

BioFire Blood Culture Identification (BCID) Empiric Treatment Pathway for Adults: Iredell

Empiric antibiotic recommendations, along with BCID results, are intended to provide a general guidance for therapy based upon the Iredell antibiogram and to minimize unintended consequences to the patient.

Table 1. Gram Positive Blood Culture Empiric Treatment Pathway: Speciation and resistance genes detected via BioFire BCID2

Gram Stain Result	BCID group target	BCID Pathogen target	BCID Gene Target	1 st Line Empiric Antibiotic	2 nd Line Empiric Antibiotic	Notes
Gram positive cocci clusters OR Gram positive cocci pairs and chains	Enterococcus	<i>Enterococcus faecalis</i>	None	Ampicillin	Vancomycin†	*ID Consult necessary, also daptomycin is inactivated by lung surfactant
			Van A/B	Ampicillin	Daptomycin*	
		<i>Enterococcus faecium</i>	None	Vancomycin	Daptomycin*	
			Van A/B	Linezolid	Daptomycin*	
	Staphylococcus	None (gene targets will not flag)	N/A	Vancomycin	Daptomycin*	Evaluate clinically to determine if true pathogen (especially if 1 of 2 positive cultures) *ID Consult necessary, also daptomycin is inactivated by lung surfactant - <i>S. lugdunensis</i> has clinical disease similar to <i>S. aureus</i> and neither organism should be viewed as a contaminant if isolated in blood. *ID Consult necessary, also daptomycin is inactivated by lung surfactant
		<i>Staphylococcus epidermidis</i>	None	Cefazolin or Nafcillin	Vancomycin†	
			<i>mecA</i>	Vancomycin	Daptomycin*	
		<i>Staphylococcus aureus</i> (Obtain ID consultation) OR <i>Staphylococcus lugdunensis</i> (ID consultation STRONGLY advised)	None	Cefazolin or Nafcillin	Vancomycin†	
			<i>mecA</i> and MREJ, or <i>mecA</i>	Vancomycin	Daptomycin*	
		<i>Streptococcus agalactiae</i>	----	Penicillin or Ampicillin	Cefazolin or Vancomycin†	
Gram positive rod	Streptococcus	<i>Streptococcus pneumoniae</i>	----	Ceftriaxone***	Vancomycin	***Add Vancomycin to ceftriaxone if meningitis suspected
		<i>Streptococcus pyogenes</i>	----	Penicillin or Ampicillin	Cefazolin or Vancomycin†	
		None	----	Ceftriaxone	Vancomycin†	- <i>Streptococcus</i> species without specific BCID identification, see Table 2
		None	----	Vancomycin	Linezolid or Daptomycin*	See Table 2 *ID Consult necessary, also daptomycin is inactivated by lung surfactant
	None	<i>Listeria monocytogenes</i>	----	Ampicillin	SMP/TMX†	
	None	Other Gram positive rod	----	Vancomycin -If high suspicion for <i>Nocardia</i> (e.g. immunosuppressed host), consult ID		-See Table 2 -Evaluate clinically to determine if true pathogen -Consider the possibility of an anaerobic organism

† only considered if severe B-lactam allergy present. Assess allergy.

Table 2. Gram-positive organisms NOT detected by BioFire BCID2 pathogen targets (not all inclusive)

Coagulase negative Staphylococcus spp. (CoNS)	Streptococcus spp.	Gram positive rod	Gram positive anaerobes	Other gram positives
<i>Staphylococcus auricularis</i>	<i>Streptococcus bovis</i>	<i>Bacillus</i> sp.	<i>Actinomyces</i>	<i>Gardnerella</i> sp.
<i>Staphylococcus carnosus</i>	<i>Streptococcus equisimilis</i>	<i>Corynebacterium</i> sp.	<i>Bifidobacterium</i> sp.	<i>Micrococcus</i> sp.
<i>Staphylococcus lentus</i>	<i>Streptococcus mitis</i>	<i>Erysipelothrix</i> sp.	<i>Clostridium</i> sp.	
<i>Staphylococcus pettenkoferi</i>	<i>Streptococcus mutans</i>	<i>Nocardia</i> sp.	<i>Eubacterium</i>	
<i>Staphylococcus pseudointermedius</i>	<i>Streptococcus sanguis</i>		<i>Lactobacillus</i>	
<i>Staphylococcus schleiferi</i>			<i>Leuconostoc</i>	
<i>Staphylococcus sciuri</i>			<i>Peptostreptococcus</i> sp.	
			<i>Propionibacterium</i> sp.	

Table 3. Gram Negative Blood Culture Treatment Pathway: Speciation and resistance genes detected via BioFire BCID2

Note: Follow sensitivities for opportunities to de-escalate after empiric selection

Gram Stain Result	BCID Pathogen target	BCID Gene Target	1 st Line Empiric Antibiotic	Notes
Gram Negative Rod	<i>Acinetobacter-baumannii</i> complex	None	Ampicillin-sulbactam	- Meropenem can be used as alternative (Use higher doses)
		IMP	Consult ID	
	<i>Enterobacter cloacae</i> complex	None	Cefepime	
		CTX-M	Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Escherichia coli</i>	None	Ceftriaxone	
		CTX-M	Ertapenem/Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Klebsiella aerogenes</i>	None	Cefepime	
		CTX-M	Ertapenem/Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Klebsiella oxytoca</i>	None	Cefepime	
		CTX-M	Ertapenem/Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Klebsiella pneumoniae</i>	None	Piperacillin-tazobactam	
		CTX-M	Ertapenem/Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Serratia marcescens</i>	None	Cefepime	
		CTX-M	Ertapenem/Meropenem	
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Bacteriodes fragilis</i>	---	Metronidazole	- Piperacillin/tazobactam is an alternative
	<i>Salmonella</i> sp.	None	Ceftriaxone	
		CTX-M	Ertapenem/Meropenem	
		NDM	Consult ID	
	<i>Haemophilus influenzae</i>	----	Ampicillin/sulbactam	- Ceftriaxone is an alternative if penicillin allergic
	<i>Neisseria meningitidis</i>	----	Ceftriaxone	- Use higher dosing (q12h for ceftriaxone)
	<i>Pseudomonas aeruginosa</i>	None	Piperacillin/tazobactam	- Use higher doses
		KPC, IMP, VIM, NDM, OXA-48 +	Consult ID	
	<i>Stenotrophomonas maltophilia</i>	----	TMP/SMX Consult ID	- <i>S. maltophilia</i> isolates are intrinsically resistant to a number of antibiotic classes.
	None	None	-See Table 4, if <i>Enterobacterales</i> flagged see column 1, if not see columns 2 and 3	

Table 4. Gram negative organisms NOT detected by BioFire BCID2 (not all inclusive)

<i>Enterobacterales (Enteric GNRs)</i>	<i>Non-Enterobacterales</i>	<i>Gram Negative Anaerobes (also Non-Enterobacterales)</i>
<i>Morganella morganii</i>	<i>Aeromonas sp.</i>	<i>Bacterioides fragilis</i>
<i>Providencia sp.</i>	<i>Burkholderia sp.</i>	<i>Campylobacter sp.</i>
<i>Rahnella sp.</i>	<i>Legionella sp.</i>	<i>Fusobacterium sp.</i>
<i>Serratia liquefaciens</i>		<i>Pasteurella sp</i>
<i>Serratia plymuthica</i>		<i>Prevotella sp.</i>
<i>Tatumella ptyseos</i>		
<i>Yersinia enterocolitica</i>		

Table 5. Yeast Blood Culture Empiric Treatment Pathway identified via BioFire BCID2

ID consult should be considered

Organism	Resistance Gene Detected	1 st Line Empiric Antibiotic	2 nd Line Empiric Antibiotic	Notes
<i>Candida albicans</i>	----	Fluconazole	Anidulafungin	
<i>Candida auris</i>	----	Anidulafungin	Amphotericin B (Ambisome)	
<i>Candida tropicalis</i>	----	Fluconazole	Anidulafungin	
<i>Candida parapsilosis</i>	----	Fluconazole	Anidulafungin	
<i>Candida glabrata</i>	----	Anidulafungin	Amphotericin B (Ambisome)	
<i>Candida krusei</i>	----	Anidulafungin	Amphotericin B (Ambisome) HIGH DOSE*	
<i>Cryptococcus neoformans/gatti</i>	----	Amphotericin B (Ambisome) + Flucytosine		-Treatment depends on severity of disease.
Yeast*	----	Amphotericin B (Ambisome)	Consult ID	