

IMPROVING RAPID STREPTOCOCCUS TESTING IN THE PEDIATRIC EMERGENCY DEPARTMENT

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BACKGROUND

Pharyngitis is a common presenting symptom in pediatrics. accounts for over 13 million office visits annually in the United States. Only approximately 10% of patients with pharyngitis have true streptococcal infection.

Rapid antigen testing (RST) to detect group A Streptococcal (GAS) infection provides important information for the antibiotic decision making for patients presenting with acute pharyngitis.

The Infectious Diseases Society of America (IDSA) guideline on streptococcal pharyngitis recommends using a rapid test in patients with a modest probability of GAS infection, treating those with a positive rapid test and culturing rapid test negative children and treating patients having positive cultures. The IDSA guidelines and reviews have documented excellent specificity of RST with sensitivity from 70% to 95%.

Modified Centor criteria are an algorithm to assess the probability of a group A Beta hemolyticum streptococcus (GABHS) as the origin of pharyngitis which has been validated in children starting from 3 years of age.

Cost and feasibility: Charges for various diagnostic tests for GABHS pharyngitis vary widely nationwide. In some settings the RST cost between \$ 35-42 and the throat culture cost can cost \$ 60 – 130. Physicians should be aware of how much patients are charged for these test and use them appropriately to avoid unnecessary testing.

DEFINING THE PROBLEM

There are multiple aspects of the history and physical examinations that can guide a pediatrician to establish differential diagnosis in patients presenting to Pediatric ED.

PROBLEM 1: RST done randomly even in asymptomatic patients.

PROBLEM 2: RST done in outside the recommended age range.

PROBLEM 3: Testing performed in febrile patients with no symptoms or physical exam suggestive of GABHS pharyngitis.

PROBLEM 4: Variability and lack of documentation to support the suspicion of GABHS pharyngitis and the need for doing a rapid strep test.

STUDY AIM

To reduce the number of unnecessary rapid strep testing in patients with low probability of GABHS infection consulting to Pediatric ED by 20% in a 3 month period.

METHODS

BASELINE ASSESSMENT: 70% of the Rapid strep testing performed in the Pediatric ED was done in patients with low probability of GAS infection. These patients had a negative RST and a throat culture negative for GABHS. The probability for GABHS was determined using the Centor criteria.

PRE AN POST INTERVENTION: Review of 10 charts to obtain the baseline data and 15 charts monthly was done to assess the history and physical exam findings supporting the suspicion of moderate or high probability for GABHS pharyngitis as well as rapid strep test (RST) and throat culture results in patients that underwent RST.

INTERVENTION:

CYCLE 1- Education among practitioners in the Pediatric ED was done using a poster containing the Modified Centor criteria. It was placed on the room assigned for Rapid Strep Testing.

CYCLE 2- Modified Centor criteria poster was posted on medical staff work station to allow fast access to the guidelines and the interval for collecting results was increased to 6 months to allow time for a change.

RESULTS

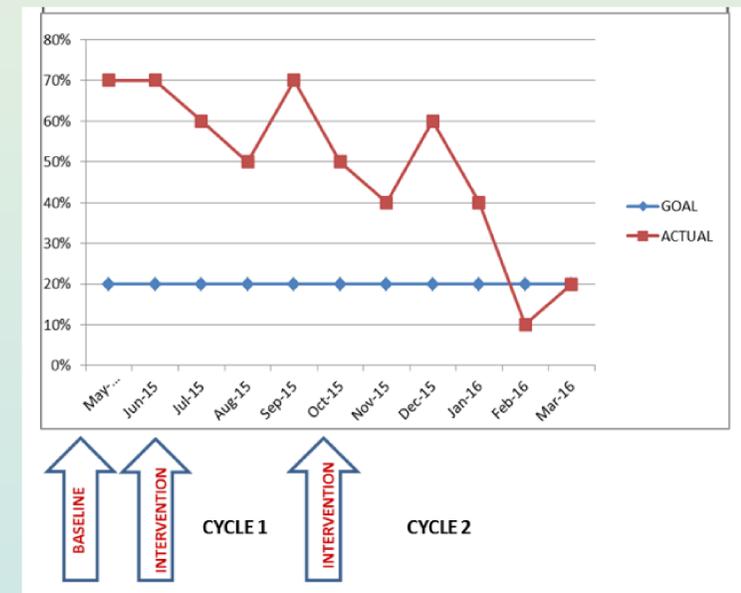


FIGURE 2. Rapid Strep Testing in patients with low probability of GABHS infection.

CONCLUSIONS

Centor criteria were established to identify the likelihood of a GABHS infection. These criteria is not commonly used as predictive tool to confirm the isolation of GABHS in a throat swab culture in children. However, this algorithm can guide physicians to determine the probability of a GABHS infection and avoid unnecessary rapid strep testing in patients with low probability of GABHS pharyngitis.

Avoiding unnecessary RST will lower the cost of care and also decrease the anxiety that a rapid strep testing generates in children.

REFERENCES

1. Clinical Practice Guideline for the Diagnosis and Management of Group A Streptococcal Pharyngitis: 2012 Update by the Infectious Diseases Society of America.
2. Centor RM, Witherspoon JM, Dalton HP, Brody CE, Link K. The diagnosis of strep throat in adults in the emergency room. Med Decis Making 1981; 1:239–46. 21. Wald ER, Green MD, Schwartz B

TOOLS

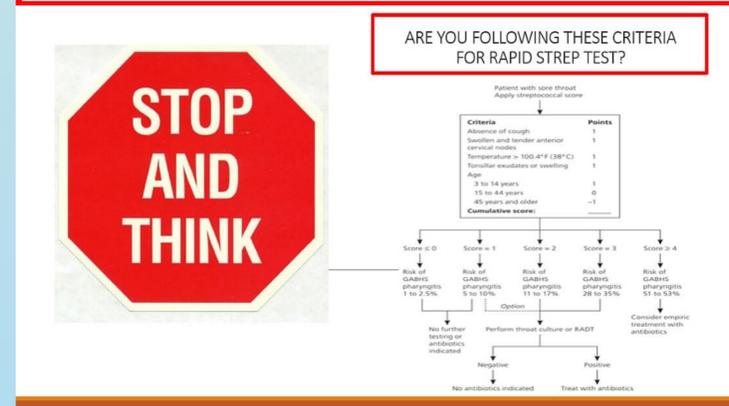


FIGURE 1. Sample of poster used for education among practitioners in the Pediatric Emergency Department.