorithm



Note: ALL patients with positive blood cultures are called for notification of the results and verbal reassessment.

Blood culture Gram Stain Interpretation – Very Simplified

Gram positive cocci in clusters = staph

- staph aureus (true infection – high risk)
- coag neg staph (most common contaminant)

Gram positive cocci in chains = strep

- consider ALL strep true infection, although *viridans* and group C and D strep are sometimes contaminants

Gram positive bacilli

- variable risk
- common contaminants: *Bacillus* species (except *B. anthracis*)
Corynebacterium species (except *C. jeikeium*)

Gram negative

- consider ALL Gram Negative organisms true infection (high risk)
- Anaerobes: are not separately classified in the preliminary gram stain

Mycobacterium

- will often look like a gram pos bacilli in the prelim gram stain

Yeast

- always consider as true infection (high risk)

Species Identification: Eight Common Contaminants

Three are **gram positive cocci in clusters**

- 1) *Coagulase-negative Staphylococcus* species (except *S. lugdunensis*)
- 2) *Micrococcus* spp.
- 3) *Aerococcus* spp.

Five are **gram positive bacilli**:

- 4) *Bacillus* spp. (except *B. anthracis*)
- 5) *Corynebacterium* spp. (except *C. jeikeium*)
- 6) *Propionibacterium* spp.
- 7) *Rhodococcus* spp.
- 8) *Paenibacillus* spp.

COAGULASE-NEGATIVE STAPHYLOCOCCUS:

- There are 29 species of coagulase-negative staphylococcus (eg: *S. epidermis*, *S. saprophyticus*, *S. hominis*, *S. lugdunensis*). They are a common contaminant that are challenging to assess. They are the most commonly grown bug and account for as many as 40% of positive blood cultures. Most of the time this represents skin contamination, but 5-15% of the time this represents REAL BACTEREMIA, especially in the right clinical context. Patients at risk include those with internal hardware (prosthetic valves, pacemakers, intravascular catheters, prosthetic joints or other foreign bodies) those at risk of endocarditis (eg iv drug users) and immunocompromised hosts. The exception to this is *S. lugdunensis*, which appears capable of causing more invasive infections, including NATIVE VALVE ENDOCARDITIS.