

Appendix 4:

Positive BC Cheat Sheet (Adults): Gram negative cocci/cocco-bacilli (GNC)/(GNCB)

Likely organisms and sources of infection

- A wide range of organisms are possible, *ranging from severe infections to contaminants*
 - Clinical review for potential source is essential
 - Consider possibility of meningococcal sepsis or meningitis – if suspected, ensure the patient is on an antibiotic which penetrates into the CSF e.g. high dose ceftriaxone or, if severe penicillin allergy, chloramphenicol / high dose meropenem
- NOTE: Gram negative bacilli (GNB) may appear as Gram negative cocco-bacilli on initial Gram stain.**
 - Consider this possibility when reviewing your patient and likely source (if required: cross refer to Appendix 1: Gram negative bacilli)
 - NB: GNB are isolated more frequently from BCs than GNC/GNCB – *clinical correlation is essential*.

| Gram negative cocci | Number of BCs per year [#] | Likely sources and associations |
|---|-------------------------------------|--|
| Neisseria meningitidis | <1 | Meningitis and meningococcal sepsis |
| Other Neisseria species | <1 | Oral commensals, may represent contamination. Rarely cause invasive infection (e.g. Neisseria gonorrhoeae). |
| Moraxella catarrhalis | <1 | Upper and lower respiratory tract infections. |
| Other Moraxella species | 1-2 | Oral commensals, may represent contamination. |
| Anaerobes (e.g. Veillonella) | <1 | May be part of mixed infection from bowel or dental source. |
| Gram negative cocco-bacilli | | |
| Haemophilus influenzae | 1-2 | Upper and lower respiratory tract infections, including epiglottitis. Meningitis, osteomyelitis. |
| Pasteurella multocida | <1 | Skin and soft tissue infection, sepsis, osteomyelitis. Usually following animal bites (most commonly dogs & cats). |
| Rare and unusual | | |
| Brucella sp. | 0 | Causes undulant fever and bacteraemia. Rare in UK, but possible in travellers (often Asia, Middle East, South/North America) or exposure to infected animals (e.g. unpasteurised milk, direct contact, slaughter). Refer to: https://publichealthscotland.scot/population-health/health-protection/infectious-diseases/brucella/overview/ If clinically suspected, alert laboratory and infection control team immediately . |
| HACEK organisms Haemophilus spp. Aggregatibacter spp. Cardiobacterium hominis Eikenella corrodens Kingella kingae | <1 | Normal oral flora. Associated with dental source / endocarditis - Not H. influenzae - Also associated with infected human bite wounds - Also associated with paediatric osteoarticular infections |

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

Predicted susceptibilities

*Examples of commonly used antibiotics with **NO (OR LIMITED) ACTIVITY** against GNC/GNCB organisms:*

- Benzylpenicillin, Flucloxacillin, **Amoxicillin**
- Erythromycin, Clarithromycin, Clindamycin
- Teicoplanin, Vancomycin, Daptomycin
- Linezolid

Gentamicin

**Whilst it can provide Gram negative cover,
it is unlikely an appropriate antibiotic for many GNC/GNCB**

Commonly used antibiotics that are likely to provide sufficient empirical cover against GNC/GNCB in BCs

If CNS infection not suspected: co-amoxiclav, piperacillin-tazobactam, ciprofloxacin, ceftriaxone

If CNS infection / meningococcal sepsis suspected: this is a medical emergency. If suspected, [follow the hospital antibiotic guidance for meningitis](#), seek urgent senior review, and consider need for critical care.

Suggested actions when BC with GNC/GNCB initially phoned through

- **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.** Suggested actions to consider are listed below:

*If... your patient is on an antibiotic regimen likely to provide
sufficient empirical cover **AND** clinically stable*

→ Change in treatment is unlikely to be required at this stage.

*If... your patient is on an antibiotic regimen likely to provide
sufficient empirical cover **BUT** clinically deteriorating / acutely unwell*

→ Seek urgent senior clinical review

→ Undertake antimicrobial review, including:

- *Previous microbiology results:* resistance, likely culprit organisms
 - If current empiric therapy does not cover a previously isolated AND likely causative resistant organism, then IMMEDIATE CHANGE is required. Choose an agent reported as "S" or "I", avoiding agents not suitable to treat GNB bacteraemia (as detailed under "Predicted susceptibilities")
- *Current therapy:* route, dosing, administration
- *Source control:* Is there a deep-seated infection e.g. endocarditis? Is drainage required e.g. dental abscess? Consider imaging/surgical input

*If... your patient is **NOT ON ANTIBIOTICS** OR
on an antibiotic regimen with **NO** or **LIMITED** activity against GNC/GNCB*

→ **Change in antibiotic treatment may be required**

→ Seek senior clinical input if required

→ If no features of sepsis OR obvious source of infection, take a further set of blood cultures, and consider possibility this could be a contaminant