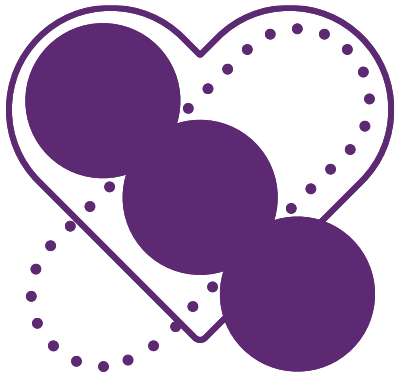

Strep A Vaccine Global Consortium

https://savac.ivi.int/

Context and rationale

New vaccines could play a valuable role in reducing antibiotic consumption

Antibiotic consumption may have unintended consequences

- **Antibiotic resistance**
- **Microbiome disruption**

The impact that Strep A vaccines will have on antibiotic consumption is unknown

Of all diseases caused by Strep A, sore throat is the most common disease, and one of the most common reasons for antibiotic consumption

Aims

1. **Estimate how many antibiotic courses are consumed globally in the treatment of sore throat and what proportion is attributable to Strep A**

2. **Explore the potential impact of Strep A vaccination on antibiotic consumption for sore throat**

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Aim 1: Global antibiotic consumption

Systematic review of the literature

- Studies published from 2000
- Studies describing
  1. The **population rate** of antibiotic prescribing for sore throat
  2. The proportion of prescriptions due to Strep A sore throat among all prescriptions for sore throat

Analyses

- Calculated the arithmetic and the population-weighted mean prescribing rates for sore throat
- Conducted a random-effects meta-analysis of the proportion of prescriptions for **sore throat** that was **attributable to Strep A based on linked diagnostic testing**
- Estimated the number of antibiotic prescriptions for sore throat based on the 2020 global population

Literature search results

Prescribing rates: 46 studies from 19 countries

Of the 19 countries with prescribing rates,
- 12 countries reported rates for all ages
- 11 countries reported rates among children
- 6 countries reported rates among adults

Prescriptions attributable to Strep A: 18 studies from 9 countries

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Antibiotic prescribing rates for sore throat

Data removed

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Antibiotic prescribing rates for sore throat

Data removed

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Prescriptions attributable to Strep A: All ages

Data removed

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Prescriptions attributable to Strep A: Children

Data removed

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Global antibiotic prescribing for sore throat

Estimated numbers of antibiotic courses prescribed to treat sore throat based on 2020 population estimates (and courses attributable to Strep A in parentheses)

Data removed

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Aim 2: Potential impact of Strep A vaccination

Scenarios for changes to prescribing practices

1: No change in prescribing practices (minimum estimate of averted prescriptions)

2: Change in prescribing practices in HICs (reduced to the prescribing rate observed in the Netherlands), no change in LMICs

3: Global change in prescribing practices (maximum estimate of averted prescriptions)

Effectiveness of vaccination

- **80% reduction in Strep A pharyngitis**
- **10-year efficacity – no waning – from vaccination at 5 years of age**
- **90% coverage**

Estimated reductions in antibiotic prescriptions

Data removed

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Summary

- Sore throat is a common reason for antibiotic consumption
- For the population covered by this review, an estimated
  - .
  - .
- For the global population, an estimated
  - .
  - .
- An effective Strep A vaccine could avert
  - .
- Limitations
  - Lack of consumption data from LMICs
  - Majority of studies report data for prescribing rather than consumption
  - Range of case definitions; e.g., sore throat, pharyngitis, tonsillitis, and (unconfirmed) streptococcal pharyngitis
  - Unknown vaccine/vaccination parameters

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