# Centor Score (Modified/McIsaac) for Strep Pharyngitis

## INPUTS

|  |  |
| --- | --- |
| Age  *Group A streptococcus (GAS) rare under 3* | **Options:**   * 3-14 years (1) * 15-44 years (0) * ≥45 years (-1) |
| Exudate or swelling on tonsils | **Options:**   * No (0) * Yes (1) |
| Tender/swollen anterior cervical lymph nodes | **Options:**   * No (0) * Yes (1) |
| Temp >38°C (100.4°F) | **Options:**   * No (0) * Yes (1) |
| Cough | **Options:**   * Cough present (0) * Cough absent (1) |

## FORMULA

Addition of the selected points:

|  |  |  |
| --- | --- | --- |
| **Criteria** | | **Points** |
| Age | 3-14 years | +1 |
| 15-44 years | 0 |
| ≥45 years | -1 |
| Exudate or swelling on tonsils | No | 0 |
| Yes | +1 |
| Tender/swollen anterior cervical lymph nodes | No | 0 |
| Yes | +1 |
| Temp >38°C (100.4°F) | No | 0 |
| Yes | +1 |
| Cough | Cough present | 0 |
| Cough absent | +1 |

## FACTS & FIGURES

Interpretation:

|  |  |  |
| --- | --- | --- |
| **Centor Score** | **Probability of strep pharyngitis** | **Recommendation** |
| 0 | 1-2.5% | No further testing or antibiotics. |
| 1 | 5-10% |
| 2 | 11-17% | Optional rapid strep testing and/or culture. |
| 3 | 28-35% | Consider rapid strep testing and/or culture. |
| ≥4 | 51-53% | Consider rapid strep testing and/or culture. Empiric antibiotics may be appropriate depending on the specific scenario. |

## EVIDENCE APPRAISAL

The original study by Centor et al was done in 1981 to develop criteria to diagnose GAS infection in adult patients presenting to the emergency department with sore throat ([Centor 1981](https://www.ncbi.nlm.nih.gov/pubmed/6763125)). The original model designated four criteria: tonsillar exudates, swollen tender anterior cervical nodes, absence of a cough, and history of fever. Patients exhibiting all four variables had a 56% probability of a Group A beta strep positive culture; three variables, 32%; two variables, 15%; one variable, 6.5%; and zero variables, 2.5%.

The Centor Score was later modified to include age ([McIsaac 1998](https://www.ncbi.nlm.nih.gov/pubmed/9475915)) and validated ([McIsaac 2004](https://jama.jamanetwork.com/article.aspx?articleid=198485)) for use in both children and adults presenting with sore throat. McIsaac et al (1998) determined that using the Centor Score would reduce the number of unnecessary initial antibiotic prescriptions by 48%, without an increase in throat culture use.

The Centor Score and its modifications were derived in relatively small samples (n=286 and n=521, respectively). In order to more precisely classify the risk of GAS infection, [Fine et al (2012)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3627733/) performed a national-scale validation of the score on a geographically diverse population of over 140,000 patients presenting in a clinical setting. The study was carried out over the course of more than a year, mitigating any impact of seasonality of GAS incidence on the results. This analysis provided more precise interpretations of risk for each category of the Centor Score; these still fell within the 95% confidence interval of Centor's original study with a much smaller sample size.

In their comparison of the Centor Score with other identification and treatment strategies, McIsaac et al (2004) found that use of the score resulted in fewer overall tests (cultures and rapid tests) per person but more throat cultures (96.1% of adults) than other strategies. As a result, the Centor Score represented a compromise, requiring the least diagnostic testing, providing 100% sensitivity and greater than 90% specificity in both children and adults, and producing significant reductions in unnecessary use of antibiotics, compared to other strategies.

[Harris et al (2016)](https://annals.org/article.aspx?articleid=2481815) encourage the use of the Centor Score primarily to identify patients with a low probability of Group A streptococcal pharyngitis who do not warrant further testing, citing the criteria's low positive predictive value.