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summary

Management of unerupted and impacted third molar teeth. A National Clinical Guideline

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Aim To assist individual clinicians, hospital departments, hospitals and commissioners of health care to produce local guidelines for the identification of patients who might benefit most from removal of unerupted third molar teeth and those for whom removal is not necessary.

Development The guideline was developed in accordance with a process developed by the Scottish Intercollegiate Guidelines Network (SIGN). SIGN is an initiative established in 1993 by the Conference of Royal Colleges and their Faculties in Scotland to sponsor and support the development of national guidelines on a multi-professional basis.

Following a systematic review of the literature a development group produced a guideline with recommendations based on the evidence levels set out by the US Agency for Health Care Policy and Research[1] (Table 1).

Table 1 SIGN Grades of recommendations and statements of evidence

Grades of recommendations		Statements of evidence
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. (Evidence levels Ia, Ib)	Ia. Evidence obtained from meta-analysis of randomised controlled trials Ib. Evidence obtained from at least one randomised controlled trial
B	Requires the availability of well-conducted clinical studies but no randomised clinical trials on the topic of recommendation. (Evidence levels IIa, IIb, III)	IIa. Evidence obtained from at least one well-designed controlled study without randomisation IIb. Evidence obtained from at least one other type of well-designed quasi-experimental study III. Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies
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. (Evidence level IV)	IV Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

All SIGN guidelines are produced with a summary document, together with more details of the evidence supporting the recommendations. The detailed section of this guideline runs to some 36 pages.

Recommendations The guideline provides recommendations relating to when it is and is not advisable to remove wisdom teeth as well as including some strong and other indications for their removal. It also provides advice for the clinical and radiographic assessment of third molars. There is also a grade B recommendation that there is no need for routine radiographic assessment of the unerupted third molar.

Removal of unerupted and impacted third molars is not advisable	
Grades of recommendations	
B	In patients whose third molars would be judged to erupt successfully and have a functional role in the dentition
C	In patients whose medical history renders the removal an unacceptable risk to the overall health of the patient or where the risk exceeds the benefit
B	In patients with deeply impacted third molars with no history or evidence of pertinent local or systemic pathology
C	In patients in whom the risk of surgical complications is judged to be unacceptably high, or in whom fracture of an atrophic mandible may occur
C	Where the surgical removal of a single third molar tooth is planned under local anaesthesia the simultaneous extraction of asymptomatic contralateral teeth should not normally be undertaken

Removal of unerupted and impacted third molars is advisable	
Grades of recommendations	
C	In patients who are experiencing, or have experienced, significant infection associated with unerupted or impacted third molar teeth
C	In patients with predisposing risk factors whose occupation or lifestyle precludes ready access to dental care
C	In patients with a medical condition when the risk of retention outweighs the potential complications associated with removal of third molars (e.g. before radiotherapy or cardiac surgery)
C	In patients who have agreed to a tooth transplant procedure, orthognathic surgery, or other relevant local surgical procedure

C	When a general anaesthetic is to be administered for the removal of at least one third molar, consideration should be given to the simultaneous removal of the opposing or contralateral third molars when the risks of retention and a further general anaesthetic outweigh the risks associated with their removal

There are strong indications for removal when

Grades of recommendations	
C	There have been one or more episodes of infection such as pericoronitis, cellulitis, abscess formation; or untreatable pulpal/periapical pathology.
B	There is caries in the third molar and the tooth is unlikely to be usefully restored, or when there is caries in the adjacent second molar tooth, which cannot satisfactorily be treated without the removal of the third molar.
B	There is periodontal disease caused by the position of the third molar and its association with the second molar tooth.
B	In cases of dentigerous cyst formation or other related oral pathology.
B	In cases of external resorption of the third molar or of the second molar when this would appear to be caused by the third molar.

Other indications for removal

Grades of recommendations	
C	For autogenous transplantation to a first molar socket
C	In cases of fracture of the mandible in the third molar region or for a tooth involved in tumour resection
C	An unerupted third molar in an atrophic mandible
C	Prophylactic removal of a partially erupted third molar or a third molar, which is likely to erupt, may be appropriate in the presence of certain specific medical conditions.
C	Atypical pain from an unerupted third molar is a most unusual situation and it is essential to avoid any confusion with temporomandibular joint or muscle dysfunction before considering removal.
C	An acute exacerbation of symptoms occurring while the patient is on a waiting list for surgery may be managed by extraction of the opposing maxillary third molar.
C	A partially erupted or unerupted third molar, close to the alveolar surface, before denture construction or close to a planned implant.

Review date This guideline was issued in 2000 and will be reviewed in 2002 or sooner if new evidence becomes available. Any updates to the guideline in the interim period will be noted on the SIGN website (http://www. sign.ac.uk)

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Commentary

The SIGN guidelines have a clear evidence-based methodological approach to their production. The guideline has been produced as a result of the same or very similar literature search that has produced the NICE guideline of the removal of wisdom teeth. However, the two do differ in a number of respects.

One of these is in relation to prophylactic removal of wisdom teeth. The SIGN guideline in its other indications for removal leans towards a greater acceptance of prophylactic removal than the NICE guidance. As noted in both guidelines there is no reliable research evidence to support the prophylactic removal of pathology-free impacted third molars. It is therefore with interest that we await the results of two long-term trials currently underway.

The SIGN guideline also presents a broader perspective on the removal of third molars than the NICE guidance. This includes information that clinicians will find of interest in relation to clinical management, with suggestions on the use of steroids for the management of post-operative swelling. It is clear that, despite being one of the most commonly performed operation, there is still a lack of clarity surrounding the evidence for some areas, and these deserve more good quality research a list of potential research areas is included in the guideline.

One issue side-stepped in the detailed guideline is that of lingual flap retraction. Lingual flap retraction is a common procedure in the UK but not in North America and a recent large RCT conducted in the UK[2] showed that raising a lingual flap increased the incidence of damage. While with only one study there must still be some degree of doubt it is interesting to see it described in the text as 'there is conflicting evidence as to the most appropriate form of protection for the lingual nerve'.

It is interesting to compare the advice given regarding lingual flap use with that of extraction of third molars for orthodontic reasons. Here the guidelines state, 'Third molar removal may occasionally be indicated for orthodontic reasons. However, there is evidence, including a single prospective randomised controlled trial[3], that the removal of third molars in the lower arch will not prevent, limit, or cure imbrication of the lower anterior teeth. This trial albeit well-conducted suffers from a very high drop-out rate compared with the lingual flap study. This presentation of the evidence seems better balanced than that for the issue regarding lingual flap use. This issue apart, the guideline is a very helpful document and is strongly recommended to those developing their own local guidelines.

1. US Department of Health and Human Services. Agency for Health Care Policy and Research. Acute Pain Management: operative or medical procedures and trauma. Rockville (MD): The Agency; 1993. Clinical Practice Guideline No.1. AHCPR Publication No.92-0023. p.107
2. Robinson PP, Smith KG. Lingual nerve damage during lower third molar removal: a comparison of two surgical methods. Br Dent J 1996; 180:456–461.
3. Harradine NW, Pearson MH, Toth B. The effect of extraction of third molars on late lower incisor crowding: a randomised controlled trial. Br J Orthod 1998; 25:117–122.

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