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Published in:
Scandinavian Journal of Primary Health Care

DOI:
[10.3109/02813432.2014.972046](https://doi.org/10.3109/02813432.2014.972046)

2014

[Link to publication](#)

Citation for published version (APA):

Hedin, K., Strandberg, E.-L., Gröndal, H., Brorsson, A., Thulesius, H., & André, M. (2014). Management of patients with sore throats in relation to guidelines: An interview study in Sweden. *Scandinavian Journal of Primary Health Care*, 32(4), 193-199. <https://doi.org/10.3109/02813432.2014.972046>

Total number of authors:
6

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ORIGINAL ARTICLE

Management of patients with sore throats in relation to guidelines: An interview study in Sweden

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Abstract

Objective. To explore how a group of Swedish general practitioners (GPs) manage patients with a sore throat in relation to current guidelines as expressed in interviews. **Design.** Qualitative content analysis was used to analyse semi-structured interviews. **Setting.** Swedish primary care. **Subjects.** A strategic sample of 25 GPs. **Main outcome measures.** Perceived management of sore throat patients. **Results.** It was found that nine of the interviewed GPs were adherent to current guidelines for sore throat and 16 were non-adherent. The two groups differed in terms of guideline knowledge, which was shared within the team for adherent GPs while idiosyncratic knowledge dominated for the non-adherent GPs. Adherent GPs had no or low concerns for bacterial infections and differential diagnosis whilst non-adherent GPs believed that in patients with a sore throat any bacterial infection should be identified and treated with antibiotics. Patient history and examination was mainly targeted by adherent GPs whilst for non-adherent GPs it was often redundant. Non-adherent GPs reported problems getting patients to abstain from antibiotics, whilst no such problems were reported in adherent GPs. **Conclusion.** This interview study of sore throat management in a strategically sampled group of Swedish GPs showed that while two-thirds were non-adherent and had a liberal attitude to antibiotics one-third were guideline adherent with a restricted view on antibiotics. Non-adherent GPs revealed significant knowledge gaps. Adherent GPs had discussed guidelines within the primary care team while non-adherent GPs had not. Guideline implementation thus seemed to be promoted by knowledge shared in team discussions.

Key Words: General practice, general practitioners, guidelines, qualitative research, sore throat, Sweden

Introduction

Unnecessary prescribing of antibiotics increases the risk of bacterial resistance, which is a threat to modern healthcare [1]. Pharyngotonsillitis is the most common upper respiratory tract infection for which antibiotics are prescribed in Sweden [2]. Although current guidelines for the management of pharyngotonsillitis differ between countries [3], all guidelines recommend the use of the Centor criteria – absence of cough, fever > 38.5 degrees

Celsius, tender lymphadenitis, and tonsillar coating – to identify patients with an increased risk of infection from Streptococcus group A (GAS) [4,5].

The Swedish guidelines for treatment of pharyngotonsillitis aim at a rational use of antibiotics by identifying patients in favour of antibiotic treatment. The guidelines used at the time of the study recommended using a Rapid Antigen Detection Test (RADT) to verify the presence of GAS when > 2 Centor criteria were present and antibiotic treatment when the test was positive [6].

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(Received 27 June 2014; accepted 27 September 2014)

ISSN 0281-3432 print/ISSN 1502-7724 online © 2014 The Author(s)
DOI: 10.3109/02813432.2014.972046

Swedish guidelines for treatment of sore throat aim at a rational use of antibiotics by identifying patients in favour of antibiotic treatment but guidelines are not always adhered to. This study shows differences between GPs adherent and GPs non-adherent to current guidelines for sore throat regarding:

- guideline knowledge, preconceptions of bacterial infections and concerns for differential diagnosis;
- patient examination and patient history-taking;
- patient compliance in abstaining from prescribing antibiotics.

Earlier Swedish studies have shown that guidelines were not adhered to [7–10]. In efforts to increase guideline adherence, it is important to identify professional knowledge and attitudes [11]. However, we have not found any studies on how GPs manage patients with sore throat in relation to guidelines, the Centor criteria and antibiotics prescribing. Therefore, the aim of this study was to explore the management of patients with a sore throat in relation to current guidelines, as stated by Swedish GPs, with a special focus on comparing adherent and non-adherent GPs.

Material and methods

Study design

To understand GPs' attitudes to patients with a sore throat we chose a qualitative study design and

strategically sampled 25 GPs to achieve a variety of gender, age, educational background, working experience, urban/rural, public or private Primary Health Care Centres (PHCC) as well as areas with high and low antibiotic prescribing from five different counties in Sweden (see Table I). All GPs who were asked to be interviewed agreed to participate.

Data collection

The data were collected through individual semi-structured interviews with open-ended questions. Topics for the interviews were: (i) management of patients with a sore throat, (ii) difficulties in management of patients with a sore throat, and (iii) knowledge of guidelines for sore throat management.

All but two of the authors had been involved in implementing sore throat guidelines, nationally or locally.

Four of the authors conducted 25 half-hour interviews in the summer and early autumn of 2012 in a place chosen by the interviewed GP. The interviews were voice-recorded and transcribed verbatim. To ensure consistency, the interviewers read each other's interviews continuously.

Data analysis

Qualitative content analysis inspired by systematic text condensation according to Malterud was used [12]. To maximize theoretical sensitivity and rigour, all authors contributed to the analysis by reading the transcripts independently to get an overview. At the next step we identified and coded the meaning units representing different aspects of the participants' experiences. Codes were then organized into

Table I. Characteristics of 25 general practitioners participating in a study of sore throat management in Sweden.

	All GPs (n = 25)	Adhering GPs (n = 9)	Non-adhering GPs (n = 16)
Women	13	2	11
Age ≥ 45	16, range 33–64	5, range 33–55	11, range 34–64
Swedish medical training	19	8	11
Primary care working experience ≥ 5 years	22, range 2–32	7, range 2–20	15, range 3–32
Temporary pool physician	2	0	2
GP trainee	5	3	2
GP	18	6	12
City	6	3	3
Town	13	4	9
Village	6	2	4
Public health care centre	18	6	12
Antibiotic prescription level by county:			
High level	10	5	5
Medium level	7	2	5
Low level	8	2	6

categories and themes by all the authors in an iterative process throughout the analysis until consensus was reached. The analysis was performed manually without any software tools.

Adherent GPs were identified as those who could correctly recapture the four Centor criteria, suggest the use of RADT when ≥ 2 Centor criteria were present, and propose a positive RADT as a prerequisite for antibiotic treatment. GPs who did not comply with all these three criteria were categorized as non-adherent.

Ethical considerations

According to Swedish legislation, ethical approval from the regional ethical review board was not needed for this study since it was part of a quality improvement activity and no patients were involved. The study was, however, approved by the local ethics committee in Kronoberg County 8/2012. All participants gave their informed consent and were informed that participation was voluntary and that they could withdraw at any time, that all data were handled confidentially, and that the results would be presented in a non-identifiable way.

Results

According to our analysis of the interview data, nine GPs managed sore throats in adherence to guidelines while 16 GPs did not. This split into two groups of either guideline adherent GPs or non-adherent GPs was an essential finding in this study. Background characteristics of the 25 participating GPs are presented in Table I.

The two groups of GPs differed in terms of guideline knowledge, with regard to preconceptions of bacterial infections and concerns for differential diagnosis, in the patient history and examination, and in respect of patient compliance in abstaining from prescribing antibiotics (Table II).

More men than women GPs adhered to guidelines and more adherent GPs were trained in Sweden than abroad, but age was similar in both groups. Also, both groups had the same proportion of GPs working in publicly managed PHCCs.

Guideline knowledge

All GPs that we interviewed said they were aware of the guidelines but only the nine adherent GPs were able to recapture them correctly. Almost all adherent GPs said they had discussed the guidelines at the PHCC, either in the GP group only or GPs and nurses together, to reach a common treatment approach (Table II, Quotation A).

A majority of the non-adherent GPs were familiar with and expressed their appreciation of the guidelines and claimed that they followed them, although interview statements showed they did not (Quotation B). Some GPs pointed out that guidelines never replace a GP's responsibility to assess patients individually.

Some GPs were able to recite the guidelines correctly, even though their management was non-adherent. However, most GPs were unable to recite either the guidelines or the Centor criteria correctly. The Centor criteria most often reported were fever and absence of cough. Many of the GPs seemed surprised that with 3–4 Centor criteria only 30–50% of patients will have a GAS infection. Some GPs expressed misconceptions, i.e. that a streptococcal tonsillitis could cause temporal arteritis. Most of the 16 non-adherent GPs had not discussed the management of sore throats with their colleagues at the PHCC (Quotation B).

Preconceptions of bacterial infections and concerns for differential diagnosis

Adherent GPs expressed low concerns for other diseases (Quotation C), in contrast to non-adherent GPs who were concerned about unspecified "bacterial infection" as well as other diseases (i.e. peritonitis, mononucleosis, thyroiditis, epiglottitis, parotitis, pneumonia, lateral neck cyst, and cancer) (Quotation D). GPs who expressed concern for bacterial infections were unable to explain where the infection was located or which type of bacteria was involved, but said that their task was to distinguish and treat a bacterial infection. Both adherent and non-adherent GPs recounted stories and critical incidents regarding individual patients with sore throat and an aberrant serious medical history.

Patient history and examination – targeted or redundant

All GPs said that sore throat consultations were simple compared with other consultations and adherent GPs reported a targeted patient history and examination emphasizing the Centor criteria (Quotation E) while non-adherent GPs described a redundant patient history and examination as compared with guidelines (i.e. asking if a neighbour had tonsillitis or always examining lungs or vocal chords). Many non-adherent GPs used a first clinical impression for diagnosis of streptococcal tonsillitis, such as patients presenting "a typical picture" exemplified by idiosyncratic signs such as "swollen, red, ugly throat" or a "typical smell" (Quotation F). In these cases, no further testing was done.

Table II. Meaning units, categories, and themes.

Meaning unit	Category	Theme
<p>GPs adherent to guidelines (Quotation A): B: "We discuss in our team how to handle these patients. According to what evidence shows we share the same view of how these patients should be handled. The phone counselling nurse, nurses at the surgery and us doctors." A: "Is that the key thing, that you have been talking so much?" B: "Yes, I think so." (Interview 10)</p>	Knowledge shared within the team	Guideline knowledge
<p>GPs non-adherent to guidelines (Quotation B): "I know pretty well when antibiotics treatment is right and when it's not. We got rid of routines, because we have RADT for all patients before the GP consultation." A: "What do phone counselling nurses say? Have you discussed this issue?" B: "Nurses use [advice support] a lot of symptoms, advice, and measures but we have not discussed it." (Interview 9)</p>	Idiosyncratic knowledge attitudes	
<p>GPs adherent to guidelines (Quotation C): A: "When I talk to other doctors, they sometimes are afraid it could be something else. You don't think like that?" B: "No I don't. It could be both a streptococcus infection and mononucleosis, but then they won't get well, they will return and then you'll check for mononucleosis." (Interview 19) "We need to make it less dramatic, we are treating symptoms and not because it's dangerous to have streptococci." (Interview 17)</p>	No concern for bacterial infection and differential diagnoses	Preconceptions of bacterial infections and concerns for differential diagnosis
<p>GPs non-adherent to guidelines (Quotation D): "Of course it could be a different throat disease, which is masked by tonsillitis. It could be cancer, however, only in very rare cases." "We often do not find streptococci, but we must treat the patients anyway if we suspect it's bacterial." (Interview 11)</p>	Concern for differential diagnoses and bacterial infection	
<p>GPs adherent to guidelines (Quotation E): "If they have had a fever for at least three days and absence of a cold and cough then I would always prescribe a RADT." (Interview 17)</p>	Targeted patient history and examination	Patient history and examination
<p>GPs non-adherent to guidelines (Quotation F): "I would examine the patient's ears, nose, throat, neck lymph glands and I often listen to the lungs as well." (Interview 2) "Sometimes it's a bacterial smell that you can feel during the visit. Then it happens that I just send in the prescription (for a broad spectrum antibiotic), as I know that penicillin V doesn't help, it smells too bad." (Interview 14)</p>	Redundant and idiosyncratic patient history and examination	
<p>GPs adherent to guidelines (Quotation G): "I'll discuss immediately with the patient. We'll try to reach a joint viewpoint on how sick they are." (Interview 1)</p>	No problem to abstain from prescribing antibiotics	Compliance to abstaining from prescribing antibiotics
<p>GPs non-adherent to guidelines (Quotation H): "It may lead to long discussions with patients who feel very sick, so it might be difficult. It takes time and you may still end up with a patient being unhappy with the management." (Interview 6)</p>	Problems to abstain from prescribing antibiotics	

Note: A = interviewer, B = respondent GPs.

Patient compliance to abstain from antibiotics

Adherent GPs expressed no difficulties for the patients to comply with their suggestions for management (Quotation G), while most non-adherent GPs described problems when making the patient accept a decision to abstain from antibiotics (Quotation H). The difficulties were accentuated under pressure for time. None of the GPs mentioned the use of a patient-centred consultation approach, asking for the patients' expectations or fears. However, a few adherent GPs discussed the importance

of consensus with the patient concerning the degree of illness (Quotation G).

Discussion

In this interview study of 25 strategically selected GPs from different parts of Sweden we analysed the respondents' knowledge, attitudes, and alleged clinical actions regarding management of sore throats in relation to current guidelines. One-third of the interviewed GPs were identified as adherent to current

guidelines for sore throat and two-thirds as non-adherent. Primarily the two groups of GPs differed in terms of guideline knowledge, which was shared within the team for the adherent GPs, while idiosyncratic knowledge dominated for the non-adherent GPs. Second, the groups differed with regard to pre-conceptions of bacterial infections and concerns for differential diagnoses. There were no or low concerns for the adherent group of GPs whilst the non-adherent group revealed a notion that in patients with a sore throat any bacterial infection should be identified and treated with antibiotics without reference to treatment benefit. Thus the task for the GP was to distinguish a bacterial infection from a viral. Third, the patient history and examination was mainly targeted for the group of adherent GPs whilst often redundant and idiosyncratic for the non-adherent group. Fourth, the non-adherent group of GPs reported problems of compliance in making patients abstain from antibiotics, whilst there were no problems of compliance reported in the adherent group.

Strengths of this study are that it offers a more profound and detailed understanding of the problem area than any previous study [13–16] and that a maximum variety sampling of participants from different parts of Sweden was achieved. Also, none of the invited GPs declined to be interviewed.

One weakness of this study is that four different interviewers may have decreased the reliability of the interviews. However, all used the interview guide and the interviews were read and discussed continuously in order to reach consistency and consensus. Second, the fact that four interviewers had been involved in implementing the sore throat guidelines may have biased the interviews. Another weakness is that this study includes no reports of actual sore throat management by the GPs interviewed. A link between what one says and what one does may not always be straightforward.

In line with previous studies, the sore throat guidelines were acknowledged and appreciated by the participants [13–15]. This recognition could perhaps be explained by the work of the Swedish Strama, a national network of experts including GP researchers, who have contributed to the development of guidelines for infections in general practice in a transparent process [17]. The transparency for guideline development and GP involvement were important factors for perceived reliability of guidelines in general among Norwegian GPs [18]. Furthermore, local GPs connected to Strama have regularly made outreach visits to PHCCs to discuss current guidelines together with feedback of the PHCC's antibiotic prescribing patterns, strategies identified by GPs and supported by evidence as

resulting in changed behaviour [11–15,18,19]. Results from our study might provide more concrete issues to discuss during future Strama outreach visits.

The GPs in our study stated that consultations with patients with a sore throat were simple. In consultations that are common and perceived as simple, the knowledge used must be known by heart. Despite their familiarity with the guidelines, only a minority of GPs in our study could recollect the Centor criteria. In a study from the US, familiarity with guidelines for acute respiratory tract infections was associated with increased antibiotic prescribing [20]. However, no detailed questions about the contents of the guidelines were asked in that study.

While individual signs are not enough to diagnose a sore throat caused by GAS the Centor score is considered a well-calibrated decision rule for estimating the probability of GAS [4]. But even if the Centor score is simple it seems difficult to use in everyday practice. In our study, many GPs did not remember the Centor criteria and were therefore not able to use them. Yet, even in studies where GPs were prompted to use the Centor criteria, they did not alter their behaviour [21]. Not even in an educational intervention where GPs improved their ability to assess the likelihood of a streptococcal infection in patients with a sore throat using the Centor criteria was decreased antibiotic prescribing or a difference between individual GPs seen [22]. However, the interviewed GPs in our study who adhered to the guidelines and had knowledge of the Centor criteria had discussed the guidelines within the team at the PHCC, in contrast to non-adhering GPs. The results of our study indicate that basic guideline knowledge probably should be repeated within the local Strama meetings at the PHCC.

Non-adherent GPs revealed notions such as “a bacterial infection should always be identified and treated with antibiotics”. We interpret this presumption as a residual trace of earlier approaches to infections in primary care, now replaced by recommendations to use antibiotics only when there is evidence of benefit [23]. Changing pre-understandings is difficult and underlines the social nature of clinically used knowledge, which is described as the intersection between scientific evidence and belief [24]. Only when the health worker believes in the evidence will the knowledge be used in action. To be used, knowledge must first be socialized when aspects of context are taken into account. This takes place in a social process in the working group where collective sense-making or mindlines are created [25]. Thus, time and structure for discussions seem essential and should be secured for teams in primary care. The time spent may facilitate the work of the GPs as indicated by the present study where

GPs adhering to guidelines seemed to have a more structured and straightforward consultation and fewer problems in getting the patient to abstain from antibiotics.

The GPs who followed the guidelines reported no problems in getting patients to agree not to take antibiotics, while this was a problematic issue for the GPs not adhering to the guidelines.

Perhaps the uncertainty of the non-adherent GPs regarding their preconception of possible infections and complications was transferred to the patients, creating doubts among the patients about abstaining from antibiotics. The GPs' perception of patients' expectations of antibiotics is one of the most influential factors for inappropriate prescribing [15]. Studies using conversation analysis have revealed how patient pressure is seldom overt; it is almost invisible [26], and therefore it is considered important to elucidate the patients' reasons for the encounter as well as their expectations of antibiotics in order to achieve prudent antibiotic behaviour [15]. Shared decision-making is an important factor for rational antibiotic use and the patient-centred consultation is a prerequisite [13]. Surprisingly, the interviewed GPs did not bring up the issue of patient-centred consultations, in line with a previous UK study where very few of the interviewed GPs explored the patients' concern [14].

Conclusion

Although all the interviewed GPs had knowledge of and appreciated the guidelines for sore throat a majority of the participants in this study revealed significant knowledge gaps and did not remember the Centor criteria. These common consultations were regarded as simple, but many misconceptions existed. GPs non-adherent to guidelines revealed a preconception that any bacterial infection should always be identified and treated with antibiotics without reference to treatment benefit. Almost all GPs adhering to the guidelines had discussed them at the PHCC, while non-adherent GPs had not. The implementation of guidelines may therefore be promoted through repeated information about basic knowledge, together with dedicated structure and time for discussion within primary care teams. Knowledge is thus socialized and contextually adapted to suit clinical use. Thus, a combined top-down and bottom-up approach may be useful to improve guideline adherence. Further studies are needed to determine the most effective strategies and the role of near patient tests in relation to the Centor criteria in patients with a sore throat.

Acknowledgement

The authors would like to thank the participating GPs for their time and contribution.

Authors' contribution

KH, ELS, MA, AB, and HG contributed to the conception and design of the study. All authors but HG and HT conducted the interviews and all authors analysed the interviews and interpreted the data. The manuscript was written by KH, MA, and HT and all authors revised it critically for important intellectual content. All authors read and approved the final version of the manuscript.

Funding

Kronoberg County Council, the South Swedish Regional Council, and the University of Uppsala, Sweden.

Ethical approval

The ethics committee of Kronoberg County Council (8/2012).

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and the writing of the paper.

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