What criteria should we use to diagnose strep throat?

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Clinical question
Does a clinical exam tell us enough to diagnose and treat strep throat, or should we perform lab testing as well?

Recommendations
Before treatment with antibiotics, bacterial pharyngitis should be confirmed through lab testing for group A streptococcal (GAS) infection. This is true for both adult and pediatric patients.

Clinical diagnosis systems by themselves are not sufficiently accurate for reliable diagnosis of strep throat. The most common of these systems, the Centor criteria, includes the following:

- Tonsillar exudates
- Tender anterior cervical lymphadenopathy
- Fever
- Absence of a cough

Even in patients who meet all four of these criteria, there is only about a 50% chance that strep throat will be confirmed by a rapid strep test or culture… so basing treatment on these criteria alone, in the absence of confirmatory lab testing, would be no better than flipping a coin.

This does not mean that the Centor criteria are useless, however. They can and should be used to determine when it is reasonable, and when it is not, to perform a lab test. If only one of the criteria is positive, there is about a 7% chance that a GAS test will be positive. With two positives, the chances go to 21%, and with three positives they go to 38%. At four positives, they are approximately 50%. In general, the recommendation is to only consider the GAS test if three or more of the Centor criteria are positive. In some clinical cases (kids especially), only two positive criteria may be a reasonable cut point.

Why not test anyone with a sore throat, just to be sure? The biggest reason not to test everyone is probably the high rate of strep carriage; approximately 5–20% of patients who are colonized with strep show no symptoms. Such patients will test positive for strep, yet their sore throat might have an entirely different cause—and this is more likely when fewer than three of the Centor criteria are met. When a patient's sore throat is much more likely to be from a non-bacterial cause, treatment with antibiotics is not only unhelpful, but potentially harmful.

As with most things in medicine, there may be times it is reasonable, based on clinical suspicion, to do the test even when the Centor criteria are low. But where we strongly advise holding the line is to not treat without a positive test. National guidelines all agree that confirmatory lab testing should precede treatment for strep throat. This includes cases of exposure to strep throat—
exposure alone is not sufficient to warrant treatment.

The evidence behind the requirement for a positive test is clear enough that it is now a HEDIS® measure for patients aged 2–18 years: We are actually marked down for every treatment of strep throat in this age group where a test was not performed.

How could this change my practice?
Pharyngitis is a very common problem and patient anxiety about "strep throat" is high. Keep in mind, however, that most pharyngitis is viral and self-limited. GAS, the most common bacterial cause of pharyngitis, makes up only 15–30% of all cases of pharyngitis. Testing is relatively easy and provides clarity in determining who would benefit from antibiotics and who should not receive them. Appropriate testing will allow you to restrict antibiotic use to those who require it.

To ensure reliable test results, collect an adequate sample using the following method: Rub a double-ended swab firmly on both tonsils and the posterior pharynx. The swab should not touch the buccal mucosa or tongue; in many patients, you may need to use a tongue blade.

References