

Appendix 5:

Positive BC Cheat Sheet (Adults): Gram positive bacilli (GPB)

Likely organisms, sources of infection, and suitable empiric antibiotic cover

- A wide range of organisms are possible, *ranging from severe infections to contaminants*
 - Clinical review for potential source / likely clinical syndrome is essential
 - No treatment is required for likely contaminants.

	Number of BCs per year [#]	Likely significance and clinical associations, in addition to suitable empiric antibiotic cover
Corynebacterium spp. <i>Not C. diphtheriae, C. ulcerans, and C. pseudotuberculosis</i>	9	Common skin flora; often represent contaminants. May cause infection of prosthetic material/devices (e.g. intravascular lines, pacemaker leads, prosthetic heart valves, orthopaedic implants). <i>Repeat blood cultures are often helpful.</i>
Cutibacterium spp.	8	May be pathogenic in significantly immunocompromised patients.
Bacillus spp. <i>Not B. anthracis</i>	2	Antibiotic cover: Vancomycin, teicoplanin and linezolid are usually active and suitable as empiric treatment for line/device infections or endocarditis.
C. diphtheriae, C. ulcerans, C. pseudotuberculosis !! Notifiable disease	0	Toxigenic strains (i.e. those expressing diphtheria toxin) can cause respiratory or cutaneous diphtheria. In addition to antibiotic treatment, public health and laboratory actions are required. See: https://www.gov.uk/government/publications/diphtheria-public-health-control-and-management-in-england-and-wales Antibiotic cover: Refer to Appendix 3 (Guidance on the administration of antibiotics for confirmed or probable cases) in above document. <i>Seek senior clinician input, and advice from Microbiology / Infectious Diseases.</i>
Bacillus anthracis !! Notifiable disease	0	Exceedingly rare cause of bacteraemia in the UK. Risk factors include contact with contaminated animal products or infected animals, or people who inject drugs. See: https://www.cdc.gov anthrax/about/index.html Antibiotic cover: <i>Seek senior clinician input, and advice from Microbiology / Infectious Diseases.</i>
Listeria spp. !! Notifiable disease	<1	Neonatal sepsis. Sepsis and meningo-encephalitis in immunosuppressed adults, elderly or during pregnancy. Food-borne illness. Antibiotic cover: Treatment is always indicated. Empiric guidelines for meningitis include antibiotics active against Listeria in those at risk (amoxicillin, co-trimoxazole, meropenem). Dosing should be as per Listeria cover for bacterial meningitis. Ceftriaxone/cefotaxime alone are not active.
Actinomyces <i>e.g. Schaalii spp., Gleimia spp., Winkia spp.</i>	1	Common oral/skin/mucosal commensal. May be associated with chronic infections with abscess formation e.g. cervicofacial, thoracic or pelvic actinomycosis. Antibiotic cover: Penicillins (e.g. amoxicillin), ceftriaxone or clindamycin (severe penicillin allergy) are suitable empiric options if actinomycosis is clinically suspected.
Anaerobes (e.g. Clostridium spp.) <i>Not C. difficile</i>	5	Associated with gas gangrene, necrotising fasciitis, sepsis and colorectal malignancy (strongest for C. septicum and C. tertium). Antibiotic cover: Empiric therapy for intra-abdominal infections usually provides sufficient cover e.g. metronidazole (100%), co-amoxiclav (100%), clindamycin (85%)

[#] Retrospective review of de-duplicated positive BCs isolates in NHS D&G from Sept 2020-2025

Predicted susceptibilities

- Diverse range of organisms, with **different species requiring different antibiotic treatment**.
- **Clinical correlation is required to predict the likely organism identified in the Gram stain**. Refer to table on page 1 for suitable empiric antibiotic regimens (e.g. line/device infection, meningo-encephalitis).
- **Seek senior advice if unsure**.

Suggested actions when BC with GPB initially phoned through

Clinical correlation is required to predict the likely GPB organism identified by Gram stain

- **Review patient**. Determine clinical status, likely focus of infection, current antibiotics
- **If NEWS score ≥ 7 , request senior review**
- **Review past microbiology results**. Does the current therapy cover known resistant organisms?
- **Consider whether antibiotic adjustment is required**. **Seek senior advice if unsure**. Suggested actions to consider:

Clinical Scenario	Suggested actions with GPB in blood culture
Likely contaminant	Below clinical scenarios, anthrax or respiratory/cutaneous diphtheria are <u>not clinically suspected</u> . BC often first positive 3+ days after taken. No antibiotic therapy indicated .
Suspected line/device infection or endocarditis	<p>Suspected organisms: Corynebacterium, Cutibacterium, Bacillus spp. Empiric antibiotics: Vancomycin or linezolid</p> <ul style="list-style-type: none"> • If intravascular line (e.g. PICC, Hickman) is present, consider line infection: <ul style="list-style-type: none"> ◦ Do vascular access sites look infected? Are episodes of fever/rigors associated with line use? ◦ Take repeat paired peripheral and line cultures – even if stable ◦ <i>Consider if line removal is indicated</i> • If cardiac, orthopaedic or vascular implants/devices present, consider device infection/endocarditis: <ul style="list-style-type: none"> ◦ Are there any clinical signs on examination that suggest device/implant infection? ◦ Take 2 further sets of blood cultures 20 minutes apart, from different sites – even if stable ◦ <i>Seek advice from specialist teams if implant/device infection suspected</i>
Suspected intra-abdominal infection Often polymicrobial	<p>Suspected organisms: Clostridium spp. Empiric antibiotics: Empiric therapy for intra-abdominal infections usually provides sufficient anaerobic cover e.g. metronidazole (100%), co-amoxiclav (100%).</p> <p><i>Note: Listeria bacteraemia from gastroenteritis is rare (no cases identified in NHS D&G from Sept 2020-2025). Discuss with senior clinician if strongly suspected clinically – amoxicillin or co-trimoxazole will reliably cover.</i></p>
Suspected meningitis	<p>This is a medical emergency. Suspected organisms: Listeria sp. Follow the hospital antibiotic guidance for meningitis and ensure Listeria cover is added (amoxicillin, co-trimoxazole), seek urgent senior review, and consider need for critical care.</p>
Neonatal sepsis	<p>Suspected organisms: Listeria sp. Discuss with senior clinician. Ensure Listeria cover is added as per Paediatric Guidance: CNS Infection: Bacterial Meningitis; CSF for culture & PCR is recommended.</p>
Maternal / pregnancy-associated sepsis	<p>Suspected organisms: Listeria sp. Discuss with senior clinician. Consider adding Listeria cover – amoxicillin, co-trimoxazole or meropenem (dose as per Listeria cover for bacterial meningitis).</p>