

Gram Positive Cocci (GPC)

Gram Positive Cocci (GPC) - Perhaps the most common gram stain result phoned during the working day or after hours.

Potential GPC organisms (most common):

Staphylococci: (*Staphylococcus aureus* (MSSA or MRSA) or Coagulase Negative Staphylococci) Staphylococci often have an appearance of cells in groups or clusters on gram.

Streptococci: (including Group A streptococci or other haemolytic streptococci e.g. Group B/C/G, *Streptococcus pneumoniae* (pneumococcus), *Streptococcus viridans*). Streptococci often have an appearance of cells in pairs or chains on gram stain.

Enterococci: (including *Enterococcus faecalis* / *Enterococcus faecium* / VRE if either resistant to vancomycin). Enterococci often have an appearance of cells in chains on gram stain.

Risk assessment

The key is to review the patient carefully for signs and symptoms of sepsis / bacteraemia. Carry out a NEWS score and follow the Sepsis Six protocol if clinically indicated. Bear in mind that the gram stain result may reflect a causative organism of life threatening sepsis (e.g. MSSA, MRSA, Group A Strep, *Streptococcus pneumoniae* , *Enterococcus* spp) or a skin contaminant (e.g. Coag Neg Staph / *Strep viridans*), therefore careful clinical risk assessment is paramount. Note it is important not to dismiss potential skin contaminants such as Coagulase Neg Staph / *Strep viridans* if endocarditis / intravascular catheter or prosthetic device infection suspected.

Empiric Antibiotic Cover

This should be guided by the Gram stain appearance and likely significance / pathogen based on the clinical risk assessment. Consult the current empiric antimicrobial guideline document for advice on empiric cover in the relevant section.

Check previous microbiology results and for a history of MRSA colonisation / infection. If the potential pathogen appears likely from the likely source of sepsis, ensure patient is on appropriate antimicrobial therapy for that source and pathogen (e.g. Group A Strep in severe soft tissue infection / *Strep pneumoniae* in CAP).

If systemic sepsis suspected, and source and potential pathogen unclear - glycopeptides cover most Gram positive organisms and a loading dose of vancomycin is a reasonable option to cover the patient pending the culture result of ID and sensitivity. It is critically important however that this step is taken only if clinical indication of sepsis or significant infection and that the antimicrobial treatment is later reviewed with the culture identification and sensitivity and assessed regarding the need to continue / stop / change therapy. If the patient is clinically well following a thorough clinical review and contamination is suspected – a watch-and-observe approach is reasonable pending identification and sensitivity on culture. Ensure there is a trigger for a repeat review and initiation of empiric antimicrobial therapy if the patient develops new signs/symptoms.