

A Retrospective Audit on Consent for Orthodontic Treatment

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ABSTRACT

Aims: To determine whether consent for orthodontic treatment is routinely documented by all orthodontic clinicians within Institute of Dental Sciences and even to identify areas where the documentation of consent is inadequate.

Materials and Methods: 100% of all patients undergoing orthodontic treatment will have either verbal or written consent fully documented within their clinical notes. While a consent form is not a legal requirement, our team advises that all patients undergoing orthodontic treatment sign a departmental consent form. The suggested gold standard was 100% of records should also have a consent form present.

Results: The specific risks of orthodontic treatment recorded were further assessed. It was found clinicians performed the best in recording the potential risk of relapse to patients (78%), while they performed most poorly when mentioning to patients the likelihood of any pain during orthodontic treatment (14%).

Discussion: The first audit cycle showed only 76% of patients had consent documented, improving to 92% in the second cycle. Where consent had not been recorded, this was commonest in transfer patients and multidisciplinary cases. Orthodontic treatment risks were recorded in only 60% initially, proving to 87% in the second cycle.

Conclusion: The overall improvements in the standard of record keeping for consent are testament to the effectiveness of clinical audit. Documentation of consent improved from 76% to 92% as a result of modifications to the consent form (better layout, check boxes). Progress towards the 100% "gold standard" will continue.

Keywords: Audit, consent, orthodontic treatment, Retrospective.

INTRODUCTION

Successful orthodontic treatment is a partnership between the orthodontist and the patient. The doctor and staff are dedicated to achieving the best possible result for each patient¹. As a general rule, informed and cooperative patients can achieve positive orthodontic results. While

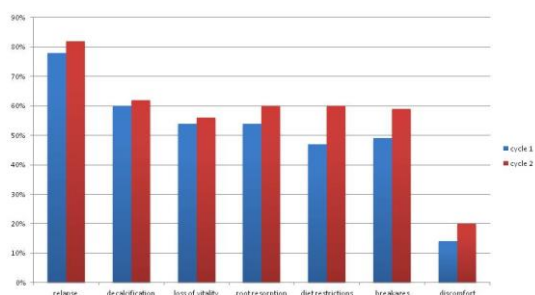
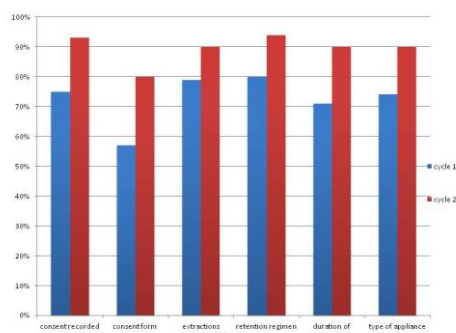
recognizing the benefits of a beautiful healthy smile, patients should also be aware that, as with all healing arts, orthodontic treatment has limitations and potential risks. These are seldom serious enough to indicate that you should not have treatment; however, all patients should seriously consider the option of no orthodontic treatment at all by accepting their present oral condition.

Received: Apr. 11, 2015; Accepted: Aug. 1, 2015

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INSTITUTE OF DENTAL SCIENCES, DEPARTMENT OF ORTHODONTICS
CONSENT TO TREATMENT FORM (ADOLESCENTS AND ADULTS)

PATIENT NAME (MR/MRS/MS) AGE/SEX: OP. NO. :

ADDRESS / CONTACT NO.

TREATMENT:

Extractions ☐

Functional appliance ☐

Growth modification ☐

Space maintainers..... ☐

Upper removable appliance..... ☐

Lower removable appliance..... ☐

Upper fixed appliance..... ☐

Lower fixed appliance..... ☐

Retainers at completion of treatment..... ☐

Temporary anchorage devices (mini - implants)..... ☐

Oral surgery procedures(please state)..... ☐

Orthognathic surgery..... ☐

Other procedures

SPECIFIC RISKS DISCUSSED : Decalcification ☐
Root Resorption ☐

Other Risks :

Information Leaflets provide :Fixed appliance and risks ☐
Functional appliance and risks ☐
Removable appliance and risks ☐
Orthognathic surgery ☐
TADS ☐
Others (please state) ☐

To be completed by the patient:

☐ I have read and understood the information and conditions above, and consent to orthodontic treatment.

☐ I have been informed about the risks of orthodontic treatment by the clinician, and I have also been given and read the sheets describing these, and I am happy to proceed.

☐ I understand that all the records may be used for research and teaching purposes, or may be used to show to other patients with similar problems, and that if so, confidentiality will be maintained.

☐ I understand that my treatment fee covers only treatment provided by the orthodontist(s), and that treatment provided by any other dental or medical professionals is not included in the fee for my orthodontic treatment.

Agreement to treatment

I, (patient's name in block capitals), agree to the procedure or course of treatment described on this form.

Signature Date

Confirmation of Consent (to be completed by the health professional, if the patient or parent/child has signed the form in advance)

I have explained the procedure to the patient/parent and I have explained the benefits and risks of any available alternative treatment (including no treatment) and any particular concerns of those involved.

I have confirmed with the patient or child and his or her parent/parent's/guardian that they have no further questions and wish to go ahead with the procedure.

Signed Date

Name(PRN1) Job title

CYCLE 1	
Evidence of consent for treatment documented	75%
Consent form present	55%
No consent form present	42%
No evidence of consent recorded at all	24%

CYCLE 1 (No evidence of consent)	
Transfer patients	45%
Non fixed appliance treatment	28%
Multidisciplinary treatment	15%

CYCLE 1 (Where was consent recorded) : (Fig 1)	
Summarized treatment plan and extractions	
Indication for retention regimen	
Estimated length of treatment indication	
Appliance type indication	
Indication of risks	
Indication that leaflets/visual aids have been provided	

CYCLE 2	
Evidence of consent found	90%
No evidence of consent found	9%
Consent form present	80%

Alternatives to orthodontic treatment vary with the individual's specific problem, and prosthetic solutions or limited orthodontic treatment may be considerations. Patients are encouraged to discuss alternatives with the doctor prior to beginning treatment².

Orthodontic treatment usually proceeds as planned, and we intend to do everything possible to achieve the best results for every patient. However, we cannot guarantee that patients will be completely satisfied with our results, nor can all complications or consequences be anticipated. The success of treatment depends on your cooperation in keeping appointments, maintaining good oral hygiene, avoiding loose or broken appliances, and following the orthodontist's instructions carefully³.

AIMS

To determine whether consent for orthodontic treatment is routinely documented by all orthodontic clinicians within Institute of Dental Sciences and even to identify areas where the documentation of consent is inadequate.

MATERIALS AND METHODS

100% of all patients undergoing orthodontic treatment will have either verbal or written consent fully documented within their clinical notes. While a consent form is not a legal requirement, our team advises that all patients undergoing orthodontic treatment sign a departmental consent form. The suggested gold standard was 100% of records should also have a consent form present.

RESULTS

A Total of 80 patients' notes were assessed in cycle 1. (Table 1,2,3) The specific risks of orthodontic treatment recorded were further assessed (Fig 2). It was found clinicians performed the best in recording the potential risk of relapse to patients (78%), while they performed most poorly when monitoring to patients the likelihood of any pain during orthodontic treatment (14%).

Recommendations:

1. Presentation of the results at a department audit meeting.
2. Staff training on the criteria to include during the consent process.
3. Modification to the current consent form. This involved inclusion of a check-list of items for clinicians to improve the quality of documentation.
4. Ensure a consent form is completed at the start of treatment for all new patients, transfer patients and if there are any major changes during treatment.
5. Nurses are also advised to ensure consent forms are available during all treatment planning appointments for new patients.
6. Re-audit in 12 months and continue long term review.

The audit was repeated 12 months later, assessing 67 patient records. (Table 4). An improvement was seen for all the parameters recorded on the consent form or within the clinical notes (Fig 1). For the risks of orthodontic treatment recorded, an

improvement was also seen though this was only slight. (Fig 2)

DISCUSSION

The first audit cycle showed only 76% of patients had consent documented, improving to 92% in the second cycle. Where consent had not been recorded, this was commonest in transfer patients and multidisciplinary cases. Orthodontic treatment risks were recorded in only 60% initially, proving to 87% in the second cycle. Modification of the consent form after the first cycle appears to be the main contributor the improvement. The new form had a simplified layout which improved readability and included a check-list of important items (Fig 3,4).

The length of treatment depends on a number of issues, including the severity of the problem, the patient's growth and the level of patient cooperation. The actual treatment time is usually close to the estimated treatment time, but treatment may be lengthened if, for example, unanticipated growth occurs, if there are habits affecting the dentofacial structures, if periodontal or other dental problems occur, or if patient cooperation is not adequate. Therefore, changes in the original treatment plan may become necessary. If treatment time is extended beyond the original estimate, additional fees may be assessed. The mouth is very sensitive so patients can expect an adjustment period and some discomfort due to the introduction of orthodontic appliances. Nonprescription pain medication can be used during this adjustment period⁴.

Completed orthodontic treatment does not guarantee straight teeth for the rest of your life. Retainers will be required to keep your teeth in their new positions as a result of your orthodontic treatment. Patients must wear your retainers as instructed or teeth may shift, in addition to other adverse effects⁵. Regular retainer wear is often necessary for several years following orthodontic treatment. However, changes after that time can occur due to natural causes, including habits such as tongue thrusting, mouth breathing, and growth and maturation that continue throughout life⁶. Later in life, most people will see their teeth shift.

The following information is routinely provided to anyone considering orthodontic treatment. While recognizing the benefits of a pleasing smile and healthy teeth, patients should also be aware that orthodontic treatment, like any treatment of the body, has inherent risks and limitations. These are seldom enough to rule out treatment, but should be considered when deciding to have orthodontic treatment.

Discomfort – A certain amount of discomfort should be expected when appliances are put on and at each wire change to adjustment.

Appointment Intervals – Appointment intervals are planned carefully and vary during treatment and with certain appliances. The Orthodontist depends on proper cooperation between appointments as well as the appliances remaining intact. Missed appointments prolong treatment time. Repeated missing of appointments may necessitate additional visits or discontinuation of treatment.

Ceramic/Metal Brackets – There have been some reported incidents of patients experiencing bracket breakage and/or damage to teeth from brackets. If brackets fracture outside of the hospital, it may result in sharp edges, which might be harmful to the patient. Also, brackets may cause enamel flaking and/or enamel fracturing upon removal.

Removal of Teeth – Sometimes teeth must be extracted as part of the orthodontic treatment plan. In certain cases, treatment of crowded teeth may initially be planned without extractions, but after attempting to treat the case without extractions it may be determined that the treatment goals cannot be achieved without gaining additional space by extracting teeth.

Decalcification, decay and gum disease – These problems may occur if the patient does not cooperate with brushing or flossing and regular checkups and care. Orthodontic brackets and appliances may increase plaque retention, thus necessitating diligent cleansing of the teeth, gums and appliances. In instances where there is a lack of cooperation in this regard, the treatment may be discontinued. For adults, there must be increased attention to prevention of periodontal disease.

Removable and/or functional appliances –

Appliances are sometimes used to help with tooth and jaw alignment. Most critical to their success is patient cooperation and care not to damage or distort the appliance. If the appliance is removable, it must accompany the patient to each appointment.

Injury from appliances – Headgear and other appliance instructions must be carefully followed. Be sure to release the elastic force before removing the headgear from the teeth. Headgear that is pulled away from the teeth while the elastic force is attached could snap back into the face or eyes. On rare occasions when dental instruments are used in the mouth, the patient may get scratched, poked or receive a blow to a tooth with potential damage or soreness to oral structures. Brackets and wires can be dislodged or broken and as such can be swallowed or inhaled. The risks increase when the patient ignores advice or recommendations. Elastics and ligatures that are loose should be pushed back with a pair of tweezers or a bent spoon.

Root Resorption – In very few cases, the ends of the roots of the teeth may be shortened during treatment. In the event of subsequent periodontal disease, this root end resorption could reduce the longevity of affected teeth. Under healthy circumstances, the shortened tooth roots may be no disadvantage. It is nearly impossible to predict susceptibility to this condition. In the event there is root resorption, orthodontics may be discontinued prior to completion of treatment.

Impacted Teeth – Impacted teeth stay partially or completely under the gum due to lack of room to emerge or for no apparent reason. Wisdom teeth are the most commonly impacted teeth and may need to be removed. Other impacted teeth may need to be uncovered by an oral surgeon and have attachments bonded to them to assist the orthodontist in their movement. Occasionally, the surgical process needs to be repeated. Not all impacted teeth can be moved successfully, which may necessitate their extraction.

Ankylosed Teeth – In some instances a tooth will not move because it is directly attached to the bone (ankylosed). An ankylosed tooth may need surgery to aid in its movement or it may need to be removed.

Severely Overlapped Teeth – Severely overlapped teeth, especially on adults, may have caused a loss of gum tissue between the teeth. When these teeth are straightened, the lack of gum tissue may become more noticeable. Any fees to treat loss of gum tissue are the responsibility of the patient/guardian.

TMJ Pain – Some patients are very sensitive to even a slight discrepancy in their bite. These patients may suffer from noise or pain in the joint of the lower jaw (near the ear). This may occur during or after orthodontic treatment. It may also happen to patients who have never had orthodontic treatment. An imperfect bite may also cause TMJ problems. In some instances, orthodontic therapy alone cannot result in an absolutely perfect bite because of the complex factors influencing the alignment of your teeth. Patients who develop TMJ problems during orthodontic treatment may require discontinuation of treatment

Devitalization – It is possible for a tooth to die during orthodontic treatment, especially if it was previously injured or was impacted. Sometimes such injuries are unknown to the patient or parents and cannot be detected by the orthodontist. Thus, a tooth may become nonvital and the reason for it may not be apparent. Root canal treatment may be recommended if they have such a problem.

Treatment Progress – As this is not an exact science and many complex factors influence the course of the treatment, it is possible that treatment may continue beyond the expected completion date. Factors contributing to this include, but are not limited to: lack of excessive facial growth, gingival diseases, poor cooperation with elastics or other appliances, poor cooperation with cleansing, broken appliances and missed appointments.

Late Growth Changes – Growth changes can upset the most careful treatment plan. A person who has growth in an average proportion may not continue to do so. If growth becomes disproportionate, the jaw relationship can be seriously affected and the original treatment objectives may not be met and/or additional treatment may be required.

Success of Treatment – Due to individual patient differences, there exists a possibility of failure, relapse, or selective treatment, despite the best care. Much of the success of the treatment depends

on the understanding and cooperation of the patient. In some instances it may be necessary to change the orthodontic treatment plan to achieve the best possible result.

Return of Original Problem – Many problems tend to return by a factor of 10% or so. Very severe problems are more likely to do so. When the retention is discontinued, we will expect some return. Careful cooperation during the retention period will keep this rebound to a minimum.

Extractions - Some cases will require the removal of deciduous teeth or permanent teeth.
Orthognathic Surgery. Some patients have significant skeletal disharmonies which require orthodontic treatment in conjunction with orthognathic (dentofacial) surgery. There are additional risks associated with this surgery which one should discuss with the oral and/or maxillofacial surgeon prior to beginning orthodontic treatment. orthodontic treatment prior to orthognathic surgery often only aligns the teeth within the individual dental arches. Therefore, patients discontinuing orthodontic treatment without completing the planned surgical procedures may have a malocclusion that is worse than when they began treatment!

Decalcification and Dental Caries - Inadequate or improper hygiene could result in cavities, discolored teeth, periodontal disease and/or decalcification. These same problems can occur without orthodontic treatment, but the risk is greater to an individual wearing braces or other appliances. These problems may be aggravated if the patient has not had the benefit of fluoridated water or its substitute, or if the patient consumes sweetened beverages or foods.

Root Resorption - The roots of some patients' teeth become shorter (resorption) during orthodontic treatment. It is not known exactly what causes root resorption, nor is it possible to predict which patients will experience it. However, many patients have retained teeth throughout life with severely shortened roots. If resorption is detected during orthodontic treatment, your orthodontist may recommend a pause in treatment or the removal of the appliances prior to the completion of orthodontic treatment.

Nerve Damage - A tooth that has been traumatized by an accident or deep decay may have experienced damage to the nerve of the tooth. Orthodontic tooth movement may, in some cases, aggravate this condition. In some cases, root canal treatment may be necessary. In severe cases, the tooth or teeth may be lost.

Periodontal Disease - Periodontal disease can develop or worsen during orthodontic treatment due to many factors, but most often due to the lack of adequate oral hygiene. A periodontist monitor your periodontal health during orthodontic treatment every three to six months. If periodontal problems cannot be controlled, orthodontic treatment may have to be discontinued prior to completion.

Injury From Orthodontic Appliances - Activities or foods which could damage, loosen or dislodge orthodontic appliances need to be avoided. Loosened or damaged orthodontic appliances can be inhaled or swallowed or could cause other damage to the patient. Damage to the enamel of a tooth or to a restoration (crown, bonding, veneer, etc.) is possible when orthodontic appliances are removed. This problem may be more likely when esthetic (clear or tooth colored) appliances have been selected.

Headgears - Orthodontic headgears can cause injury to the patient. Injuries can include damage to the face or eyes. In the event of injury or especially an eye injury, however minor, immediate medical help should be sought. Refrain from wearing headgear in situations where there may be a chance that it could be dislodged or pulled off. Sports activities and games should be avoided when wearing orthodontic headgear.

Temporomandibular (Jaw) Joint Dysfunction - Problems may occur in the jaw joints, i.e., temporomandibular joints (TMJ), causing pain, headaches or ear problems. Many factors can affect the health of the jaw joints, including past trauma (blows to the head or face), arthritis, hereditary tendency to jaw joint problems, excessive tooth grinding or clenching, poorly balanced bite, and many medical conditions. Jaw joint problems may occur with or without orthodontic treatment.

Impacted, Ankylosed, Unerupted Teeth - Teeth may become impacted, ankylosed (fused to the bone) or just fail to erupt. Often times, these conditions occur for no apparent reason and generally cannot be anticipated. Treatment of these conditions depends on the particular circumstance and the overall importance of the involved tooth, and may require extraction, surgical exposure, surgical transplantation or prosthetic replacement.

Occlusal Adjustment - An occlusal equilibration procedure may be necessary, which is a grinding method used to fine-tune the occlusion. It may also be necessary to remove a small amount of enamel in between the teeth, thereby "flattening" surfaces in order to reduce the possibility of a relapse.

Non-Ideal Results - Due to the wide variation in the size and shape of the teeth, missing teeth, etc., achievement of an ideal result (for example, complete closure of a space) may not be possible. Restorative dental treatment, such as esthetic bonding, crowns or bridges or periodontal therapy, may be indicated.

Third Molars - As third molars develop, teeth may change alignment. Orthodontists should monitor them in order to determine when and if the third molars need to be removed.

CONCLUSION

The overall improvements in the standard of record keeping for consent are testament to the effectiveness of clinical audit. Documentation of consent improved from 76% to 92% as a result of modifications to the consent form (better layout, check boxes). Progress towards the 100% "gold standard" will continue.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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