



The NUS Orthodontics Residency Programme

leading to the qualification of

**Master of Dental Surgery
(Orthodontics)**

from the

**Faculty of Dentistry
National University of Singapore**

July 2022

Mission and Aim of the NUS Orthodontics Residency Programme

The **mission** of the NUS Orthodontics Residency Programme (ORP) is to train dentists in the science and art of orthodontics and produce **orthodontists capable of future professional development to assume leadership in academia and in clinical orthodontics.**

In order to produce future leaders in orthodontics, the 3-year Masters of Dental Surgery course **aims** to educate dentists through a rigorous academic, clinical and research programme to acquire the foundational knowledge, skills and attitudes that permit them to reach this potential.

Course duration

The 47-week academic year begins on the first Monday of July and ends in June of the following year. Postgraduate students will receive the Master of Dental Surgery (Orthodontics) degree from the National University of Singapore upon successful completion of all requirements of the 3-year ORP.

Course leadership

Director	:	Assoc Prof Kelvin W.C. Foong (NUS)
Associate Director	:	Clinical Assoc Prof Mimi Yow (NDCS)

Committee for Orthodontics

Chairperson	:	Assoc Prof Kelvin W.C. Foong
Members	:	Clinical Assoc Prof Mimi Yow
	:	Adj Assoc Prof Hwang Yee Cheau
	:	Adj Sr Lect Arthur Lim

Teachers in the ORP (AY2022)

Teaching at NUCOHS

1. Assoc Prof Kelvin Foong (Programme Director)
2. Adjunct Assoc Prof Hwang Yee Cheau
3. Adjunct Assoc Prof Tan Hwee Hiang
4. Adjunct Assoc Prof Tan Tzee Jen
5. Adjunct Assoc Prof Chng Chai Kiat
6. Dr Arthur Lim
7. Dr Ong Hoe Boon
8. Dr Poon Kah Chai
9. Dr Bryce Lee
10. Dr Eugene Loh
11. Dr Henry Ho
12. Dr Seow Yian San
13. Dr Wilson Lu

Teaching at NDCS

1. Clinical Assoc Prof Mimi Yow (Programme Associate Director)
2. Clinical Assoc Prof Chew Ming Tak
3. Adjunct Assoc Prof Chng Chai Kiat
4. Dr Ivan Lim
5. Dr Johanna Choo
6. Dr Vivien Tan
7. Dr Koh Chay Hui
8. Dr Enrica Sham
9. Dr Elaine Tan
10. Dr Ng Jing Hao
11. Dr Song Yi Lin
12. Dr Qian Li
13. Dr Koo Chieh Shen

What a NUS ORP graduate can do competently

The general objective of the ORP is to educate dentists to become future specialists in orthodontics with a solid and broad academic background and adequate clinical experience in different treatment methods.

The graduate is competent to:

1. diagnose anomalies of the dentition, facial structures and functional conditions
2. detect deviations of the development of the dentition, of facial growth, and occurrence of functional abnormalities
3. formulate a treatment plan and predict its course
4. conduct interceptive orthodontic measures
5. execute treatment for all types of malocclusions
6. collaborate in multidisciplinary teams for treatment of dentally compromised patients and orthodontic-surgical treatment
7. evaluate need for orthodontic treatment
8. practise orthodontics with high professional and ethical standards
9. comprehensively review, understand, and evaluate the literature pertinent to orthodontics in a wide array of disciplines relevant to the speciality
10. formulate a research hypothesis, design a methodological study, conduct the research, and present the findings

In addition to the above 10 core competencies, the graduate is be able to

11. evaluate psychological aspects relevant to orthodontics
12. act as an expert in orthodontics and related matters
13. use available opportunities for improving professional skills and lifelong learning

In addition, emphasis of learning is placed on:

- biomedical sciences relevant to orthodontics
- development of a scientific attitude in an inquiring mind
- principles of scientific methodology

The curriculum is based on the guidelines of the updated ERASMUS report on postgraduate education in orthodontics in Europe. The detailed and updated report is published in the *European Journal of Orthodontics* (2014); 36:340-349.

How teaching and learning is carried out in the NUS ORP

Three pillars of instruction support the learning within the NUS ORP:

1. Classroom teaching
2. Clinical training
3. Research

1. Classroom teaching

Classroom teaching covers content related to clinical orthodontics, basic sciences specific to orthodontics, and experimental aspects of orthodontic research and related research.

Active participation and **self-motivation** in acquiring of knowledge are expected from the residents. Residents are encouraged to be proactive in exchange of ideas and knowledge during the course. Residents will be continually assessed on the level of **quality of course work, commitment, active participation, and punctuality**.

Learning in classroom teaching is achieved via **three** approaches:

Journal review

- Topical and recent articles

Seminars

- Patterns in decision making
- Challenging malocclusions
- Topical seminars via the Flipped Classroom approach
- Core Seminars (Y1 residents only)

Training exercises

- Active Recall exercises
- Diagnostic Spotter exercises
- Case Progression exercises

2. Clinical training

Schedule of clinical training

Clinical training in the ORP is conducted at the **Faculty of Dentistry (NUCOHS)** and at the **National Dental Center Singapore (NDCS)**. **Eight** clinical sessions are rostered each week. Residents are expected to attend to all patients and clinical sessions promptly during their clinical rotations at NUCOHS and NDCS.

Supervisor to Student Ratio

The **supervisor to student ratio** for clinical supervision is **1:6** to provide a personalised mentoring of the students.

Appliance Systems Taught

Contemporary techniques in **fixed** and **functional** appliances are taught and used in clinical training. The principal fixed appliance technique taught at both NUCOHS and NDCS is the 022-slot size pre-adjusted edgewise fixed appliance system. Whenever indicated, residents are given the opportunity to manage patients using ceramic brackets. In cases which require skeletal anchorage, students will be instructed on the placement of Temporary Anchorage Devices (TADs).

Functional appliances commonly prescribed in clinical training include the Twin Block and the Bionator. Headgear and Facemask therapy, when indicated, are also taught during clinical training. Year 2 residents are given the opportunity to manage patients in the mixed dentition treatment using active removable and fixed appliances such as bite plates, the quad helix, and the 4x2 fixed appliance.

Students will also have the opportunity to be trained in the indication for and use of **alternative appliance systems**, e.g., *Invisalign* clear aligners and other active removable appliances. Exposure to these alternatives will be limited relative to fixed appliance treatment.

Multi-disciplinary Clinics

Residents will be exposed to multi-disciplinary clinical care of patients. Orthodontic residents will also have the opportunity to work with OMS residents on cases requiring orthognathic surgery. Occasionally, orthodontic residents will work with residents in prosthodontics or periodontics for joint management under supervision.

3. Research

The research process and the scientific method are taught and assessed in the NUS Orthodontics Residency Programme. The **satisfactory completion and oral defense** of a research project before the Final MDS examination is a **graduation requirement**.

Research topics are generally assigned by the supervisors based on the thematic research areas in the Faculty of Dentistry and NDCS.

The oral defense of the MDS thesis is a comprehensive assessment of the resident's

1. Understanding of the topic studied
2. Understanding of the experimental method employed
3. Interpretation of the data and the inherent limitations
4. Quality of the written thesis

A measure of the quality of the MDS research project is its **publishability** in a scientifically peer reviewed international journal. Final year residents are strongly encouraged to **submit a manuscript** to a peer-reviewed international journal in the January month of the final year.