EPH117

Group A streptococcal infections - diagnostic approaches and antibiotics prescriptions in children and adolescents in Germany: a nationwide representative claims data analysis

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BACKGROUND

- Group A Streptococcus (GAS) remains a significant pediatric health concern, with clinical outcomes ranging from minor infections to life-threatening invasive diseases.
- This study aims to estimate the incidence of GAS infections, exemplary for tonsillopharyngitis and scarlet fever, and evaluate diagnostic interventions as well as antibiotic prescribing patterns in children and adolescents in Germany, in times of shifting public health dynamics during and after the COVID-19 pandemic.

METHODS

- This retrospective analysis uses German nationwide-representative Statutory Health Insurance data covering January 2019 to December 2023.
- We include children and adolescents aged 0-17 years living in Germany and being insured with DAK-Gesundheit in the observation period, equating to approx. 800.000 individuals per year of observation.
- We calculate prevalences of non-invasive (GAS tonsillopharyngitis (ICD-10-GM code: J02.0/J03.0), scarlet fever (A38)) and invasive GAS infections (e.g. meningitis) and assess diagnostic test utilization as well as antibiotic prescriptions.

RESULTS

Prevalence of GAS-infections

- Prevalence of non-invasive GAS-infections sharply decline during the COVID-19 pandemic but rebound post-pandemic, surpassing 2019 levels in 2023 (8 per 1.000 children and adolescents in Q4, 2023), see *Figure 1*
- Invasive GAS infections are rare, with the prevalence ranging between 0.02 to 0.07 per 1.000 children and adolescents from 2019 to 2023

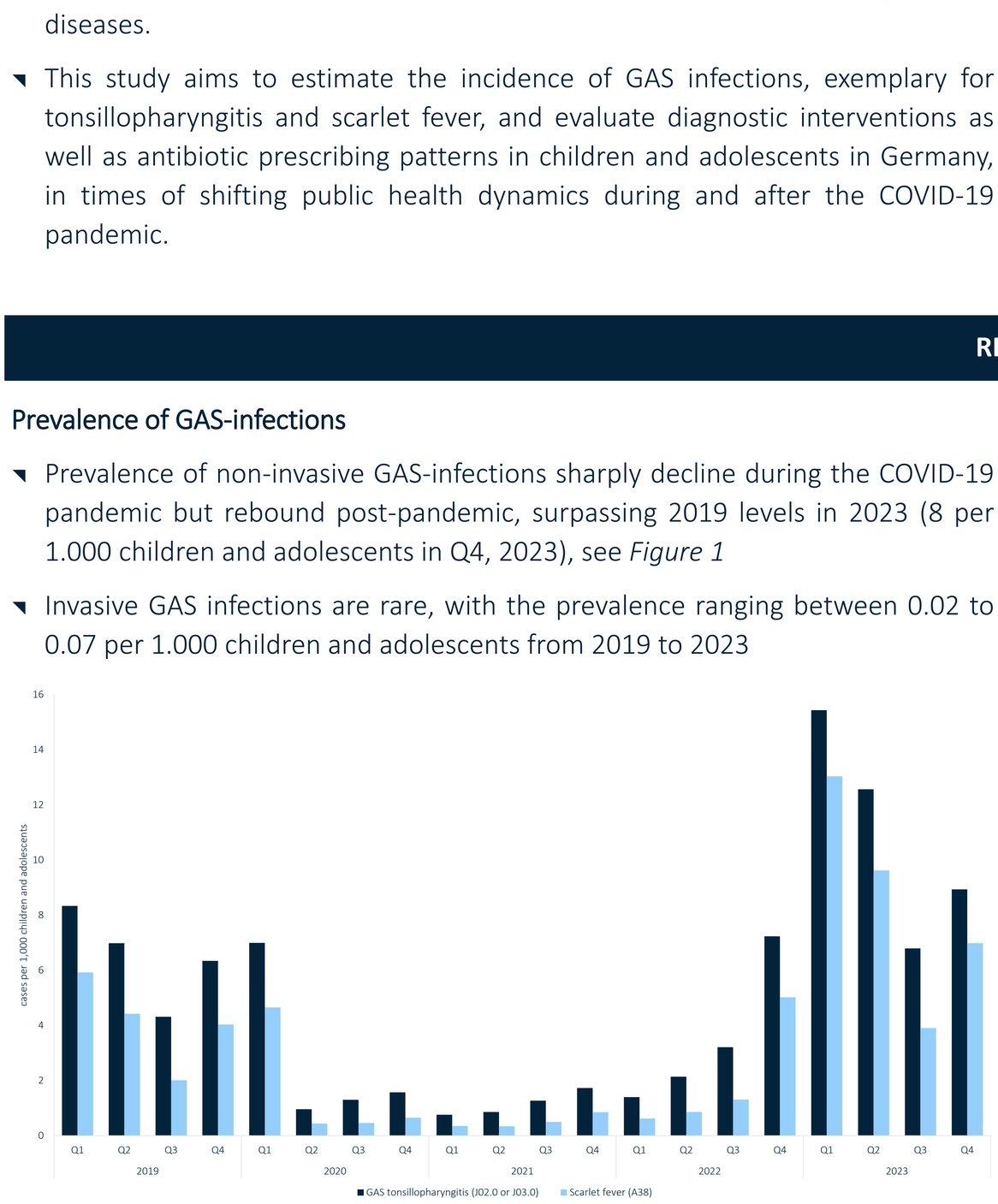

Figure 1: *Prevalence of non-invasive GAS infections in children and adolescents insured with DAK-Gesundheit, 2019-2023*

Diagnostic approaches

- While most antibiotic prescriptions in cases diagnosed with non-invasive GAS-infections are linked to rapid diagnostic tests, about 40% lack documented diagnostic confirmation, ranging between 1,300 to 3,500 cases per quarter (2023), see *Figure 2*

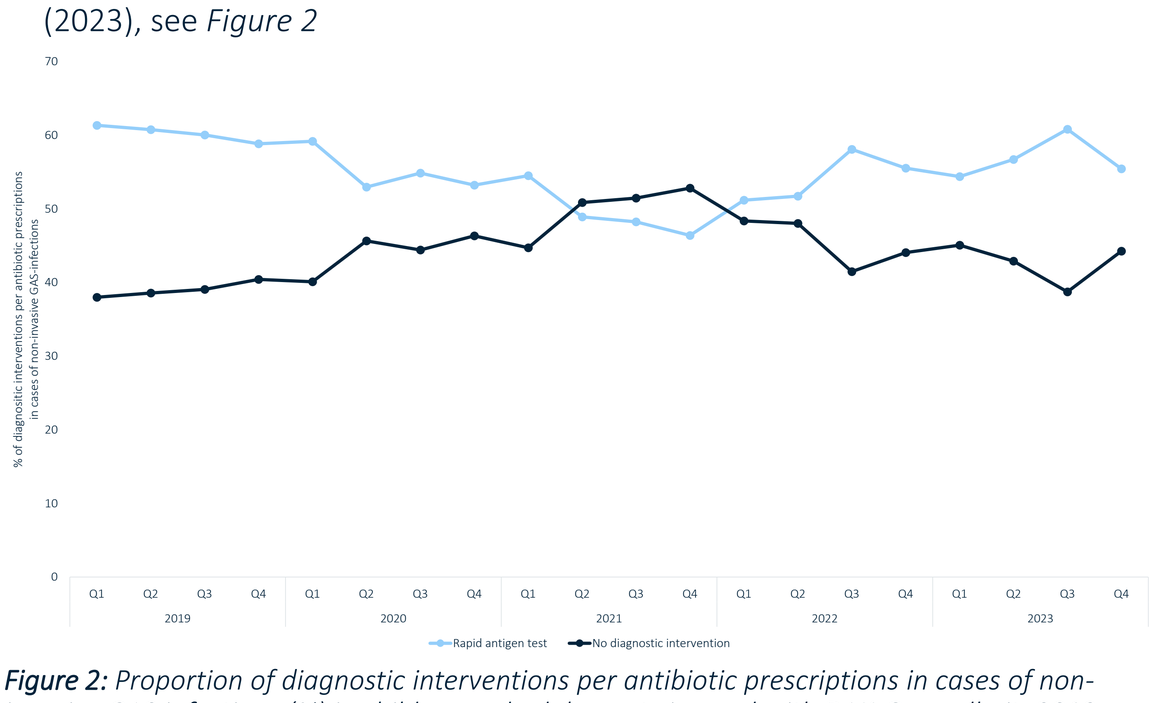

Figure 2: *Proportion of diagnostic interventions per antibiotic prescriptions in cases of non-invasive GAS infections (%) in children and adolescents insured with DAK-Gesundheit, 2019-2023*

Antibiotic prescriptions

- Antibiotic prescriptions among children diagnosed with GAS tonsillopharyngitis and scarlet fever drop to a minimum of 80% (Q1, 2021) during the pandemic
- Pre- and post-pandemic, the proportion of antibiotic prescriptions per diagnosed cases are consistently above 90% (maximum 94%)
- Phenoxymethylpenicillin remains the most frequently prescribed antibiotic in approx. 40% of non-invasive GAS infections diagnoses in children until 2023, when cephalosporins, macrolides and amoxicillin become more common (47% of all antibiotic prescriptions), see *Figure 3*
- Other antibiotics only play a minor role, being prescribed in less than 1% of diagnoses with non-invasive GAS infections
- In approximately 10% of cases, initial antibiotics are switched

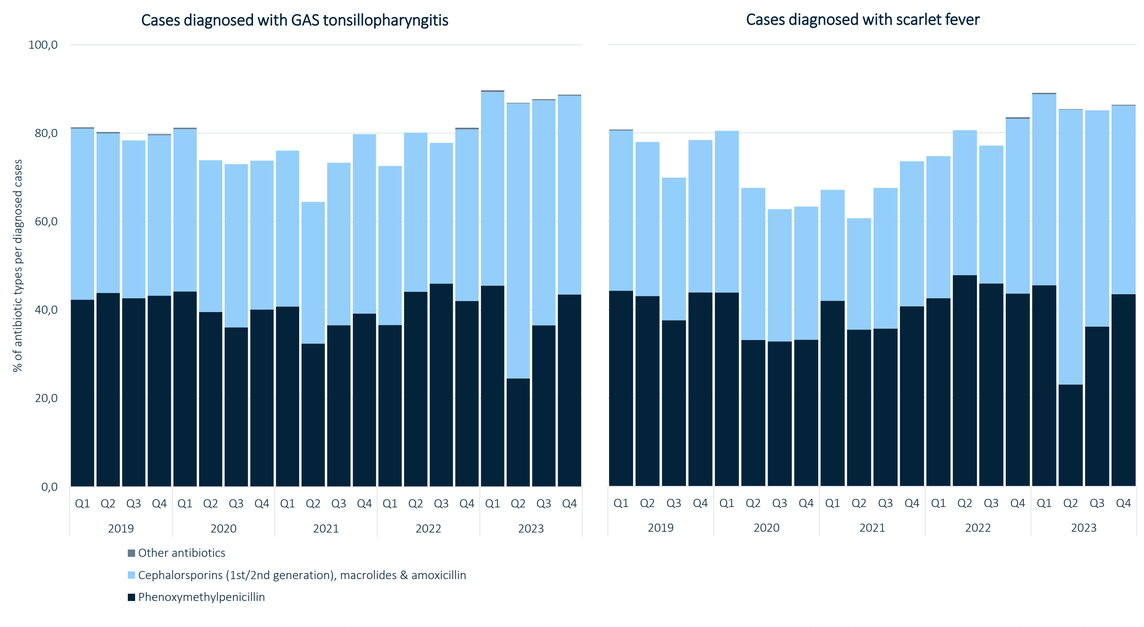

Figure 3: *Proportions of antibiotics prescribed in cases of GAS tonsillopharyngitis and scarlet fever in children and adolescents insured with DAK-Gesundheit, 2019-2023*

CONCLUSION

- This real-world evidence highlights evolving patterns in pediatric GAS care and antibiotics prescriptions during a period of unprecedented health system disruption.
- Most pediatric GAS cases in Germany are managed with appropriate diagnostics and antibiotics, reflecting solid adherence to clinical standards. However, the potential to optimize care is highlighted —particularly in cases without diagnostic interventions and in varying antibiotic choices.
- These findings suggest the need to promote consistent implementation of diagnostic and antibiotic stewardship.

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The results have not been previously published at any other meeting or conference.

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Abbreviations: GAS (Group A streptococcal), ICD-10-GM (International classification of diseases, Version 10, German Modification.

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