

Nasal MRSA PCR Protocol

I. RELATED DOCUMENTS:

- A. PCM: MRSA nasal screening culture collection
- B. Medication Monitoring: Pharmacist-Managed Intravenous (IV) Vancomycin Protocol

II. BACKGROUND/PURPOSE

Purpose: To allow pharmacist ordering of nasal MRSA PCR in order to facilitate de-escalation of empiric antibiotic coverage of MRSA pneumonia.

Treatment of pneumonia often lacks microbiological data to streamline empiric antibiotics. Lower respiratory tract cultures, while preferred, are often difficult to obtain. Additionally, poor-quality samples may not accurately reflect the primary pathogen. Data from both critically and non-critically ill patients show that nasal MRSA screening can be effective to guide de-escalation of vancomycin and linezolid.¹⁻³ A negative nasal MRSA PCR result has a negative predictive value of >98% for MRSA pneumonia.³⁻⁷

III. POLICY

SHC will utilize nasal MRSA PCR screening to guide de-escalation of unnecessary empiric coverage of MRSA pneumonia. Pharmacists will:

- 1. Order nasal MRSA PCR for vancomycin or linezolid initiated empirically for suspected MRSA pneumonia
 - A. Exclusions
 - i. Existing nasal MRSA PCR test performed within last 7 days
 - a. Confirmed MRSA in respiratory culture or nasal culture in the last 14 days (If nasal MRSA screen by culture is pending or negative, pharmacist should still order a nasal PCR. See [FAQ](#) on ASP intranet page)
 - ii. CF patients and lung transplant post-op prophylaxis (due to service line preference)

IV. PROCEDURES

- A. Pharmacist Responsibility
 - 1. Order nasal MRSA screen by PCR for new Vancomycin-Per-Pharmacy or linezolid orders with indication stated as “pulmonary” (e.g. pneumonia)
 - a. See above for exclusions (Part III.1.A)
 - b. Orders will be entered using the “Per Protocol without cosign” mode
- B. Provider Responsibility
 - 1. Follow up on nasal MRSA PCR and de-escalate vancomycin or linezolid if negative and clinically appropriate

V. REFERENCES

1. Baby, Nidhu, et al. "Nasal Methicillin-Resistant Staphylococcus aureus (MRSA) PCR Testing Reduces the Duration of MRSA-Targeted Therapy in Patients with Suspected MRSA Pneumonia." *Antimicrobial Agents and Chemotherapy* 61.4 (2017): e02432-16.
2. Willis C et al. Impact of a pharmacist-driven methicillin-resistant Staphylococcus aureus surveillance protocol. *American Journal of Health-System Pharmacy*. 2017 Nov 1;74(21):1765-73.
3. Smith, Ethan A., et al. "Nasal methicillin-resistant Staphylococcus aureus screening in patients with pneumonia: A powerful antimicrobial stewardship tool." *American journal of infection control* (2017).
4. Dangerfield, B., Chung, A., Webb, B., & Seville, M. T. (2014). Predictive value of methicillin-resistant Staphylococcus aureus (MRSA) nasal swab PCR assay for MRSA pneumonia. *Antimicrobial agents and chemotherapy*, 58(2), 859-864.
5. Giancola, Stephanie E., et al. "Clinical utility of a nasal swab methicillin-resistant Staphylococcus aureus polymerase chain reaction test in intensive and intermediate care unit patients with pneumonia." *Diagnostic microbiology and infectious disease* 86.3 (2016): 307-310.
6. Tilahun, Belen, et al. "Nasal colonization and lower respiratory tract infections with methicillin-resistant Staphylococcus aureus." *American Journal of Critical Care* 24.1 (2015): 8-12.
7. Johnson, Jennifer A., et al. "Nasal methicillin-resistant Staphylococcus aureus polymerase chain reaction: a potential use in guiding antibiotic therapy for pneumonia." *The Permanente Journal* 19.1 (2015): 34.

VI. DOCUMENT INFORMATION:

- A. Original Author/Date
Lina Meng, Pharm.D., BCPS, BCCCP, 10/20/2017
Samaneh Pourali, Pharm.D., BCPS, 10/20/2017
Matt Hitchcock, MD 10/20/2017
- B. Gatekeeper
Pharmacy Department
- C. Distribution
This procedure is kept in the Pharmacy Policies and Procedure Manual
- D. Review/Revision History:
Janjri Desai, Pharm.D., BCPS 11/2017
- E. Approvals
Antibiotic Subcommittee: 11/16/2017, 7/25/2018
Pharmacy and Therapeutics Committee: 12/2017

*"This document is intended for use by staff of Stanford Health Care.
No representations or warranties are made for outside use. Not for outside reproduction or publication
without permission." V10.17.*