NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

GUIDANCE EXECUTIVE (GE)

Review of TA1; Guidance on the extraction of wisdom teeth

This guidance was issued in March 2000, and was added to the static list of technology appraisals in January 2003.

1. Recommendation

TA1 should remain on the 'static guidance list'.

That we consult on this proposal.

2. Original remit(s)

To provide guidance on the extraction of wisdom teeth.

3. Current guidance

NICE has recommended that:

1.1 The practice of prophylactic removal of pathology-free impacted third molars should be discontinued in the NHS.

1.2 The standard routine programme of dental care by dental practitioners and/or paraprofessional staff, need be no different, in general, for pathology free impacted third molars (those requiring no additional investigations or procedures).

1.3 Surgical removal of impacted third molars should be limited to patients with evidence of pathology. Such pathology includes unrestorable caries, non-treatable pulpal and/or periapical pathology, cellulitis, abcess and osteomyelitis, internal/external resorption of the tooth or adjacent teeth, fracture of tooth, disease of follicle including cyst/tumour, tooth/teeth impeding surgery or reconstructive jaw surgery, and when a tooth is involved in or within the field of tumour resection.

1.4 Specific attention is drawn to plaque formation and pericoronitis. Plaque formation is a risk factor but is not in itself an indication for surgery. The degree to which the severity or recurrence rate of pericoronitis should influence the decision for surgical removal of a third molar remains unclear. The evidence suggests that a first episode of pericoronitis, unless particularly severe, should not be considered an indication for surgery. Second or subsequent episodes should be considered the appropriate indication for surgery.

4. Rationale[1]

This review found no new evidence that would warrant a review of the recommendations in TA1. It remains the case that there is no reliable evidence to suggest that prophylactic removal of healthy impacted wisdom teeth is beneficial. However, there is some evidence to suggest that the recommendations of TA1 are controversial. It is therefore proposed to consult on the decision to keep this guidance on the static list to allow those who believe a review is required to provide evidence in support of that view.

5. Implications for other guidance producing programmes

There is no proposed or ongoing guidance development that overlaps with this review proposal.

6. New evidence

The search strategy from the original assessment report was re-run on the Cochrane Library, Medline, Medline In-Process and Embase. References from 2003 onwards were reviewed. Additional searches of clinical trials registries and other sources were also carried out. The results of the literature search are discussed in the 'Summary of evidence and implications for review' section below. See Appendix 2 for further details of ongoing and unpublished studies.

7. Summary of evidence and implications for review

The recommendations for future research in TA1 highlighted 2 ongoing randomised controlled trials (in the United States and in Denmark) comparing prophylactic extraction of wisdom teeth with management by deliberate retention. Full information on the Danish randomised control trial remains unavailable and the review proposal in 2003 considered the information available from the conference abstract (Vondeling et al. 1999).

The trial based in the United States has resulted in several published papers examining the 329 patients in this trial who had at least 1 asymptomatic wisdom tooth visible. Based on these analyses, the American Association of Oral and Maxillofacial Surgeons (AAOMS) recommended that wisdom teeth be removed by the time the patient is a young adult in order to prevent future problems and to ensure optimal healing. However, these recommendations faced criticism and the American Association of Public Health issued a policy in 2008 in which they opposed prophylactic removal of third molars, stating that it subjects individuals and society to unnecessary costs, avoidable morbidity, and the risks of permanent injury. The AAOMS published another white paper in 2011 stating that the decision regarding the why, when or how to treat third molar teeth is extremely complex and the risks of complications involved with early treatment of third molar teeth that are likely to cause problems versus the morbidity caused by retained third molar teeth and subsequent treatment in an older patient must be considered.

[1] A list of the options for consideration, and the consequences of each option is provided in Appendix 1 at the end of this paper

The largest UK-based study assessed X-rays for 420 patients (776 third molars) who were referred over a five month period. Thirty-four percent of third molars were mesioangular and there was radiographic evidence of distal second molar caries in 42% of these. The study concluded that distal caries in lower second molars related to a mesioangular third molar is common especially if the third molar is fully or partially erupted. The authors also stated that if such third molars are left in situ, close monitoring and regular 'bitewing' radiographs (which provide an image of the crowns of the top and bottom teeth on a single film) are recommended.

A Turkish study was identified which retrospectively reviewed clinical records and panoramic radiographs to evaluate the prevalence of second molar distal caries (in a Turkish population) and found that the prevalence rose from 20% to 47% when the third molar had an angulation of 31-70 degrees and 43% at 70-90 degrees. The authors concluded that these results justify the prophylactic removal of third molars erupted third molars that have an angulation of 30-90 degrees. However, the study did not study the effect of prophylactic removal itself.

Another study retrospectively assessed the records of 786 patients in South Korea who had their mandibular third molars removed over a 5 year period. The authors noted that among the 883 mandibular second molars, 152 (17.2%) had distal caries. Of these, 79.6% had mesial angulation of the third molars between 40 and 80 degrees.

A Cochrane review evaluated the effects of prophylactic removal of asymptomatic impacted wisdom teeth in adolescents and adults compared with the retention (conservative management) of these wisdom teeth (Mettes et al., 2012). No randomised controlled trials were identified that compared the removal of asymptomatic wisdom teeth with retention and reported quality of life. Although it did not specifically assess the available evidence relating to mesioangulation or horizontal partially erupted third molars in compromising the prognosis of the adjacent second molar, the review concluded that there is insufficient evidence to support or refute prophylactic removal of impacted wisdom teeth in adults and that watchful monitoring might be a more prudent strategy.

In 2012 the Faculty of Dental Surgery (the Royal College of Surgeons of England) wrote to NICE indicating that they were considering a review of their own 2004 clinical guideline on the management of patients with third molar teeth (this review is now ongoing). They noted that several members of their Clinical Standards Committee believe that there is increasing pressure for TA1 to be reviewed on the basis of evidence that retention of wisdom teeth (with or without pathology of the tooth itself) may result in second molar caries with subsequent additional treatment and loss of the second molar. They were also concerned that the guidance resulted in people undergoing surgery at a later age than was previously the case, resulting in additional complications.

The studies highlighted by the Faculty of Dental Surgery were relatively small and of a retrospective observational nature. Although the studies might suggest a link between mesioangulation (and/or level of impaction) and distal caries in the second molar, the studies do not directly assess outcomes associated with prophylactic removal of wisdom teeth itself.

A recent publication in the British Dental Journal explored the effects of NICE TA1 on the management of third molar teeth (McArdle LW and Renton T, 2012). This study analysed data obtained from several NHS databases and explored the age of patients requiring third molar removal, the number of patients having third molars removed and the clinical indications for third molar surgery activity in secondary care between 1989 and 2009. The mean age of patients increased from 25 years in 2000 to 32 years in 2010. During the 1990s, the number of patients who had been admitted to hospital for either a day-case or in-patient procedure under general anaesthetic or intravenous sedation in England and Wales averaged approximately 60,000 patients per year for the whole of the decade. In the first half of the 2000s patient numbers started to decline and by 2003, the data suggested less than 40,000 patients per annum were having third molar treatment. Over the latter 5 years of the 2000s, the number of patients having their third molar removed increased to approximately 77,000 patients per annum (2009/10). The authors hypothesise 2 potential reasons for the increase in secondary care activity:

- The possible influence of the new General Dental Services contract in England and Wales in 2005 (which the authors suggest may incentivise dentists to refer patients requiring some of the more complex treatment items to other providers)

- A link between the increasing age of patients and the increasing incidence of caries related to third molars (which increased from 10% in 1995 to 30% by 2009 as the main clinical indication at diagnosis)

The authors concluded that the management of patients with third molars has been influenced by NICE TA1 but this has not resulted in reducing the number of patients requiring third molar removal. However, the authors acknowledged that coding and data collection for third molars is not uniform which may lead to potential misrepresentation of the data. Similar to the conclusion of the review of the studies highlighted by the Faculty of Dental Surgery, this publication may suggest a link between mesioangulation (and/or level of impaction) and distal caries, but does not directly assess outcomes associated with prophylactic removal of wisdom teeth itself.

A recent opinion piece by Mansoor et al (2013) highlighted that there may be growing evidence of people developing caries in an adjacent tooth the treatment of which is not being met because of the existing NICE guideline. However, Fernandes et al (2013) that although the research base for what happens if third molars are left may not be strong, we do know that taking out asymptomatic wisdom teeth is often associated with some fairly unpleasant side effects. Fernandes et al concluded that further research is clearly still required to improve the evidence base from which to make the conclusion that asymptomatic third molars should be left alone.

Overall, there does not appear to be any strong or robust evidence since publication of the original guidance to warrant a review of the recommendations in TA1, under the current methods that underpin the technology appraisals process. It is important to note that the NICE Guide to the Methods of Technology Appraisal 2013 states that:

"Section 2.1 The Appraisal Committee makes recommendations to the Institute regarding the clinical and cost effectiveness of treatments for use within the NHS. It also the role of the Appraisal Committee not to recommend treatments if the benefits to patients are unproven."

Therefore the guidance should remain static, but it is acknowledged that there are some articles expressing disagreement with the guidance.

8. Equality issues

No equality issues were raised in the original guidance. In 2013, NHS England set up a task group to look at how oral health can be improved for people who, because of their personal situation find accessing dental services difficult. The focus will be on the needs of vulnerable people and communities who are not already using services and tailoring the quality of care to their individual needs. (http://www.england.nhs.uk/ourwork/qual-clin-lead/calltoaction/dental-call-to-action/)

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Appendix 1 – explanation of options

When considering whether to review one of its Technology Appraisals NICE must select one of the options in the table below:

Options	**Consequence**	**Selected – 'Yes/No'**
A review of the guidance should be planned into the appraisal work programme. The review will be conducted through the [specify STA or MTA] process.	A review of the appraisal will be planned into the NICE's work programme.	No
The decision to review the guidance should be deferred to [specify date or trial].	NICE will reconsider whether a review is necessary at the specified date.	No
A review of the guidance should be combined with a review of a related technology appraisal. The review will be conducted through the MTA process.	A review of the appraisal(s) will be planned into NICE's work programme as a Multiple Technology Appraisal, alongside the specified related technology.	No
A review of the guidance should be combined with a new technology appraisal that has recently been referred to NICE. The review will be conducted through the MTA process.	A review of the appraisal(s) will be planned into NICE's work programme as a Multiple Technology Appraisal, alongside the newly referred technology.	No
The guidance should be incorporated into an on-going clinical guideline.	The on-going guideline will include the recommendations of the technology appraisal. The technology appraisal will remain extant alongside the guideline. Normally it will also be recommended that the technology appraisal guidance is moved to the static list until such time as the clinical guideline is considered for review. This option has the effect of preserving the funding direction associated with a positive recommendation in a NICE technology appraisal.	No

Options	Consequence	Selected – 'Yes/No'
The guidance should be updated in an on-going clinical guideline.	Responsibility for the updating the technology appraisal passes to the NICE Clinical Guidelines programme. Once the guideline is published the technology appraisal will be withdrawn. Note that this option does not preserve the funding direction associated with a positive recommendation in a NICE Technology Appraisal. However, if the recommendations are unchanged from the technology appraisal, the technology appraisal can be left in place (effectively the same as incorporation).	No
The guidance should remain on the 'static guidance list'.	The guidance will remain in place, in its current form, unless NICE becomes aware of substantive information which would make it reconsider. Literature searches are carried out every 5 years to check whether any of the Appraisals on the static list should be flagged for review.	Yes

NICE would typically consider updating a technology appraisal in an ongoing guideline if the following criteria were met:

i. The technology falls within the scope of a clinical guideline (or public health guidance)

ii. There is no proposed change to an existing Patient Access Scheme or Flexible Pricing arrangement for the technology, or no new proposal(s) for such a scheme or arrangement

iii. There is no new evidence that is likely to lead to a significant change in the clinical and cost effectiveness of a treatment

iv. The treatment is well established and embedded in the NHS. Evidence that a treatment is not well established or embedded may include;

- Spending on a treatment for the indication which was the subject of the appraisal continues to rise
- There is evidence of unjustified variation across the country in access to a treatment
- There is plausible and verifiable information to suggest that the availability of the treatment is likely to suffer if the funding direction were removed

- The treatment is excluded from the Payment by Results tariff

v. Stakeholder opinion, expressed in response to review consultation, is broadly supportive of the proposal.

Appendix 2 – supporting information

Relevant Institute work

Published

HealOzone for the treatment of tooth decay (occlusal pit and fissure caries and root caries) TA92 July 2005.

Dental recall: Recall interval between routine dental examinations (CG19) October 2004.

In progress

Oral health: guidance for dental health practitioners on promoting oral health, including making a visit to the dentist a positive experience Public Health guidance in progress.

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