

# Information leaflet and decision aid for antibiotic treatment in the case of sore throat (Streptococcus-A-tonsillopharyngitis)

This document, made for physicians, contains a summary of key research data for shared decision-making together with the patient.

## Epidemiology

**Incidence of viral / bacterial tonsillopharyngitis (% of all cases with sore throat)<sup>1-3</sup>:**

### Viral:

- < 5 years: 95%
- 5-15 years: 70%
- ≥ 16 years: 85-95%

### Streptococcus-A-tonsillopharyngitis:

- 3-15 years: 15-30%
- > 15 years: 5-15%

## Symptoms and findings in the examination of tonsillopharyngitis<sup>4</sup>

### Symptoms:

- Sore throat, painful swallowing
- Fever
- Headache, stomach ache, nausea and vomiting
- No rhinorrhoea or coughing, no conjunctivitis

### Findings in clinical examination:

- Swollen, reddened tonsils with and without white overlay
- Reddened soft palate, sometimes with petechiae
- Cervical lymphadenopathy
- With scarlet fever: strawberry tongue, maculopapular exanthema

## Differential diagnoses

1. Viral tonsillopharyngitis caused by Rhino-/Adeno-/Corona-/Influenza- or Parainfluenza virus. Its clinical manifestation is difficult to distinguish from bacterial tonsillopharyngitis. Often presents with rhinorrhoea, cough and hoarseness.
2. Herpangina through Coxsackie-Virus. Presents with additional herpes-like blisters covering whole pharynx and the tonsils.
3. Mononucleosis: Symptoms are generalized lymph node swelling, possibly swelling of organs/skin, often > 7 days. The incidence rate lies between the ages of 15-24 at 9-48/1,000 people per year, with children < 10 years and adults > 30 years the incidence rate is lower 1/1,000 per year. A total of < 2% of all adults with sore throat are suffering from mononucleosis.<sup>6,7</sup>

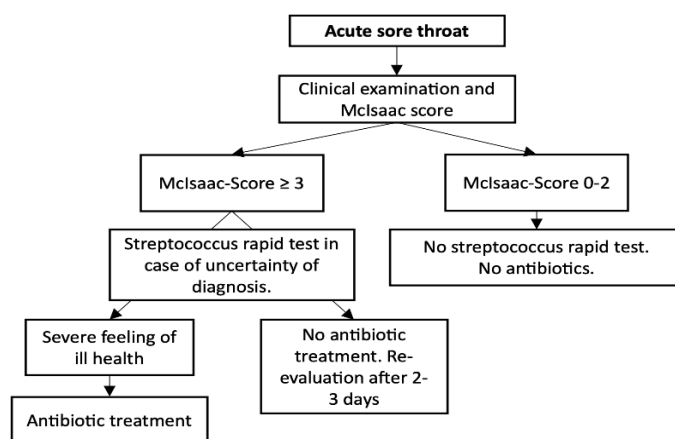
## Red Flags<sup>1,5</sup>

- Clinically sick patient (decision based on clinical presentation).
- Immunosuppressed patient.
- Unusual development of disease: increase in pain, difficulties swallowing, fever, stiff neck, development of lockjaw.
- No improvement of symptoms after 3-7 days.
- Clues for abscess: only one-sided findings, lateralization of uvula, trismus.
- Acute rheumatic fever in personal or family history.
- Previous migration from a developing country (increased risk of colonialization with «rheumatogenic» streptococcus colonies).

## Diagnostics

Clinical scoring with Mclsaac-Score.<sup>8</sup>

			Points	Chance of bact. Infection
Centor	Enlarged or overlayed tonsils	+1	≥ 4	51-53%
	Fever > 38°C	+1	3	28-35%
	No cough	+1	2	11-17%
	Enlarged lymph nodes	+1	1	5-10%
Mclsaac	Age < 3 years or 15-44 years	0	0	1-2.5%
	Age 3-14 years	+1		
	Age > 44 years	-1		



- With ≥ 3 points a streptococcus rapid test can be helpful to differentiate between bacterial vs. viral cause of infection.
- Viral and bacterial sore throat have a high rate of spontaneous recovery, therefore the use of a streptococcus rapid test is only indicated if the result impacts the decision of antibiotic treatment or supportive treatment.
- The sensitivity of the rapid test is 86% and specificity 95%.<sup>9</sup> The positive Likelihood Ratio (LR+) lies at 17.2 and the negative Likelihood Ratio (LR-) at 0.15; therefore the probability of a streptococcus infection will be increased by 17-times with a positive result, decreased by 0.15 times with a negative result.
- If the Mclsaac-Score is 0-2 points, a positive rapid test result would rather be the result of an asymptomatic colonialization (10-30% of children and young adults are asymptomatic streptococcus carriers).<sup>3,10,11</sup>
- Other blood tests (CRP, blood panel, leukocytes, mononucleosis rapid test) are not necessary for the diagnosis and will not be helpful in the decision of treatment with or without antibiotics.<sup>12-14</sup> Very sick patients are an exception, as well as patients with an increase in symptoms and persisting symptoms. Please consider the differential diagnoses in these cases.

## Treatment options:

### 1. Symptomatic treatment

- Analgesic treatment (Paracetamol / Ibuprofen) should be recommended to all patients.
- Topically applied local anaesthetics (as lozenge, gargling solutions or throat spray) can be used.<sup>14-16</sup>

#### Duration of symptoms:

- Guidelines advise against antibiotic treatment purely to shorten the duration of symptoms.
- In randomized controlled treatment trials 51% vs. 34% of patients with vs. without antibiotic treatment were pain free after 3 days. 85% of all patients without antibiotic treatment were fever free after 3 days.<sup>12,14,16</sup>
- After a week 87% vs. 82% of patients with vs. without antibiotic treatment were symptom free. A moderate advantage of antibiotic treatment was noticed for patients with a positive streptococcus rapid test and for patients with a Mclsaac-Score of  $\geq 3$ , but the adverse effects of an antibiotic treatment should also be considered.<sup>12,14,16</sup>

### 2. Antibiotic treatment

- **Advantages:** shortening of disease duration by 1-2 days (according to Cochrane, an average of 16h in 7 days).<sup>12</sup>
- **Disadvantages / risks:** adverse effects like diarrhoea, nausea and vomiting, eczema, allergic reactions occur in 27% with and in 20% without antibiotic treatment<sup>17</sup>, development of antibiotic resistance.

Immediate treatment with antibiotics of sore throat with a Mclsaac-Score of  $< 3$  is not indicated.

Today, the prevention of complications like peritonsillitis, abscesses, post-streptococcal glomerulonephritis and acute rheumatic fever is no indication for antibiotic treatment in Europe.

#### Influence of antibiotic treatment on complications:

- **Peritonsillar abscess:** nowadays very uncommon. The incidence rate, with and without antibiotic treatment, measures 8 vs. 10 per 10,000 episodes. This gives us a 'number needed to treat' (NNT) of 4300, which makes preventive treatment with antibiotics questionable.<sup>18</sup> Local adverse events are difficult to predict and prevent when only clinical presentation is considered: for example 60% of all peritonsillar abscesses occur in patients who presented with a Mclsaac-Score of 0-2 or patients with no primary complaint of sore throat at consultation.<sup>19</sup>
- **Scarlet fever:** A benign infection, presenting like a normal streptococcus angina. The incidence rate of Streptococcal Toxic Shock Syndrome (STSS) was 4 per 100,000 people in the US population.<sup>20</sup> Other incidence rates have not been published. Scarlet fever does not pose a clear indication for an antibiotic treatment at the moment.<sup>1</sup>
- **Acute rheumatic fever:** The incidence rate with and without antibiotic treatment lies at 3 vs. 2 per 100,000 episodes. It is so rare, that the NNT is extremely high and cannot be calculated precisely (NNT ca. 200,000).<sup>21</sup>
- **Post-streptococcal glomerulonephritis:** The risk of developing glomerulonephritis after streptococcal angina is low. The incidence rate is 8 vs. 6 per 100,000 episodes with and without antibiotics and cannot therefore be reduced through antibiotic treatment (NNT ca. 55,250).<sup>22</sup>

#### Dosage of antibiotics<sup>23</sup>

Group-A-Streptococcus are always sensitive to Penicillin.

1. Choice: **Penicillin V** (1 Mio. IE/12h) / **Amoxicillin** (1g/12h) for 6 days (children: 25mg/kg/12h for 6 days)
2. Choice (Penicillin-allergy): **Cefuroxim** 500mg/12h for 6 days (children: 15mg/kg/12h for 6 days) / **Clarithromycin** 500mg/12h for 6 days / **Clindamycin** (children: 7mg/kg/8h for 6 days)

#### Advantage of a reduced prescription rate of antibiotics

- No further promotion of antibiotic resistance in bacteria and no adverse effects through antibiotic prescription.
- Possible promotion of streptococcus immunity, which can protect against re-infection.<sup>24</sup>
- Immediate antibiotic treatment promotes the expectation in patients that they will receive another antibiotic treatment should they fall ill again.<sup>25</sup>

References: see [https://www.biham.unibe.ch/research/tools\\_to\\_facilitate\\_shared\\_decision\\_making/index\\_eng.html](https://www.biham.unibe.ch/research/tools_to_facilitate_shared_decision_making/index_eng.html)

