FilmArray™ Blood Culture Identification Panel

Pharmacy Workflow

1. Review transcription notes, relevant labs, imaging, and cultures
2. Identify source of bacteremia
    a. Determine if monomicrobial or polymicrobial source *(See table 1)*
3. Assess current antibiotic regimen
4. Determine action plan *(See table 2)*
5. Notify MD
6. Document in TheraDoc

Table 1: Source of bacteremia

Monomicrobial	• Line-related • Skin and soft tissue ○ New onset cellulitis • Urinary tract • Biliary tract • Lung • CNS

Polymicrobial	• Skin and soft tissue
	  ○ Chronic ulcer (diabetic foot, peripheral vascular disease, sacral decubitus)
	  ○ Close proximity to GI/GU tract
	• Abdomen
	• Abscess (ex: liver, neck)

Table 2: FilmArray™					
Genus	**Species**	**Resistance**		**DOC**	**Action Plan**
Staphylococci	*S. aureus*	-mecA/ MREJ	MSSA	Cefazolin or Nafcillin	• ID consult per hospital policy • Recommend stopping unnecessary gram negative/antifungal agents if unlikely to be from polymicrobial source • Recommend narrowing to DOC
		+mecA/ MREJ	MRSA	Vancomycin (ALT: Daptomycin)	
	S. lugdunensis	-mecA		Cefazolin or Nafcillin	• Recommend ID consult • Recommend stopping unnecessary gram negative/antifungal agents if unlikely to be from polymicrobial source • Recommend narrowing to DOC
		+mecA		Vancomycin (ALT: Daptomycin)	
	S. epidermidis ***OR*** *Staphylococcus spp.*	-mecA		Cefazolin or Nafcillin	• Staph spp. that is not aureus is most often a contaminant (exception: central line or prosthetic implants) • Review objective ID parameters (fever, WBC count etc.) for true infection and determine if patient has prosthetic implants or central line • If most likely a contaminant, notify MD and recommend stopping antibiotics
		+mecA		Vancomycin	
Streptococci	*S. agalactiae* (GBS)			Penicillin, Cefazolin (ALT: Vancomycin)	• Recommend stopping unnecessary gram negative/antifungal agents if unlikely to be from polymicrobial source • Recommend narrowing therapy to DOC • If 1 of 2 Streptococcus spp. (not GBS, *S. pneumoniae*, or GAS) and patient does not seem clinically infected, consider stopping antibiotics as this is most likely a contaminant
	S. pneumoniae			Pneumonia: Ceftriaxone (ALT: Levofloxacin, Vancomycin for patients with severe allergy) Meningitis: Ceftriaxone plus Vancomycin	
	S. pyogenes (GAS)			Penicillin, Cefazolin (ALT: Vancomycin) If pt is severely ill, consider adding clindamycin (↓ toxin production)	
	Streptococcus spp.			Vancomycin, Ceftriaxone	
Enterococci	*E. faecalis*	-vanA/B		Ampicillin	• Recommend stopping unnecessary gram

				ALT: Vancomycin	negative/antifungal agents if unlikely to be from polymicrobial source • Recommend narrowing therapy to DOC • If plan to recommend linezolid, screen for DDIs
		+vanA/B		Daptomycin (8mg/kg at minimum), Linezolid	
	E. faecium	-vanA/B		Vancomycin	
		+vanA/B		Daptomycin (8mg/kg at minimum), Linezolid	
Listeria	*L. monocytogenes*			Ampicillin (ALT: TMP/SMX)	• De-escalate to DOC and suggest ID consult if meningitis is a concern
Enterobacter-ales	*E. coli*			Ceftriaxone (ALT: Aztreonam) <u>Other active agents:</u> cefepime, P/T, meropenem, aminoglycoside	• Recommend stopping unnecessary gram positive/antifungal agents if unlikely to be from polymicrobial source • Review previous cultures to determine if resistant organisms identified in the past. • If patient is receiving adequate gram negative coverage, do not recommend further de-escalation until sensitivities finalize
	Proteus			Ceftriaxone (ALT: Aztreonam) <u>Other active agents:</u> cefepime, P/T, meropenem	
	K. pneumoniae			Ceftriaxone (ALT: Levofloxacin) <u>Other active agents:</u> cefepime, P/T, aztreonam, meropenem, aminoglycoside	
	K. oxytoca				
	S. marcescens			Ceftriaxone (ALT: Levofloxacin) <u>Other active agents:</u> Cefepime, meropenem, aminoglycoside	
	E. cloacae complex			Cefepime (ALT: Levofloxacin) <u>Other active agents:</u> meropenem, aminoglycoside	
	K. aerogenes			Cefepime (ALT: Levofloxacin) <u>Other active agents:</u> meropenem, aminoglycoside	
	Salmonella			Ceftriaxone (ALT: Levofloxacin)	
	Enterobacterales			Ceftriaxone (ALT: Aztreonam) <u>Other active agents:</u> cefepime, P/T,	

				levofloxacin, meropenem, aminoglycoside	
Pseudomonas	*P. aeruginosa*			P/T, Cefepime, Meropenem If hemodynamically unstable, consider single dose of tobramycin	• Recommend stopping unnecessary gram positive/antifungal agents if unlikely to be from polymicrobial source • If patient is receiving adequate gram negative coverage (double gram negative coverage is OK), do not recommend further de-escalation until sensitivities finalize
Acinetobacter	*A. baumannii*			Ampicillin/Sulbactam If hemodynamically unstable, consider single dose of gentamicin	• Recommend stopping unnecessary gram positive/antifungal agents if unlikely to be from polymicrobial source • Recommend DOC (this organism is highly resistant and Ampicillin/Sulbactam has the best empiric sensitivity (80%))
Haemophilus	*H. influenzae*			Ceftriaxone (ALT: Levofloxacin)	• Recommend narrowing therapy to DOC
Neisseria	*N. meningitidis*			Ceftriaxone (ALT: Levofloxacin)	• De-escalate to DOC and suggest ID consult if meningitis is a concern
Bacteroides	*B. fragilis*			Metronidazole Other active agents: piperacillin/tazobactam, ampicillin/sulbactam, cefoxitin	• Commonly from polymicrobial source; may need to select broader-spectrum drug based on suspected source of infection • Recommend stopping unnecessary gram positive/ antifungal agents if able
Stenotrophomonas	*Stenotrophomonas maltophilia*			TMP/SMX ALT: Ceftazidime, levofloxacin	• Recommend DOC • Discuss case with ID provider
Gram (-) rod resistance markers	*ESBL*	+CTX-M		Meropenem	• Recommend stopping unnecessary gram positive/antifungal agents if unlikely to be from polymicrobial source • Recommend switching to DOC
	Carbapenamases	+KPC		Meropenem-vaborbactam	• ID consult per hospital policy • If ID will not see patient until next day, recommend

<table>
<tr><td rowspan="4"></td><td rowspan="4"></td><td>+OXA-48</td><td rowspan="4"></td><td>Ceftazidime-avibactam</td><td rowspan="4">starting DOC</td></tr>
<tr><td>+IMP</td><td rowspan="3">Ceftazidime-avibactam + aztreonam</td></tr>
<tr><td>+NDM</td></tr>
<tr><td>+VIM</td></tr>
<tr><td></td><td>Colistin Resistance</td><td>mcr-1*</td><td></td><td></td><td>• If no other resistance detected, utilize standard recommendation for organism identified
• If other resistance detected, utilize recommendations for the specific resistance markers</td></tr>
<tr><td rowspan="3">Yeast</td><td>C. albicans
C. parapsilosis
C. tropicalis</td><td></td><td></td><td>Fluconazole
LD: 800mg (12mg/kg), then
CrCl: >50 — 400mg daily
10-50 — 200mg daily
<10 — 100mg daily
CRRT — 400mg daily
HD — 400mg post-HD only
(ALT: Micafungin)</td><td rowspan="3">• ID consult per hospital policy
• Recommend stopping gram-positive/gram-negative agents if unlikely to be from polymicrobial source
• Recommend narrowing to DOC
• If plan to recommend fluconazole, screen for DDIs</td></tr>
<tr><td>C. glabrata
C. krusei
C. auris</td><td></td><td></td><td>Micafungin</td></tr>
<tr><td>Cryptococcus neoformans/gattii</td><td></td><td></td><td>Amphotericin B (discuss with ID)</td></tr>
<tr><td colspan="6">**if pt is PCN allergic and 1st drug of choice listed is a PCN, recommend use of ALT cephalosporin and advise MD/RN to monitor for allergic reactions</td></tr>
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