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Antimicrobial Stewardship: Molecular Lab Result

Powered by  open laboratory solutionsReport ID
DEMO-11Patient
John DoeDOB
6/14/1950Collected
8/26/2026, 9:15:00 AMSpecimen Type
Wound swabProvider
Dr. DemoResulted
8/26/2026, 6:05:00 PMReceived
8/26/2026, 1:40:00 PM

Infection Complexity



Organisms Detected

- Staphylococcus aureus

Resistance Detected

- Methicillin (MRSA - standard beta-lactams ineffective; ceftaroline/ceftobiprole retain activity)

Antimicrobial Resistance



Allergies

- Penicillin

Interactions

CONTRAINDICATED	1
Antiarrhythmics (representative · scan QR)	
MAJOR	10
MODERATE	7



Full interactions list

Scan or click

Infection Control

Contact: S. aureus

#1 RECOMMENDED TREATMENT PLAN

Trimethoprim-sulfamethoxazole

Brand: Bactrim, Septra
Sulfonamide Moderate

Dose: 1-2 DS tablets (160-320 mg trimethoprim) PO Q12H for 5-10 days for uncomplicated cellulitis or abscess, guided by clinical response; surgical-site, deep, necrotizing, diabetic-foot or bone infection needs source control and an individualized course

Skin/soft tissue · guideline-based (off-label for this site)

DOSE ADJ: RENAL

CHECK HEPATIC FN

Est. \$0.73/7d

Published Reference Pricing

Drug Selection Basis

SUSCEPTIBILITY

Susceptibility-directed selection
(may be off-label for this site)

CLINICAL RATIONALE

Trimethoprim-sulfamethoxazole was selected to cover Staphylococcus aureus as the highest-ranked oral agent on this report. Resistance markers compromise 1 drug class: Methicillin (MRSA - standard beta-lactams ineffective; ceftaroline/ceftobiprole retain activity). Its high oral bioavailability supports oral therapy or IV-to-oral step-down. Duration: complicated/deep wound infection — 7–14 days recommended; reassess at 48–72 hours.

WHEN SHOULD THIS BE TREATED? ‡

Interpret a positive wound molecular result carefully - all open wounds are colonized, so a positive molecular detection alone does not indicate infection. Signs of infection: purulent drainage, erythema, warmth, swelling, pain, and systemic signs (fever, leukocytosis). Superficial swabs may reflect colonizing flora; deep-tissue cultures or aspirates are more meaningful. For animal/human bite wounds, prophylactic amoxicillin-clavulanate is recommended for moderate-to-severe bites, cat bites, hand wounds, and immunocompromised patients.

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Molecular (PCR) assay — detects nucleic acid and only the panel's validated organisms and resistance genes, not phenotypic susceptibility; off-panel organisms, genes, and variants are not detected. Gene detection does not always predict resistance and gene absence does not establish susceptibility, so a negative result does not preclude infection or resistance. Recommendations reflect typical genotype-phenotype relationships and published guidance, not this patient's measured MICs. Confirm the organism and susceptibility with reflex culture and phenotypic AST, correlate clinically, and do not use this report as the sole basis for diagnosis, treatment, or patient management. (IDSA AMR guidance 2026; CDC AR guidance.)

* Printed doses are standard adult regimens, or the weight-based pediatric/neonatal dose when a pediatric age and weight are provided (a per-kg guideline plus a computed absolute for the supplied weight where pediatric/neonatal dosing data exist). All doses assume normal renal and hepatic function — the report flags where renal or hepatic adjustment may be needed but does not calculate that adjustment; resistance varies, so confirm dosing for the individual patient. ‡ Guidance is limited to the detected panel targets for the reported specimen plus any clinical details supplied, and is not a substitute for full clinical assessment. "First-line" and "alternative" denote this report's ranked recommendation for the detected organism and specimen source, not an endorsement by an outside body; the Drug Selection Basis panel states the evidence class behind that ranking. § Pricing is an estimate based on national-average wholesale benchmarks and may differ from actual acquisition cost. Recommendations are derived from freely available, peer-reviewed literature and U.S. government and professional-society guidance. Interpretive recommendations are generated by decision-support software from Open Laboratory Solutions, LLC, validated for clinical use by this laboratory; not FDA cleared/approved; CLIA regulated.

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ALTERNATIVE TREATMENTS

#	Drug (Generic / Brand)	Class	Dose	
#2	Minocycline / Minocin	Tetracycline Moderate	200 mg PO x 1 (load), then 100 mg PO Q12H for 7-14 days	~\$5.39/7d Current
			DOSE ADJ: RENAL	
#3	Linezolid / Zyvox	Oxazolidinone Narrow	600 mg PO/IV Q12H for 10-14 days	~\$27.32/7d Current
#4	Tetracycline / Viabecline	Tetracycline Moderate	250-500 mg PO Q6H for 7-14 days	~\$23.89/7d Current
			DOSE ADJ: RENAL	

CLINICAL WARNINGS

SEVERITY	CLASS / AGENTS	KEY RISKS	ACTION
AGS Beers Avoid	trimethoprim-sulfamethoxazole	- Increased risk of hyperkalemia when used concurrently with an ACEI, ARB, or ARNI in presence of decreased CrCl. - Increased risk of worsening of kidney function and hyperkalemia; risk of hyperkalemia especially prominent with concurrent use of an ACEI, ARB, or ARNI. - With warfarin: Increased risk of bleeding - With phenytoin: Increased risk of phenytoin toxicity	USE WITH CAUTION in patients on ACEI, ARB, or ARNI and decreased CrCl. Risk of hyperkalemia especially prominent with concurrent RAS inhibitors. Reduce dosage if CrCl is 15-29 mL/min. Avoid if CrCl <15 mL/min. With warfarin: avoid when possible; if used together, monitor INR closely. With phenytoin: avoid.
Age caution	Oxazolidinone linezolid	- Thrombocytopenia - duration-dependent - Serotonin syndrome risk with SSRIs/SNRIs	Use with caution.

INTERPRETIVE NOTES

RESISTANCE INTERPRETATION

Trimethoprim-sulfamethoxazole is a two-component combination, and resistance to it is driven predominantly by trimethoprim-targeting (dfr) determinants rather than by the sulfonamide component alone. No trimethoprim determinant was detected on this specimen, so these results do not establish whether trimethoprim-sulfamethoxazole is active against the organisms treated here. Confirm activity by culture with susceptibility testing.

DRUG-USE CAUTIONS

Minocycline carries a skin and skin structure infection indication for *Staphylococcus aureus*, but its labeling states it is not the drug of choice for any type of staphylococcal infection. Its gram-negative indications, including *Escherichia coli* and *Acinetobacter* species, are labeled only where bacteriologic testing indicates appropriate susceptibility, which this panel cannot establish. Where a staphylococcal agent of first choice is available and appropriate for the site, prefer it, and confirm activity by culture and phenotypic susceptibility testing before relying on minocycline.

Linezolid - myelosuppression monitoring (all ages): anemia, leukopenia, pancytopenia, and thrombocytopenia have been reported with linezolid. Monitor complete blood counts (CBC) weekly, particularly with a course longer than two weeks, pre-existing myelosuppression, severe renal impairment or moderate-to-severe hepatic impairment, concomitant marrow-suppressing drugs, or a chronic infection with prior/concomitant antibacterial therapy. In cases where the outcome is known, hematologic parameters have risen toward pretreatment levels after linezolid was discontinued; discontinuation should be considered in patients who develop or have worsening myelosuppression.

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ADDITIONAL CONSIDERATIONS

MRSA (mecA) skin/soft-tissue infection. Per, first-line for OUTPATIENT / uncomplicated purulent MRSA SSTI is oral trimethoprim-sulfamethoxazole or doxycycline (also clindamycin / minocycline) — these are surfaced at the top of the ranking. The reserve IV/oxazolidinone agents (vancomycin, linezolid, daptomycin) are intentionally demoted (NOT removed) for the common presentation. ESCALATE to a reserve IV agent for SEVERE or complicated disease: sepsis/SIRS, rapidly progressive or extensive cellulitis, deep/necrotizing infection, immunocompromise, or failure of oral therapy. Severity is not available to the engine — apply clinical judgment.

Patient **allergy** on file: PENICILLIN.

SPECIAL CONSIDERATIONS ‡

Staphylococcus aureus

When treatment is indicated, mecA/mecC (MRSA) was detected, so *S. aureus* is resistant to all beta-lactams except ceftaroline - use vancomycin (IV for serious infection), TMP-SMX, doxycycline, clindamycin (D-test for inducible clindamycin resistance), linezolid, or daptomycin. Gene absence does not fully exclude resistance; correlate with culture susceptibilities.

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