

H-CPR (Hospitalist – Clinical Performance Registry) Measure #24

Measure Title: Appropriate Utilization of Vancomycin for Cellulitis

Inverse Measure: No

Measure Description: Percentage of Patients with Cellulitis Who Did Not Receive Vancomycin Unless MRSA Infection or Risk for MRSA Infection Was Identified

National Quality Strategy Domain: Efficiency and Cost Reduction

Care Setting: Emergency Department and Services, Hospital; Hospital Inpatient

Published Specialty: Acute Care; Critical Care; Emergency Medicine; Hospitalist

Telehealth: Yes

Type of Measure: Process, High Priority

High Priority Type: Appropriate Use

Meaningful Measure Area: Appropriate Use of Healthcare

Current Clinical Guideline: IDSA Guidelines

Published Clinical Category: Cellulitis

Number of Performance Rates: 1

Measure Scoring: Proportion

Risk Adjustment: No

Submission Pathway: Traditional MIPS, MIPS Value Pathway (MVP)

Numerator: Patients Who Did NOT have Vancomycin (IV) Ordered Unless Known MRSA Infection Was Identified or Specific Risk for MRSA Infection Was Indicated

- Performance Met (**VH271**):
 - Vancomycin NOT ordered OR Vancomycin discontinued at admission
OR
 - Vancomycin ordered AND MRSA infection identified or risk for MRSA infection documented (i.e., nasal colonization, prior MRSA infection, recent hospitalization, recent antibiotics, penetrating injury, IVDU, purulent cellulitis, SIRS criteria, sepsis, impaired host defense)
- Performance Not Met (**VH272**): Vancomycin ordered AND no MRSA infection identified OR no risk for MRSA infection documented

Numerator Exclusions: None

Denominator:

- Any patient greater than or equal to 18 years of age evaluated by the Eligible Professional PLUS
- Admitted or Placed in Observation Status (**V0717**) PLUS (E/M Codes 99221-23, 99234-36, 99281-85, 99291-92 AND Place of Service indicators 02, 19, 21, 22, or 23 OR equivalent in standardized code sets) PLUS
- Diagnosis of Cellulitis
 - A48.0, H05.011, H05.012, H05.013, H05.019, H60.10, H60.11, H60.12, H60.13, J34.0, J36, J38.3, J38.7, J39.1, K12.2, K13.0, K61.0, K61.1, L03.011, L03.012, L03.019, L03.031, L03.032, L03.039, L03.111, L03.112, L03.113, L03.114, L03.115, L03.116, L03.119, L03.211, L03.212, L03.213, L03.221, L03.311, L03.312, L03.313, L03.314, L03.315, L03.316, L03.317, L03.319, L03.811, L03.818, L03.90, L98.3, N48.22, N49.9, N61.0, N73.0, N73.1, N73.2
- Transferred, eloped, AMA or expired patients are excluded (**V0704**)

Denominator Exclusions: None

Risk Adjustment: No

Submission Pathway: Traditional MIPS

Rationale:

The emergence of community-associated Methicillin-Resistant Staphylococcus Aureus (CA-MRSA) contributed to a significant increase in the incidence and severity of skin and soft tissue infections (SSTIs). A nearly 30% increase in hospital admissions for SSTIs occurred between 2000 and 2004. Annually, over 6 million visits to physician's offices are attributable to SSTIs. From 1993 to 2005, the number of annual emergency department visits for SSTIs increased from 1.2 million to 3.4 million. (Stevens) As a result of the emergence of community-associated MRSA, clinicians increased use of antibiotics targeted at MRSA. According to data from the National Hospital Ambulatory Medical Care Survey (NHAMCS), by 2010, 74% of all antibiotic regimens prescribed at emergency department visits for skin infections included an agent typically active against CA-MRSA. (Pallin)

Despite the drastic increase in use of antibiotics active against CA-MRSA, beta-hemolytic streptococci are still thought to be the predominant cause for non-purulent SSTIs. A large prospective investigation performed in the current era of CA-MRSA found that beta hemolytic streptococci remain the primary cause of diffuse, nonculturable cellulitis. Additionally, the use of antibiotic polypharmacy including vancomycin, if unnecessary, leads to increased drug reactions, risk for renal toxicity, increased medication costs, and emergence of antibiotic resistant bacteria. (Jeng)

In 2014, the Infectious Diseases Society of America (IDSA) updated practice guidelines regarding management of SSTIs and addressed the appropriate use of antibiotics active against CA-MRSA. According to the guidelines, non-purulent cellulitis due to MRSA is uncommon and treatment for MRSA is typically not necessary. The indications for MRSA coverage include penetrating trauma, injection drug use, purulent drainage, evidence of MRSA infection elsewhere, nasal colonization with MRSA, prior MRSA infection, recent hospitalization, recent antibiotic use, markedly impaired host defenses, and patients with SIRS. (Stevens)

Per a multicenter, double-blind, randomized superiority trial conducted by Moran et al., for patients with uncomplicated cellulitis, the addition of an antibiotic for CA-MRSA coverage did not result in higher rates of clinical resolution of cellulitis as compared to coverage for beta-hemolytic streptococcus alone. (Moran)

Despite the emergency of CA-MRSA, beta-hemolytic streptococci remain the predominant cause of non-purulent SSTIs (e.g. cellulitis) and universal treatment for these infections with an antibiotic active against CA-MRSA, such as vancomycin, is not necessary and may contribute to adverse drug reactions, increased medical costs, and the further emergence of antibiotic resistance.

Selected References:

1. Haran JP, Goulding M, Campion M, et al. Reduction of Inappropriate Antibiotic Use and Improved Outcomes by Implementation of an Algorithm-Based Clinical Guideline for Nonpurulent Skin and Soft Tissue Infections. *Annals of Emergency Medicine*. 2020 July; 76(1): 56-66.
2. Jeng A, Beheshti M, Li J, et al. The Role of Beta-Hemolytic Streptococci in Causing Diffuse, Nonculturable Cellulitis. *Medicine (Baltimore)*. 2010 Jul; 89(4):217-226.
3. Moran GJ, Krishnadasan A, Mower WR, et al. Effect of Cephalexin Plus Trimethoprim-Sulfamethoxazole vs Cephalexin Alone on Clinical Cure of Uncomplicated Cellulitis. *JAMA*. 2017 May 23; 317(20): 2088-2096.
4. Pallin DJ, Binder WD, Allen MB, et al. Clinical Trial: Comparative Effectiveness of Cephalexin Plus Trimethoprim-Sulfamethoxazole Versus Cephalexin Alone for Treatment of Uncomplicated Cellulitis: A Randomized Controlled Trial. *Clinical Infectious Diseases*. 2013 June; 56(12): 1754-1762.
5. Shuman EK, Malani PN. Empirical MRSA Coverage for Nonpurulent Cellulitis; Swinging the Pendulum Away From Routine Use. *JAMA*. 2017 May 23/30; 317(20). 2070.
6. Stevens DL, Bisno AL, Chambers HF, et al. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America. *Clinical Infectious Diseases*. 2014; 59(2):e10-52.

