MINISTRY of Health
Shaping Fiji's Health

Clinical Practice Guideline For

Orthodontics

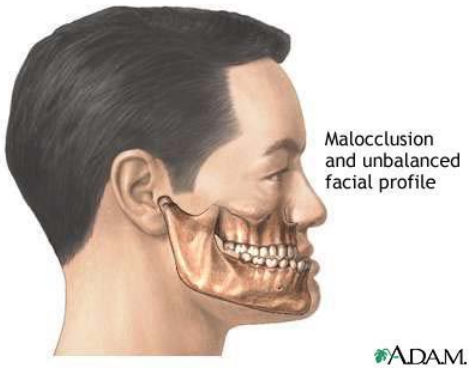
Orthodontic Management Guidelines

1. Definitions:

Orthodontics is the branch of dentistry concerned with the growth of the face, development of the occlusion and the prevention and correction of the occlusal anomalies

Orthodontic treatment is a way of straightening or moving teeth, to improve the appearance of the teeth and how they work. It can also help to look after the long-term health of the teeth, gums and jaw joints, by spreading the biting pressure over all the teeth.

Malocclusion is an irregularity in the occlusion beyond the accepted range of normal.



2. Classification

2.1. Incisor classification: based upon the relationship of the lower incisor edges and the cingulum plateau of the upper central incisors.

Class 1- the lower incisor edges occlude with or lie immediately below the cingulum plateau of the upper central incisors.

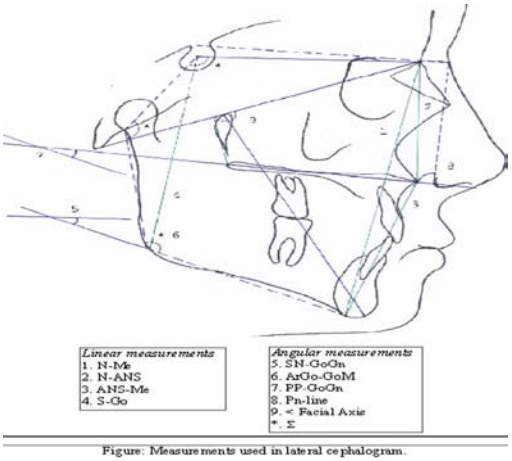
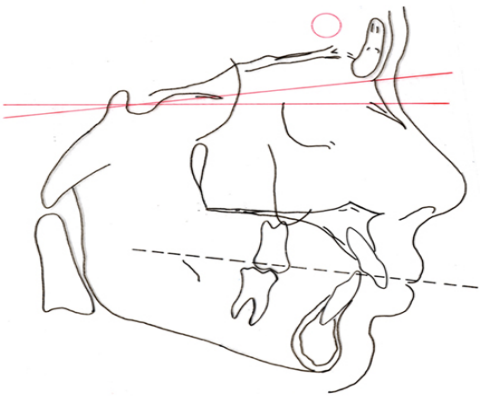


Figure: Measurements used in lateral cephalogram.

Class 11 - the lower incisor edges lie posterior to

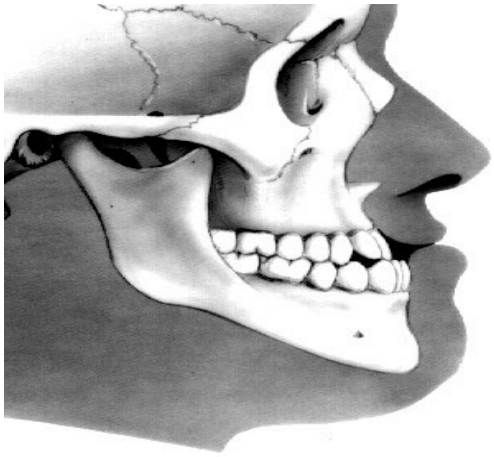


the cingulum plateau of the upper central incisors.

Class 11 div 1- the upper central incisors are proclined or of average inclination and there is an increased overjet.

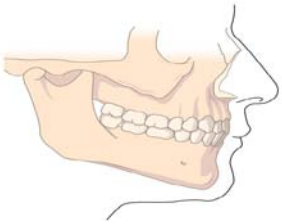
Class 11 div 11- the upper central incisors are retro inclined; the overjet is usually minimal but overbite may be increased.

Class 111- the lower incisor edges lie anterior to the cingulum plateau of the upper central incisors; the overjet is reduced or reversed.

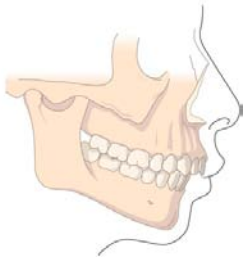


2.2. Skeletal classification

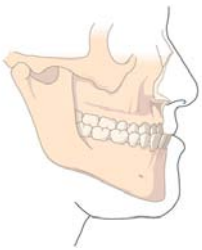
Class 1 skeletal pattern- the mandible is normally related to the maxilla and it lies a few millimetres behind the maxilla.



Class 2 skeletal pattern- the mandible is retruded relative to the maxilla



Class 3 skeletal pattern- the mandible is protruded relative to the maxilla



3. Signs/Symptoms of Orthodontic Problems

Children with some type of malocclusion problem (teeth misalignment) usually have some of the following symptoms:

- Crowded, crooked, misplaced or abnormally aligned teeth
- Teeth that meet abnormally or not at all with the teeth of the other jaw
- Difficulty in chewing food or biting
- Mouth breathing
- Biting the cheek or roof of the mouth
- Speech difficulties, trouble saying certain words.
- Pain in the facial muscles or jaws that shift or make sounds
- Abnormal appearance of the face

Early orthodontic diagnosis and intervention can make treatment much easier and reduce the complexity and cost of treatment in orthodontics.

4. Conditions that increase the risk of orthodontic problems

There are some conditions or habits that increase significantly the risk of developing orthodontic problems.

These include:

- Early or late loss of deciduous teeth
- Thumb sucking or Finger sucking

- Tongue thrusting

5. Orthodontic Evaluation and Diagnosis

- Refer to the orthodontic assessment form (Sample: see annex 1). This initial assessment and evaluation can be done by any Dentist before referring to the Divisional Hospital
- Patient should be dentally fit prior to referral to Divisional hospital

6. Management at Divisional Hospital level

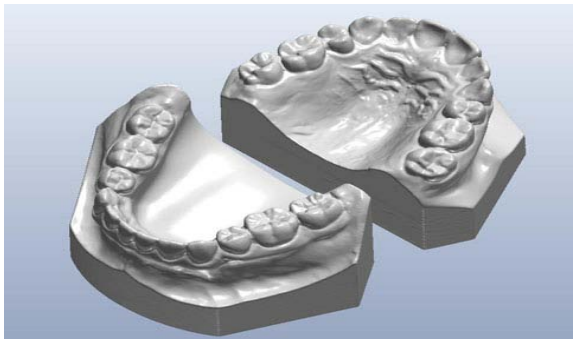
6.1 Orthodontic assessment

- Intra-oral
- Extra-oral

The information is captured in the standard assessment form as in appendix 1.

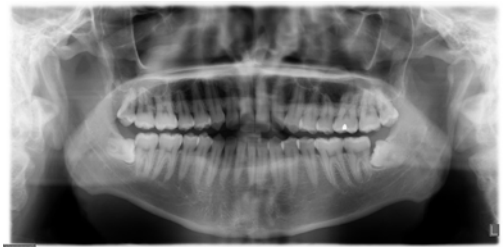
6.2 Study models

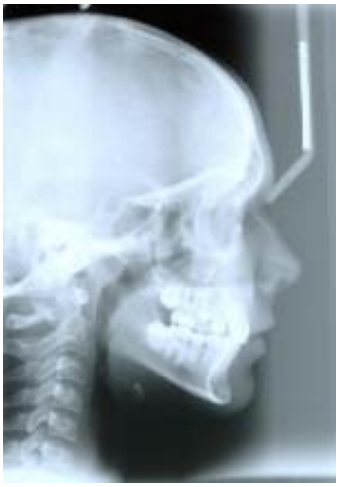
- Allows a more accurate assessment of some aspects of the occlusion and facilitate measurement
- Provides a good baseline record and help explanation of any problem to both the patient and the parents.



6.3 Radiographs: A very important diagnostic tool that can be done at Divisional hospital
Radiographic assessment is important in the practice of orthodontics. In the simplest level, radiographs will reveal the presence and positions of unerupted teeth of the normal series and give essential information about the presence of any supernumery elements or pathology. More specifically radiographs will reveal deficiencies of decalcification such as enamel hypoplasia, dental caries, the extent and approximal shape of the restorations, and the abnormality of the roots of teeth such as dilacerations, incomplete apices, resorption, ankylosis and apical pathology.

6.3. a. Orthopantomography (OPG): This type of x-ray is available in all 3 Divisional Hospitals and should be mandatory in the assessment of patients with orthodontic treatment needs. OPG reveals all necessary information that aid in the development of a comprehensive treatment plan





6.3. b. Lateral cephalogram: Also available in the Divisional hospitals and is of great assistance in the determination of the Skeletal relationship of the Maxilla and the mandible; inclination of the dentition in relation to the jaws including the soft tissue profile. Based on the information from the cephalometric Analysis, a thorough treatment plan is then developed.

6.3. b. Intra-Oral X-rays: Intra-oral periapicals, bitewings, anterior occlusal (upper/lower) and vertex occlusion are other alternatives that provide necessary relevant information

6.4. Photographic records:

This is highly recommended wherever possible**.**

7. Treatment planning:

Based on the information recorded, a comprehensive Treatment Plan must be established.

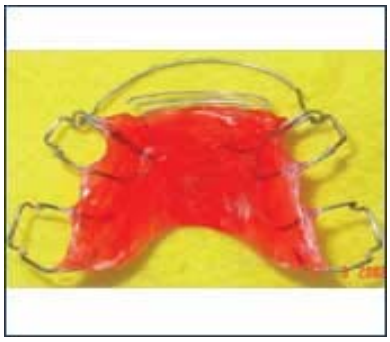
- Aims of treatment: this is clearly considered, written and explained to the parents and patient
- Considerations: Given to ease of access to the service, cost factor, compliance to treatment
- Treatment options: All treatment options must be explained to the parents/patient before they give their informed decision. This must be clearly noted down.

At the Divisional Hospitals, Removable appliances are the mainstay of treatment whereas Fix-Appliance is referred to for management by the orthodontist or one with specialized formal training.

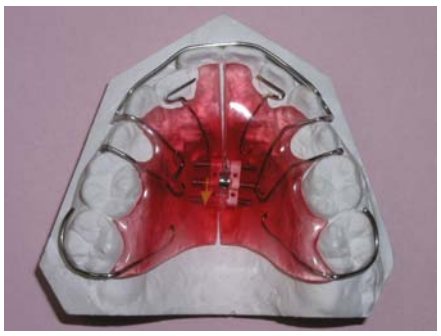
8. Types of appliances:

8.1. Simple upper removable appliance (URA): **Removable appliances TIP Teeth.**

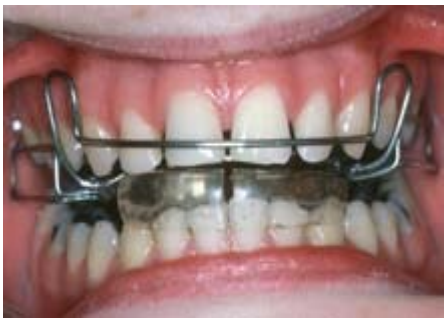
Removable Appliances are inexpensive, facilitate mouth hygiene, are easy to repair and gain much anchorage from the palate and alveolar processes.

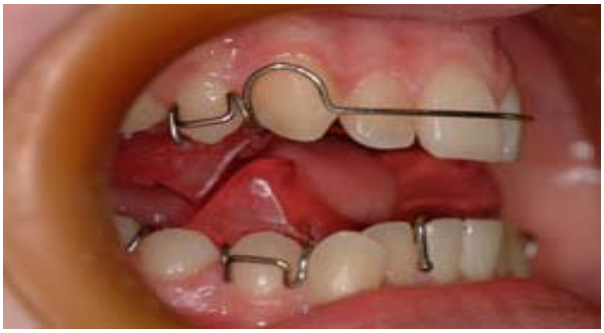


Simple upper removable appliance with the palatal retractor and a maxillary expansion screw effective in managing cross bite and narrow arches. They are unsuitable for elongations, rotations and epical or bidil movements.

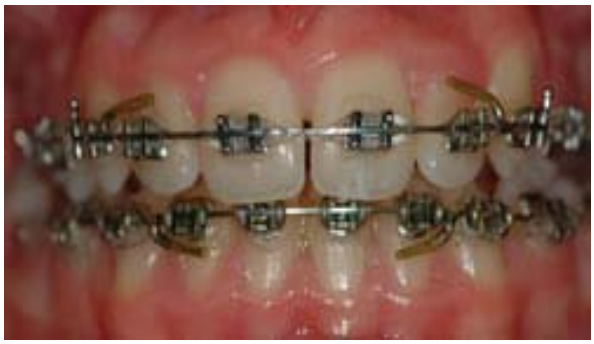

URA with maxillary mid-line expansion screw

8.2. Functional appliance- These removable appliances are best in the treatment of abnormal relationships relationship of the arches and may have beneficial effects in skeletal discrepancy cases. Functional appliances will not produce elongations, rotation or apical movement of individual teeth. They are best used during a growth spurt.





8.3. Fixed appliances: This treatment option is considered for cases that are unlikely to be treated with Removable appliances. They can be used for elongations, rotation and apical or bodily movement of teeth. Precise positioning of teeth is possible with skilled hands. They can be used to camouflage moderate skeletal discrepancies. Fixed Appliance Therapy is very expensive and may produce decalcification and root resorption.



9. Extraction of sound permanent teeth to relieve crowding:

This must be considered very carefully with the intention that residual spaces are going to be closed effectively in the course of treatment. Surgical removal of impacted teeth must part of the treatment plan. Serial Extraction is another option however timing and proper planning is paramount.

10. **Suitability of Treatment methods for malocclusions seen early and late**.

Malocclusion Type	**Early**	**Late**
Crowding	Interceptive Orthodontics	Removable or Fixed Appliance
Spacing		Removable or Fixed Appliance
Local Irregularities	Interceptive Orthodontics	Removable or Fixed Appliance
Abnormal Arch Relationships	Functional or Removable	Removable or Fixed Appliance
Abnormal Jaw Relationships	Functional chin cap	Surgery

11. Follow-up/ reviews:

Reviews and follow ups are necessary part of treatment and must be planned appropriately.
Proper documentation of changes in the mouth is mandatory including any specific or unusual Occurrence.

12. Consent:

It is imperative that patient and parents give written consent before any treatment commences.

13. Construction of Appliance:

A proper prescription with clear instruction must accompany the model to the Dental Technician including intended date of insert.

14. Advantages and Limitations of treatment methods.

Treatment	**Advantages**	**Limitations**
Acceptance	No cost No risk	No change
Interception	Not expensive No decalcification No Root resorption No soft tissue problems	Timing is critical May not be completely effective May allow unwanted changes Limited to crowding and local irregularities
Removable Appliances	Inexpensive	Principally tipping movements

	Little risk of decalcification or root resorption Inexpensive repairs No emergencies Good anchorage Moderate skeletal problems	No elongations Limited rotations Limited apical movements No treatment of skeletal discrepancies
Functional Appliances	Inexpensive Little risk of decalcification or root resorption Inter-arch discrepancies Some skeletal changes	Little local effect No elongations No rotations No apical movements
Fixed Appliances	Elongations Rotations Apical Movements Excellent detailing Camouflaged skeletal discrepancies	Expensive Possible decalcification, root resorption Anchorage problems Emergencies
Surgery	Skeletal Discrepancies	Expensive Surgical and anaesthetic risks

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15. Discontinuation of Treatment:

In the event that the patient or parent who gave consent wishes to discontinue with treatment, they must sign off properly in the patient's folder with reasons for withdrawing of treatment.

The Dentist can also decide to discontinue treatment if patient cannot effectively maintain a acceptable level of hygiene care where there is high risk of caries and periodontal disease.

References:

1. Andrew Richardson. Interceptive Orthodontics. 3rd Edition.
2. McLaughlin; Bennet; and Trevisi;. Systemized Orthodontics Treatment Mechanics.
3. http://www.dentalhealth.org.uk/
4. http://www.jpma.org
5. http://www.jco-online.com/archive/
6. http://rachelannmason.com/Images
7. www.northlangleyorthodontics.ca/
8. http://www.myorthoselect.com/
9. http://www.queensbaydental.com.my/x-ray.html
10. http://www.smartsmiles.com/faqs_glossary.htm
11. http://www.drystosun.com/abtbraces.html
12. http://www.orthospecialistpc.com

Acknowledgement:

This guideline is prepared and compiled by Dr Ilaitia Lewenilovo and Dr Vimal Murthi

Scope and Application	This CPG is intended for use by all health care workers in their daily care of patients who undergo dental/oral procedures
Effective Date	2010
Supercedes Policy Number	Not applicable
Review Responsibilities	The Chairperson of the Oral Health CSN will initiate the review of this guidelines every 3 years from the date of issue or as required.
Further Information	Oral Health CSN Chairperson

RESPONSIBILITY:

CPG Owner: National Oral Health CSN

CPG Writer: Ministry of Health **Date: November 2010**

Endorsed:
National Medicines & Therapeutic Committee, MOH
Date: 23 November 2010

Endorsed:
National Health Executive Committee, MOH

Date: 25 November 2010

Appendix 1.

DEPARTMENT OF ORAL HEALTH
ORTHODONTIC ASSESSMENT FORM

Date……

NAME:……. NHN No…….

D.O.B…….. .Address……. ….Contact……

Dental History (e.g. Tx., trauma, cooperation).....

Medical History ……..

Lips: competent☐ incompetent☐ potentially competent ☐ **Skeletal base**: I ☐ II ☐ III ☐

FM angle: average☐ increased☐ decreased☐ **Lower face height** : average☐ increased☐ decreased☐

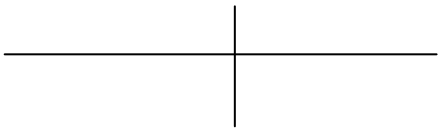
Habits …….

Lower labial segment: Aligned☐ Crowded☐ spaced☐ **AND** Proclined☐ Retroclined☐ Upright☐

Upper labial segment: Aligned☐ Crowded☐ spaced☐ **AND** Proclined☐ Retroclined☐ Upright☐

Over jet.....mm. **Overbite**: average☐ increased☐ decreased☐; **AND** complete☐ incomplete☐

Open …….mm Centre lines/crowding indication



buccal segments : Aligned☐ Crowded☐ spaced☐

Incisor relationship: class : ☐ I, ☐II Div.1, ☐II Div.2, ☐III.

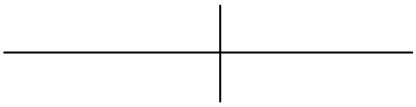
Molar relationship: class Right: ☐I, ☐½II, II, ☐½III, ☐III Left: ☐I, ☐½II, ☐II, ☐½III, ☐ III

Crossbites.....

Radiographs : views taken ……...
Findings……
……
……
……

TMJ .....**Other Pathology**.....

Teeth present



Consent……
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All patients under 18 years of age must have consent of parent or guardian

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ORTHODONTIC TREATMENT PROPER

APPLIANCE TYPE: ……..

NHN No…….

PROCEDURE	DATE	REMARKS	OFFICER
INVESTIGATION			
X-RAYS - OPG			
X-RAYS – Intraoral Periapical/Occlusal			
X-RAYS – Cephalometric			
IMPRESSION			
STUDY MODEL			
Appliance design			
TX. Plan			
INSERT			
COST			
REVIEW			

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ORTHODONTIC TREATMENT PROPER

APPLIANCE TYPE: ……..

NHN No…….

PROCEDURE	DATE	REMARKS	OFFICER
Reviews			

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ORTHODONTIC TREATMENT PROPER

APPLIANCE TYPE:……..

NHN No…….

Extra Notes: