

The benefits of specialist prophylactic wisdom tooth removal

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WISDOM TEETH are a major cause of human morbidity and dental disease.

Because of the multitude of problems that they cause, & also due to the high rates of surgical complications from their removal, most people will be referred to specialist oral & maxillofacial surgeons for the specific management of their wisdom teeth.

Prophylactic wisdom tooth removal

The human species has a complex evolutionary & social phylogeny. With increasing life span, & the evolution of surgical science, disease prevention & prophylactic surgical care for developmental or vestigial organ disease in the young, & for occult metabolic or tumour disease in the middle-aged, is increasing.

Medicine is replete with examples of prophylactic screening. Routine bowel colonoscopy, pap smears, breast screening, chest x-rays, ECG screening, PSA assays & general blood tests are a part of every-day medical practice. Preventative medicine extends life, & reduces the chance for debilitating & life threatening disease developing before it starts.

Dentistry is all about prevention as well. In childhood, 6 monthly checks with the dentist for detection of early decay or gum disease is as important as adolescent orthodontics to establish healthy & straight teeth for a life time of perfect dental health.

Wisdom teeth are a major cause of acute dental disease. The last teeth to develop, they often try to erupt into an arch which has long since stopped growing.

3rd molars may have been useful for the short-lived *Homo erectus*, or *Australopithecus* species. For the much longer lived *Homo sapiens*, wisdom teeth are vestigial; meaning for most people, they have no function; however they can still cause trouble. Modern dentistry enables routine checks to make sure wisdom teeth are not developing problems.

For the diseases they cause, medicine & dentistry has created their own specialty, Oral & Maxillofacial Surgery, to deal with them in a way that minimises risk & surgical complications.

Wisdom teeth are a major source of developmental lesions of the jaws, particularly if they become impacted. Infections are common, & dental disease such as caries or periodontal disease may affect the health & longevity of the forward second molars.

Jaw-angle fractures following minor knocks during contact sports commonly involve impacted wisdom teeth. Jaw joint disease can develop, & front teeth may become crowded as wisdom teeth attempt to erupt into a restricted arch; an expensive situation especially if orthodontics needs to be repeated to realign the teeth.

Of the entire population, ~1% of people will retain all their wisdom teeth over their lifetime. Wisdom teeth are a major source of morbidity & jaw disease; dentists, specialist surgeons & orthodontists will usually recommend their prophylactic removal before they become a problem.

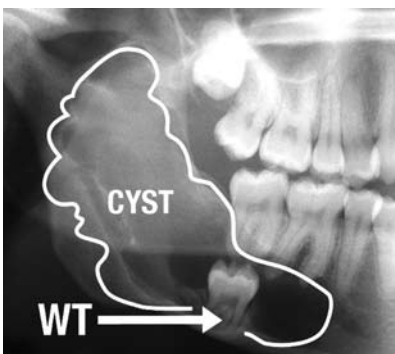
It is not logical preventative practice to clinically advise for removal of impacted wisdom teeth only after they have caused problems. "Problems" usually represents serious or co-morbid dental disease for which treatment is usually complex, prolonged and destructive.

Contrary to popular belief, wisdom teeth removal (only when performed by specialist oral & maxillofacial surgeons) can be comfortable & quick operations, with few if any side effects. Complications of wisdom tooth removal does occur however & you should carefully question your surgeon as to their specialist oral surgical credentials.

You are assured that all specialist accredited surgeons who belong to the Australian & New Zealand Association of Oral & Maxillofacial Surgeons (ANZAOMS) actively maintain competency & learning in all facets of oral & maxillofacial surgery.

1. ODONTOGENIC TUMOURS & CYSTS

This patient was originally referred by her orthodontist for a routine OPG screening film at 18 years. A previous screening film at 14 years showed early developing wisdom teeth, without sign of developing tumour.



Impacted wisdom tooth seen at base of jaw, with large odontogenic keratocyst occupying almost entirety of right side of mandible. Comparison is made to normal left side; with presence of a 'normal' impacted wisdom tooth.

2. DENTAL DISEASE AFFECTING THE FORWARD 2nd MOLAR

This 18 year old male presents for normal wisdom tooth assessment following completion of orthodontic treatment. Partially erupted & horizontally impacted wisdom tooth (third molar) has caused deep decay on distal (backside) surface of forward second molar tooth.



X-ray shows impacted wisdom tooth causing plaque trap & deep decay on distal (backside) of forward

second molar. After wisdom tooth removal, second molar tooth is treated with a large restoration & root canal filling, reducing the life-span of the tooth in an otherwise perfect span of teeth.

This 40 year old female presents with intractable right sided jaw pain whilst overseas. Early return from her holiday leads to emergency dental review & diagnosis of a deeply decayed second molar caused by the impacted wisdom tooth. Her dentist had never suggested removal of the wisdom tooth, & instead has removed the 1st molar, where root tips are seen to remain.



X-ray shows extent of decay into the backside surface of the second molar. The combination of decay &

gross loss of distal alveolar bone necessitate removal of both teeth & replacement of both the 1st & 2nd molars with dental implants (after removal of retained roots & abscess tissue). Both of her 2nd molar problems would have been circumvented with early removal of the wisdom tooth.

A 32 year old male presenting with local pain & deeply impacted lower right wisdom tooth. His dentist had previously advised at 18 years of age to "remove it when you get problems."



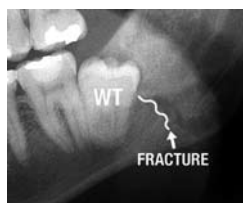
Removal at 32 years will leave a significant gum & bone defect that incompletely heals, & which grossly affects the periodontal

health & longevity of the forward 2nd molar. Current techniques of co-bone grafting (with wisdom tooth removal) can significantly improve the periodontal prognosis for the 2nd molar.

3. JAW FRACTURES CAUSED BY IMPACTED WISDOM TEETH

A 33 year old first grade Newcastle Knights rugby league player fractures mandible five weeks before career end.

X-ray shows non-displaced fractured mandible, with crack propagation occurring through deeply impacted left lower wisdom tooth. Wisdom teeth cause notch deformities at the angle of the jaw, making the area potentially vulnerable to fracture following small knocks during contact sports.







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4. JAW & FACIAL INFECTIONS CAUSED BY IMPACTED WISDOM TEETH

This 55 year old male presents with extensive swelling involving the right lower jaw, & extending into the neck affecting swallowing & breathing. 1 week of intravenous antibiotics followed before his wisdom teeth were removed under general anaesthesia.



Photo shows extent of swelling on patient's right side of neck & jaw; sometimes called 'Ludwig's Angina'. Swelling developed quickly over 24 hours; but left to develop, it can

quickly extend to involve the airway, whole neck & upper chest.

quickly extend to involve the airway, whole neck & upper chest.

5. ORTHODONTIC CROWDING CAUSED BY IMPACTED WISDOM TEETH



Occasionally lower incisor teeth may imbricate (overlap), requiring repeat orthodontics. Imbrication often develops as impacted wisdom teeth attempt to erupt into the early adult dental arch. Whilst wisdom tooth removal may prevent development of imbrication, it does not reverse imbrication already caused.

6. PROXIMAL STRUCTURES SUCH AS THE INFERIOR DENTAL NERVE

Normally the assessment of the relationship of the inferior dental nerve (IDN) is first made on OPG, & then where overlap is seen, by formal CT scan. If OPG determines a surgical risk to the IDN, CT allows for a more precise determination of nerve relationships & proximity to tooth structures; from there a surgical treatment plan can be safely formulated. Occasionally the roots may curve under a nerve trunk, or the nerve trunk can pass between roots or within the tooth structure itself; necessitating careful dissection under direct visual magnification. Tooth removal before root development in ages 13-17 years minimises risks of dental roots invaginating or compromising the main nerve trunk.



X-rays of 16 year old male compared to 25 year old male, showing relationship of root development to inferior dental nerve (IDN). X-ray of full developed tooth is further compared to extracted wisdom tooth showing grooving of inferior alveolar nerve (IDN) against the impacted wisdom tooth's roots.

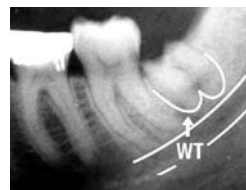
ADVICE FOR PATIENTS SEEKING WISDOM TEETH REMOVAL

Patients who seek wisdom teeth removal should know...

1. They should accept specialist treatment only by specialists who are full members of the Australian & New Zealand Association of Oral & Maxillofacial Surgeons (ANZAOMS),
2. Normally Oral & Maxillofacial Surgeons are both medical & dental specialists. Patients should ask for formal surgical credentials or proof that they are registered with both the NSW Dental & NSW Medical Boards as specialist oral & maxillofacial surgeons,
3. They should consider that general dentists or dental surgeons who maintain hospital dental GA lists may only have indemnity insurance to provide general dentistry (e.g. fillings & simple extractions), & may not have professional indemnity coverage to provide routine oral surgical services.
4. Only specialist Oral & Maxillofacial Surgeons offer the full range of coverage for specialist Medicare & insurance rebates for treatment of a range of conditions that may co-exist with impacted wisdom teeth.
5. Wisdom teeth either cause problems due to their impactions, or because of their partial eruptions through early to late adulthood.
6. Normally all developing or developed wisdom teeth will be advised for removal before they become a problem.
7. In young people, a tooth's roots have not totally formed, & bone surrounding the teeth is softer. Early removal means there is less risk of damage to nerves, bone or other teeth, & full bone regeneration is possible. Bone regeneration potential lessens after ~25 years of age.
8. Impacted wisdom teeth can lead to jaw fractures, tumour or cyst development, orthodontic crowding, local & regional swelling, neck infections, & destruction of the backside surface of the forward second molar tooth.
9. Normally wisdom teeth are removed by specialist surgeons in order to guard against surgical complications that commonly arise from untrained wisdom teeth removal. Only trained & registered surgical specialists are competent in the management of all possible surgical complications arising from wisdom tooth surgery.
10. Rates of surgical complications from specialist surgical practices are much lower when compared to general dental surgery practices that provide oral surgery; but complication rates are never zero. You should carefully consider the advice of your surgeon before embarking on any surgical treatment plan recommended to you.
11. Occasionally CT scans may be requested to formally identify local vital structures such as the Inferior Dental Nerve (IDN), prior to removing your lower wisdom tooth. Only CTs requested by a specialist dentists/surgeons attract Medicare rebates.
12. Not all wisdom teeth should be removed by oral & maxillofacial surgeons. Simple wisdom teeth may be competently & safely removed by experienced dentists or dental surgeons where only extraction forceps are required. Bone cutting & surgical tooth division implies a complexity of care that should only be performed by surgical specialists.

7. COMPLICATIONS OF WISDOM TOOTH REMOVAL BY NON-SURGICAL SPECIALISTS

This 38 year old female had her lower left wisdom tooth (presumably) removed 6 years previously during a three hour operation with her general dentist/dental surgeon. On-off left lower facial numbness has persisted over the years, & now her left face is grossly swollen from infection related to the retained wisdom tooth.



X-ray shows the presence of a decoronated wisdom tooth, with all the root structures remaining. The wisdom tooth is abscessed & now involves the inferior dental nerve. The retention of the wisdom tooth roots has also led to local infection in the cheek and face, as well as caries distal to the lower second molar, & local periodontal disease with bone loss.

This 31 year old female had her wisdom tooth removed by a general dental surgeon who claimed to be a “specialist oral surgeon”. 3 hours after commencing removal, he gave up, sewed the surgical defect over & repaired the surgically-damaged forward 2nd molar. 4 weeks later, & in intractable pain she self presents to an oral & maxillofacial surgeon. Under GA, the remaining fragment was safely removed away from the embedded inferior dental nerve.



Presenting specialist's x-ray shows terminal 3rd of wisdom tooth remaining in intimate contact with the inferior

dental nerve (which supplies lower lip & chin sensation). Gross surgical bone loss is demonstrated from a prolonged & abnormal surgical event, as well as a poorly contoured restoration of the backside surface of the 2nd molar. The 2nd molar now requires further root canal therapy.

This 45 year old female had her impacted lower right wisdom tooth removed by a dentist, with subsequent jaw fracture. Three operations later, multiple teeth have been removed, her jaw has had multiple plating & bone graft procedures, & her right lower face is completely numb. 15 years later the jaw is severely resorbed & weakened, & the patient has persisting complaint of chronic severe neuralgic type pain to her right chin & lower right lip.



Right lower jaw x-ray shows the presence of 3 titanium plates, 14 screws, & a retention wire. There is complete

severance of the inferior dental nerve, with local bone wasting & osteoporosis. Reconstruction followed a jaw fracture secondary to wisdom tooth removal by a general dentist.

This 22 year old female presented with considerable left facial infection affect-

ing swallowing & general health. Swelling developed ~2 days following wisdom tooth surgery (performed in a private hospital) by a general dentist/dental surgeon providing “minor oral surgery”.



Photo shows extensive left cheek swelling representing focal infection, extending under eye & under left jaw. 2 weeks

of in-hospital IV antibiotics followed with successful resolution of all disease. ♦

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Following brief periods in emergency medicine and psychiatry, and after completing his full surgical fellowship in the specialty (FRACDS OMS), Paul settled into private full time OMS practice in Newcastle. Paul has current visiting consultant appointments to Warners Bay, Toronto, and Newcastle Private Hospitals, and works with specific interest in reconstructive as well as orthognathic and corrective facial surgery.

Questions for CPD points

1. At what ages are screening OPGs recommended?

- 3, 10, 17, 24, 34 years
- 18mths, 6 years, 12, 18, 24 years
- 7, 14, 21, 28 and every decade thereafter
- Every decade of life beginning at 1 year of age

2. At approximately what age would you expect bone regeneration to not occur after wisdom tooth removal where demonstrable pre-operative bone loss is seen on OPG?

- 35 years
- 25 years
- 20 years
- 15 years

3. What investigation would you perform if you were to see >50% overlap of the inferior dental nerve to the roots of a wisdom tooth on an OPG?

- A postero-anterior mandibular plain film
- PA of the wisdom tooth region, with slight obliquity upwards
- A rotational tomogram with cross-sectional capacity
- A CT scan

4. What advantages are there to early removal of wisdom teeth?

- Full bone regeneration of surgical defect distal to forward second molar most likely

- Reduction of surgical risk to inferior dental nerve, by taking wisdom tooth before root development allows for later (adult) surgical compromise of this structure (the IDN)
- Quicker operation, fewer side effects, and faster recovery when performed by a surgical specialist
- All of the above.

5. What techniques are available for bone loss regeneration after wisdom tooth removal?

- None
- Gortex membrane, and guided tissue regeneration after the development of a distal periodontal pocket following wisdom tooth removal
- Hip graft to region secured with pin fixation
- Mineral bone particulate with collagen membrane overlay

6. What is the most common complication of wisdom tooth removal?

- swelling and post operative pain
- fractured jaw
- infection
- inferior alveolar nerve or lingual nerve damage resulting in lip, chin or tongue anaesthesia

7. What of the following are complications that can be prevented by

specialist prophylactic wisdom tooth removal?

- Odontogenic lesions
- Jaw fractures
- Tooth decay and periodontal disease affecting the forward 2nd molar
- None of the above

8. What techniques or situations are available to minimise nerve damage when removing wisdom teeth?

- Micro-surgical techniques
- Pre-operative CT scanning
- Specialist surgical management
- All of the above

9. What of the following lesions arise from wisdom teeth when left to treatment based on “you should only get them removed after you get a problem.”?

- Caries or periodontal disease affecting the distal surface of the forward second molar
- Large cystic or neoplastic lesions that affect the forward second molar, and regional anatomy, including sinus, nerve tissue, or osseous anatomy
- Infections involving the buccal space, infra-temporal region, infra-orbital region, sub mandibular region, and tissue planes of the neck and mediastinum
- All of the above