

Improving the Management of Patients with Sore Throat in Walk-In Clinic at Cornell University

Anne C. Jones, DO, MPH

Assistant Director of Medical Services & Staff Physician

Gannett Health Services

Cornell University

Ginny Graydon, RN

Staff Nurse

Gannett Health Services

Cornell University



Disclosures

Neither presenter has any disclosures to report.

Objectives

- Discuss Group A streptococcal infection in the United States.
- Describe Cornell's team approach to testing and treatment for Group A streptococcal infection.
- Discuss the quality improvement project done to reduce unnecessary ordering of strep cultures in the Minor Acute Care Team at Cornell.
- Discuss questions from colleagues from other institutions.

Group A streptococcal infection

- Acute pharyngitis accounts for 12 million ambulatory visits in the U.S. annually.
- While group A streptococcal infection is important to identify and treat, it accounts for a minority (10-15%) of cases.
- Overuse of antibiotics can be avoided using a systemic approach and teamwork.

Pharyngitis at Cornell

- Pharyngitis is the 4th most common presenting concern to Gannett Health Services
- The Minor Acute Care Team (MACT) triages patients with uncomplicated sore throat concerns
 - Acute sore throat
 - No cough

Minor Acute Care Team Process

- Patients are triaged by Registered Nurses (RNs) using triage guidelines & the Centor Criteria.
- RNs are supported by a Nurse Practitioner (NP) who consults on cases that require a higher level of care.



The Centor Criteria

- A simple tool used to effectively predict the probability of a bacterial infection in a patient who presents with a chief complaint of pharyngitis
- Specific, evidence-based criteria that dictate testing and treating for strep pharyngitis based on symptoms, history and exam.

The Centor Criteria

One point each for

- Temperature > 100.4
- Absence of cough
- Swollen, tender anterior nodes
- Tonsillar swelling or exudate

Score	Risk of Streptococcal Infection	Suggested Management
0 or less	1% - 2.5%	No further testing or antibiotic
1	5% - 10%	
2	11% - 17%	Culture all; Antibiotics only for positive culture results
3	28% - 35%	
4 or more	51% - 53%	Treat empirically with antibiotics and/or culture

The Minor Acute Care Team

The MACT is an inter-professional team composed of nurses and clinician that provide accessible and efficient services for the Cornell community.

- The MACT RN is able to independently triage, assess and provide self care instructions for a specific list of concerns.
- The MACT clinician is available for consult on cases which fall outside the guidelines and to provide care for patients who have medical concerns that require uncomplicated diagnosis, workup and treatment.

Typical Visit

- Johnny is a 19 year old Freshman who presents with a 3 day history of severe sore throat and fever for 2 days.
- He has been unable to eat or drink due to the pain.
- He reports that his temperature yesterday was 102.5.
- His girlfriend was diagnosed with strep last week.

Upper Respiratory Symptoms Visit

Library: MAC Appt Production

[Template](#) [Sections](#) [Scan Doc](#) [Chq Ticket](#)
[Orders](#)

Test, Lab2 Pt #: N0899070 DOB: 1/1/1989 Age: 26 yrs Sex: Male
10/20/2015 5:10 PM with GRAYDON, VIRGINIA RN for **MAC TEAM VISIT**
Encounter #: A2477829-77 Appointment Reason: Cold/ Sore Throat (No Cough)

Completed 10/20/2015 3:48 PM

Cold Symptoms Questionnaire

When did your symptoms begin? [10/17/2015](#)
Unsure when symptoms began

Please describe your current symptoms:

[nasal congestion](#), [sore throat](#), [swollen glands in your neck](#), [fever](#), or [feverish feeling](#)
Please describe any other symptoms you are having: [My girlfriend has strep](#)
No other symptoms

Please describe any symptoms you have had with this illness, but are now resolved :

[headache](#)

Have you been seen previously for the current illness at Gannett? [no](#)
Have you travelled outside of the country in the past 3 weeks ? [no](#)
Do you have a history of any of the following ?

Mononucleosis [No](#) Recurrent bronchitis [No](#) Heart problem [No](#)

Asthma [No](#) Recurrent or chronic sinusitis [No](#) Inhaler use [No](#)

Recurrent throat or tonsil infections [No](#) Environmental allergies [No](#) Pneumonia [No](#)

Another chronic illness [No](#)

Please describe:

Have you tried any of the following to help relieve your symptoms?

[Acetaminophen \(Tylenol\)](#)

Other:

Past Medical History

Significant past medical history, including hospitalizations, surgeries, and chronic illness:

[Nothing](#)

Current medications, herbs, or supplements:

[Nothing](#)

Are you allergic to any medications? [No](#)

NURSING UPPER RESPIRATORY SYMPTOMS VISIT

NURSING INITIAL ASSESSMENT

Chief Complaint

"I have a really bad sore throat"

Pt felt ill on Sat with a sore throat and headache. On Sunday his fever was 102.5. He has been unable to eat d/t pain and is having difficulty swallowing fluids. His headache has resolved but his throat feels worse and he still has a fever.

His girlfriend was diagnosed with Strep last week.

Above questionnaire reviewed: There are no changes or additions

Onset of symptoms: Sat 10/17/2015

+ fever (102.5 yesterday); + body aches (All over); + sore throat (very difficult to swallow); + swollen glands. No headache, No fatigue, No cough, No sputum, No wheezing, No shortness of breath, No runny nose, No nasal congestion, No sinus pressure, and No ear pain / pressure.

History of: + mononucleosis (Two years ago). No symptoms longer than 2 weeks, No previous recent evaluation for similar symptoms, No asthma, No allergies, No recurrent strep or tonsillitis, and No recurrent sinusitis.

History of international travel within the past 21 days?: no

History of self treatment: + NSAID (brought fever down but did not help throat). No multi-symptom product, No oral decongestant, No mucolytic, No nasal spray, No oral antihistamine, No cough suppressant, No inhaled bronchodilator, No acetaminophen, and No other.

Peak Flows

Perform peak flows for any of the following situations:

- Peak flows not performed; patient does not meet criteria.

Undersignature: Signed by Virginia Graydon, RN on 10/21/2015 7:59:57 AM

HISTORY REVIEW

Medications

Reviewed by Virginia Graydon, RN on 10/20/2015 3:55 PM

FOLIC ACID-VIT B6-VIT B12 2.5-25-1 MG TABS; USE AS DIRECTED (Discontinue Today)

Allergies

Reviewed by Virginia Graydon, RN on 10/20/2015 3:55 PM

NONE

Vital Signs

Vitals

BP=110/88 Left Arm; Temp= ⚠️ 101.3 F Oral; Pulse=98; Resp=16; Height=5 ft 9 in; Weight=160 lbs; BMI=23.6

Smoking Status: Never smoker

10/20/2015 3:55 pm by GRAYDON, VIRGINIA RN

NURSING OBJECTIVE

Nursing Exam	Normals	Comments/Abnormals
General	no acute distress	
Ears		Cerumen blockage L ear, R ear clear to TM
Eyes	no discharge and no erythema	
Sinus	no sinus tenderness or pain	
Nose	<ul style="list-style-type: none"> no congestion 	
Throat		Erythema, exudate and tonsillar edema. Uvula midline
Neck	lymphadenopathy lymphadenopathy anterior: <ul style="list-style-type: none"> tender 	largely palpable bilateral ac nodes
Lungs	clear	

Patient Centor Score

Criteria for pharyngitis

Criteria for Pharyngitis:

- Temperature >100.4 degrees F
└ 1 point
- Absence of cough
└ 1 point
- Swollen, tender anterior cervical nodes
└ 1 point
- Tonsillar swelling or exudate
└ 1 point

Age:

- 15 - 44 years
└ 0 points

Total Centor Score 4

Comments

Pt with reported temperature at home of 102.4. Pt advised that culture results will be available tomorrow morning.

Consultation Plan: Consulting clinician evaluation needed

Undersignature: Signed by Virginia Graydon, RN on 10/21/2015 7:59:41 AM

HISTORY REVIEW

Medications

Reviewed by Virginia Graydon, RN on 10/20/2015 3:55 PM

FOLIC ACID-VIT B6-VIT B12 2.5-25-1 MG TABS; USE AS DIRECTED (Discontinue Today)

Allergies

Reviewed by Virginia Graydon, RN on 10/20/2015 3:55 PM

NONE

Problem List/History

Problem list reviewed by nurse; no relevant medical history

Vital Signs

Vitals

BP=110/88 Left Arm; Temp= ⚠ 101.3 F Oral; Pulse=98; Resp=16; Height=5 ft 9 in; Weight=160 lbs; BMI=23.6

Smoking Status: Never smoker

10/20/2015 3:55 pm by GRAYDON, VIRGINIA RN

Cuff size: Pediatric Small Adult Regular Adult Large Adult Thigh

BP elevated (systolic >140 OR diastolic >90)

Patient declines weight

RN Action Post Initial Assessment

- Once the RN has completed her assessment she determines whether consultation is needed with the MACT clinician.
- If the problem requires no clinical consult, the RN will provide education and advice on the first steps to take in self care.
- If, during the assessment the RN runs into unexpected findings or a medical issue or concern which requires additional assessment and time with a Clinician, the RN will schedule a Clinic visit with a Provider.
- If the RN determines, based on guidelines, that the patient requires consult with the MACT Provider, the RN will go to the MACT Provider with a verbal report of the RN's finding utilizing the **SBAR** report.



SBAR

A structured communication technique designed to convey a great deal of information in a succinct and brief manner. This is important as we all have different styles of communicating, varying by profession, culture, and gender.

S Situation
A concise statement of the problem
What is going on now

B Background
Pertinent and brief information related to the situation
What has happened

A Assessment
Analysis and considerations of options
What you found/think is going on

R Recommendation
Request/recommend action
What you want done



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SBAR REPORT TO MACT PROVIDER

S

I have a patient with a 3 day history of sore throat. He reports a temperature yesterday of 102.5 and is having great difficulty swallowing. He states his girlfriend was diagnosed with Strep throat last week.

B

His temp now is 101.3, he has tonsillar edema, erythema and exudate. His Centor score is 4 .

A I have a high suspicion of Strep Throat.

R Would you please assess for a throat culture and possible treatment?

MACT Clinician Documentation

CLINICIAN SUBJECTIVE

- Above note reviewed
- Patient interviewed and examined
 - Agree with above findings
 - Agree with above findings
 - 26y/o male with h/o mono confirmed by EBV titer done at home doctor's office presents for sore throat and swollen glands.
 - History as noted above
- Problem list reviewed by clinician; no relevant medical history

Review of Systems: Brief ROS

Brief ROS

Constitutional
+ fatigue.

Respiratory
No cough.

CLINICIAN OBJECTIVE

- Agree with above RN exam, no additional findings
- Exam performed by myself, above findings confirmed.

ASSESSMENT

- 26y/o male with h/o mono now with exudative pharyngitis - likely streptococcal
- Will perform culture and start PVK at present time
 - Instructions below, verbally discussed with the pt and reinforced by the team RN

Diagnoses

Acute pharyngitis, unspecified etiology (J02.9)
Sore throat (J02.9)

Encounter Code

Professional: ESTAB PT W/ COMPLAINT STRAIGHTFORWARD; 99212 (99212)

PLAN

Orders

LAB ORDERS

Laboratory Order by: JONES, ANNE DO (Sore throat J02.9)

Strep A Throat Culture, In-House

Comments: test patient-do not perform

Nursing Plan

- Increase fluid intake
- Soft food diet
- Monitor temperature
- Buy a thermometer
- Rest
- Information given about upper respiratory infections
- Information given about acetaminophen OTC
- Information given about NSAIDs OTC
- Information given about throat spray / lozenges OTC
- Information given about saline gargles
- Information given about hand hygiene
- Handouts given
 - └ Upper Respiratory Infection

Disposition

Return if:

- your symptoms worsen or change
- your symptoms do not improve over the next 3-5 days, or resolve in the next 7-10 days
- you develop a fever of greater than 101, or longer than 2 days
- you develop shortness of breath, pain or tightness in your chest
- you have a cough that is worsening or lasting longer than 2 weeks
- you have a bad sore throat that lasts longer than 3 days or is worsening
- you have very swollen glands or have difficulty swallowing
- you have pain in your face or teeth that is not improving with decongestant use
- you have a headache that lasts longer than a few days or is very severe

- Diagnosis and plan reviewed with patient; patient verbalizes understanding
- Patient gives verbal permission to email disease related information

Disposition of Patient

- The MACT Provider orders lab work and prescriptions if needed.
- The RN provides self care teaching and reinforces MACT Provider instructions.
- The RN ensures that the patient understands follow up instructions (when to return, when to expect to hear back on lab results etc).

Quality Improvement

A question arose from the staff:

What is the effectiveness of the Minor Acute Care Team? Are they providing good, evidence-based care?

Study Aim:

To evaluate the use of the Centor Criteria for the testing and treatment of patients with a sore throat in the Minor Acute Care Team.

Quality Improvement

- Chart review of all patients seen for sore throat in 6-week period over 2 semesters
 - August - October 2013
 - March - May 2014
- Randomly assigned chart review among all authors

Figure 1. Percentage of Patients Requesting Strep Culture by Centor Score

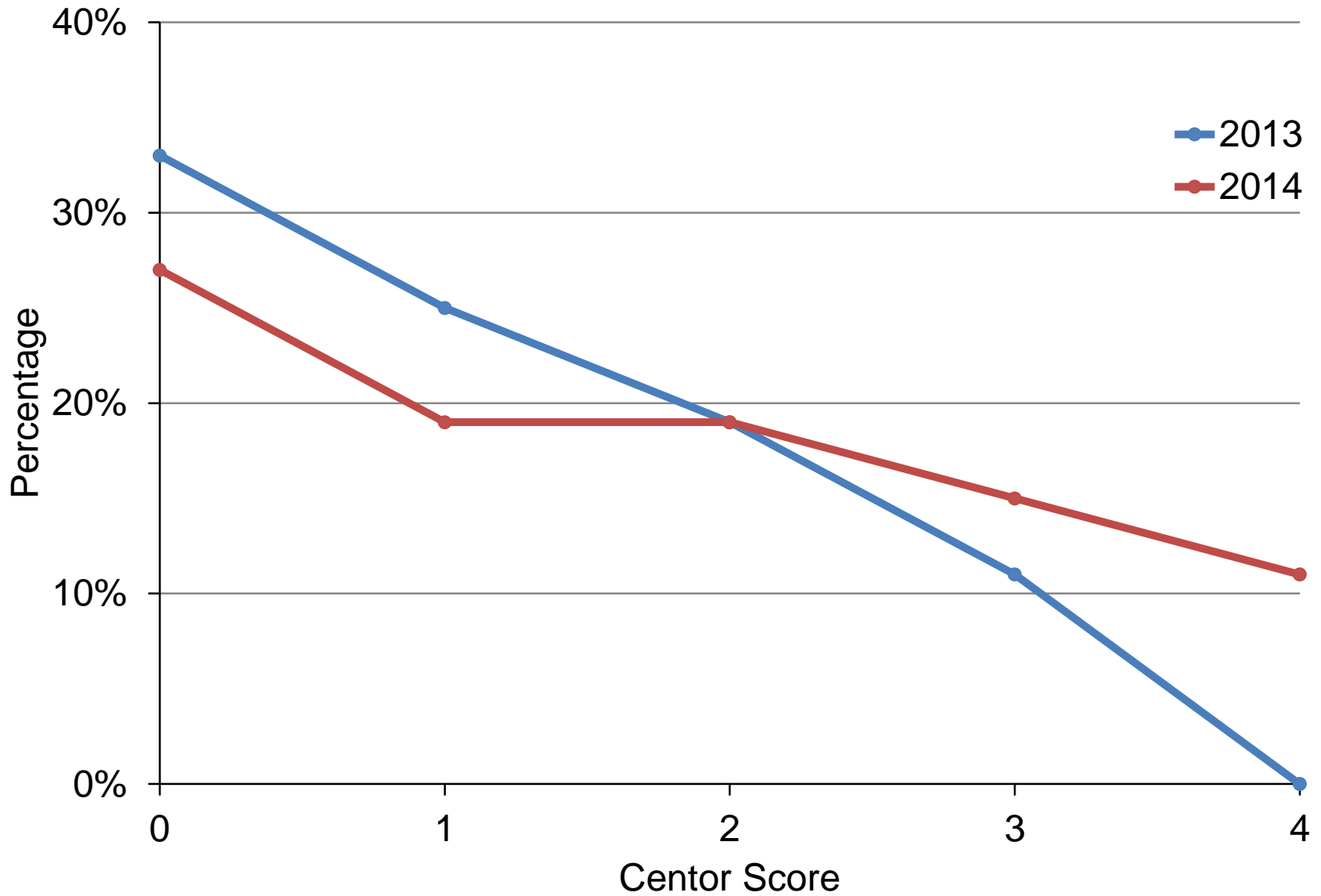


Figure 2. Strep Cultures Ordered by Centor Score

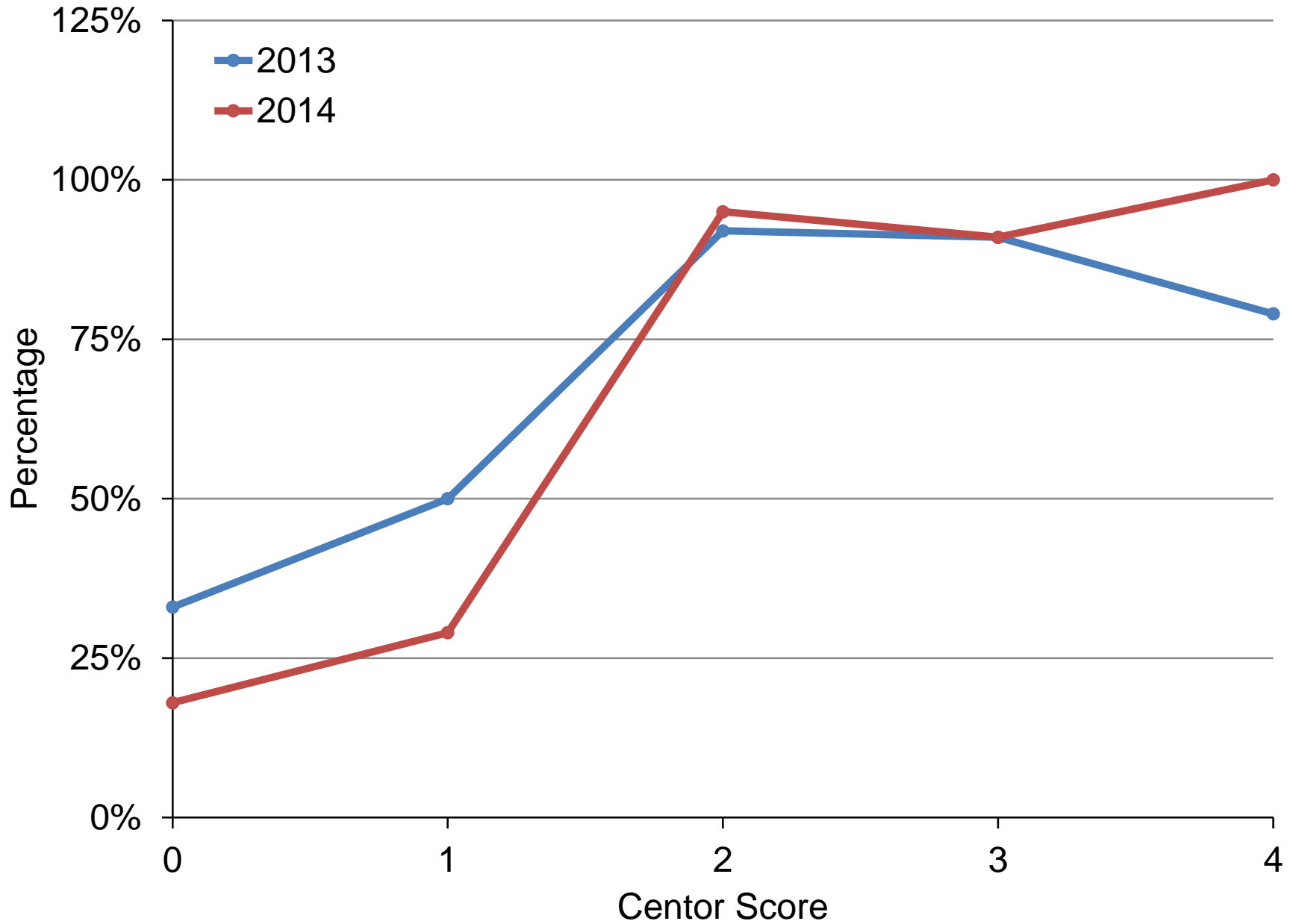


Figure 3. Antibiotics Prescribed by Centor Score

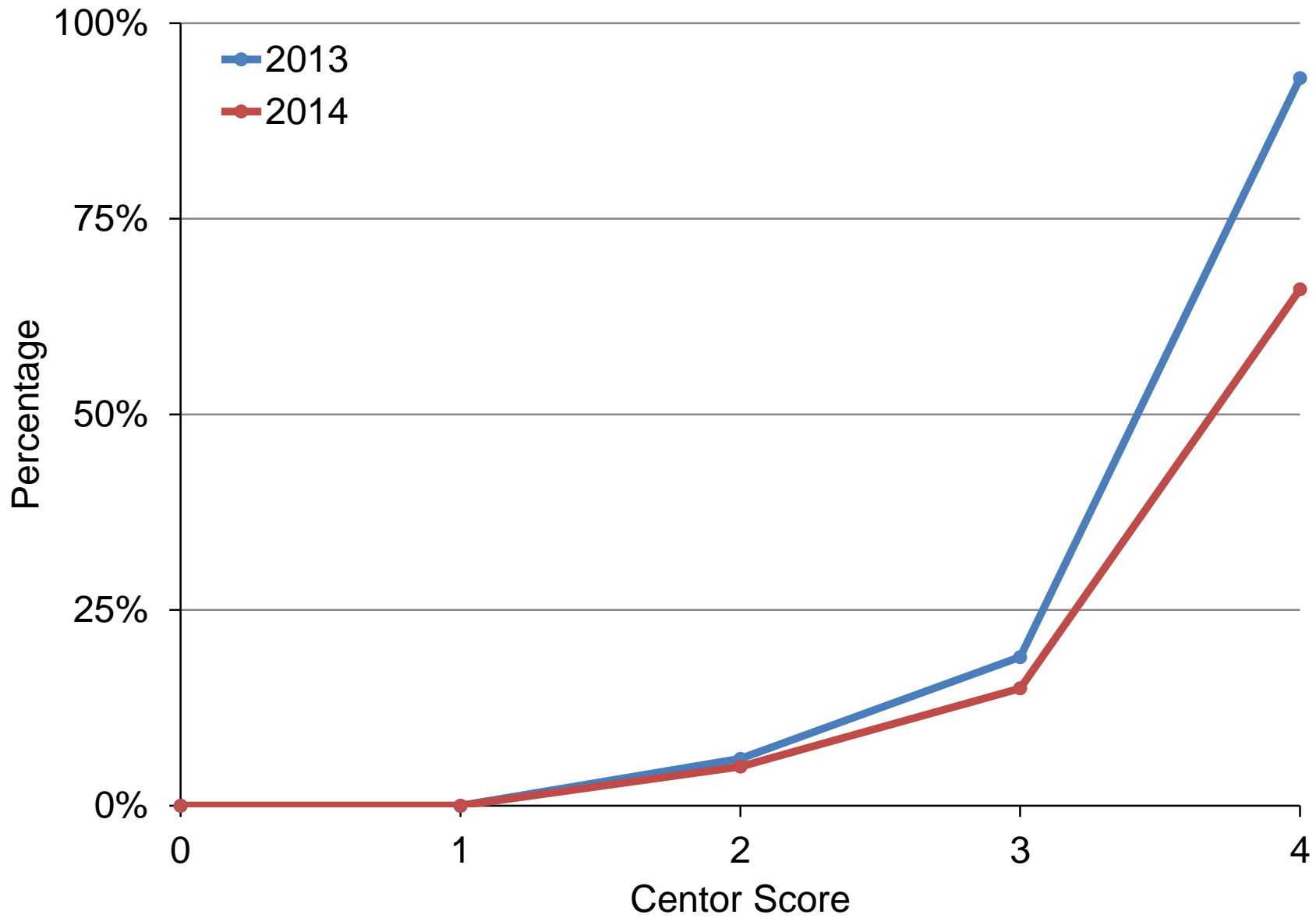


Figure 4. Positive Group A Strep Cultures by Centor Score

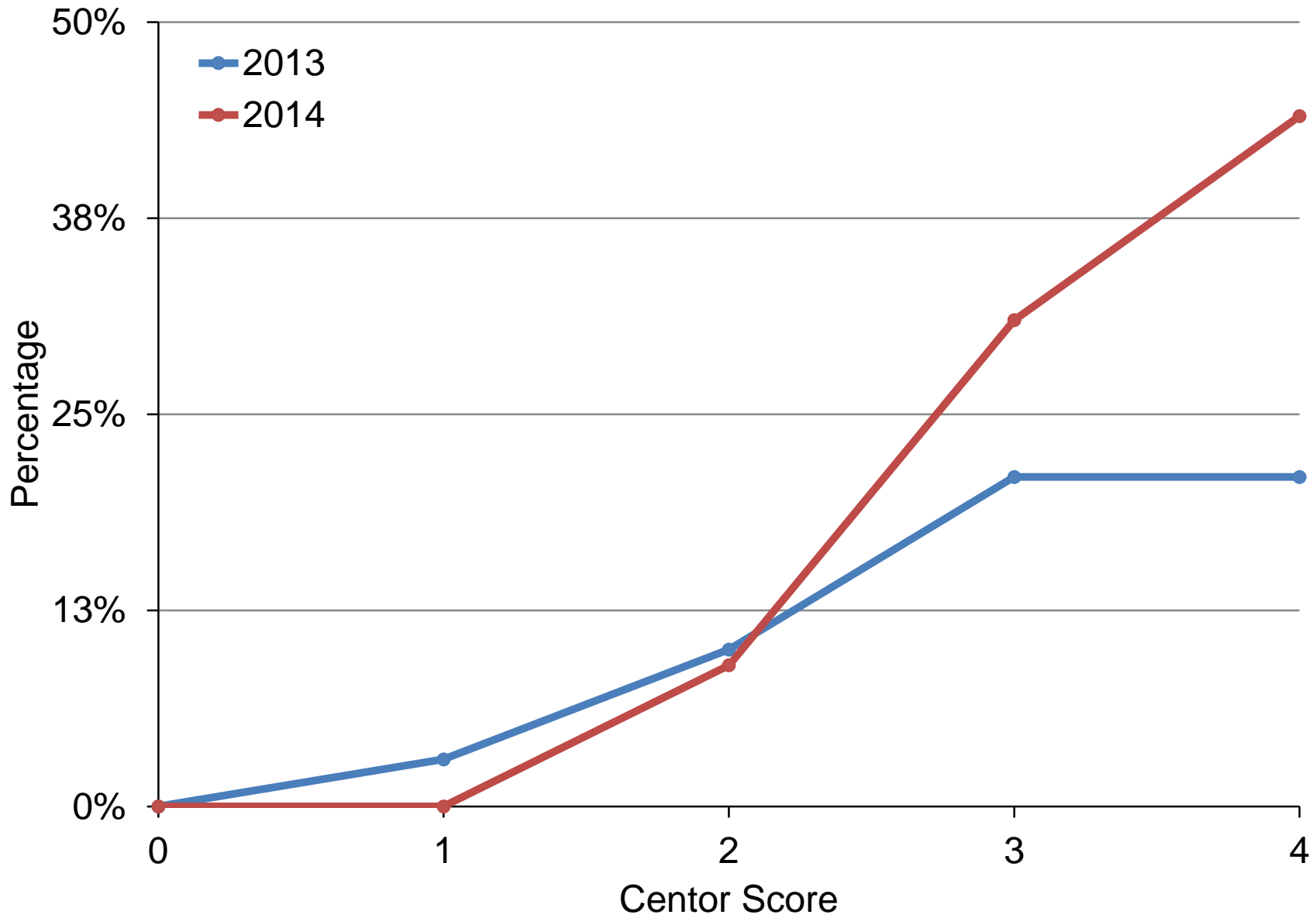


Figure 5. Number of Patients Returning Within 1 Week by Centor Score

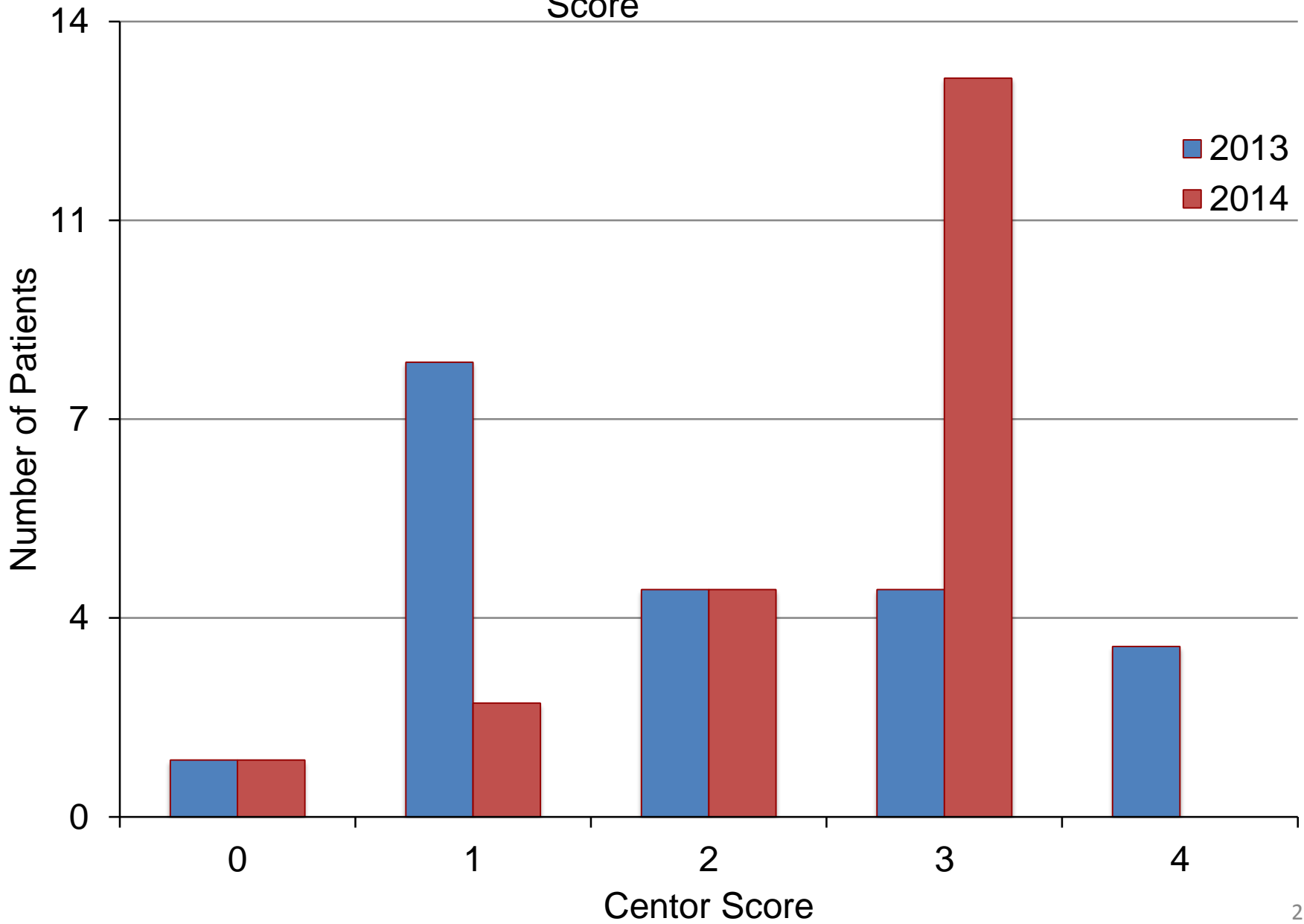


Table 1. Reasons for Return

Diagnosis	Frequency
Pharyngitis	33%
Mononucleosis	24%
Conjunctivitis	10%
Cough	10%
Tonsillitis	10%
URI	10%
Non-Group A Strep	5%

Improvements

- Template changes in the electronic health record were implemented between 2013 and 2014 to support the use of the Centor Criteria for triage.
- Feedback to clinical staff were provided during clinician-nursing joint meetings on performance after each chart review.
- The MACT continues to undergo structural changes to support efficient and effective care at Cornell.

Conclusions

- Centor Criteria is a valuable and accurate tool in predicting the risk of group A streptococcal pharyngitis through MACT visits.
- RN's collaborating with clinicians are able to efficiently and effectively provide care to patients with sore throat.
- This QI study and the use of the Centor Criteria has decreased the ordering of unnecessary strep cultures enabling more cost effective care to be provided to patients through MACT visits.
- RN's in collaboration with clinicians are appropriately using the Centor criteria in the diagnosis of group A streptococcal pharyngitis, as evidenced by the infection rate which falls within the expected rate of positive strep in each Centor Criteria category.

References

- Schappert SM, Rechtsteiner EA. Ambulatory medical care utilization estimates for 2006. Natl Health Stat Report 2008; :1.
- Snow V, Mottur-Pilson C, Cooper RJ, et al. Principles of appropriate antibiotic use for acute pharyngitis in adults. Ann Intern Med 2001; 134:506.
- 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(3):239-46.

Questions?

