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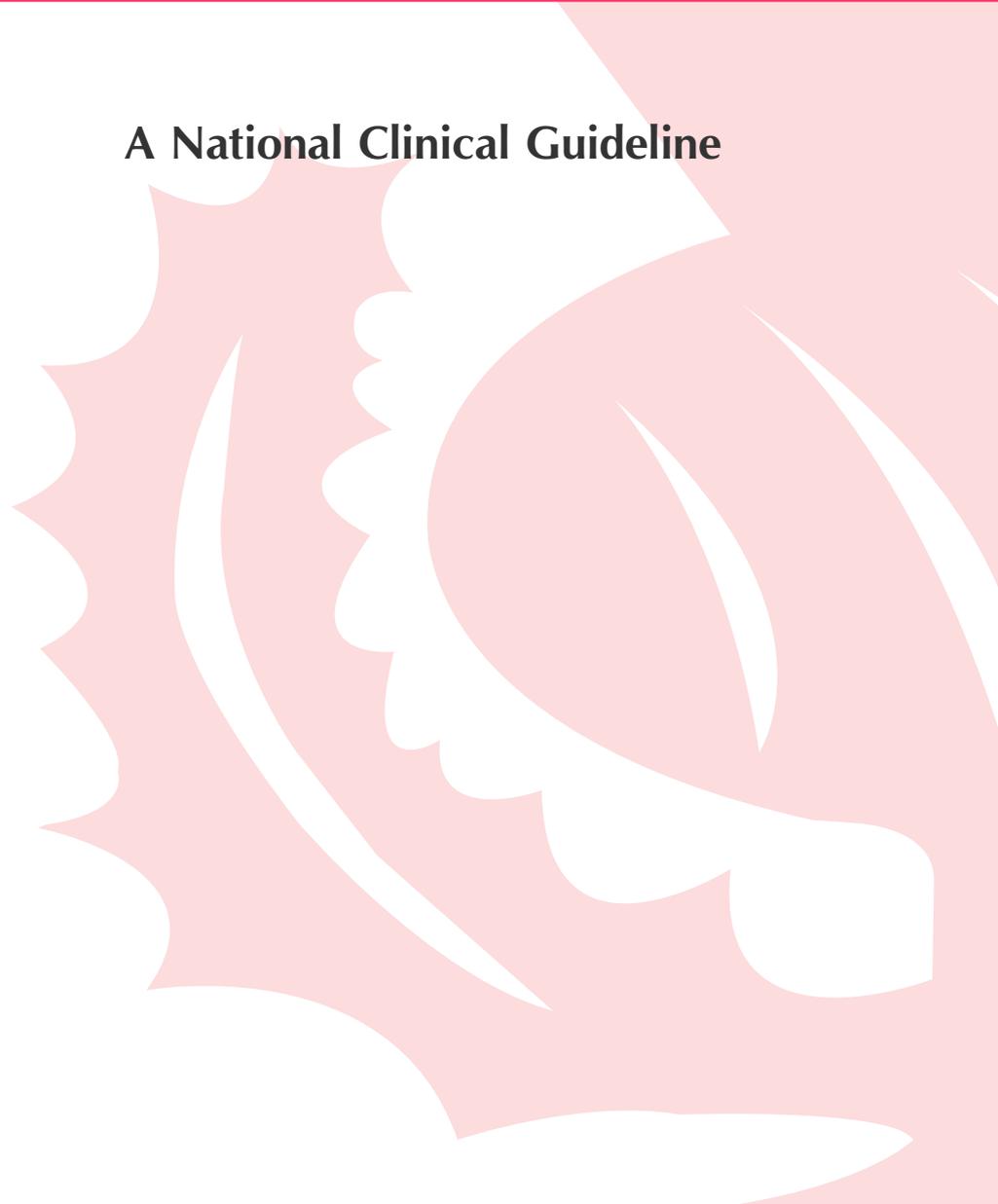
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Management of Sore Throat and Indications for Tonsillectomy

A National Clinical Guideline

January 1999



KEY TO EVIDENCE STATEMENTS AND GRADES OF RECOMMENDATIONS

The definitions of the types of evidence and the grading of recommendations used in this guideline originate from the US Agency for Health Care Policy and Research¹ and are set out in the following tables.

STATEMENTS OF EVIDENCE

<i>Ia</i>	Evidence obtained from meta-analysis of randomised controlled trials.
<i>Ib</i>	Evidence obtained from at least one randomised controlled trial.
<i>IIa</i>	Evidence obtained from at least one well-designed controlled study without randomisation.
<i>IIb</i>	Evidence obtained from at least one other type of well-designed quasi-experimental study.
<i>III</i>	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.
<i>IV</i>	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

GRADES OF RECOMMENDATIONS

A	Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation. <i>(Evidence levels Ia, Ib)</i>
B	Requires the availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation. <i>(Evidence levels IIa, IIb, III)</i>
C	Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality. <i>(Evidence level IV)</i>

GOOD PRACTICE POINTS

<input checked="" type="checkbox"/>	Recommended best practice based on the clinical experience of the guideline development group
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NOTES FOR USERS OF THE GUIDELINE

DEVELOPMENT OF LOCAL GUIDELINES

It is intended that this guideline will be adopted after local discussion involving clinical staff and management. The Area Clinical Audit Committee should be fully involved. Local arrangements may then be made for the derivation of specific local guidelines to implement the national guideline in individual hospitals, units and practices and for securing compliance with them. This may be done by a variety of means, including patient-specific reminders, continuing education and training, and clinical audit.

SIGN consents to the copying of this guideline for the purpose of producing local guidelines for use in Scotland. For details of how to order additional copies of this or other SIGN publications, see inside back cover.

STATEMENT OF INTENT

This report is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve.

These parameters of practice should be considered guidelines only. Adherence to them will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the doctor in light of the clinical data presented by the patient and the diagnostic and treatment options available.

Significant departures from the national guideline as expressed in the local guideline should be fully documented and the reasons for the differences explained. Significant departures from the local guideline should be fully documented in the patient's case notes at the time the relevant decision is taken.

A background paper on the legal implications of guidelines is available from the SIGN secretariat.

REVIEW OF THE GUIDELINE

This guideline was issued in 1999 and will be reviewed in 2001, or sooner if new evidence becomes available. Any amendments to the guideline in the interim period will be noted on the SIGN website. Comments are invited to assist the review process. All correspondence and requests for background information regarding the guideline should be sent to:

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Summary

This guideline presents evidence-based recommendations for the management of acute and recurring sore throat and indications for tonsillectomy.

Note that the guideline considers only tonsillectomy for recurring sore throat. It does not address tonsillectomy for suspected malignancy or as a treatment for sleep apnoea, peritonsillar abscess, or other conditions.

The published literature is mainly concerned with a paediatric population and there is little evidence concerning the management of recurring sore throats in adults.

PRESENTATION

C Sore throat associated with stridor or respiratory difficulty is an absolute indication for admission to hospital.

If breathing difficulty is present, urgent referral to hospital is mandatory and attempts to examine the throat should be avoided.

B Practitioners should be aware of underlying psychosocial influences in patients presenting with sore throat.

DIAGNOSIS OF SORE THROAT

B Clinical examination should not be relied upon to differentiate between viral and bacterial sore throat.

B Throat swabs should not be carried out routinely in sore throat.

B Rapid antigen testing should not be carried out routinely in sore throat.

MANAGEMENT OF SORE THROAT

Diagnosis of a sore throat does not mean that an antibiotic has to be administered. Adequate analgesia will usually be all that is required.

B Taking account of the increased risks associated with non-steroidal anti-inflammatory agents (NSAIDs), their routine use in management of sore throat is not recommended.

C Paracetamol is the drug of choice for analgesia in sore throat, taking account of the increased risks associated with other analgesics.

ANTIBIOTICS IN ACUTE SORE THROAT

The limited information available is insufficient to support a recommendation on the routine use of antibiotics in acute sore throat.

In severe cases, where the practitioner is concerned about the clinical condition of the patient, antibiotics should not be withheld.

A Antibiotics should not be used to secure symptomatic relief in sore throat.

- B** Sore throat should not be treated with antibiotics specifically to prevent the development of rheumatic fever or acute glomerulonephritis.
- B** Antibiotics may prevent cross-infection with group A beta-haemolytic streptococcus (GABHS) in closed institutions (such as barracks, boarding schools) but should not be used routinely to prevent cross infection in the general community.
- C** The prevention of suppurative complications is not a specific indication for antibiotic therapy in sore throat.
- Practitioners should be aware that infectious mononucleosis may present with severe sore throat with exudate and anterior cervical lymphadenopathy, and should avoid prescription of ampicillin-based antibiotics, including co-amoxiclav, as first line treatment.

ANTIBIOTICS IN RECURRENT SORE THROAT

There is no evidence to support a recommendation on the use of antibiotics in recurrent non streptococcal sore throat.

In cases of recurrent sore throat associated with GABHS (not necessarily causal) the limited evidence of benefit available suggests that a 10-day course of antibiotic may reduce the number and frequency of attacks. However, diagnosis of GABHS is not reliable.

INDICATIONS FOR TONSILLECTOMY

- C** The following are recommended as reasonable indications for consideration of tonsillectomy in both children and adults, based on the current level of knowledge, clinical observation in the field and the results of clinical audit. Patients should meet all of the following criteria:
 - sore throats are due to tonsillitis
 - five or more episodes of sore throat per year
 - symptoms for at least a year
 - the episodes of sore throat are disabling and prevent normal functioning.
- C** A six month period of watchful waiting is recommended prior to tonsillectomy to establish firmly the pattern of symptoms and allow the patient to consider fully the implications of operation.
- C** Once a decision is made for tonsillectomy, this should be performed as soon as possible, to maximise the period of benefit before natural resolution of symptoms might occur (without tonsillectomy).

1 Introduction

1.1 BACKGROUND: THE NEED FOR A GUIDELINE

The management of sore throat in general practice and the further progress to tonsillectomy in a number of cases results in significant use of health service resources. In most cases, the condition is relatively minor and self-limiting. Sore throat has few long term adverse health effects. However, a significant number of patients experience unacceptable morbidity, inconvenience, and loss of education or earnings due to recurrent sore throat. As a result, patients present to general practitioners, who may actively treat them with antibiotics of questionable efficacy and considerable aggregate cost.

A proportion of these patients are referred to ENT surgeons, who may recommend surgery on criteria which are based on precedent, personal experience and a belief of benefit, rather than good scientific evidence. Tonsillectomy has an appreciable perioperative morbidity, a complication rate of around 2%, and the outcome is as yet undefined. However, in most cases, patients (or their parents) seem satisfied with the operation and to benefit from it (see section 6.1).² The paucity of good quality literature addressing an area of long established practice does not inevitably mean that that practice is valueless.

A guideline for management of acute and recurrent sore throat based on a systematic review of the literature (see Annex 1) has the potential to benefit patient care in addition to encouraging more efficient and effective use of health service resources. The guideline should consider optimal management, such that patients are not denied effective treatment which may reduce long term morbidity and minimise unproductive time due to illness.

1.2 AIM OF THE GUIDELINE

This guideline presents evidence-based recommendations for the management of acute and recurring sore throat and indications for tonsillectomy. Note that the guideline considers only tonsillectomy for recurring sore throat. It does not address tonsillectomy for suspected malignancy or as a treatment for sleep apnoea, peritonsillar abscess, or other conditions. The published literature is mainly concerned with a paediatric population and there is little evidence concerning the management of recurring sore throats in adults. The aim of this guideline is to suggest a rational approach to the management of acute sore throat in general practice and to provide reasonable criteria for referral for tonsillectomy. The guideline also provides examples of patient information leaflets which may assist in management and facilitate decision making about operation (see Annexes 2 and 3) and suggests areas where further research could be productive (see section 7.2).

1.3 DEFINITIONS

Sore throat may also be described as 'acute pharyngitis', 'tonsillitis', 'acute exudative tonsillitis'. For the purpose of this guideline, these terms are treated as synonymous. There is no agreed definition of 'chronic' or 'recurrent' sore throat. Within this guideline, the term 'sore throat' is used.

1.4 SYMPTOMS AND SIGNS

Symptoms include:

- sore throat (usually lasting more than three days)
- anorexia, lethargy, systemic illness
- absence of cough (cough commonly occurs in viral upper respiratory infection, often in association with posterior cervical lymphadenopathy).

Abnormal physical signs include:

- inflamed tonsils or pharynx
- purulent exudate on tonsils
- fever
- anterior cervical lymphadenopathy.

Sore throat may be part of the early symptom complex of minor upper respiratory viral infections. This phase usually passes in 24-48 hours. Occasionally, sore throat may be a presenting symptom of acute epiglottitis or other serious upper airway disease.

- If breathing difficulty is present, urgent referral to hospital is mandatory and attempts to examine the throat should be avoided.

1.5 EPIDEMIOLOGY

No case-control or population studies of the epidemiology of sore throat in recent UK populations were identified in the literature search undertaken for this guideline (see *Annex 1*); neither were longitudinal community studies found on the natural history of recurrent sore throat. However, studies of those attending general practice suggest that sore throat affects both sexes and all age groups, but is much more common in children.³ Sore throat is more common in late autumn and early winter.⁴

1.6 SORE THROAT IN SCOTLAND

General Practice Administration System for Scotland (GPASS) data covers 75% of the practices in Scotland, but the way in which data are entered can vary between practices. The Continuous Morbidity Recording (CMR) practices supply data on doctor/patient contacts from a sample of the Scottish population (282,700 patients from 52 practices). Different codes are used for 'upper respiratory infection', 'sore throat symptoms', 'acute tonsillitis', and 'acute pharyngitis' and it is not clear what the differences are between these diagnoses. 'Acute tonsillitis' is the sixth most common presentation in general practice for girls, and eighth for boys (aged 0-14 years), but adding up the different definitions would place tonsillitis much higher. For all ages, acute tonsillitis was the eighth most common acute presentation in 1996, with a rate of 32 per 1000 (≈ 1 in 30) patients per year. The rate was higher for females in all age bands.⁵

1.7 NATURAL HISTORY OF RECURRENT SORE THROAT

There is no information on the natural history of sore throat which looks at adults and children separately. Most other childhood upper respiratory tract diseases tend to improve with time and this also appears true of sore throat, but there is no epidemiological evidence of this; neither is it known whether recurrent sore throat in adults also improves with time. Importantly with regard to making recommendations for tonsillectomy, the timescale for natural remission is unknown in these two separate groups to balance expected natural resolution rates against the disadvantages of surgery.

2 Presentation

2.1 INCIDENCE OF SORE THROAT IN GENERAL PRACTICE

Most patients with sore throat never attend their general practitioner (GP).⁶ A 1975 UK study of 516 women aged 20-44 years, found that only one in 18 episodes of sore throat led to a GP consultation.⁷

The overall incidence of sore throat in all age groups has been estimated variously at 500 cases per general practitioner per year according to 1978 figures,⁶ 100 per 1,000 people per year,⁸ or 45/1000 consultations in New Zealand.⁴ Estimates of consultation rates (per capita per annum) for sore throat also vary: 0.08-0.20 in single practices, 0.2 in a region, and in the possibly atypical practices in the national morbidity survey, approximately 0.1 (assuming one in four 'respiratory' attendances are for sore throat and allowing for re-attendance).⁹ Different definitions make comparisons between figures difficult. The age distribution and management of sore throat which is reported to a GP varies widely across Europe.¹⁰

Using the conservative figure of 0.1 consultations per capita per annum along with UK population estimates, and assuming that a consultation costs £10, then the cost to the NHS of GP consultations for sore throat is approximately £60 million per annum, before any treatment or investigation.⁹

2.2 REASONS FOR PRESENTATION IN GENERAL PRACTICE

A 1994 Dutch study of 1441 children attending general practice estimated 223 new episodes of tonsillitis per 1000 subjects per year during the first five years of life, with no difference between sexes or social classes. The observed distribution was not random: more children than expected had no episodes, and significantly more children than expected had high numbers of episodes (> 11 episodes). Factor analysis showed that sore throat, otitis media and common cold were interrelated, but the authors point out that 'illness behaviour' may partly influence the tendency to seek care for less serious diseases.¹¹

In common with many familiar conditions encountered in general practice, presentation with sore throat may be the introductory topic to a wider agenda for the patient. The complex interplay between the patient, the doctor, psychosocial factors and the acute illness is relevant to the reason for the consultation and may have a fundamental influence upon decisions made.¹²⁻¹⁴ Recent evidence suggests that antibiotic prescribing for sore throat in general practice enhances patient belief in antibiotics and increases intention to consult for future episodes.¹⁵

Evidence level IIa

B Practitioners should be aware of underlying psychosocial influences in patients presenting with sore throat.

A patient information leaflet may be of value in the management of acute sore throat and may assist in managing future episodes at home without general practitioner involvement (see *example at Annex 2*).

2.3 EMERGENCY HOSPITAL ADMISSION

Hospital admission will be required for few patients with sore throat. When such patients present acutely to an ENT service they usually have peritonsillar cellulitis or abscess and may require parenteral antibiotics. The complication of parapharyngeal abscess is now rare. In young adults, infectious mononucleosis is a common reason for hospital admission as these patients are often unable to swallow. The occasional patient with severe uncomplicated tonsillitis may require admission because of dysphagia and dehydration.

C Sore throat associated with stridor or respiratory difficulty is an absolute indication for admission to hospital.

3 Diagnosis of sore throat

There is no evidence that bacterial sore throats are more severe than viral ones or that the duration of the illness is significantly different in either case. The precise diagnosis may be of academic interest, or possibly clinically relevant in more severe cases. The most common single organism which is identified is group A beta-haemolytic streptococcus (GABHS).

Diagnosis can be attempted on clinical findings or by laboratory or near patient testing. The most commonly used tests in worldwide terms are culture of throat swabs and rapid antigen testing (RAT).

3.1 CLINICAL DIAGNOSIS

Precise clinical diagnosis is difficult in practice. The clinical picture in an individual sore throat is of limited assistance in distinguishing between a bacterial and a viral aetiology. Several studies have attempted to differentiate between these, based on symptom complexes including tonsillar exudate, anterior cervical lymphadenopathy, absence of cough, pharyngeal erythema, level of pyrexia and pain, etc., but the results are conflicting and inconclusive.¹⁶⁻¹⁹

Studies for sensitivity and specificity suggest that reliance on clinical diagnosis will miss 25-50% of GABHS pharyngitis cases and that 20-40% of those with negative throat cultures will be labelled as having GABHS.²⁰

Evidence level IIb

B Clinical examination should not be relied upon to differentiate between viral and bacterial sore throat.

3.2 THROAT CULTURE

A positive throat culture for GABHS makes the diagnosis of streptococcal sore throat likely but a negative culture does not rule out the diagnosis. There are cases where streptococcus is isolated from sore throats but there is no serological evidence of infection.²¹ There is also a high asymptomatic carrier rate for GABHS of up to 40%.^{21, 22} The flora of bacteria recovered from the surface of the tonsil correlates poorly with that of those deep in the tonsillar crypts which are most likely to be causing the infection.^{23, 24} Symptoms also correlate poorly with results of throat swab culture.²⁵

Evidence level III

Throat swabs are neither sensitive or specific for serologically confirmed infection, considerably increase costs, may medicalise illness, and alter few management decisions.²⁶

B Throat swabs should not be carried out routinely in sore throat.

3.3 RAPID ANTIGEN TESTING (RAT)

Rapid antigen testing (RAT) is commonly used in North America to identify GABHS. The sensitivity of RAT measured against throat swab culture is wide and varies between 61% and 95%, although specificity may be better at 88-100%.²⁷⁻³¹ However, throat swab culture as a gold standard for comparison is questionable when compared with antistreptolysin O (ASO) titre, which is not in itself clinically useful in managing acute sore throats. A UK study among 23 GPs and 250 patients showed that the sensitivity of the test was 63% and specificity 91.7% compared with 74% and 58% respectively for clinical assessment. Use of the test changed prescribing decisions very little. The test cost £4 and took 10 minutes to report.³²

Evidence level III

B Rapid antigen testing should not be carried out routinely in sore throat.

4 General management of sore throat

Diagnosis of a sore throat does not mean that an antibiotic has to be administered (see section 5). Adequate analgesia will usually be all that is required.

4.1 SIMPLE ANALGESICS

The majority of patients with sore throat probably never attend a general practitioner and obtain symptomatic relief with aspirin or paracetamol. The recognised complications of aspirin therapy, including Reye's syndrome in children, make this agent less suitable for general use.

4.2 NON-STEROIDAL ANTI-INFLAMMATORY AGENTS

Several reports describe the use of non-steroidal anti-inflammatory agents (NSAIDs) in acute pharyngitis and tonsillitis.³³⁻³⁵ These originate in France, where the drug is used in suppository form. The studies suggest that between two and three days after the start of treatment there is slightly faster resolution of pain, fever, dysphagia, visible inflammation, and lymphadenopathy compared with either placebo or paracetamol. All patients in these studies were given concomitant phenoxymethylpenicillin. The benefits of NSAIDs over paracetamol or placebo were short lived, as the symptoms of acute pharyngitis and tonsillitis tend to diminish quickly during the first 48-72 hours.

Evidence level Ib

NSAIDs are associated with well recognised risks, such as gastrointestinal bleeding, nausea, vomiting, abdominal pain, and diarrhoea.

B Taking account of the increased risks associated with NSAIDs, their routine use in management of sore throat is not recommended.

Extrapolated from evidence level Ib

4.3 OTHER ANALGESICS

There is minimal literature regarding the use of stronger analgesics for sore throat. Combination preparations (such as paracetamol with codeine) are known to be associated with nausea, disorientation and severe constipation, but may be useful for some patients. In hospital and in general practice, weak opioids such as dihydrocodeine, sometimes in combination with other agents, are occasionally used but the risks of abuse limit their value in general practice.

There is no convincing evidence that analgesics other than paracetamol are routinely necessary in acute sore throat.

C Paracetamol is the drug of choice for analgesia in sore throat, taking account of the increased risks associated with other analgesics.

4.4 ADJUNCTIVE THERAPY

Benzydamine hydrochloride (Difflam) as an oral rinse or spray is sometimes used. One small study³⁶ showed that benzydamine as a gargle for sore throat resulted in significantly greater relief of pain and dysphagia at 24 hours than placebo, but this requires confirmation.

Evidence level Ib

Corticosteroids are very occasionally prescribed in hospital in patients with acute infectious mononucleosis when pain and swelling threaten the airway or where there is very severe dysphagia.

4.5 SYMPTOMATIC TREATMENT IN THE COMMUNITY

The local pharmacist is a useful source of advice on management of uncomplicated sore throat in the community.

5 Antibiotics in sore throat

5.1 ANTIBIOTICS IN ACUTE SORE THROAT

In the UK, the significance of the presence of bacterial pathogens in cases of sore throat remains in doubt³⁷ (see section 3). It is therefore illogical to treat all sore throats with antibiotics and there is a favourable outcome in the majority of cases even when antibiotics are withheld.

An open study of prescribing strategy in over 700 patients randomised to antibiotic vs. no prescription vs. delayed prescription for three days showed no difference in the main outcomes.³⁸ It is important to note that the following exclusion criteria were applied to entry to the trial: other explanations of sore throat, very ill, suspected or previous rheumatic fever, multiple attacks of tonsillitis, quinsy, or pregnancy.

Evidence level Ib

Even if the sore throat persists, a throat swab to identify group A beta-haemolytic streptococcus (GABHS) may not be helpful, as the poor specificity and sensitivity of throat swabs limit their usefulness (see section 3.2). Nevertheless, randomised controlled trials of antibiotic therapy in patients with acute sore throat in whom GABHS has or has not been isolated (whether or not causative) have been reported and these are summarised in Annex 4.

The limited information available is insufficient to support a recommendation on the routine use of antibiotics in acute sore throat.

- ☑ In severe cases, where the practitioner is concerned about the clinical condition of the patient, antibiotics should not be withheld. (Penicillin V 500 mg, four times daily for 10 days is the dosage used in the majority of studies.)
- ☑ Practitioners should be aware that infectious mononucleosis may present with severe sore throat with exudate and anterior cervical lymphadenopathy, and should avoid prescription of ampicillin-based antibiotics, including co-amoxiclav, as first line treatment.

5.2 ANTIBIOTICS IN RECURRENT SORE THROAT

When sore throat recurs in patients who have received antibiotic treatment, the reasons may include inappropriate antibiotic therapy, inadequate dose or duration of previous therapy, patient non-compliance/non-concordance, re-infection, and local breakdown of penicillin by beta-lactamase-producing commensals.^{39, 40} Benzathine penicillin,⁴¹ cefuroxime⁴² and clindamycin^{43, 44} have been shown to be superior to penicillin V in the management of children with this problem, and may reduce the frequency of episodes.

Evidence level Ib and III

The possible hazards of clindamycin must be weighed against its efficacy in the treatment of sore throat in patients in whom GABHS has been isolated. It may be considered as an alternative to surgery in those in whom surgery is contraindicated or in those who do not wish to have the operation.

There is no evidence to support a recommendation on the use of antibiotics in recurrent non streptococcal sore throat.

In cases of recurrent sore throat associated with GABHS (not necessarily causal) the limited evidence of benefit available suggests that a 10-day course of antibiotic may reduce the number and frequency of attacks. However, diagnosis of GABHS is not reliable.

5.3 USE OF ANTIBIOTICS TO PREVENT RHEUMATIC FEVER AND GLOMERULONEPHRITIS

It has been contended that the primary clinical rationale for treating streptococcal pharyngitis with antibiotics is the prevention of rheumatic fever and other sequelae, and that outbreaks of rheumatic fever are still being reported in both children and adults in the United States.⁴⁵ This does not apply in the UK, and a small reduction in bacteriological failure rate has to be weighed against the considerable increase in cost when antibiotics other than penicillin are used.⁴⁶ The incidence of rheumatic fever in the UK is extremely low and there is no support in the literature for the routine treatment of sore throat with penicillin to prevent the development of rheumatic fever.⁴⁷

Evidence level IIa

Similar considerations apply to the prevention of glomerulonephritis.⁴⁸ Most of the information on the prevention of acute rheumatism comes from studies performed on military personnel living in overcrowded barracks immediately after the second World War, when the incidence of rheumatic fever was exceptionally high. At that time penicillin, particularly benzathine penicillin, was shown to be an effective prophylactic.⁴⁹ There is no evidence that these results are applicable in modern Britain.

B Sore throat should not be treated with antibiotics specifically to prevent the development of rheumatic fever and acute glomerulonephritis.

5.4 USE OF ANTIBIOTICS TO PREVENT SUPPURATIVE COMPLICATIONS

Patients with severe pustular tonsillitis are frequently treated with antibiotics both in general practice and in hospital on pragmatic grounds. There is no evidence that the routine administration of antibiotics to individuals with sore throats will reduce the occurrence of suppurative complications such as quinsy. The incidence of quinsy is very low, although figures from the Common Services Agency, Information & Statistics Division show it has risen over the last five years. There is no evidence that this is related to changes in the use of antibiotic therapy.

C The prevention of suppurative complications is not a specific indication for antibiotic therapy in sore throat.

5.5 USE OF ANTIBIOTICS TO RELIEVE SYMPTOMS

Although antibiotic therapy has been shown to alleviate symptoms even in sore throats not caused by bacteria,⁵⁰ the superiority of antibiotics over simple analgesics is marginal in reducing duration or severity.^{38, 51} Even in 'proven' GABHS infection, the symptomatic improvement following penicillin, although superior to that following simple placebo in some studies,^{52, 53} has been unimpressive in others, especially when compared to simple analgesics.^{54, 55}

Evidence level Ib

A Antibiotics should not be used to secure symptomatic relief in sore throat.

Even if the symptomatic benefit were more substantial, a single case of penicillin-induced anaphylaxis would be a heavy price to pay.

5.6 USE OF ANTIBIOTICS TO PREVENT CROSS INFECTION IN SORE THROAT

No studies of this have been performed in the community setting in the UK. The evidence in favour of the use of antibiotics to prevent cross infection in sore throat comes mainly from army barracks and other closed institutions and there is no recent evidence from this country. There is no evidence that trying to eradicate GABHS with routine antibiotic therapy for sore throat will produce any measurable health gain in the general public, and some danger in encouraging the emergence of antibiotic resistant strains of other organisms, although GABHS remains sensitive to penicillin despite its widespread use.^{45, 56} An American study has recommended that when GABHS has been identified in children, a full 24 hours of antibiotic treatment should be given before return to school or daycare.⁵⁷

Evidence level IIIa

B Antibiotics may prevent cross-infection with GABHS in closed institutions (such as barracks, boarding schools) but should not be used routinely to prevent cross infection in the general community.

6 Surgery in recurrent sore throat

6.1 TONSILLECTOMY RATES

Tonsillectomy was the most common NHS operation in Scottish children in 1990, with a two-fold variation in rates across Health Boards.⁵⁸

Data from the Information and Statistics Division of the Common Services Agency of the NHS in Scotland shows that, between 1990 and 1996, the rate for tonsillectomies in children aged 0-15 declined from 602 per 100,000 (6,152 operations) to 511 per 100,000 (5,256 operations). 44% of patients were male. 54% had their adenoids removed and 13% had surgery to drain the middle ear at the same operation. In adults aged 16 years and over, the tonsillectomy rate increased from 72 per 100,000 in 1990 (2,919 operations) to 78 per 100,000 in 1996 (3,200 operations). 32% were male. In 1996, 0.8% of children and 3% of adults were treated as day cases. 54% of children and 61% of adults had a two-night stay.

It is likely that current practice has reduced the length of inpatient stay following tonsillectomy throughout Scotland, but there is as yet no data to confirm this.

Emergency re-admissions within four weeks of discharge after tonsillectomy and/or adenoidectomy in children under 16 years (from April 1992 to March 1995) are one of the Scottish Office clinical outcome indicators. 1.3% of Scottish patients (340) were re-admitted. This varied from 0.5% to 3.4% across different Trusts.⁵⁹

The Scottish Tonsillectomy Audit, carried out by the Audit Subcommittee of the Scottish Otolaryngological Society and funded by the Clinical Resource & Audit Group (CRAG) looked at tonsillectomy activity throughout Scotland over a 12 month period from February 1992. A number of differences in management of recurring sore throat by ENT surgeons were highlighted across the country. These included variation in the rate of operation by area and differing management of children and adults. Outcome was measured by the response to a questionnaire at six months and one year after surgery, and indicated a high satisfaction rate among patients of 97%, with a 75% response rate at six months and 45% at one year.²

6.2 EVIDENCE FOR SURGERY IN RECURRENT SORE THROAT

The literature on surgery for sore throat is scanty, out of date and lacking in scientific validity. Most published studies refer to a paediatric population. The current widely accepted criteria for surgery are of the order of seven episodes of tonsillitis in the preceding year, five episodes in each of the preceding two years, or three episodes in each of the preceding three years, and have been arrived at arbitrarily.⁶⁰ They take no account of whether the condition is worsening or improving and make no distinction between children and adults, in whom the disease may behave differently. The small amount of information about adult sore throat and the effect of tonsillectomy is not scientifically robust by current standards but suggests that surgery is beneficial.⁶¹

6.3 REFERRAL CRITERIA FOR TONSILLECTOMY

It seems reasonable to assume that recurrent acute attacks of tonsillitis can be prevented by tonsillectomy, but tonsillectomy will not prevent recurrent sore throats due to other reasons. Hence, before considering tonsillectomy, the diagnosis of recurrent tonsillitis should be confirmed by history and clinical examination; and, if possible, differentiated from generalised pharyngitis.

The natural history of tonsillitis is for the episodes to get less frequent with time, but epidemiological data is lacking in all age groups to allow a predication of this to be made in individual patients.

Tonsillectomy requires a short admission to hospital and a general anaesthetic, is painful, and is occasionally complicated by bleeding. Return to usual activities takes on average two weeks, with a corresponding loss of time from education or work.

Four randomised controlled trials of tonsillectomy against non-surgical management in children have been reported.^{60, 62-64} All were designed before 1972 and none would satisfy current criteria for a well designed, controlled and analysed study. In the most quoted reference in particular, randomisation was not balanced in frequency of episodes or socio-economic group.⁶⁰ In this study, the number of episodes of sore throat post-tonsillectomy was significantly fewer than in the control group, although when the number of days of illness with sore throat was taken into account, including those associated with surgery, benefit from tonsillectomy was less evident. No randomised controlled studies have been reported in adults.

Evidence level Ib

Despite this lack of evidence, many non-controlled studies suggest benefit in children who have had tonsillectomy, not only in reduction of the number of sore throats but in improvement in their general health.⁶⁵⁻⁶⁷

Evidence level Ib and III

C The following are recommended as reasonable indications for consideration of tonsillectomy in both children and adults, based on the current level of knowledge, clinical observation in the field and the results of clinical audit.

Patients should meet all of the following criteria:

- sore throats are due to tonsillitis
- five or more episodes of sore throat per year
- symptoms for at least a year
- the episodes of sore throat are disabling and prevent normal functioning.

Grade C recommendation extrapolated from evidence level Ib, IIb and III

Cognisance should also be taken of whether the frequency of episodes is increasing or decreasing.

Note that, in considering whether a patient meets these criteria, the general practitioner may have difficulty in documenting the frequency of episodes because patients do not always consult when they have an episode. There may also be uncertainty about whether the sore throats are due to acute tonsillitis.

6.4 OTOLARYNGOLOGICAL ASSESSMENT

Patients referred will rarely be seen by a specialist during an acute episode of sore throat, so the diagnosis of recurrent acute tonsillitis rests with the referring doctor. Questioning the patient about the appearance of the throat, the degree of systemic upset, and the presence of tender neck lymph nodes can help confirm the diagnosis.

The specialist should also confirm the frequency of occurrence of the episodes and assess the associated disability. If the criteria set out above are confirmed, the management options should be discussed and the benefits of tonsillectomy weighed against the natural history of resolution and the temporary incapacity associated with tonsillectomy. This information may be reinforced by means of an appropriately designed patient information leaflet (*see example at Annex 3*). The rate of re-admission for bleeding should also be stated as part of informed consent.

In some cases this will be the first discussion the patient or parents have had which takes into account all factors for and against operation. In addition the frequency of episodes is often an impression rather than fully documented. Under these circumstances a period of watchful waiting of at least six months, during which the patient or parent can more objectively record the number, duration and severity of the episodes, may be suggested (*see example proforma at Annex 5*). This would allow a more balanced judgement to be made as to the likely benefit or otherwise of tonsillectomy. This could either be reported to the GP after six months, who would then re-refer if appropriate, or be reported by the patient at a pre-arranged review hospital appointment.

- C** A six month period of watchful waiting is recommended prior to tonsillectomy to establish firmly the pattern of symptoms and allow the patient to consider fully the implications of operation.
- C** Once a decision is made for tonsillectomy, this should be performed as soon as possible to maximise the period of benefit before natural resolution of symptoms may occur.

7 Recommendations for audit and research

7.1 KEY POINTS FOR AUDIT

7.1.1 MANAGEMENT OF ACUTE SORE THROAT

- Antibiotic prescription rate for sore throat in general practice.
- Number of patient visits to the general practitioner for sore throat symptoms.

7.1.2 REFERRAL CRITERIA FOR SURGERY

- Criteria for referral to hospital from general practice.
- Operation rate with reference to the referral criteria.

7.1.3 ADMISSION RATES FOR SUPPURATIVE COMPLICATIONS OF SORE THROAT

- Rates of hospital admission for sore throat complication, such as peritonsillitis, quinsy, and parapharyngeal abscess.

7.2 RESEARCH PRIORITIES

7.2.1 MANAGEMENT OF ACUTE SORE THROAT

The guideline development group recommend that randomised trials should be considered in both adults and in children to assess the efficacy, including dosage and duration, of antibiotic therapy with penicillin versus placebo. These trials would have to be carried out in the primary care setting and the main outcomes would be duration and severity of symptoms, including pain, fever, inability to eat, and inability to carry out usual activities. Further trials of alternative antibiotics could then validly be compared with the effectiveness of penicillin.

7.2.2 EPIDEMIOLOGY OF RECURRENT SORE THROATS

A longitudinal cohort study is required both in adults and in children of the natural history of recurrent episodes of sore throat. The size of the cohorts should be sufficient to allow preparation of a multifactorial analysis of those factors which might predict resolution/non-resolution. This is likely to include age, sex, number of siblings/adults in the home, degree of contact with peers (school, university, etc.), various indications of deprivation including socio-economic group, and exposure to cigarette smoke.

7.2.3 EFFECTIVENESS OF SURGERY FOR RECURRENT TONSILLITIS

Randomised controlled trials are required of surgical versus non surgical management with disease specific outcomes, general health outcomes, and costings. Such trials should be sufficiently powered to assess benefit depending on frequency and severity of symptoms prior to operation.

7.2.4 PRESCRIBING HABITS OF GENERAL PRACTITIONERS

Studies are required of the prescribing behaviour of general practitioners for sore throat symptoms in relation to workload, time constraints, and socio-economic factors.

Annex 1

DETAILS OF SYSTEMATIC REVIEW UNDERTAKEN FOR THIS GUIDELINE

The evidence base for this guideline was synthesised in accordance with SIGN methodology. A systematic review of the literature was carried out using an explicit search strategy which was based on the Cochrane search strategy.

Papers were only included if they adhered to recognisable methodological principles, including adequate sample size, a clearly identified hypothesis and measure of outcome, and accurate reporting of results. Whenever possible randomised trials have been discussed, but due to the paucity of sound randomised controlled trials work in this area a number of clinical studies have also been included.

LITERATURE SEARCH STRATEGY

The standard SIGN methodology was followed using searches of the Cochrane database, Medline, Healthstar and Embase for randomised controlled trials using the keywords: tonsillitis, tonsils, sore throat, pharyngitis, tonsillectomy. For epidemiology, microbiology and pathology, references were obtained using a broad strategy linking the terms ('tonsillitis' or 'pharyngitis') with ('epidemiology' or 'microbiology' or 'pathology'). The resulting set was combined with terms identifying meta-analysis, RCTs or other good quality clinical trials. The search was run on the following databases:

Embase 1974-96

Science Citation Index (SCI SEARCH) 1987-96

Pascal 1974-96

US Technical Information Service 1964-96

Conference Papers Index 1973-96

Inside Conferences 1993-96.

The principal terms were also checked against the applied social sciences, social science citation index and sociological abstracts databases, but did not reveal any additional literature of interest. The evidence base for the guideline was updated during the course of the guideline development process to take into account newly published evidence.

Annex 2

EXAMPLE PATIENT INFORMATION LEAFLET: TONSILLITIS AND SORE THROAT

Tonsillitis and Sore Throat

Sore throats are particularly common in young children and young adults. This is probably because they are mixing in different social groups, and this is the first time that they have been exposed to the bacteria or viruses which cause sore throats. It is common in adults to have two or three sore throats per year, especially when developing a cold.

After they have had a sore throat from particular bacteria or viruses, patients develop immunity to those bacteria or viruses. Antibiotics will not help most sore throats. The antibiotics themselves can cause unpleasant side-effects, and if they are used too often, they will no longer be effective for patients with life-threatening illness.

Home treatment:

- ⇒ take paracetamol 1 g every 4 hours up to a maximum of 4 g in any 24 hours
(for children, follow the instructions for their age)
- ⇒ try throat gargles with warm salty water
- ⇒ drink plenty of soft drinks (it may help to warm these)
- ⇒ stay at home if you have a raised temperature
- ⇒ avoid cigarette smoke.

Further advice on simple relief measures can be obtained from your local pharmacist.

Contact your doctor if you have:

- ⇒ any difficulty in breathing
- ⇒ any difficulty swallowing saliva or opening your mouth
- ⇒ a persistent high temperature
- ⇒ a particularly severe illness, especially with symptoms mainly on one side of the throat
- ⇒ a sore throat which is not improving after several days
- ⇒ very frequent sore throats which don't respond to home treatment as above.

Annex 3

EXAMPLE PATIENT INFORMATION LEAFLET: TONSILLECTOMY

Tonsillectomy

It is common for people to suffer several sore throats most years. These are not always due to tonsillitis and may be linked to colds or flu.

Young children and young adults are more prone to sore throats. This is probably because they are mixing in different social groups, and this is the first time that they have been exposed to the bacteria or viruses which cause sore throats. After they have had a sore throat from particular bacteria or viruses, patients develop immunity to those bacteria or viruses.

For some carefully selected patients, tonsillectomy can be beneficial.

This leaflet covers some aspects you may wish to consider.

The operation itself is very straight forward, but you should be aware of the following drawbacks:

- ⇒ One or two night's stay in hospital and a general anaesthetic.
- ⇒ A sore throat with a two week recovery period. This tends to be more of a problem in adults (it is worth comparing this with how much time you suffer from sore throats at present).
- ⇒ Complications can occur, both with the operation and the anaesthetic.
- ⇒ Currently 1% of patients having tonsillectomies in Scotland come back into hospital as emergencies because of complications which arose after they had gone home, particularly bleeding.
- ⇒ By the time you have your operation, it is possible that you will have 'grown out of' the condition anyway, particularly if waiting lists are long. (No one can predict this accurately.)

Most patients currently having tonsillectomy report benefit from the operation, but there is no guarantee that tonsillectomy will prevent all sore throats in the future.

Sore throats can occasionally be a sign of more serious conditions, especially in older patients who start to get persistent sore throats. You should therefore discuss any concerns with your doctor, who will advise on appropriate investigations and treatment.

Annex 4

USE OF ANTIBIOTICS IN SORE THROAT IN WHICH GABHS HAS BEEN DETECTED

Most trials have compared penicillin with a variety of other antibiotics, notably cephalosporins. Although optimum elimination of GABHS is secured with intramuscular long-acting penicillin,⁶⁸ oral penicillin V given 6-hourly for 10 days is widely regarded as the 'gold standard' treatment in such trials,^{46, 69} with the advantages of cheapness and tolerability. Other more expensive antibiotics, mainly cephalosporins, have been shown to be statistically significantly more successful in eradicating the organism^{45, 70} although the clinical advantage is much less clear. Some cephalosporins offer a more convenient dosage regimen⁷¹ but twice and three times daily dosage for oral penicillin V have also been shown to be effective in eliminating GABHS.^{69, 72, 73} A 10-day course of penicillin appears to be more effective than five days.⁶⁹ There is no convincing evidence of advantage for any individual cephalosporin.

USE OF ANTIBIOTICS IN SORE THROAT IN WHICH GABHS HAS NOT BEEN DETECTED

The limitations of performing throat swabs and of isolating, or failing to isolate, GABHS must be re-emphasised (see *section 3*). There is evidence from a small American study of 26 patients that erythromycin may provide symptomatic relief in non-streptococcal sore throat.⁵⁰ A recent UK study suggests that a cephalosporin may improve the rate of resolution of symptoms.⁷⁴ However, there is no convincing evidence of benefit from antibiotic therapy as primary treatment for sore throat.

Annex 5

EXAMPLE PROFORMA FOR ASSESSMENT OF SORE THROAT SYMPTOMS

Please record each sore throat episode on the following table:

		SORE THROAT EPISODE				
		1	2	3	4	5
Date of start of sore throat						
Symptoms:	1. Throat painful (number of days)					
	2. Can't swallow (number of days)					
	3. Feverish (number of days)					
	4. Tired (number of days)					
Time off school/work (number of days)						

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SIGN

Management of sore throat and indications for tonsillectomy

Quick Reference Guide

▶ DIAGNOSIS OF ACUTE SORE THROAT

B Clinical examination should not be relied upon to differentiate between viral and bacterial sore throat	B Throat swabs or rapid antigen testing should not be carried out routinely in sore throat
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▶ MANAGEMENT OF ACUTE SORE THROAT

C Sore throat associated with stridor or respiratory difficulty is an absolute indication for admission to hospital	A — Antibiotics should <i>not</i> be used: B — for symptomatic relief B — specifically to prevent the development of rheumatic fever or acute glomerulonephritis B — routinely to prevent cross infection in the general population C — specifically to prevent suppurative complications
C Paracetamol is the drug of choice for analgesia in sore throat	
B Routine use of non-steroidal anti-inflammatory agents (NSAIDs) is not recommended	
There is insufficient evidence to support a recommendation on the routine use of antibiotics in acute sore throat	<input checked="" type="checkbox"/> In severe cases, where the practitioner is concerned about the clinical condition of the patient, antibiotics should not be withheld

▶ INDICATIONS FOR TONSILLECTOMY

C Patients should meet <u>all</u> of the following criteria: — sore throats are due to tonsillitis — five or more episodes of sore throat per year — symptoms for at least a year — episodes of sore throat are disabling and prevent normal functioning	C Following specialist referral, a six month period of watchful waiting is recommended to establish the pattern of symptoms and allow the patient to consider the implications of operation
	B Once a decision is made for tonsillectomy, this should be performed as soon as possible to maximise the period of benefit

Key: **A B C** indicates grade of recommendation Good practice point

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Derived from the national clinical guideline recommended for use in Scotland by the Scottish Intercollegiate Guidelines Network (SIGN)
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SIGN Guidelines are also available on the SIGN website: www.show.scot.nhs.uk/sign/home.htm

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