• Potential Conflict of Interest
  • JQS serves as Chair of the Board of OMS National Insurance Company (OMSNIC), a risk retention group (RRG) and also serves on several committees for the company
  • JQS serves as Chair of the Board of FORTRESS, a national dental professional liability insurance carrier
  • JQS is a tenured Professor full time faculty at the University of Minnesota and currently serves as Program Director for the Advanced Education Program in Oral and Maxillofacial Surgery
CHOOSING WISELY-
THIRD MOLARS

JAMES Q. SWIFT DDS
It has been estimated that only 10 to 20 percent of all procedures currently used in medical practice have been shown to be efficacious by controlled trial.
A systematic review is a high level overview of primary research on a particular research question that tries to identify, select, synthesize and appraise all high quality research evidence related to that question in order to answer it.

SYSTEMATIC REVIEWS-KEY POINTS
(COCHRANE)

• Collate all evidence that fits pre specified eligibility criteria
• Minimize bias by using explicit systematic methods
• Cochrane Collaboration prepares maintains and promotes systematic review to inform healthcare decisions.
The Evidence-based Medicine Triad
Source: Florida State University, College of Medicine. Retrieved 08.07.11
Policy Statement Database

Opposition to Prophylactic Removal of Third Molars (Wisdom Teeth)

Policy Date: 10/28/2008
Policy Number: 20085
Third-molar surgery is a multibillion-dollar industry that generates significant income for the dental profession, particularly oral and maxillofacial surgeons. It is driven by misinformation and myths that have been exposed before but that continue to be promulgated by the profession.
Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials

Gordon C S Smith, Jill P Pell
Lists
Read the Lists of Tests or Procedures that Should be Questioned
Perspective

Choosing Wisely — The Politics and Economics of Labeling Low-Value Services

Nancy E. Morden, M.D., M.P.H., Carrie H. Colla, Ph.D., Thomas D. Sequist, M.D., M.P.H., and Meredith B. Rosenthal, Ph.D.

Comments open through February 19, 2014
Antibiotics should not be used for apparent viral respiratory illnesses (sinusitis, pharyngitis, bronchitis).

Although overall antibiotic prescription rates for children have fallen, they still remain alarmingly high. Unnecessary medication use for viral respiratory illnesses can lead to antibiotic resistance and contributes to higher health care costs and the risks of adverse events.

Cough and cold medicines should not be prescribed or recommended for respiratory illnesses in children under four years of age.

Research has shown these products offer little benefit to young children and can have potentially serious side effects. Many cough and cold products for children have more than one ingredient, increasing the chance of accidental overdose if combined with another product.
Computed tomography (CT) scans are not necessary in the immediate evaluation of minor head injuries; clinical observation/Pediatric Emergency Care Applied Research Network (PECARN) criteria should be used to determine whether imaging is indicated.

Minor head injuries occur commonly in children and adolescents. Approximately 50% of children who visit hospital emergency departments with a head injury are given a CT scan, many of which may be unnecessary. Unnecessary exposure to x-rays poses considerable danger to children including increasing the lifetime risk of cancer because a child’s brain tissue is more sensitive to ionizing radiation. Unnecessary CT scans impose undue costs to the health care system. Clinical observation prior to CT decision-making for children with minor head injuries is an effective approach.

Neuroimaging (CT, MRI) is not necessary in a child with simple febrile seizure.

CT scanning is associated with radiation exposure that may escalate future cancer risk. MRI also is associated with risks from required sedation and high cost. The literature does not support the use of skull films in the evaluation of a child with a febrile seizure. Clinicians evaluating infants or young children after a simple febrile seizure should direct their attention toward identifying the cause of the child’s fever.

Computed tomography (CT) scans are not necessary in the routine evaluation of abdominal pain.

Utilization of CT imaging in the emergency department evaluation of children with abdominal pain is increasing. The increased lifetime risk for cancer due to excess radiation exposure is of special concern given the acute sensitivity of children’s organs. There also is the potential for radiation overdose with inappropriate CT protocols.
Avoid performing routine post-operative deep vein thrombosis ultrasonography screening in patients who undergo elective hip or knee arthroplasty.

Since ultrasound is not effective at diagnosing unsuspected deep vein thrombosis (DVT) and appropriate alternative screening tests do not exist, if there is no change in the patient's clinical status, routine post-operative screening for DVT after hip or knee arthroplasty does not change outcomes or clinical management.

Don’t use needle lavage to treat patients with symptomatic osteoarthritis of the knee for long-term relief.

The use of needle lavage in patients with symptomatic osteoarthritis of the knee does not lead to measurable improvements in pain, function, 50-foot walking time, stiffness, tenderness or swelling.
3. Don’t use glucosamine and chondroitin to treat patients with symptomatic osteoarthritis of the knee.
Both glucosamine and chondroitin sulfate do not provide relief for patients with symptomatic osteoarthritis of the knee.

4. Don’t use lateral wedge insoles to treat patients with symptomatic medial compartment osteoarthritis of the knee.
In patients with symptomatic osteoarthritis of the knee, the use of lateral wedge or neutral insoles does not improve pain or functional outcomes. Comparisons between lateral and neutral heel wedges were investigated, as were comparisons between lateral wedged insoles and lateral wedged insoles with subtalar strapping. The systematic review concludes that there is only limited evidence for the effectiveness of lateral heel wedges and related orthoses. In addition, the possibility exists that those who do not use them may experience fewer symptoms from osteoarthritis of the knee.

5. Don’t use post-operative splinting of the wrist after carpal tunnel release for long-term relief.
Routine post-operative splinting of the wrist after the carpal tunnel release procedure showed no benefit in grip or lateral pinch strength or bowstringing. In addition, the research showed no effect in complication rates, subjective outcomes or patient satisfaction. Clinicians may wish to provide protection for the wrist in a working environment or for temporary protection. However, objective criteria for their appropriate use do not exist. Clinicians should be aware of the detrimental affects including adhesion formation, stiffness and prevention of nerve and tendon movement.
Don't remove wisdom teeth without pathological justification.
Insufficient evidence exists to either support or refute the routine removal of non-painful submerged wisdom teeth. Though sometimes it can be difficult for dentists to predict which wisdom teeth will become diseased versus which will remain healthy, providers should use clinical evaluation and imaging as needed to weigh risks and benefits and determine treatment recommendations. Ultimately, there should be evidence of pathology or prediction of pathology with reasonable certainty to recommend removal of wisdom teeth.
Reference List

Choosing Wisely Adult Recommendation Statements

Don’t extract third molars without pathologic justification.


McArdle LW, Renton T, The effects of NICE guidelines on the management of third molar teeth, Refereed Paper, British Dental Journal 2912;213:E8


DOI: 10.1038/sj.bdj.2012.780 27 references, reporting outcomes and incidence of disease after implementation of the NICE guidelines pertaining to removal of third molars in the year 2000. There was a 30% reduction in the frequency of third molar removal in the affected population after implementation of the guidelines. By 2010 there was an increase in the frequency of removal of third molars by more than 97% with an increase in age of the population treated from 25 years of age to 32 years of age resulting in a more senior patient population undergoing treatment. Summation of authors is that “the number of patients requiring third molar removal will always be
AAOMS White Paper on Third Molar Data-March 2007-Systematic retrospective review of 250 papers selected from several databases by 6 oral and maxillofacial surgeons and one periodontist. Topics addressed included natural history of third molars, periodontal considerations in third molar removal, microflora around the second and third molars, effects of age on various parameters relating to third molars, orthodontic and prosthodontic considerations in the removal of third molars, current imaging techniques, possible role of coronectomy in third molar removal, role of lingual flap elevation and lingual retraction in the management of third molars, should anything be placed in the socket following third molar removal, and nerve damage, prevention, evaluation and management in relation to third
Mettes TG, Ghaeminia H, Nienhuijs MEL, Perry J, van der Sanden WJM, Plasschaert A, Surgical removal versus retention for the management of asymptomatic impacted wisdom teeth. Cochrane Database of Systematic Reviews 2012, Issue 6, Art. No.:CD003879 (also cited in the Dental Elf). Insufficient evidence was found to support or refute routine prophylactic removal of asymptomatic impacted wisdom teeth in adults. A single trial comparing removal versus retention found no evidence of a difference on late lower incisor crowding at 5 years, however no other relevant outcomes were measured. Watchful monitoring or asymptomatic third molar teeth may be a more prudent strategy.
Predictors of Third Molar Impaction: A Systematic Review and Meta-analysis

K. Carter¹ and S. Worthington²

Abstract
The objective of this meta-analysis was to evaluate the prevalence of third molar (M3) impaction worldwide in individuals ≥17 y, from either sex, who had undergone oral radiography and presented with no orofacial syndromes or defects. We performed a literature search using PubMed, ISI Web of Science, and Google Scholar and retrieved English and non-English articles from any period for review. We included studies reporting M3 impaction prevalence based on radiographic examination. Risk of bias was assessed regarding individuals with craniofacial syndromes, prior extraction of permanent teeth, multiple effect size estimates, and studies conflating lack of eruption with impaction. Our search yielded 49 studies involving 83,484 individuals. Worldwide M3 impaction prevalence was found to be 24.40% (95% confidence interval [95% CI]: 18.97% to 30.80%). The odds of M3 impaction in the mandible were 57.58% (95% CI: 43.3% to 68.3%, P < 0.0001) higher than in the maxilla, but we did not detect any difference in the odds of impaction between men and women (18.62%, 95% CI: −4.9% to 48.0%, P = 0.12). Mesioangular impaction was most common (41.17%, 95% CI: 33.8% to 49.0%), followed by vertical (25.55%, 95% CI: 20.0% to 32.0%), distoangular (12.17%, 95% CI: 9.1% to 16.0%), and horizontal (11.06%, 95% CI: 8.3% to 14.6%). Impaction of 1 (42.71%, 95% CI: 30.0% to 56.5%) or 2 (29.64%, 95% CI: 19.5% to 42.3%) M3s was much more common than 3 (12.04%, 95% CI: 7.2% to 19.3%) or 4 (8.74%, 95% CI: 5.2% to 14.5%). There were small differences among impaction prevalence depending on geographic region (F test, P = 0.049). Selection bias was evident because individuals had to undergo radiographic examination to be included in the analysis. The subgroup analysis by sex was underpowered. Worldwide M3 impaction prevalence is lower than previously reported. The percentage of individuals with impacted M3s is much smaller than the percentage that undergoes clinical treatment for M3 problems.

Keywords: dentition, anatomy, sex, population, maxilla, mandible
The indications for third-molar extractions

Martin B. Steed, DDS

Editor's note: This new feature, which will appear occasionally, will focus on content pertinent to the specialty areas of dentistry.

Defining the indications for third-molar extraction continues to be a topic of controversy among dentists, other health care professionals, the public and third parties such as insurance companies and government agencies. In a systematic review, Mettes and colleagues found no evidence to support or refute removal of third molars to prevent health-related complications.

The dentist's management of third molars commonly hinges on identifying the presence of symptoms or disease that clearly is attributable to the third molar. Dodson developed a useful guide (Table 1) that serves as a systematic and unambiguous way to classify third molars. According to Dodson, patients' symptoms are designated as present and attributable to the third molar (Sx+) or as absent (Sx–). In addition, clinical or radiographic evidence of disease is evaluated and designated as present (D+) or absent (D–).

Disease status is of importance to Dodson's classification system and its clinical relevance. Investigators in numerous studies have discussed the epidemiology and management of so-called asymptomatic third molars. The term "asymptomatic" is an insufficient description of the clinical status of the third molar. Just as in many other diseases, such as diabetes and cardiovascular disease, the absence of symptoms in a third molar does not always reflect true absence of disease. This is illustrated in group C.

At the initial visit, the clinician can ascertain the presence or absence of symptoms by obtaining a thorough medical history from the patient. Many patients report that they are not experiencing any symptoms. Other patients report severe pain. The clinician should then conduct a meticulous examination to determine the presence or absence of disease.

ABSTRACT

Background. Defining the indications for third-molar extraction continues to be a topic of controversy. The dentist's management of third molars commonly hinges on identifying the presence of symptoms or disease that clearly is attributable to the third molar. Use of a guide that serves as a systematic and unambiguous way to classify third molars has been advocated.

Results. Patients' symptoms are designated as present and attributable to the third molar (Sx+) or as absent (Sx–). In addition, clinical or radiographic evidence of disease is evaluated and designated as present (D+) or absent (D–).

Conclusions. Evidence-based clinical data developed from prospective investigations have shown that an asymptomatic third molar does not necessarily reflect the absence of disease.

Key Words. Tooth extraction; third molars; literature review; practice guidelines; oral surgical procedures; oral and maxillofacial surgery evidence-based dentistry.

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CURRENT GUIDELINES AND RECOMMENDATIONS
HEALTH PARTNERS CLINICAL GUIDELINES

- Third molars
  - Erupted
  - Partially erupted
  - Unerupted
Target Population

Patients in the HealthPartners Dental Groups with pathologic, symptomatic, or asymptomatic third molars

Interventions and Practices Considered

1. Evaluation of patients for extraction or non-extraction of third molars based on defined criteria
2. Monitoring of asymptomatic patients over 30 years of age by annual radiograph and clinical examination
3. Referral of asymptomatic patients 14 to 30 years of age to oral surgeon for consultation
4. Indications and contraindications for removal of:
   • Erupted third molars
   • Partially erupted third molars
   • Unerupted third molars
Description of Methods Used to Collect/Select the Evidence

An online search from 1997-present was conducted using MedLine, The Cochrane Collaboration, and the white paper from the American Association of Oral and Maxillofacial Surgeons (AAOMS). Articles on third molars, extractions, and indications/contraindications for extraction were included.
Treatment Criteria for Removal of Third Molars: Unerupted Third Molars

Definition
An unerupted third molar is one that has not penetrated through the bone and/or soft tissue and entered the oral cavity by an age when such eruption is expected.

Introduction
The indications for removal of unerupted third molars when associated with pathology have been clearly established. Absolute indications and contraindications for the removal of unerupted asymptomatic third molars cannot be established because no long term studies exist which validate the benefit to the patient either of early removal or deliberate retention of these teeth.

*Note: Indications and contraindications are relative, not absolute.

Indications for Removal*
Indications for Removal*

1. Pathology associated with tooth follicle (e.g., cyst, tumor).
2. To facilitate the management of periodontal disease.
3. Resorption of adjacent tooth.
4. To facilitate orthodontic treatment.
5. Unerupted molar under a prosthetic appliance.
6. Tooth in the line of a jaw fracture.
7. Tooth involved in the resection of pathologic lesion.
8. Tooth interfering with orthognathic or reconstructive surgery.
9. Prophylactic tooth removal, when indicated, for patients with medical or surgical conditions or treatments (e.g., organ transplants, alloplastic implants, chemotherapy, radiation therapy).
10. Internal or external resorption of tooth.
Management of Third Molar Teeth was developed by the American Association of Oral and Maxillofacial Surgeons (AAOMS) and is supported by the following organizations:

- American Academy of Oral and Maxillofacial Pathologists (AAOMP)
- American Academy of Oral and Maxillofacial Radiology (AAOMR)
- American Academy of Pediatric Dentistry (AAPD)
- American Academy of Periodontology (AAP)
- American Association of Endodontists (AAE)

- American Association of Orthodontists (AAO)
- American College of Oral and Maxillofacial Surgeons (ACOMS)
- American College of Prosthodontists (ACP)
- British Association of Oral and Maxillofacial Surgeons (BAOMS)
- Canadian Association of Oral and Maxillofacial Surgeons (CAOMS)
- International Association of Oral and Maxillofacial Surgeons (IAOMS)
AAOMS WHITE PAPER ON THIRD MOLARS 2007

• Task Force review
• Current literature relating to third molars and their removal
• Database reviews
• Case reports excluded
TOPICS

- Natural history of third molars
- Periodontal considerations in third molars
- Microflora around the second and third molars
- Effects of age on various parameters relating to third molars
TOPICS ADDRESSED

• Orthodontic and prosthodontic considerations in removal of third molars
• Current imaging techniques
• Role of coronectomy in third molar removal
• Role of lingual flap elevation and lingual retraction in the management of third molars
TOPICS ADDRESSED

• Should anything be placed in the sockets following third molar removal
• Nerve damage-prevention, evaluation and management in relation to third molars
CONCLUSIONS
THE MICROFLORA AROUND THE SECOND AND THIRD MOLARS

• Absence of symptoms does not indicate absence of disease or pathology
• Pathogenic bacteria (red and orange complexes) in clinically significant numbers exist in and around asymptomatic third molars
CONCLUSIONS
THE MICROFLORA AROUND THE SECOND AND THIRD MOLARS

• Periodontal disease as indicated by probing depths >4 mm exists in and around asymptomatic third molars
• Indicators of chronic inflammation exist in periodontal pockets in and around asymptomatic third molars
• Periodontal disease progresses in the absence of symptoms
AAOMS Position Statement on Third Molar Management

As a means of helping to clarify what is known with respect to third molar management, the AAOMS offers the following position statement:

Predicated on the best evidence-based data, third molar teeth that are associated with disease, or are at high risk of developing disease, should be surgically managed. In the absence of disease or significant risk of disease, active clinical and radiographic surveillance is indicated.
METTES T, ET AL “SURGICAL REMOVAL VERSUS RETENTION FOR THE MANAGEMENT OF ASYMPTOMATIC IMPACTED WISDOM TEETH”

- Cochrane Collaboration
- Published online June 13, 2012
• This review found no evidence (emphasis added) to support or refute routine prophylactic removal of asymptomatic wisdom teeth in adults.
• The only trial provided no evidence that removal of impacted wisdom teeth has an effect on the late crowding of front teeth.
NICE GUIDELINES (1)

- Impacted third molars that are free from disease should not be operated upon
  - There is no reliable research to suggest that this practice benefits patients
  - Patients are being exposed to the risk of surgery
- Patients who have impacted wisdom teeth that are not causing problems should visit the GDPs for their usual check-ups
NICE GUIDELINES (2)

- Other patients who have diseased wisdom teeth or other problems with their mouth, should have their wisdom teeth removed
  - Untreatable tooth decay
  - Abscesses
  - Cyst or tumour
  - Diseases of the tissues around the tooth
  - If the tooth is in the way of other surgery
3rd molar removal is as common now as it was before the introduction of clinical guidelines.

Mean age of patients increased from 25 years in 2000 to 32 years in 2010.

After introduction of guidelines number of patients requiring 3rd molar removal dropped by over 30%.
Since 2003 the number of patients needing third molar removal increased by 97%.

Significant increase in caries resulted was a primary indication for increase in third molar removal.

NICE guidelines have not resulted in any reduction in the number of patients requiring 3rd molar removal.

NICE guidelines may be flawed and require review (emphasis added).
SOME ASYMPTOMATIC THIRD MOLARS
CONCLUSIONS

• Evidence based outcomes regarding third molar management are sparse at best
• Clinicians must make judgments based upon clinical observations, experience and projection/estimation of outcomes of those decisions
• Risk/benefit ratio must be considered in decision making
• Cost/benefit may be associated with health insurance coverage
THANK YOU