THIRD MOLARS: The whole story…..

FACT: Wisdom teeth have been causing problems for human beings for thousands of years. They continue to do so today and will continue to do so in the future.
FACT: The decision to remove them or leave them alone is not always straightforward

Problems caused by wisdom teeth include:
- pericoronitis (varies from a chronic low-grade recurrent infection to a severe or acute painful infection)
- third molar decay (decay that may be either restorable or unrestorable)
- distal cervical decay of the adjacent molar tooth (decay of the tooth in front of the wisdom tooth caused by persistent plaque accumulation resulting from difficulty cleaning due to inaccessibility). The decay may be restorable or unrestorable)
- infection (involving the root canals or infection affecting the tissues supporting the tooth)
- abscess formation beneath the operculum (the flap of gum that covers the back of the partly erupted wisdom tooth)
- osteomyelitis (severe infection of the jaw bone)
- cellulitis (spreading infection of the soft tissues)
- root resorption of the wisdom tooth roots or the roots of the adjacent teeth
- disease of the soft tissue sac surrounding the developing wisdom tooth (tooth follicle) with the formation of an abscess or cyst or more rarely a tumor
- periodontal disease (gum disease resulting in loss of bone supporting the adjacent second molar tooth).

Historically….
In the 1970s and 1980s, surgical removal of wisdom teeth often followed the first signs of infection around third molars (wisdom teeth). Indeed the "prophylactic" (preventive) removal of wisdom teeth was also widely practiced.

Surgical risk assessment….
All surgery carries with it surgical risks and anaesthetic risks depending on the choice of anaesthetic (local versus general). The surgical risks of third molar surgery include post-operative infection, swelling, pain, trismus (limitation of mouth opening), cellulitis and in some cases damage to or compression of the nerve that supplies feeling to the tongue, jaw, lip and chin resulting in loss of feeling, altered feeling or the sensation of pain in the chin, lip or anterior part of the tongue.

Risk, benefit analysis….
In view of the risk of post-operative complications, it was felt that we must consider the risks and benefits of removing the wisdom teeth by performing a "risk-benefit analysis". The same post-operative surgical risks exist irrespective of whether a third molar has exhibited signs and symptoms of disease or remains symptom-free.

Guidelines on when to operate….
The UK National Institute for Health & Care Excellence (NICE) determined that the removal of asymptomatic third molar teeth should not be supported. The NICE Guidelines, published in 2000,

became the guiding tool for dentists and oral surgeons in making the decision to remove or leave a wisdom tooth.

The result of delaying wisdom tooth surgery….
Since 2000, many wisdom teeth have been retained. Some of these retained teeth may never cause a problem but sadly many go on to present with one or more of the above problems later in the patient's life. Removal of the wisdom tooth later in life carries with it greater risk of post-operative problems including more pain, swelling, trismus and the development of a dry socket, primarily in the lower jaw. Often surgery to remove wisdom teeth in older patients involves greater bone removal than in younger patients. Additionally, the extent of bone involvement associated with wisdom tooth infection that has been left for some years untreated may be far greater than would have been the case if treatment had been provided earlier. The removal of third molars from young patients results in a low incidence of post-operative complications and morbidity while complications are more frequently seen in older patients.

What drove the initial guidelines?
The political driving force behind the NICE Guidelines was the financial concern by "fund-holders" for the cost of the removal of wisdom teeth funded by the UK National Health Service and private healthcare providers. Furthermore, the panel formulating the guidelines on third molar treatment did not have any dentists or oral surgeons amongst its 24 members. The committee members assessed research findings without any in depth knowledge, understanding or clinical experience in the dental field.

Misleading statistics were used….
The NICE committee determined that 44% of wisdom teeth removed had no associated signs or symptoms of disease and hence no defined indication for removal. What they did not consider or report was that it is most commonly the lower wisdom tooth that has problems not the upper. This meant that many upper wisdom teeth removed at the same time as the diseased lower wisdom teeth had no associated disease. However the upper wisdom teeth are generally removed at the same time as the diseased lower tooth to avoid them becoming over-erupted and then leading to trauma and infection later resulting in another clinical procedure, possibly a further general anaesthetic, additional cost, more time off work, another period of post-operative symptoms and possibly further post-operative visits for the treatment of minor post-operative complications.

The removal of upper wisdom teeth is often based on the opinion that after removal of the opposing lower wisdom tooth they will become non-functional. This may result in their over-eruption or eruption into an abnormal position resulting in trauma to the soft tissues of the cheek. The relative simplicity of surgery to remove these upper wisdom teeth in conjunction with relatively little post-operative discomfort and relatively rare complications dictates that their simultaneous removal is in the best interests of the patient in most circumstances.

What's happened since 2000….
Since the publication of the NICE Guidelines, it has often been the practice to only remove wisdom teeth that satisfy the NICE clinical indications for the removal of third molars including any of the following:

- pericoronitis (severe single or second recurrent episode),
- unrestorable caries,

- non-treatable pulpal and/or periapical pathology,
- cellulitis,
- abscess and osteomyelitis,
- internal/external root resorption of the tooth or adjacent teeth,
- fractured 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 (*National Institute for Care and Excellence. Guidance on the removal of wisdom teeth. March 2000*).

The decision not to remove some wisdom teeth therefore resulted in many wisdom teeth being retained by patients into later life, and therefore they present to a dentist or oral surgeon for removal when the patient is middle aged.

The Data shows….
Epidemiological data demonstrates that there is a trend towards later presentation for wisdom tooth surgery; in the year 2000 the average age of a patient presenting for third molar surgery was 28 years. By 2010 the average age was 32 years.

A further outcome following the publication of the NICE Guidelines in 2000 was a fall in the number of patients undergoing third molar removal over the period 2000-2004 by approximately 40%. This figure compares closely to the estimated removal of third molars with no defined indication for removal (*McArdle LW and Renton T. The effects of NICE Guidelines on the management of third molar teeth. Br Dent J 2012;213: E8*). However, it is reported that in the past few years there has been a reversal in this trend and now more patients have their third molars removed than prior to the introduction of the NICE Guidelines (*McArdle. Faculty Dental Journal – Royal College of Surgeons of England - October 2013 Vol 4 Issue 4*).

2016 - Where are we now?
From the information available it appears that the issue of when it is right and when it is wrong to remove third molars remains open to discussion. Professor Martin Steed reviewed the current indications for third molar extractions and concluded that wisdom teeth with no symptoms may still have associated disease. The other two groups that generally require third molar extraction is those wisdom teeth with symptoms and either clinical or X-ray evidence of associated disease present. He states that it is clear that practitioners should generally remove erupted and impacted third molars when they cause considerable pain, are infected, are associated with bone-destroying pathology, are decayed or adversely affect adjacent teeth. Third molars should also be removed if they are expected to present a problem beneath dentures, if they may interfere with orthodontic movement of adjacent teeth or if they are located in the region of a planned osteotomy. He also suggested that those third molars that exhibit no symptoms and having no clinical or X-ray evidence of disease should be monitored (*Steed MB, The indications for third molar extractions. J Am Dent Assoc 2014; 145 (6): 570-573*).

While guidance on wisdom tooth management is helpful, no guidelines can, nor should, dictate what should be done for every individual third molar tooth. A more holistic, patient-by-patient approach must be adopted generally for the patient's benefit to minimise the chance of their return for further surgical procedures.

The current interpretation of the NICE Guidelines places dentists in the situation where they must make their own mind up in each individual case and keep a clear record of the reasons why a clinical decision has been made to either remove or retain a particular third molar tooth.

Dentists generally record clearly, the signs and symptoms experienced by the patient, along with the number of episodes of pain or infection that the patient has suffered. Clear clinical records are imperative when considering any invasive procedure with a full record of the explanation of any possible risks of surgery, and a statement of the dentist's belief that the patient appeared to fully understand the information provided.

Recent adequate and clear X-rays must always be available including 3-dimensional CT scans where relevant to the accurate assessment of teeth for their safe removal.

Written informed consent is always retained in the patient's notes and arrangements made for review of the patient after surgery if the procedure departs from the expected outcome.