NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Multiple Technology Appraisal

Prophylactic removal of impacted third molars

Final scope

Remit/appraisal objective

To appraise the clinical and cost effectiveness of the prophylactic removal of impacted mandibular third molars (partial review of NICE technology appraisal 1).

Background

Permanent molar teeth normally erupt from the age of 6 onwards, with the third molars (wisdom teeth) being the last to erupt, usually between the ages of 18 and 24 years. Wisdom teeth may erupt normally into correct dental alignment and function, or conversely develop in non- or minimally functional positions. Impaction occurs when there is prevention of complete eruption due to lack of space, obstruction or development in an abnormal position. This may result in a tooth erupting partially or not at all. Impaction may be associated with pathological changes including pericoronitis (inflammation of the gums surrounding the crown of a tooth), an increased risk of decay and disease in adjacent teeth, and orthodontic problems in later life.

The number of patients having their third molar removed has been thought to have increased to approximately 77,000 patients per year more in 2010[1].

Third molar procedures are generally suitable for day care management and it is recognised that treatment under local anaesthesia with or without sedation is associated with reduced complication rates. Some of the risks associated with this procedure include infection, delayed healing, nerve damage (which can cause pain or a tingling sensation and numbness in the tongue, lower lip, chin, teeth and gums) and ‘dry socket’, which is a dull, aching sensation in the gum or jaw.

NICE technology appraisal 1 recommends that impacted wisdom teeth that are free from disease (healthy) should not be operated on. People who have impacted wisdom teeth that are not causing problems should visit their dentist for their usual check-ups. Only people who have diseased wisdom teeth, or other problems with their mouth, should have their wisdom teeth removed. Examples include untreatable tooth decay, abscesses, cysts or tumours, disease of the tissues around the tooth or where the tooth is in the way of other surgery. The guidance states that 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).

Some studies have suggested that third molars that are at an angle facing towards the front of the mouth (mesioangular), away from the tooth next to it or impacted horizontally may increase the risk of decay in adjacent second molars. This review of NICE technology appraisal 1 will allow for consideration of this evidence.

The technology

Reasons for prophylactically removing asymptomatic or pathology-free impacted third molars could be to reduce the risk of infection, untreatable decay, cysts, tumours, and destruction of adjacent teeth and bone.

Conventional extraction of a fully erupted wisdom tooth involves using dental extraction forceps. Surgical removal of a tooth is dependent upon its status such as the degree or complexity of impaction. Generally it involves raising of soft tissue flaps for adequate exposure of bone and/or tooth (using water-cooled rotary instruments with or without a chisel) and removal with forceps.

Intervention(s)	Prophylactic removal of third molars
Population(s)	People with pathology-free or trouble-free impacted mandibular third molars
Comparators	Standard care without prophylactic removal of third molars
Outcomes	The outcome measures to be considered include: • pathology associated with retention of third molars • post-operative complications following extraction (for example, pain, dry socket, nerve injury) • adverse effects of treatment • health-related quality of life.
Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective.

Other considerations	If evidence allows, consideration may be given to the following subgroups: • People with mesioangular or horizontally impacted third molars
Related NICE recommendations and NICE Pathways	Related Technology Appraisals: 'Guidance on the extraction of wisdom teeth' (2000). NICE Technology Appraisal 1. Under review as part of this appraisal. HealOzone for the treatment of tooth decay (occlusal pit and fissure caries and root caries) (2005). NICE technology appraisal 92. Static list. Related Guidelines: 'Dental checks: intervals between oral health reviews' (2004). NICE guideline 19. Static list. Related Public Health Guidance/Guidelines: Oral health improvement approaches for local authorities and their partners' (2014). NICE public health guideline 55. Related Quality Standards: http://www.nice.org.uk/guidance/qualitystandards/qualitystandards.jsp 'Surgical site infection' (2013). NICE quality standard 49. Related NICE Pathways: Oral and dental health (2015) NICE pathway http://pathways.nice.org.uk/pathways/oral-health-improvement-for-local-authorities-and-their-partners
Related National Policy	Chapter 107. Specialist dentistry services for children and young people http://www.england.nhs.uk/wp-content/uploads/2014/01/pss-manual.pdf Department of Health, NHS Outcomes Framework 2015-2016, Dec 2014. Domain 4a (iii). https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385749/NHS_Outcomes_Framework.pdf

References

1. McArdle LW and Renton T (2012). The effects of NICE guidelines on the management of third molar teeth. British Dental Journal 213, E8