HSD113

REDUCING ANTIBIOTIC MISUSE THROUGH THE USE OF POINT-OF-CARE TESTS IN GERMANY – A MULTICENTER STUDY

Tina Peiter,[1] Monika Haering,[1] Spasenija Bradic,[1] Graça Coutinho,[2] Karel Kostev[3]

[1]Reckitt Benckiser Deutschland GmbH, Heidelberg, Germany; [2]Reckitt Benckiser Healthcare Ltd, Slough, UK; [3]University Hospital, Philipps-University, Marburg, Germany

Tina Peiter – Presenting Author

INTRODUCTION

- Acute pharyngitis, characterized by sore throat, is a common reason for visiting a primary care physician in Germany.[1] Antibiotics are generally overprescribed for acute pharyngitis as most cases are viral in etiology[2]
- In a primary care setting in Germany, it was reported that 46% of adults and 20% of children and adolescents with sore throat received antibiotic prescriptions. Moreover, a diagnosis of acute pharyngitis resulted in higher odds of receiving an antibiotic prescription[3]
- Inappropriate antibiotic prescriptions for respiratory infections are a risk factor for antimicrobial resistance,[4] and resistant bacteria have been detected in primary care patients[5]
- Point-of-care tests are a novel way to rapidly detect viral and bacterial respiratory infections, which could reduce inappropriate antibiotic prescribing and subsequent development of antimicrobial resistance[6]

AIM

- To evaluate the use of point-of-care tests using throat swabs to detect β-*Streptococcus pyogenes* Group A (strep A) infection among patients with sore throat/acute pharyngitis in primary care practices across Germany

METHODS

- This was a multicenter survey study of primary care physicians across Germany, which was conducted through the completion of two questionnaires between February 2021 and March 2022
- The questionnaires were provided to the physicians in primary care practices by sales representatives during a face-to-face visit. Upon consent to participate, physicians were provided with 10 tests free of charge. Completed questionnaires were collected at another visit
  - The first questionnaire included questions about the use of throat swab tests in everyday practice **(Table 1)**
  - The second questionnaire was developed for physicians to include throat swab test results of patients with sore throat/acute pharyngitis
    - For each patient tested, physicians could indicate whether the test was positive or negative, if an antibiotic was prescribed, and if symptomatic therapy was recommended (if symptomatic therapy was recommended, further details were provided)

Table 1. Questions included in the first questionnaire

QUESTION	POSSIBLE ANSWERS
Do you use throat swab tests in your practice to detect strep A infection?	Yes, no
If yes, in which cases do you use a throat swab test for sore throats?	Always before prescribing an antibiotic, in case of a particularly severe sore throat, for particularly long-lasting sore throats, other
If yes, is there a patient group for whom you frequently use throat swab tests (children, elderly, etc)?	Yes, no
How important do you consider the integration of throat swab tests to be in everyday practice for the correct diagnosis of strep A?	Very important, important, neutral, rather unimportant, unimportant
How important do you consider the performance of throat swab tests to be to justify to patients whether or not an antibiotic is needed?	Very important, important, neutral, rather unimportant, unimportant
How important do you consider throat swab tests to be for more sensible use of antibiotics and the prevention of bacterial resistance?	Very important, important, neutral, rather unimportant, unimportant

RESULTS

SURVEY POPULATION

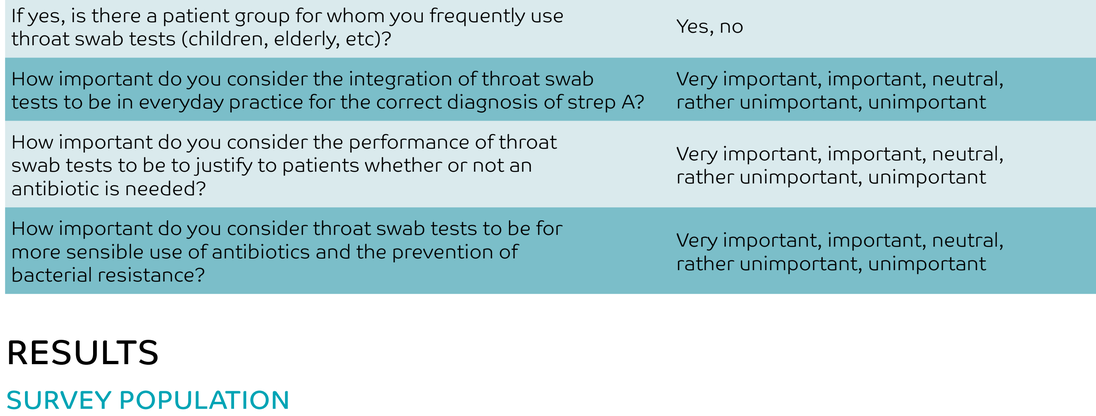
A total of **1257** physicians from primary care practices across Germany were surveyed

Throat swab tests were distributed to practices across Germany

PHYSICIAN USE OF THROAT SWAB TESTS IN PRIMARY CARE PRACTICES

- Of 1257 physicians, over half (750/1257; 59.6%) used throat swab tests, mainly in severe sore throat (296/750; 39.4%) or long-lasting pharyngitis (299/750; 39.9%) **(Figure 1)**

Figure 1. Cases where physicians used throat swab tests*



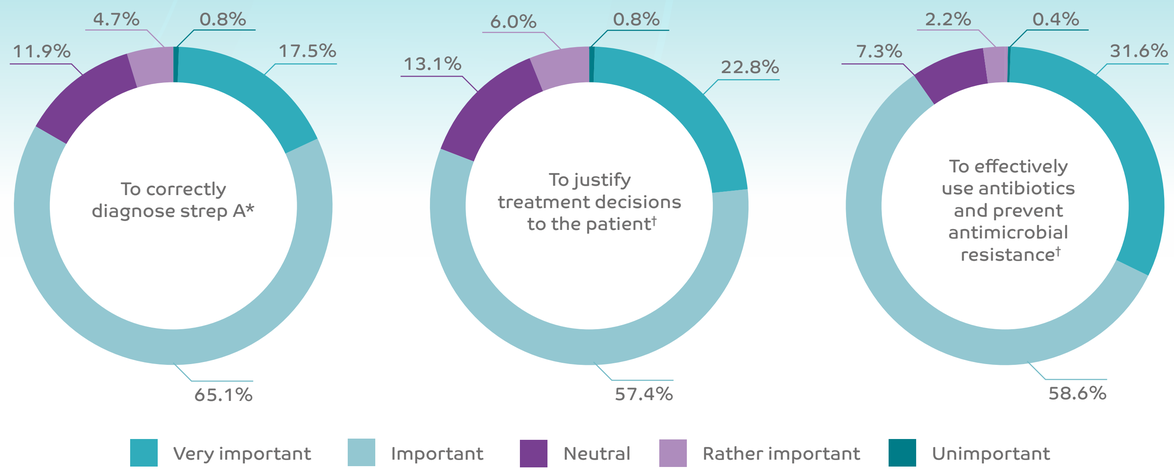
*Responses from physicians who used throat swab tests (n=750); physicians could choose multiple answers

In total, 41.9% (346/825) of physicians frequently used throat swab tests in a defined patient population (eg elderly patients)

ADOPTION OF THROAT SWAB TESTS INTO EVERYDAY PRACTICE

Many physicians considered it very important or important to integrate throat swab tests into everyday practice to: correctly diagnose strep A infection (1038/1257; 82.6%); justify to patients that an antibiotic is necessary/not necessary (1006/1255; 80.2%); effectively use antibiotics and prevent antimicrobial resistance (1132/1255; 90.2%) **(Figure 2)**

Figure 2. Physicians' views on the importance of integrating throat swab tests into everyday practice

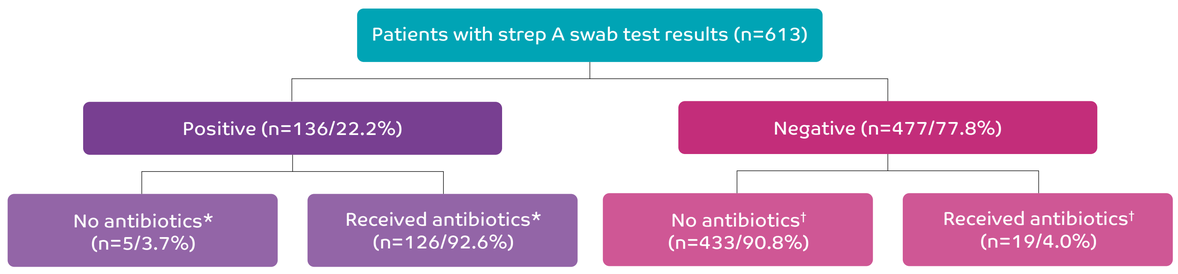


*Responses from 1257 physicians; †Responses from 1255 physicians

DIAGNOSIS OF STREP A AND ANTIBIOTIC PRESCRIPTIONS BASED ON THROAT SWAB TESTING

- Overall, 73 primary care practices presented throat swab test results for 613 patients
  - Almost one-quarter of patients tested positive for strep A infection (136/613; 22.2%) **(Figure 3)**
- Of 613 study patients, 145 (23.7%) received antibiotics
  - A greater proportion of patients who tested positive for strep A infection received antibiotics compared with patients who tested negative for strep A infection **(Figure 3)**

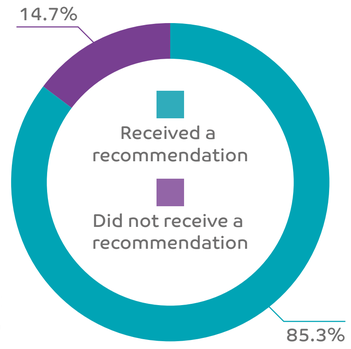
Figure 3. Proportion of patients diagnosed with strep throat via a throat swab test and who received antibiotics



*For 5 patients who tested positive for strep A, it was not clear whether antibiotics were prescribed or not; †For 25 patients who tested negative for strep A, it was not clear whether antibiotics were prescribed or not

- Feedback was received for 464 patients for the question 'Was symptomatic treatment recommended', and 396 (85.3%) were given a recommendation for symptomatic treatment **(Figure 4)**

Figure 4. Proportion of patients who received a recommendation for symptomatic treatment



DISCUSSION

- Over half of physicians (59.6%) utilized throat swab tests, and many considered throat swab tests to be important for diagnosing strep A infection (82.6%), to justify to patients whether antibiotics should be used (80.2%), and for more sensible use of antibiotics and to prevent antimicrobial resistance (90.2%)
  - The positive opinion of physicians regarding point-of-care testing is not surprising given the high diagnostic accuracy for detecting strep A infection in adults and children, as previously demonstrated,[7–9] coupled with the quick turnaround of results
- The proportion of patients who tested positive for strep A infection in the current study (22.2%) or who received an antibiotic prescription following a throat swab test (23.7%) is aligned with previously published research[10–12]
- Point-of-care testing in primary care practices has been shown to significantly reduce antibiotic prescriptions.[13–14] Our study could not investigate the reduction in antibiotic prescriptions via point-of-care testing. However, when two studies from a primary care practice setting in Germany are compared, a reduction can be assumed; 23.9% of patients with acute pharyngitis received an antibiotic prescription in the current study versus 46% in a study by Kern and Kostev,[3] translating to a 48% decrease
- Despite primary care practices having high confidence in their antibiotic prescribing decisions, antibiotics are prescribed more often than considered appropriate and point-of-care testing is rarely used,[15] suggesting that point-of-care testing may improve antibiotic prescribing decisions
- Primary care practices play an important role in the treatment of acute respiratory diseases. The guidelines for sore throat management from the German Society of General and Family Practice (DEGAM) provide diagnostic and therapeutic approaches to: avoid overdiagnosis and overtreatment of sore throat to reduce unnecessary antibiotic treatment use; help identify patients at low risk of bacterial respiratory disease; enable patients and primary care practices to make shared decisions on treatment[16]
- After excluding red flag symptoms, the German guidelines recommend symptomatic first-line treatment with topical throat preparations containing non-steroidal anti-inflammatory drugs and/or anesthetics and systemic anti-inflammatory medicines. Symptomatic treatment options will help to unburden general practices and empower the patient to self-manage their symptoms

CONCLUSIONS

The use of throat swab tests in patients with acute pharyngitis across primary care practices in Germany was considered by physicians to be important, and could **strongly reduce inappropriate use of antibiotics in clinical practice, in line with the aims of the German guidelines for treating/managing sore throat**

Further data would be desirable to understand whether the **reimbursement of tests could lead to more frequent use, and thus fewer antibiotic prescriptions**

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DISCLOSURES

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