SCHOOL OF DENTAL MEDICINE
CASE WESTERN RESERVE UNIVERSITY

Department of Orthodontics

POLICY MANUAL
2016

Created 1978 - **Rolf Behrents**

1983 – 1985 - **Rolf Behrents**

1990 – 2000 - **Mark Hans**

2001 – 2002 - **J. Martin Palomo**

2003 – 2012 - **J. Martin Palomo and Dennis Beeson**

2013 – 2016 - **J. Martin Palomo**

http://orthodontics.cwru.edu/

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PREFACE

PROGRAM SUMMARY

GOALS

The mission of the Department of Orthodontics is to:

1. Provide clinical and didactic instruction in orthodontics for pre-doctoral and post-doctoral students.
2. Provide quality orthodontic treatment for children, adolescent and adult patients.
3. Promote the discovery of new knowledge in orthodontics through scientific research.
4. Serve the surrounding community as an educational resource and as a provider of quality orthodontic treatment.

CLINICAL EDUCATION OF ORTHODONTIC RESIDENTS

The clinical training of orthodontic residents encompasses all aspects of current orthodontic practice including: teenage clinic, early treatment, adult treatment, craniofacial anomalies, and orthognathic surgery.

The length of the orthodontic program is a minimum of 30 months. In a program of 30 months it is not possible to produce a seasoned and skilled orthodontist, therefore, our program strives to produce a competent beginner. Accordingly, the clinical load of patients is chosen to match the teaching goals of the department. There is an option to extend the program to 36 months. The 36 month option satisfies the European specialty training standards (ERASMUS).

FIXED ORTHODONTIC APPLIANCE TREATMENT- CORE CLINIC

The majority of the cases treated in the graduate department are in the teenage clinic or core clinic. The orthodontic resident spends 29 months treating patients within this clinic. During the first year of the program each resident starts up to 50 new patients to be treated on 4 clinic mornings, and 1 afternoon per week. During the fall semester core clinic patients are the only patients being seen by first year residents. The philosophy of this assignment is that fixed appliance therapy is the "bread and butter" of private orthodontic practice and a solid grounding in basic diagnosis and treatment planning is necessary to produce a competent orthodontist. It is expected that by December of the first year the resident will have all cases bonded and treatment will be in progress.

To assure equal distribution of orthodontic cases, and a similar experience by the residents, all cases have their severity evaluated using the ABO discrepancy index (DI), and case distribution is done assuring that each resident has cases in all ABO categories.

The core clinic half-days are Monday through Thursday mornings with occasional afternoons held as a reserve time during the first semester. In addition to the clinical instruction gained by treating patients in these core clinics, a companion seminar serves to provide didactic teaching of clinical orthodontics. This core seminar is for first and second year residents. These seminars take place from 8:00 am to 9:00 am Monday through Thursday. During the first year, a series of lecture topics

is presented by the core clinic faculty. Following this, the second year of the seminar is devoted to case review. The first part of the case review involves a review of selected cases that are currently being treated in the core clinic. This portion of the second year seminar is termed "Problem Case Review." Following the Problem Case Review, the remaining seminar time is devoted to the review of certain selected case mechanics as well as treatment philosophy completes the core instruction in clinical orthodontics.

SUB-SPECIALTY CLINICS

After the semester break the first year residents are introduced to the "sub-specialty" areas of orthodontic practice. These areas are introduced on a lecture basis during the fall in preparation for beginning in January. Additional cases are assigned to the first year residents in January to be seen in the sub-specialty clinics. The sub-specialty clinics are:

Adult Treatment

Craniofacial Anomalies

Early Treatment (Functional Appliances)

Orthognathic Surgery

Treatment of cases within the sub-specialty clinics continues for 4 semesters beginning in January of the first year. A description of some of the sub-specialty clinic follows.

ADULT TREATMENT

The adult treatment clinic concentrates on the special problems associated with the mature dentition. Each resident is assigned new cases after January of the first year. These patients are selected based on their need for interdisciplinary treatment. Special consideration is given to patients requiring combined periodontal, restorative and orthodontic treatment. This sub-specialty clinic involves orthodontic residents, advanced education in restorative dentistry (AEGD) residents, periodontic residents, and endodontic residents. A companion seminar is given along with the clinic to highlight relevant literature, provide a forum for case discussion, and provide time for instructors to present treated cases. Topics to be covered include: treatment with aligners, treatment of periodontally involved patients, implants, and timing of interdisciplinary treatment.

Treatment of adult patients is coordinated by attending full time faculty in the orthodontic department. Following the medical model, residents participate in care of these patients in a one to one tutorial with the attending doctor.

CRANIOFACIAL ANOMALIES

Each resident is available to render treatment for patients with a variety of craniofacial anomalies. Training in diagnosis and treatment planning of patients is provided by resident participation in the Craniofacial Defects Clinic at Rainbow Babies and Children's Hospital (RB&C). This clinic meets twice a month to evaluate patients and recommend treatment. This clinic is the source of all patients seen in the orthodontic clinic. The RB&C clinic is comprised of specialists in the fields

of Plastic Surgery, Maxillofacial Surgery, Pediatrics, Pediatric Dentistry, ENT, Speech and Hearing, Child Development and Maxillofacial Prosthodontics. Residents assist the orthodontic specialist assigned to the team in the evaluation of patients. The resident also attends the summary conference where all the involved specialties discuss the treatment plans for the patients seen that day in the craniofacial clinic.

Approximately 30 patients are seen in the evaluation clinic each month. In addition to these seminars, a one-semester didactic lecture course taught by the various specialists on the team is given in the fall of the first year and serves as an introduction to the clinical portion of the training. In this way the resident sees how each specialist evaluates a patient in the CFA clinic.

Treatment of patients with craniofacial anomalies is coordinated by attending full time faculty in the orthodontic department. Following the medical model, residents participate in care of these patients in a one to one tutorial with the attending doctor.

EARLY TREATMENT

Modern orthodontic diagnosis and treatment planning divides malocclusions into skeletal and dental components. Given that orthopedic alteration of the growing face is both possible and desirable, some malocclusions can best be treated in the mixed dentition when considerable skeletal growth remains. The early treatment clinic is designed to give our residents experience in treating skeletal problems during the mixed dentition. This clinic begins during January of the first year with the assignment of three new patient starts for each resident. A variety of skeletal problems are treated in this clinic including transverse maxillary deficiency, maxillary skeletal retrognathia, maxillary skeletal prognathia, mandibular skeletal retrognathia, mandibular skeletal prognathia, and vertical facial dysplasia. The instruction in this clinic takes the form of clinical case presentations by the attending instructors as well as actual treatment of patients. Because multiple phases of treatment are generally required to bring a case to completion, meticulous records are kept on all patients being treated and the review of the records is a major teaching resource in this clinic.

Didactic instruction in the use of orthopedic forces and appliances begins during December of the first year. This coincides with the completion of the first semester of the didactic course in facial growth and development. Beginning this course in January gives the resident both a clinical and scientific basis for understanding the treatment modalities applied in this clinic.

A patient that has completed the first phase of treatment will most likely be assigned to the core clinic for the fixed phase of treatment. In certain instances the patient may be assigned to the orthognathic surgery sub-specialty clinic if a significant skeletal discrepancy still exists at the completion of skeletal growth.

ORTHOGNATHIC SURGERY

The orthognathic surgery clinic is designed to treat mature patients with combined orthodontic and skeletal deformities. The clinic begins during January of the first year. Additional to clinical patient care, a series of didactic lectures are given to acquaint the resident with the departmental philosophy of combined orthodontic and surgical treatment. Each resident is assigned patients

with combined dental and skeletal deformities. These cases are diagnosed and treatment planned in conjunction with the Department of Oral and Maxillofacial Surgery.

Experience in clinical treatment is supplemented by weekly seminars in diagnosis and treatment planning as well as case presentations by the instructors in the sub-specialty clinic. Treatment of orthognathic surgery patients is coordinated by attending full time faculty in the orthodontic department. Following the medical model, residents participate in care of these patients in a one to one tutorial with the attending doctor.

PROGRAM EFFECTIVENESS

The graduate students in orthodontics are evaluated on an ongoing basis, including:

- Faculty feedback formally collected biannually, but informally on a regular basis. Full time faculty meets weekly and discusses residency status on ongoing basis;
- Clinical Examination during Second and Third year, where residents show their own progress/finished cases and diagnose/treatment plan a surprise case (mock ABO clinical exam, with cases prepared following ABO format);
- Grading of every finished case by a calibrated faculty, using the PAR index. The percentage of improvement for every case is also calculated;
- Individual evaluation by an outside examiner, during second and third year of residency (reports available onsite);
- Performance on ABO written exam during second year;
- Computer entry and chart review audits;
- GPA in program coursework;
- Thesis committee meetings.

The students receive regular feedback on their performance, and meet with the program director biannually where their performance is evaluated separately for didactic, clinical, and research components. At this individual meetings, their performance up to this point is discussed, as well as expectations for the next 6 months.

An alumni survey is conducted every 7 years to collect information about our graduates.

The Program is also evaluated as a whole by an external examiner on an annual basis. The external examiner is somebody who has no ties with our department, and alternates between an orthodontist in academics, clinical practice, and organized dentistry.

RESEARCH

The department has an ongoing commitment to maintain its leadership role in the area of research. Each resident is encouraged to select his/her own research topic for his/her Master's thesis. The thesis is to be submitted in partial fulfillment of the Master's degree and should be completed within the first 24 months of the program. All residents are required to produce a Master's thesis, and the department does not award a certificate degree without the Master’s.

Specific areas of ongoing research in the department include:

1. Three Dimensional Imaging in Orthodontics
2. Craniofacial Anatomy and Obstructive Sleep Apnea Syndrome.
3. Retention in Orthodontics
4. Growth and aging of the human face
5. Outcome of orthodontic treatment and demographics of orthodontic practice.

COMMUNITY RESOURCE

The department functions as a community resource on two levels. First, the treatment of patients within the orthodontic clinic is recognized as a significant community service.

The department also serves the community as an educational resource with occasional appearance in newsletters, newspaper, and television, to teach about the benefits of orthodontic treatment.

SUMMARY OF THE AREAS OF PRIMARY FOCUS FOR EACH RESIDENT YEAR.

First Year: *"Get going in the clinic and in the classroom!"*

• Complete didactic instruction in the core MSD courses.

• Starting up to 50 new patients in the core clinic and 15 in the specialty clinics.

• Identify research topic by December, and defend protocol by July

Second Year: *"Research, research, research, but stay active in the clinic!"*

• Complete and defend Master's Thesis.

• Continue clinical care of new plus transfer patients.

• Seminars, lectures, and case presentations

• Take ABO Phase 2 written examination.

• Take CWRU Ortho Mock ABO Clinical Examination

Third Year: "*Hone clinical skills. Get ready to practice orthodontics on your own!"*

• Start 5-10 new patients with the new first year residents.

• Work clinically with the new first year residents treating them as if they were a new associate joining your practice.

• Finish cases with proper outcome assessment and documentation, i.e., complete charts, records, cephalometric superimpositions, ABO score, etc.

• Take CWRU Ortho Mock ABO Clinical Examination

CHAPTER I

ADMINISTRATIVE DETAILS

DEPARTMENT OF ORTHODONTICS
SCHOOL OF DENTAL MEDICINE
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STUDENT CONDUCT

PROFESSIONAL DEMEANOR AND ATTITUDE

Part of the experience the residents will have during their relatively short educational stay with us is an intangible one. Since we have great pride in our department, our work, and our accomplishments, we all try to conduct ourselves as professionals. This is accomplished visually by our dress, conduct and demeanor and intangibly by our attitude. This is how we represent ourselves and express our deep pride in the department.

Likewise, we expect our students to exhibit this same expression of pride. For, as soon as they begin our program, they too represent the department and the profession. Albeit they have a little more time to put in, they, too, should show pride in their work and themselves and respect for the department. We expect that residents will conduct themselves in a manner befitting their stature whenever they are exhibiting to the public or their peers that they are indeed professional people. Thus, in the clinic and in public we expect residents to conduct themselves appropriately and to dress in a manner that puts forth our best image. We expect no less in front of our peers.

The final judge of what we are lies within each of us, but others judge us by how we look, what we say, and what we do. Appearance, therefore, is important; it determines how we present ourselves as professionals and is the reason patients come to our door so that we can exhibit our art and science.

RESIDENT DRESS CODE

The Department of Orthodontics desires that the most professional image be projected by our residents. Therefore, the following dress code will be in effect throughout the course of the entire program.

1. The male student will wear a shirt and tie, dress trousers, dress shoes, and socks. Female students will wear daytime dresses or pants analogous to men's dress pants. No leisure wear will be tolerated.
2. **Additional Clinical dress is specified in the OSHA Compliance Manual.**
3. Jewelry should be kept to a minimum. No jewelry should be worn which might touch the patient (dangling or on the hands when treating patients).
4. Hair should be neat and well groomed and not in a manner which would permit contact with the patient. No "unusual" hair styles will be permitted.
5. Excellent personal hygiene is mandatory. Clean clothes, hands, nails, and hair are required. Makeup must be minimal and worn in a manner so as not to call attention to its use. Use of perfumes and colognes is discouraged.

COURSE ATTENDANCE POLICY

The Department of Orthodontics, by faculty action, has established that attendance for all graduate instruction is mandatory.

ABSENCE FROM CLINIC

Any planned or unplanned absence from the clinic is to be cleared with the program director. This statement applies to residents, faculty, and staff. If a resident is absent without approval, a clinic grade of "0" for each day, for each course missed will be recorded. Extended, unapproved absences will thus likely result in a failing grade being recorded for the courses involved (a "0" is averaged as a double F).

If a resident wishes to be absent from the program for any reason, the student must obtain and fill out an APPROVED ABSENCE SLIP which is available from the department administrator. This slip must be signed by each instructor of every course the resident would miss and then turned in to the program director for final approval. Thus, each instructor responsible for the resident's education must approve the absence in advance**. Twelve unquestioned absence days (which include Saturdays and Sundays if a special lecture is given on the weekend) will be allowed during the thirty-month program.** The resident is expected to complete an approved absence request slip and submit a voucher for each absent day. **Absence from special lectures are only with approval of the department program director.**

Official notification to the residents, faculty, and staff of holiday periods will be made by the program director. These days do not count as the twelve excused absent days. Even during holiday periods, however, arrangements will be made with the residents who will be remaining in the area to handle any emergency that might occur involving departmental patients.

MEETINGS

During the year various related activities (special seminars, courses, conferences, conventions, etc.) pertinent to increased knowledge of the art and science of orthodontics are advertised. Residents should consult with the program director to determine whether resident attendance at such activities on an individual or group basis is mandatory, suggested, discouraged or not required. If attendance is suggested or mandatory, the appointments for the indicated days involved will be cleared so that the resident is able to attend and the absence will not count against the resident’s 12 excused absence days. It should be stressed, however, that if appointments are cleared to permit attendance at a special event, it is expected that attendance will occur. Upon return, residents may be asked to give a report of the meeting.

Attendance at the meetings of the Great Lakes Society of Orthodontists (when it is in our region), American Association of Orthodontists, and The Moyer's Symposium are expected. If a resident does not attend these and classes and clinic are canceled, then advance approval must be obtained. If approval is NOT obtained, residents will have the days deducted from their allotted absence days. If a resident does not attend, to the extent possible, classes and clinic will meet as normally scheduled, depending on the availability of instructors.

Attendance at the meetings held by the Cleveland Society of Orthodontists is mandatory and all clinics and classes are canceled on dates of that meeting.

Residents wishing to take any extended "hands-on" course outside the university must obtain approval prior to making plans to attend. Approval for these courses takes the form of a written

statement from the appropriate instructors that the resident is competent to take the course. This applies in particular to the Tweed Foundation Course given in Arizona, and the TipEdge Course given in Indiana. Final approval is granted by the program director and absence days may be deducted from the allowed days.

CONTACT WITH SALES PEOPLE

At various times sales personnel from various companies visit the department to take school orders, demonstrate new products, etc. All communications between the company personnel and the residents are to be cleared with the program director. The program director is to be aware of all activities between sales personnel and residents before such activity takes place. This should not be viewed as restrictive, but rather protective**.**

ALL MEETINGS MUST BE SCHEDULED THROUGH THE DEPARTMENT ADMINSTRATOR, AND MUST BE ENTERED INTO THE DEPARTMENTAL SCHEDULE.

TREATING RELATIVES

We will try to accommodate the residents' desires to treat relatives, children, etc., in the orthodontic clinic. The fee charged will be determined by the program director. Several procedures, however, must be followed to protect the resident and the clinic. Consult the program director for details. **The department of orthodontic will not tolerate treatment of patients who are not properly registered and who are unknown to the program director or clinic director.** Failure to comply will result in grounds for suspension.

PRIVATE PRACTICE

Graduate students who are licensed to practice in the State of Ohio may work in a general practice setting as time permits. This activity is discouraged during the first year of the program because of the intensity of study necessary to be successful. Residents will be allowed to practice extra-murally at the discretion of the Program Director and no private practice situation will be allowed to interfere with any educational aspect of the Orthodontic Program. For international students, additional written permission must be obtained from the Department of International Student Affairs at CWRU.

PATIENT REFERRALS

Under no circumstances are residents to perform regular dental services (restorations, extractions, etc.) on clinic patients either in this clinic or elsewhere. In essence, the residents may not refer patients to themselves (as outside practitioners), as this is easily interpreted as a conflict of interest. All internal or external referrals must done under the instructor’s supervision and approval.

FACULTY-RESIDENT-PATIENT RESPONSIBILITIES

PROFESSIONAL LIABILITY POLICIES

CWRU extends liability insurance protection to all employees, both faculty and staff, while engaged in the good faith performance of their authorized and assigned duties and responsibilities. Students are also covered by university liability insurance protection whenever they may be engaged in authorized activities related to the completion of their education, such as clinical training. Protection is not provided for unauthorized activities, the commission of acts outside the scope of one's duties, and responsibilities or acts committed in bad faith.

Frequently, the issue arises relative to resident liability insurance. As is customary in most dental schools, Case Western Reserve University operates dental clinics in which residents obtain clinical experience within the guidelines of the respective State Dental Practice Act, whereby assurances of direct or indirect supervision by licensed professionals are mandatory. Therefore:

l. It is unlikely for a resident to be liable for personal injury arising from malpractice because every act of a resident in a clinical setting is performed under the supervision of an instructor, and the instructor is solely responsible for the resident's actions.

2. No resident should be allowed to engage in a clinical experience in which the instructor does not fully understand and agree that he/she is solely responsible for the resident's clinical action.

3. Consequently, no resident will engage in a clinical experience without instructor approval because violation of this rule places the resident in jeopardy

4. Guidelines for treating patients with indirect supervision. When a patient is seen by a resident in the absence of the attending instructor, verbal or written approval for the procedures to be performed should be obtained from the attending instructor.

RESIDENT RESPONSIBILITIES FOR PATIENT CARE

Residents have greater responsibilities when compared to dental students, being doctors in a graduate program and holding a resident dental license to practice in the State of Ohio. For example, residents can treat patients in the clinic without direct supervision of the attending orthodontist. However, it should be clearly understood that ultimately all matters of patient care are the responsibility of the attending instructors and residents should not provide care that is not approved by the attending. Whenever a resident sees a patient without direct supervision by the attending, it is the resident’s responsibility to obtain the attending’s approval for the services rendered. Approval can be obtained via e-mail, phone or direct consultation.

PATIENT CARE

RESPONSIBLE ADULTS ACCOMPANYING PATIENTS

We do require a parent (or responsible adult) to accompany young children, older patients with mental or physical disabilities or adults who may not be responsible for their behavior.

MEDICAL PROBLEMS

Very Important. Upon reading the health history or during the clinical examination, the resident may discover a patient is medically compromised. In our clinic, a patient who is not totally healthy is medically compromised. Residents should discuss the situation with the instructor and make sure all medical conditions are under control and supervised. Referrals and or contacts with the patient's physician may be necessary. The resident should become aware of any special or emergency care the patient might require. It is also very important that a MEDICAL ALERT tag be displayed to the patient's physical and electronic chart.

DRUGS IN THE CLINIC

No drugs should be dispensed in the clinic and no prescriptions should be written without permission from an attending instructor. This is necessary so that our emergency cart can be up-dated and modified to keep it consistent with the drugs used in the clinic. In any case, residents should not sign prescriptions unless they have a current DEA number. When the resident does not have such a license, an attending instructor should sign the prescription.

The Department of Oral and Maxillofacial Surgery stocks starter doses of several common antibiotics. A signed prescription is necessary to obtain these drugs. All pain medication necessary in regard to non-orthodontic procedures (extractions, endodontics, etc.) is to be prescribed by the doctor performing these procedures and not by just anyone in this department.

EMERGENCY PROCEDURES

Emergency situation protocols have been developed by the School of Dental Medicine and are part of the initial resident orientation. In case of emergency call (216) 368-3333 to contact the Campus Police. The Campus Security will send officials and call 911. The department of Oral Surgery also serves as the school’s resource for immediate care.

NON-MEDICAL EMERGENCIES

When serious unrest, disruption, violence or other major disturbances occur on campus, the following individuals should be contacted in the order indicated.

UNIVERSITY CIRCLE POLICE: 216-368-2222

UNIVERSITY SECURITY: 216-368-3333

DR. J. MARTIN PALOMO, PROGRAM DIRECTOR: (216) 368-2449

DR. MARK HANS, DEPARTMENT CHAIRPERSON Office: 216-368-4649

PROBLEMS AMONG RESIDENTS, STAFF AND FACULTY

Any difficulties among residents and staff should be brought to the attention of the program director for action and not discussed openly on the clinic floor. The same holds for difficulties between residents and instructors and staff. Verbal or physical abuse among any members of the

department will not be tolerated.

RESIDENT/PROGRAM DIRECTOR MEETINGS

Regular meetings are held with the residents and the Program Director. The purpose of these meeting is to air difficulties and distribute information. Resident progress is also discussed during individual meetings with the program director.

TELEPHONES

Incoming patient calls are directed to one of five clinic numbers. Residents should check their email periodically during the day to pick up messages. The front-desk coordinator will NOT page residents for phone calls except in the case of a family emergency. All messages will be logged on the Message Section of OrthoII or sent to the resident via their Case email account.

Outgoing residents' calls are to be made by using the phones assigned to each corner of the clinic or the resident study area. Outgoing calls should not tie up the front desk number.

Residents are not permitted to use the administrative secretary's phone at any time or the front-desk coordinator's phone during clinic hours. Long distance calls may only be used for necessary school business.

Absolutely no personal long distance calls are to be made on department phones.

Residents making such calls will be billed accordingly.

It is inappropriate to use the departmental phones to call 900 numbers or similar numbers.

Department of Orthodontics Phone Numbers

Front Desk	(216) 368-3249
Ms. Connie Cumberworth:	(216) 368-4649
Imaging Center:	(216) 368-2674
BICCR	(216) 368-4331
Dr. J. Martin Palomo:	(216) 368-2449
Dr. Manish Valiathan:	(216) 368-0673
Dr. B.D. Amberman:	(216) 368-6773
Clinic Phone 1:	(216) 368-8768
Clinic Phone 2:	(216) 368-1480
Clinic Phone 3:	(216) 368-3272
Clinic Phone 4:	(216) 368-8876
Sara Fox:	(216) 368-3268

CASE School of Dental Medicine - Telephone, Room and Email Directory

Name	E-mail	Phone #	Room	Dept.
Acre, Lasaundra	lxa36	5320	A080	Auditing
Admissions - Student		2460	1260	Admissions
Admitting		8730	A41F	Oral Medicine
Admitting Clinic Preceptors		1063	A41K	Oral Medicine
AEGD		3290	1040	AEGD
AEGD Conference Room		0713	104B	AEGD
Aftoora, Philip	pca	3201	130C	Student Services
Akkus, Anna	asp7	4351	B19A	Comp. Care
Al-Hashimi, Nameer	nxa248	0665	B13A	Pediatrics
Alonso, Aurelio	aaa184	2486	203E	Comp. Care
Alumni Office		3480	1340	Alumni
Amberman, Douglas	bda	6773	A34H	Orthodontics
Aminoshariae, Anita	axa53	1188	A280	Endodontics
Anderson, Robert	rma18	6965	A100	Dispensary
Askounes, Sara	sea10	1964		Community
Assaf, Hussein	hxa23	6759	A02E	Comp. Care
Auditing		3211	A04E	Auditing
Baur, Dale	dab34	6745	A53C	Oral Surgery
Berry, Becky	rxb200	6757	1290	Periodontics
Bhaskaran, Natarajan	rxb160	1241	3370	Bio Science
Bissada, Nabil	rxb4	6752	1290	Periodontics
Blair-Quamina, Maxine	rmxb348	6758	A26B	Orthodontics
Bolton Study		4649	A26C	Bolton Study
Boykin, Rochelle	rxb475	5320	A080	Auditing
Bridges, Shyera	sxb801	0450	BC	PCC Program
Bryant, Ashley	axb814	0592	1040	Faculty Practice
Bucci, Jaci	jxb720	3102	A52B	Oral Surgery
Burris, Amber	axb649	2217	201W	Community
Calhoun, Carolyn	cxc143	6767		Comp. Care
Carr, Hillary	hbc20	8730	A4A	Oral Medicine
Cashier's Office		5320	A080	Auditing
Chance, Kenneth	kbc9	3266	137A	Dean
Chen, Lechuang	lxc448	1252	3420	Bio Science
Chuck, Emil	etc	6733	1270	Admissions
Cielma, Gail	gxc203	2538	A53B	Oral Surgery
Clinic Preceptors Office		4730	A20D	Clinic
Community Dentistry		2217	201W	Community
Comprehensive Care Lab		0154	B19A	Comp. Care
Corbin, Wanda	wxc257	6767		Comp. Care
Craniofacial Clinic		4331	3100	Craniofacial Clinic
Craniofacial Imaging Center		2674	3100	Orthodontics
Cumberworth, Connie	clc119	4649	3130	Orthodontics
Curtan, Shelley	sgc36	3968	346A	Community
Daugett, DaMyra	dxd331	6767		Comp. Care
Dawson, Jacquelynne	jcd110	6766	BA	PCC Program
Dean's Office		3266	137A	Dean
Demko, Catherine	cad3	8804	217W	Community
DeValve, Beth Anne	bad49	0665	B13A	Pediatrics
Development		3480	1340	Development
Dispensary-Sterilization(Dropoff)		6965	A100	Dispensary
Dispensary-Sterilization(Pickup)		5193	A14A	Dispensary
Dispensary		6792	A240	Dispensary
Dolinar, Christine	cxd199	3480	1340	Alumni/Develop.
DPH Residents		4218	206W	Community
DPH Residents		6130	213W	Community
Draganic, Janet	jls19	0492	105C	Faculty Practice
Drake, Iyana	ixd56		6767	Comp. Care
Drake, Kimberly	kkd4	0686	A07E	Auditing
Drews, Chandra	clh36		844-1077	Pedo @ UH
Eapen, Betty	ble12	1496	3240	Bio Science
EFDA Clinic		3252	215E	EFDA
Endo Lab		1273	3450	Endodontics
Endo Residents		6798	A38A	Endodontics
Endodontics (Admin)		1374	1230	Endodontics
Endodontics (Clinic)		3236	A38C	Endodontics
Faculty Practice		0592	1040	Faculty Practice
Faddoul, Fady	fff2	3994	105B	AEGD
Farah, Jean	jmf175	3266	1360	Dean
Feiwell, Shelly	sxf35	3252	215E	EFDA
Feng, Zhimin	zxf4	1996	3260	Bio Science
Ferretti, Gerald	gaf10	0387	1210	Pediatrics
			844-8128	Pedo @ UH
Ferretti, Meg	mef18	0387	1210	Community
Feyes, Denise	dkf2	8549	3520	Community
Fields, Sara	sym2	3924	212W	Alumni/Develop.
Fomby, Tina	cxf4	2377	A34F	Pediatrics
Fox, Sara	sxf223	6758	A26B	Orthodontics
Fox, Steven	sxf11	0018	A02F	Comp. Care
Freudenberger, Sharon	sxf199	1662	A34C	Pediatrics
Freydinger, Palma	pxf17	6736		Comp. Care
Friday, Colleen	cmf87	1168	1360	Graduate Studies
Gary, Tanaisha	txg212	0146	1040	AEGD
Ghosh, Santosh	skg12	6586	3210	Bio Science
Gibson, Tameka	tmg49	3236	A38A	Endodontics
Goins, Alicia	axg767	6749	A51A	Oral Surgery
Goldberg, Jerold	jsg	6764	3580	Oral Surgery
Graduate Studies		1168	3130	Graduate Studies
Graves, Angela	arg3	2162	202E	Comp. Care
Haddad, Lina	llh66	6965	A100	Dispensary
Hall, Joann	jgh24	5202	B250	Community
Hamilton, DeBorah	dmh117	1525	332A	Bio Science
Hans, Mark	mgh4	4649	3150	Orthodontics
Harris, Antonise	amg18	2460	1260	Admissions
Harris, Nicole	nlh5	6840	1310	Geriatric Program
Harris, Patrice	plh27	3290	1040	AEGD
Harwell, Kimberly	kch6	8793	A38D	Periodontics
Heima, Masahiro	mxh392	1379	A34G	Pediatrics
Henderson, Angel	axh71	6840	1310	Geriatric Program
Hernandez, Alfredo	alh5	0777	1150	Comp. Care
Hirsch, Stanley	sah4	4262	1130	Oral Pathology
Hirsch, Tori	vah4	6982	1400	Finance/Operations
Histopathology Lab		4260	B12A	Histo Lab
Horne, Susie	smh4	3819	AH	PCC Program
Huffman, Laura	lkw2	6731	1250	Academic Affairs
Humphrey, Stephanie	sah38	4545	1320	Community
Iannadrea, Jean	jmi15	6707	A41K	Oral Medicine
Ina, Gladys	gmi7	1900	1390	Administration
Jackson, Monica	mmj8	6590	A04B	Clinic
Jagger, Greg	gsj4	4545	1320	Community
Jasinevicius, Roma	trj2	2237	201E	Comp. Care
Jeter, Ashlee	arj37	8736	3350	Bio Science
Jia, Xun	xxj8	6561	3190	Bio Science
Jin, Ge	gxj7	3791	3570	Bio Science
Jin LAB		1252	3420	Bio Science
Juby, Megan	mxj231	3481	211W	Alumni/Develop.
Kaleinikova, Zina	zxk18	3565	A09J	Comp. Care
Kaye, Lucinda	lak10	6738	A290	Dispensary
Koehler, Kathy	kab10	0592	1040	Faculty Practice
Lab – WEST		5369	213W	Lab-West
Lalumandier, James	jal10	3276	1320	Community
Landers, Michael	mal	3976	A41L	Oral Medicine
Lang, Lisa	lal73	4163	A09D	Comp. Care
Latimer, Bruce	bxl14	0757	3130	Orthodontics
Lee, Wonik	wxl219	2199	3500	Community
Long, Melody	mpl12	0592	1040	Faculty Practice
Love, Jack	cjl12	5210	A09M	Comp. Care

CASE School of Dental Medicine - Telephone, Room and Email Directory

Name	E-mail	Phone #	Room	Dept.
Mabrey, Kim	kdm13	3210	A38A	Endodontics
Mahalaha, Suparna	saa6	6840	1310	Geriatric Program
Majette, Adam	axm696	5193	A14A	Dispensary
Marie, Anushka	axm1067	5761	3510	Community
Markarian, Tania	tzm3	6736		Comp. Care
Masterson, Stacey	sxm986	0746	BD	PCC Program
Matanowitsch, Rich		0526	A300	IT
Mays, Artrissa	axm994	6758	A26B	Orthodontics
Mazzocca, Chris	cxm403	5009	B270	Comp. Care
McConnaughy, Cynthia	cjm39	2674	3100	Orthodontics
McDowell, Gladys	gxs9	3210	A38A	Endodontics
McKee, Heidi	hjm7	1374	1230	Endodontics
Mehlotra, Rajeev	rkm	6172		Bio Science
Mickel, Andre	axm69	0538	1220	Endodontics
Midcalf, Venita	vxm147	3258	1400	Finance/Operations
		3277	1400	Pediatrics
Mitchell, Dominique	dxm471	0146	1040	AEGD
Moaven, Frank		1177	204E	IT
Montagnese, Thomas	tam12	6754	1230	Endodontics
Moore, Yovonne	yxm246	3707	AF	PCC Program
Narendran, Sena	sxn100	1311	216W	Community
Negrelli, Mama	mlm42	0592	1040	Faculty Practice
Nelson, Suchitra	sxn15	3469	3690	Community
Norman, Sherry	sln4	4545	1320	Community
Noscal, Ray	rtn9	6736	A09D	Comp. Care
Occhionero, Ronald	rlo2	1900	1390	Administration
Oldham, Jennifer	jxd90	1295	A07C	Auditing
Opsitnick, Susanne	sxo45	2645	A41D	Oral Medicine
Oral Medicine		8730	A020	Oral Medicine
Oral Pathology		4262	1130	Oral Pathology
Oral Surgery		2538	A53B	Oral Surgery
Oral Surgery-Chief Resident Office		2414	A53A	Oral Surgery
Oral Surgery Resident Room		6748	A52G	Oral Surgery
Oral Surgery Clinical		6749	A42H	Oral Surgery
Ortho Administration		4649	3130	Orthodontics
Ortho Imaging Center		2674	3130	Orthodontics
Orthodontics Patient Scheduling		3249	A26H	Orthodontics
Ortho Research Lab		1259	3080	Orthodontics
Paes, Andre	axp460	0879	A38C	Periodontics
Paging		1364	A04D	Tele Operator
Palomo, J. Martin	jmp6	2449	3090	Orthodontics
Palomo, Leena	lvb3	6300	1200	Periodontics
Pandiyan, Pushpa	pxp226	2939	3650	Bio Science
Pandiyan Lab		1241	3370	Bio Science
Paramore, Ca'Saundra	cmp42	2139	A09B	Auditing
Patrick, Bridget	bxp183	3948	221W	Bio Science
Peck, Janet	jkp38	1259	A26B	Orthodontics
Pediatrics (Admin)		3277	213W	Pediatrics
Pediatrics (Clinic)		6165	A26A	Pediatrics
Pediatrics (UH Clinic)		844-3080	Hosp	Pediatrics
Pedo Residents		844-3090	Hosp	Pediatrics
Perio Clinic		3615	A38D	Periodontics
Perio Conference Room		1953	A38D	Periodontics
Periodontics-Clinic Director		0879	A38C	Periodontics
Periodontics (Admin)		6757	1290	Periodontics
Peter, Konrad	kjp59	6823	B140	Finance/Operations
Peterson, Brittany	bxp205	0214	BB	PCC Program
Pinto, Andres	axp484	6769	1190	Oral Medicine
Pitts, Terri	tmp22	3260	A09G	Comp. Care
Pohl, Lauren	lep48	6818	220W	Community
Powell, Amy	axp588	8662	A53C	Oral Surgery
Pratt, David	dxp223	3923	1340	Alumni/Develop.
Quereshy, Faisal	faq	3216	A02G	Oral Surgery
Quigley, Cherese	cxq37	0665	B13A	Pediatrics
Ramsey, Heather	hxr106	0775	1250	Academic Affairs
Rasul, Olivia	oaa13	4535	A09C	Quality Assurance
Reid, Carolyn	cxr4	4545	1320	Community
Ricchetti, Paul	par	0879	A38C	Periodontics
Roperto, Renato	rcr67	4777	A02D	Comp. Care
Roulette, Jackie	jxc10	3615	A360	Periodontics
Rukovena, Andrew		5192	A300	IT
Russell, Keyanna	kxr227	0498	A41D	Oral Medicine
Samp, Margaret	mts3	6792	A240	Dispensary
Samuels, Carol	cms42	2966	A41H	Oral Medicine
Schechter, Ben	bls7	3882	A09F	Quality Assurance
Sciulli, Barbara	bas3	3256	130B	Registrar
Sealant Program		4545		Community
Selvaraj, David	dms256	4721	3500	Community
Sherman, Brian	brs12	3203	1280	Admissions
Silas, Cheryl	crs10	6136	130A	Student Services
Simmelink, James	jws11	4252	B240	Bio Science
Sislak, Gary	ggs33			Geriatrics
Skillicorn, Robert	rcs7	5262	A02C	Periodontics
Slusar, Mary Beth	mxs1008	2833	3510	Community
Smith, Tashyana	tjc79	4765	3520	Community
Smolik, John	jws22	6772	1420	Finance/Operations
Spates, Kassandra	kxs170	5564	3480	Community
Spence, James	jhs2	6823	B140	Finance/Operations
Stein, Murray	mas2	6768	B260	Emeritus
Stewart, Melody	mxu6	6185	A180	Pediatrics
Stocker, Shelby	sas331	0146	1040	AEGD
Student Services		6136	130A	Student Services
Switchboard		3200	A04D	Clinic
Syed, Ali	azs16	6802	A41K	Oral Medicine
Tandler, Bernard	bxt20	0563	A09E	Bio Science
Taylor, Mary Beth	mxm290	3747	AB	PCC Program
Teich, Sorin	stt5	6161	A02B	Comp. Care
Thompson, Dan		0990	A300	IT
Thompson, Emonee	ext174	1364	A4A	Clinic Operator
Tomsick, Debra	dxt208	4331	3100	Craniofacial Clinic
Trouten, James	jct21	6773	A34H	Orthodontics
Tulunoglu, Ibrahim	ixt45	6365	A09H	Comp. Care
Tulunoglu, Ozlem	oxt29	3277		Pediatrics
Valiathan, Manish	mxv13	0673	3110	Orthodontics
Vernon, Lance	ltv1	0712	3540	Bio Science
Vibbert, Grace		8609	204E	DentSim
Victoroff, Kristin	kaz3	6616	1440	Academic Affairs
Wagner, Dianne	dra3	2461	1260	Admissions
Wang, Russell	rxw26	6716	B180	Comp. Care
Watkins, Connie	cxw46	0992	B230	Community
Weidenthal, David	dtw2	1063	A41K	Oral Medicine
Weinberg, Aaron	axw47	6729	332B	Bio Science
Whitmore, Mary	mcw74	3570	AE	PCC Program
Whittingham, Tim	tsw	6753	105M	Bio Science
Whitworth, Cierra	cxw509	6749	A51A	Oral Surgery
Williams, Kristin	kaw14	2392	215W	Community
Williams, Roger	rcw10	6736		Comp. Care
Wilson, Tiana	tgw25	5758	222W	Alumni/Develop.
Wolf, Lisa	law103	0498	A41D	Oral Medicine
Ye, Fengchun	fxy63	0230	210W	Bio Science
Young, Dalante	dxy98	6792	A240	Dispensary
Youssef, Sarah	sjy10	0146	1040	AEGD
Yue, Hong	hxy146	4934	3220	Bio Science

Henry Schein Store	**2771**	2110
Nutrition	**2440**	
Univ Circle Police	**2222**	
University Security	**3333**	
Dental School Fax	**368-3204 Main**	
BRB Security Desk	**2093**	
AEGD/Fac Prac Fax	**368-6310**	
Cashier's Office Fax	**368-1825**	
Second Floor Fax	**368-5888**	
Third Floor Fax	**368-0145**	
Oral Surgery Fax	**368-4338**	
Oral Diag. Fax	**368-3627**	

Custodial Issues: 368-2580 / facility@case.edu
Facilities Issues: 368-2580 / facility@case.edu
Dental IT Hotline: 368-2039

Dental Full-time Faculty Email: dental-fulltime-faculty@case.edu
Dental Half-time Faculty Email: dental-halftime-faculty@case.edu
Dental Staff Email: dental-staff-list@case.edu
Dental Temporary Staff Email: dental-staff-temporary@case.edu

The Room Numbering Convention B follows DO
Basement room: A follows DO
Ground floor room: 1 follows DO
First floor room: 2 follows DO
Second floor room: 3 follows DO
Third floor room:

Revised 5/13/16 Please send revisions to vah4 Tori Hirsch

FACILITIES

CLEANLINESS

In order to conduct the business of learning and provide a health service as well as to exhibit pride in the department, all facilities are to be kept clean and in working order. In this vein, each resident is responsible for seeing that his/her area is in order and clean. All residents are responsible for keeping the laboratory, records room and seminar room clean and orderly. Should the clinic be unsuitable at the beginning of any clinic day, all facilities will be shut down until corrections are accomplished. The Clinic Director or Program Director should be informed if any unauthorized person is using the facilities. Defective or nonfunctional equipment should be immediately disconnected and reported to the Clinic Director. This department belongs to the people who use it. Keep it clean orderly and secure.

USE OF THE LABORATORY

The departmental laboratory is for the sole use of the orthodontic department and serves the patients seen in our clinic.

SECURITY

All residents will be given keys and identifying materials sufficient to gain access to the School of Dental Medicine and the Orthodontic Department. A key to the Bolton-Brush Growth Study Center will be supplied on request for research. Loss of keys or identifying cards requires a charge for replacement. Under no circumstances are the residents to allow access by other persons.

All doors and cabinets are to be locked at the end of the day. **The last person out is responsible for checking on the security of the department.** All exterior doors to the dental school building are locked from 6:00 p.m. to 7:00 a.m. on weekdays, and all day and night on weekends and holidays. Entry and exit must be accomplished using your I.D. card.

Non-department personnel are forbidden to use our facilities. Undergraduates or graduate students from other departments must receive permission to be in the clinic. Further, permission to be in the department may only be obtained from faculty of the Orthodontic Department. UNAUTHORIZED PEOPLE SHOULD OBTAIN PERMISSION OR BE TOLD TO LEAVE. In this regard, it is imperative that security be maintained after hours.

People visiting the department who wish to talk with the residents should stay in the waiting area until the resident can come to the waiting area to talk with them. Visits during working hours should be extremely brief.

EQUIPMENT

1. Certain personal instruments are to be purchased by each student. A list of required instruments will be found on other pages in this manual.
2. Each resident will also have at his/her disposal for use during the program equipment and instruments belonging to the department. This equipment must be returned to the department as a requirement of graduation. All the residents are responsible financially for lost equipment.
3. The proper use of departmental equipment is the resident's responsibility. Excessive or repeated abuse of equipment by a resident will be corrected at the resident's financial responsibility.

SUPPLIES

Most expendable supplies such as bands, brackets, wires, elastics, solder, and alginate are provided to the resident by the department. These supplies are ordered by the departmental clerk (subject to approval by the clinic director or program director). No supplies for which the school is paying are to be ordered by the residents directly. Day-to-day supplies and materials may be obtained as needed from the departmental clerk or, in some cases, directly from the supply cabinets. When depleted in the cabinets, however, the resident must contact the departmental clerk so that the needed supplies may be obtained from inventory control and/or ordered.

When taking materials from the department supply, residents should take only enough material for their immediate needs. Do not hoard!

DEPARTMENTAL EXPENDITURES

No one (staff, faculty, or resident) is authorized to order materials or spend departmental funds without the written permission of the program director or chairperson. This applies to all orders, direct vouchers, and indirect vouchers.

CLINIC HYGIENE

Ohio State Dental Board Infection Control Rules

4715-3-01. Definitions

(Q) "Dental Health Care Workers" - Dental health care workers are all personnel utilized by a licensed dentist who assist in a dental practice and who may be exposed to body fluids such as blood or saliva.

4714-20-01. Patient and personnel protection

(A) Immunization - All dentists and dental health care workers must show evidence of immunity to or inoculation against the hepatitis B virus when such inoculation does not threaten their health and well-being.

(B) Barrier techniques.

(1) Gloves - All dentists and dental health care workers must wear disposable gloves whenever placing their fingers into the mouth of a patient, or when handling blood/saliva contaminated items, instruments and equipment. Hands must be washed and re-gloved before performing procedures on another patient.

(2) Masks and protective eye-wear - Masks and protective eye-wear must be worn by dentists and dental health care workers when spattering of blood or other body fluids is likely. The School of Dental Medicine has a policy that masks and eye protection will be worn routinely. That also includes eye protection for the patient. The Orthodontic Department follows this policy.

(3) White lab coats provided by the School of Dental Medicine must be worn when treating patients. Protective gowns must be worn when there is a likelihood of splash or splatter.

4715-20-02. Sterilization and disinfection.

Each patient must be treated with sterilized instruments.

(A) Heat sterilization must be utilized for all instruments and items that are able to withstand repeated exposure to heat. Heat sterilized items must remain in bags or cassettes and opened only in presence of the patient.

(B) A high-level disinfection process must be used for those instruments and items that cannot withstand heat sterilization. (cheek retractors, intraoral mirrors, etc.)

(C) Heat sterilizing devices must be tested for proper function on a weekly basis by means of a biological monitoring system that indicates micro-organism kill.

(D) Surface disinfection:

(1) Environmental surfaces that are contaminated by blood or saliva must be disinfected with a chemical germicide that is registered with the environmental protection agency as a "hospital disinfectant" or sodium hypochlorite and is mycrobactericidal at use-dilution.

(2) Impervious backed paper, aluminum foil or plastic wrap must be used to cover surfaces that may be contaminated by blood or saliva, and that are difficult or impossible to disinfect. The cover must be removed, discarded and then replaced between patients.

4715-20-03. Disposal of wastes and sharps.

All sharp items (including orthodontic wires that have been exposed to saliva) items and contaminate wastes must be disposed of according to requirements established by local and state environmental agencies.

OSHA Regulations

The Occupational Safety and Health Administration regulations state that **NO FOOD OR BEVERAGES** are to be consumed in the dental clinics or student laboratories.

Coffee cups, pizza containers, etc., are not to be deposited in any of the **red or black bags** located in the clinic areas. **White** trash bags are supplied for this purpose and are located on the first floor and in the student lounge.

SMOKING

In compliance with the policy followed by the University and the School of Dental Medicine, smoking is banned in all areas of the Department of Orthodontics as well as the entire dental school building.

A copy of the CWRU INFECTION CONTROL MANUAL will be supplied separately.

CHAPTER II

DIDACTIC INSTRUCTION

DEPARTMENT OF ORTHODONTICS
SCHOOL OF DENTAL MEDICINE
CASE WESTERN RESERVE UNIVERSITY

GENERAL INFORMATION

The School of Dental Medicine offers graduate training in the Departments Restorative Dentistry, Oral and Maxillofacial Surgery, Orthodontics, Endodontics, Periodontics and Pediatric Dentistry. The programs are approved by the Commission on Dental Accreditation of the American Dental Association and fulfill eligibility requirements of the respective specialty boards. The completion of a Master of Science in Dentistry degree is required as a part of the Orthodontic, Periodontic and Endodontic graduate programs. Study leading to the Master's degree may also be arranged in the Department of Pediatric Dentistry, but is not required. Advanced standing in the School of Medicine, leading to the degree Doctor of Medicine, may be granted to those who qualify and are enrolled in the Oral and Maxillofacial Surgery training program. In addition, course work for non-degree and non-specialty students may be provided in special circumstances. Information for each graduate program may be obtained from the individual department program director or by contacting the Office of Graduate Studies.

Orthodontics was created as a specialty of dentistry to deal with the complex problems of growth, guidance, and correction of facial structures with special emphasis on those conditions which require movement of teeth. In the Department of Orthodontics of the School of Dental Medicine at Case Western Reserve University, we endeavor to provide high level and up-to-date advanced education for the dental graduate so that he or she may become a qualified professional in the specialty of orthodontics. The Department of Orthodontics has awarded degrees since 1961. Due primarily to the excellent record these graduates have made in the specialty and the continued study and diligence of a dedicated faculty over the years, this institution stands today as a leader in the training of orthodontists to assume their role in the profession with a commitment to continued learning, teaching, and the search for new knowledge.

THE PROGRAM

The graduate program in orthodontics at Case Western Reserve University begins in June of each year and extends for a minimum of thirty consecutive months. This period of study provides for intensive instruction and training in the biological and clinical sciences related to the specialty of orthodontics and the development of scholarship. The course of instruction is designed to satisfy all requirements for eligibility for the specialty board in orthodontics and the degree of Master of Science in Dentistry. The program, fully accredited by the American Dental Association, is well-rounded and provides balanced training in clinical orthodontics, the basic sciences relative to orthodontics, and research. A graduate of this program is prepared to pursue a career as a clinician with a practice limited to orthodontics, a researcher, or a teacher of orthodontics.

INSTRUCTION IN BASIC SCIENCES

Basic instruction in the sciences at the graduate school level is designed to provide a broad but in-depth base of detailed knowledge concerning the human form beyond that learned in dental school. Fundamental knowledge concerning all aspects of the human system is presented with a focus on instruction in growth, development, and the movement of teeth.

CLINICAL EXPERIENCE

Orthodontic courses are presented by lecture, laboratory demonstration, and seminar methods. Courses on theory are correlated and supplemented by the treatment of malocclusions in the clinic utilizing multi-banded techniques, removable appliances, or combined orthodontic-surgical procedures. Emphasis is given to the pre-torqued, pre-angulated edgewise appliance system. In addition, Tip Edge, and several modifications of basic Edgewise mechanotherapy are also taught. Diagnostic ability and clinical skills are emphasized as part of our mission to our graduate students. The student receives a great deal of individual personalized attention throughout the program from the faculty, utilizing the many treatment cases in the clinic.

FACILITIES

The principal clinic area for the department is housed on the ground floor of the Bolton Dental Building built in 1970. Here are situated some business offices, clinical staff offices, clinical space, laboratory facilities, 2 Seminar rooms, and a computer laboratory. Additional research, office, meeting facilities and radiographic equipment are located on the third floor of the School of Dental Medicine in the Broadbent Institute for Craniofacial Research. Under the supervision of the Director of the Bolton Study, this departmental resource provides for individual student study areas, x-ray analysis and computing equipment. A state of the art imaging center with cone beam computed tomography is also located on the third floor.

A Craniofacial Anomalies Clinic with supporting lecture and patient examination areas is provided at Rainbow Babies and Children's Hospital. This center is a valuable resource for the department in providing multi-specialty study of the treatment of children with special developmental problems.

TEACHING STAFF

The orthodontic faculty is presently comprised of full time, part time members, and a number of visiting lecturers, most of whom are practicing orthodontists. Many are Diplomates of the American Board of Orthodontics, several hold or have held high office in national or regional dental and orthodontic associations, and collectively have over 300 years of experience in clinical orthodontics. Many members are internationally known for their research or clinical ability.

A representative group of full-time, half-time and part time faculty, all with advanced degrees, form our team. In addition, several visiting lecturers participate in the education of the students.

Clinic Director

The clinic director is the responsible for the day-to-day operations of the graduate Orthodontic Department core clinic. Responsibilities of the clinic director include the following (some of which may be delegated to other staff members to complete):

- Ordering supplies for the clinic.
- Tracking patient activity in the clinic including no shows, will calls and walkouts.
- Assignment of new patients jointly to a resident and an instructor.
- Monitoring residence activity and attendance in the clinic.
- Auditing the patient charts to insure accurate and timely completion of patient records.
- Insuring OSHA compliance.
- Insuring compliance with infection control guidelines as set forth by the Dental School.

In many cases, the policies and procedures for these responsibilities are detailed in the Orthodontic Department Policy Manual. Departmental policy issues and educational issues pertaining to specialty training in orthodontics are responsibility of the program director with appropriate input from department faculty.

STAFF

Four staff members are employed by the Department of Orthodontics to assist the attending faculty and residents in the daily operations of the clinic. Two staff members function as the clinic receptionists and two staff members function as clinical assistants. The staff are responsible to the clinic director and attending faculty of the department and are not employees of the residents. A fifth staff member functions as the department administrator and is generally not available to assist in the daily operation of the clinic.

The hours of obligation of the clinical staff vary with the job description.

All staff must record in ORTHO II: time of arrival, time leaving for lunch, time returning from lunch, and time of departure at the end of the work day.

Clinical staff are expected to be in the clinic area when the patients are being seen in the clinic. Staff are not to leave the clinic area without notifying the clinic director as to their destination, the purpose of their trip, and their expected time of absence. The repeated absence of clinical staff from the clinic during patient hours should be reported to the clinic director for disciplinary action.

ABBREVIATED JOB DESCRIPTIONS

Department Administrative Secretary.

This person coordinates and assists the faculty and residents in all administrative functions of the department. This individual coordinates activities among full- and part-time staff, full- and part-time faculty, and students. This person has an administrative rather than a clinical role in the department.

Front-Desk Coordinator

Position Objective: Responsible for the day-to-day receptionist duties for faculty, residents and students in the Department of Orthodontics clinic.

Essential Functions:

- Answer telephones for the orthodontics clinic
- Greet patients as they come into the orthodontic waiting area
- Monitor patient flow into and out of the clinical area, especially new patients who are here for the first time to insure they are seen in a timely fashion
- Mail introductory and directional information to new patients
- Reschedule appointments for patients and doctors if approved by the clinic director.
- Schedule “No Show” and “Will Call” patients to keep them in appointment system
- Create treatment charts for all patients undergoing active orthodontic treatment
- Close out all treatment charts for patients after they have completed active or retention orthodontic treatment.

- Complete and file one insurance form for approximately 250 new patients per year maintaining the master schedule in conjunction with the department administrative secretary and the clinic director.
- Complete patient cash slips for posting by dental school cashiers to patients' accounts
- Order administrative supplies as needed
- Receive all packages for the orthodontic clinic including laboratory casework in and out of the clinic.
- Verify delivery of orders against packing slips to insure accuracy and completeness.
- Verify and reconcile lab invoices against statements and submit on a timely basis to the Office of Finance & Operations for payment.
- Maintaining 3rd & 4th year pre-doctoral students' orthodontic clinic credits for each 8-week period, entering units into dental school unit program for submission to Associate Dean for Clinical Affairs.
- Helping with reports, memos, lists, etc. as directed by the clinic director.

Clinical Assistant

Position Objective: Clinical dental assisting for the residents and faculty in the Department of Orthodontics

Essential Functions:

- Chair side assisting to the Orthodontic Department faculty, residents, students with dental procedures including assisting doctors with bonding and banding of teeth.
- Facilitate communications between patient, parent and doctor with regards to appointments, oral hygiene, and treatment process.
- Set up, clean up and sterilization of instruments and supplies. Keep cubicles and common areas stocked with gloves, wires, elastics, and other peripheral orthodontic and clinical care products.
- Sterilization – Collect all contaminated instruments from cubicles and deliver to central sterilization, pick up clean instruments and distribute back to appropriate cubicles.
- Maintain clinical area in accordance with OSHA regulations and clean clinical areas between patients.
- Teach patients about hygiene and special care of orthodontic appliances.
- Responsible for the cleanliness within clinical, laboratory and x-ray rooms
- Organize maintain/order department instruments and supplies.
- Submit to clinic director all purchasing pre-requisitions for approval.
- Taking and processing of patient radiographs , photographs and impressions, when needed.
- Serve as back up to the orthodontic receptionist/appointment scheduler as requested by clinic director or in the absence of the receptionist.
- Answer clinical patient telephone calls that roll over to clinic telephones. Assist callers with scheduling or rescheduling of appointments.
- Turn off equipment and secure area at end of clinic day

Lead Clinical Assistant

All of the above procedures plus:

- Maintain inventory on all supplies and place orders
- Delegation of jobs to other team members
- Act as assistant to the clinic director
- Maintain all HIPAA and OSHA standards in the clinic
- Help implement and maintain orthodontic software and data input
- Generate clinic reports, statistics, and production findings
- Institute new systems that benefit the department

ASSISTANCE IN THE CLINIC

The reason for employing supporting staff is to assist the department in administrative and clinical duties. If there is a question as to the duties of the supportive staff, the clinic director should be consulted. All staff members may be asked to share in other job descriptions in order to increase the team concept.

PREDOCTORAL DENTAL STUDENTS IN THE CLINIC

As part of their predoctoral clinical training in orthodontics, all predoctoral students must complete 10 service units in the orthodontic clinic. Orthodontic residents, should try to make their service units as productive as possible. The following general guidelines have been established to assist in this process. Procedures that D.D.S. students should perform:

• Removal of archwires
• Placement of archwires
• Delivery of a Hawley retainer
• Delivery of an Essix retainer
• Removal of an orthodontic bond
• Removal of an orthodontic band
• Oral hygiene instructions
• Impressions of a patient with bands/bonds of the teeth

Procedures that D.D.S. students can perform:

• Cementation of an orthodontic band
• Placement and curing of an orthodontic bond
• Preparation of teeth for orthodontic bonding
• Hawley retainer adjustment
• Intraoral radiography

To receive credit for an orthodontic service unit, the D.D.S. student I.D. must be entered on the patient's chart in OrthoII™ for that day. In addition, the "Ortho Assist Form" must be signed and dated by the orthodontic resident. The white first copy is given to the Orthodontic Department receptionist and the second yellow copy is given to the Patient Care Coordinator Supervisor. The Competency Exam may be scheduled by the Orthodontic Department receptionist after ten (10) assists have been

accomplished. The D.D.S. student I.D. is entered for this procedure as well.

CONSTRUCTING OR ORDERING APPLIANCES

At certain times during the course of treatment, it becomes necessary to construct or order appliances for a patient.

Retainers. Bonded or banded fixed retainers, as well as Essix type vacuum formed retainers, are usually constructed within the department. **Each resident is required to make two Hawley type retainers**. After the first two retainers, the fabrication of additional retainers may be delegated to an outside laboratory with the approval of the attending instructor or the clinic director.

Functional Appliances. Other removable appliances such as activators, Frankel appliances, positioners, etc., may be ordered from various companies. To place such an order, the instructor in charge of the case will indicate that the appliance is necessary. This being the case, the resident obtains a lab slip from the departmental clerk, fills it out and returns same, along with the models, to the departmental clerk for mailing or pick-up. **Note**: In filling out the lab slip, the department orders the appliance and not the resident. Otherwise, the resident will be billed for the appliance and this becomes an administrative nightmare to straighten out.

All appliances sent to a laboratory are recorded in OrthoII™ (under milestones) for proper tracking.

LABORATORY ASSISTANCE

Dental technicians are occasionally employed by this department to perform certain laboratory duties. These include trimming, finishing, and polishing models. This service is not available to all residents at all times. **First year residents trim, finish and polish models for two patients or until competence is demonstrated**.

A written lab request slip must accompany all requests for lab assistance. A copy is placed in the patient's folder. Even though this service is available, it does not have to be utilized. If work must be completed within a certain time period, it is the resident's responsibility to ensure such work is accomplished, even if the resident must do the work on his/her own. The outside labs have been told to inform the clinic director if the unfinished impression models are of inferior quality (i.e. bad impressions) such that attainment of a quality finished product is impossible or excessively time consuming.

SOURCES OF FURTHER INFORMATION

Any inquiries on the training program itself should be directed to the Graduate Program Director of the Department of Orthodontics. Any questions regarding application or admission to the program should be directed to Associate Dean of Graduate Studies of the School of Dental Medicine.

Inquiries to either of the above should be addressed to Case Western Reserve University, School of Dental Medicine, 10900 Euclid Avenue, Cleveland, Ohio, 44106-4905.

Updated information can also be found in the Department of Orthodontics' website at: *http://orthodontics.cwru.edu*

DEPARTMENTAL LIBRARY

The field of orthodontics is vast. Although it is impossible to cover all the knowledge pertaining to this specialty in just 30 months, we endeavor to provide the students with the educational framework upon which they will build by continuing to study the literature and attend continuing education courses the rest of their professional lives. The library within our department is one of our growing resources. Many of the volumes cannot be replaced and thus must be protected. The purpose of the library is to provide a ready source of information to the graduate students and faculty. To insure that this library remains intact for the education of future students it is necessary that certain policies be strictly adhered to in its use.

READING REFERENCES FOR AMERICAN BOARD CANDIDATES

INTRODUCTION

The object of this reading list is to offer the practicing orthodontist a list of references which may serve as a source of knowledge in preparing for certification. This reading list includes papers of historical as well as scientific interest. It is intended to give the orthodontist a broad perspective of the changing world of orthodontic theory and practice. Several articles by ABO directors are also included so the candidates may have some insight into their background and current interests. It should be clearly understood that a bibliography, such as this, is not all encompassing and does not remain static. With time, it will be continuously subject to additions and deletions. To be practical, there must be a limited selection of publications. Current literature and textbooks on orthodontics may be studied in addition to the suggested references.

The American board of Orthodontics does not consider any of the texts and/or articles to contain the indisputable answer to any questions within the field of orthodontics. The examination questions may or may not be taken from the reading list.

An updated list of recommended articles and textbooks can be found the ABO official website.

INSTRUMENTS FOR GRADUATE ORTHODONTICS

The Department owns most instruments used in the daily operation of the clinics.
The rental fees for these instruments vary each year depending on breakage and loss rate. All residents share equally in replacement costs of these instruments.

All privately owned instruments must be color coded, bagged, and sterilized. These instruments are kept in each resident's cubicle and are not part of the pooled department instruments.

MISCELLANEA

Some of these items you already have in your possession and you should bring them with you. Please purchase the remaining items. Reasonable substitutions are possible, but you must have all the necessary equipment in your possession.

LAB EQUIPMENT

#7 wax carver
Plaster knife
Micro torch-portable
Die saw and narrow blade

PERSONAL EQUIPMENT

Goggles or eye protection
Ruler
Protractor
Tracing equipment
Colored pencils etc.

CLINICAL EQUIPMENT

Napkin holders
Perio probes
Burs , mandrels , stones, and diamonds: sold by Brasseler in kit form for our department
(1)Slow speed and (2)high speed handpieces
(1)Dental curing light

MAINTENANCE OF GOOD STANDING

To be reimbursed for travel expenses you MUST be in good standing at the time you incur the expense. Check with the program director to determine your status prior to incurring any expense you expect to be reimbursed.

Maintenance in good standing within the training program requires satisfactory progress in ALL three instructional areas. Inadequate performance in one area will be cause for probation; deficient performance in two areas will result in remedial status; deficiencies in all areas may lead to dismissal from the training program. The three areas and minimal requirements are as follows:

1. **Clinical Training**

- **Ethical behavior evaluated by faculty and staff**
- **Subjective evaluation of clinical care at periodic faculty meetings** (at least once per semester)
- **Yearly written evaluation** by the graduate program director.
- **Overall progress** must be at a B level to maintain full standing.
- **Second year evaluation:** Subjective evaluation of seven progress cases evaluated by attending faculty.
- **Third year evaluation:** All students should display all finished cases prior to graduation. Complete pretreatment, with DI scores, post treatment records and chart entries need to be available for review for all cases. For the best 25 cases, an average post treatment PAR score of less than 8 and an average 70% reduction in PAR score is expected.
- **Computer entry and chart review** – at least 90% compliance with department guidelines.
- **Subspecialty Clinic-** Attendance level at 100%, regardless of patient load**.**

2. Didactic Instruction

- No grade lower than the grade point average and requirements set forth by the Graduate Studies Office is accepted. A student who receives a grade of "unsatisfactory" for any course work is placed on academic probation and must remove himself/herself from probation within two terms in order to continue graduate study. Failure to do so may result in separation from Case Western Reserve University. It is expected that removal from probation will ordinarily require repetition of the course with an acceptable grade or the successful completion of work deemed equivalent by the director of the department of the student's area of study, the course director and the Associate Dean for Graduate Studies.
- An "unsatisfactory" grade is considered to be a C or below for graduate level work in the major field of study. Under certain circumstances, a grade of C may be deemed satisfactory by the graduate program director for coursework outside the major field of study.

3. Thesis Work

- Meet all thesis deadlines for on time completion (See Thesis section for deadlines).

NOTE:

A student may be separated from the University for any One of the following reasons:

- Failure to correct probationary status within two terms. Extension may be granted if the course is not offered every semester.
- Failure to achieve a grade point average of 2.50 or above at the completion of twelve credit hours of graduate study
- Failure to achieve a grade point average of 2.75 or higher at the completion of twenty-one credit hours of graduate study. A minimum final grade point average of 2.75 is required for graduation. In calculating grade point average, all courses for which credit is given shall be counted, including courses which have been repeated.
- Upon recommendation from the student's department, the School of Dental Medicine may suspend or separate a student from the university for failure to maintain appropriate standards of conduct or integrity in discharging responsibilities to the university. In addition, a student may be separated from a graduate program for violation of university work rules as defined in the CWRU Personnel Policies and Procedures Manual. Further, failure to comply with the Principles of Ethics of the State Dental Board and the American Dental Association or any illegal acts concerning the practice of dentistry or a specialty will constitute grounds for dismissal from the graduate program. Similarly, violation of state law may result in dismissal.

LEAVE OF ABSENCE

If a student finds it necessary to interrupt studies prior to completion of the graduate program, a written request for a leave of absence for a period not exceeding one calendar year must be submitted to the director of the department in which the student is enrolled and to the Associate Dean for Graduate Studies. A student who fails to obtain an approved leave of absence will be required to make formal re-application to graduate study in order to resume work at the university. During the period of the leave of absence, it is expected that the student will not avail himself or herself of the teaching and research resources of Case Western Reserve University.

ADDITIONAL COURSE WORK

Individual students enrolled in any graduate program, whether or not a Master's degree is involved, may be required to take courses beyond the general requirements set forth by the department in order to complete the program. In such instances, the student is to be notified in writing by the department director, with a copy filed in the Office of the Associate Dean for Graduate Studies.

GRADUATE ADVISORS

The Associate Dean for Graduate Studies is the general advisor for all students, but the program director of the student's department is the principal advisor concerning courses, research, and student performance. The program director is especially active in an advisory role for the student during the first year of study. In addition, the program director may designate a Graduate Faculty Committee who, in turn, also will serve as advisors.

FULFILLMENT OF REQUIREMENTS FOR THE DEGREE MASTER OF SCIENCE IN DENTISTRY

TIME LIMITATION

For Master's Degree programs, all requirements must be completed within a total period of five consecutive calendar years after matriculation as a graduate student, including leaves of absence. A student who fails to complete the requirements within the five year period may be granted an extension for no more than one year or must be formally readmitted as a full-time, full standing student in order to continue studies for the degree. The readmitted student is then subject to the current terms of admission, time limitations, and any revised requirements for the awarding of the degree. No consideration should be assumed on the part of the student in regard to credit for previous work.

TRANSFER CREDIT

If part of the student's course work involves transfer credit from another university or credit from a previous program in which the student was enrolled, it is the student's responsibility to obtain a Transfer Credit Form from the Associate Dean for Graduate Studies which must be filled out, signed by the student's department director, and submitted to the Associate Dean for Graduate Studies for approval. Transfer credit is limited to six credit hours or its equivalent. Credit for thesis work is non-transferable.

GRADE POINT AVERAGE REQUIREMENT

In order for a student to be awarded the degree Master of Science in Dentistry, the student must have a cumulative grade point average of 2.75 for all coursework taken for credit.

CREDIT HOUR REQUIREMENT

The minimum requirement for the degree Master of Science in Dentistry is 54 credit hours of approved graduate courses, and must include at least 6 credit hours of thesis registration. The total minimum credit hours may be entirely in one major subject area or may include 10 credit hours in a minor subject area approved by the student's Graduate Thesis Committee and the department director. Individual departments may require additional credit hours of specific course work above this minimum.

EXAMINATION REQUIREMENTS

Prior to graduation, each student must pass a general comprehensive examination. This examination will cover the general field of major study. The examination will be conducted by the student's department and the date of such examination will be publicized to the academic community. It is anticipated that this examination will be oral in nature although a written examination may be substituted in special cases. The unsuccessful candidate may request a second examination which, if approved, may not be given before the end of the term in which the candidate was first examined. The result of the second examination is final and no degree will be awarded without remedial training.

RESEARCH AND THESIS REQUIREMENTS- Described in the chapter on Thesis.

APPLICATION

A candidate for the degree of Master of Science in Dentistry must make application for the degree

with the Office of Graduate Studies no later than two months prior to the commencement at which the degree is expected to be awarded. Candidates must meet all deadlines for completion of degree requirements set forth in the calendar issued by each department. Even though the candidate may not have fulfilled all degree requirements at the time of application, all requirements must be met before the degree is awarded. The following are required with no exception:

l. Candidates must satisfy all academic and residency requirements established by School of Dental Medicine and the student's department.

2. Candidates must properly discharge their responsibilities for patient care according to departmental policy.

3. Candidates are required to be registered during the term in which the degree is awarded. Candidates must be registered for the term in which their final thesis defense is conducted.

4. Candidates must discharge all financial obligations, including tuition payments, fees, library fines, parking fines, etc., which are due the university or affiliates.

5. Candidates must submit a final approved version of the thesis and the appropriate number of copies to the Office of Graduate Studies and the program director of the student's department prior to graduation.

DELAYED GRADUATION

A delayed thesis completion may increase the duration of the orthodontic residency. Tuition extension for additional necessary credit hours will apply. The awarding of degree occurs at the graduation ceremonies following completion of all requirements.

Curriculum leading to the degree of Master of Science in Dentistry (M.S.D.)
MSD CORE COURSES SHOWN IN BOLD PRINT

First Year

CLINIC TIME:

June to December: Mon-Thu 9-12 am, Wed and Thu 1-5 pm.
January to June: Mon-Thu 9-12 am, Mon, Wed, and Thu 1-5 pm.

Fall Semester - July 1 to December 30

DENT #503 Facial Growth and Development
DENT #504 Advanced Facial Growth
DENT #508 Research Methods: Developing Master's Thesis Protocol
DENT #509 TMD, Orofacial Pain and Sleep Disorders
DENT #510 Epidemiology and Biostatistics
DENT #512 Advanced Oral Pathology
DENT #513 Anatomy of the Head and Neck
DENT #518 Behavioral Considerations in Oral Health Care
DENT#520 Skeletal Anchorage
DENT #523 Clinical Specialty Seminars
DENT #550 Clinical Pharmacology
DENT #555 Management of Medical Emergencies
DENT #565 Practice Management (Orthodontics)
DENT #569 Orthodontic Literature Review
DENT #572 Advanced Specialty Principles-Preclinical
DENT #573 Advanced Specialty Principles-Clinical
DENT #580 Orthognathic Conference
DENT #583 Orthodontic Diagnostic Seminars
DENT #586 Ortho-Perio Seminars
DENT #682 Cephalometrics I - Clinical Cephalometrics
DENT #684 Cephalometrics III - Radiology & Cephalometrics
DENT #698 Multidisciplinary Seminar

Spring Semester - January 1 to June 30

DENT #501 Biological Aspects of Stomatological System
DENT #502 Correlative Medical Sciences
DENT #505 Dentofacial Anomalies
DENT #510 Evolutionary Biology
DENT #523 Clinical Specialty Seminars
DENT #565 Practice Management (Orthodontics)
DENT #569 Orthodontic Literature Review
DENT #572 Advanced Specialty Principles-Preclinical
DENT #573 Advanced Specialty Principles-Clinical
DENT #580 Orthognathic Conference
DENT #583 Orthodontic Diagnostic Seminars
DENT #698 Multidisciplinary Seminar

Second Year

CLINIC TIME:

Mon-Thu 9-12 am, Mon, Wed, and Thu 1-5 pm.

Fall Semester - July 1 to December 30

DENT #523 Clinical Specialty Seminars
DENT #565 Practice Management (Orthodontics)
DENT #569 Orthodontic Literature Review
DENT #580 Orthognathic Conference
DENT #583 Orthodontic Diagnostic Seminars
DENT #572 Advanced Specialty Principles-Preclinical
DENT #573 Advanced Specialty Principles-Clinical
DENT #651 Thesis (M.S.D.)
DENT #698 Multidisciplinary Seminar

Spring Semester - January 1 to June 30

DENT #522 Orthodontic Biomechanics
DENT #523 Clinical Specialty Seminars
DENT #565 Practice Management (Orthodontics)
DENT #569 Orthodontic Literature Review
DENT #572 Advanced Specialty Principles-Preclinical
DENT #573 Advanced Specialty Principles-Clinical
DENT #580 Orthognathic Conference
DENT #583 Orthodontic Diagnostic Seminars
DENT #651 Thesis (M.S.D.)
DENT #698 Multidisciplinary Seminar

Third Year

Fall Semester - July 1 to December 30

CLINIC TIME:

Mon-Thu 9-12 am, Mon, Wed, and Thu 1-5 pm.

DENT #509 Advanced Dental Studies
DENT #523 Clinical Specialty Seminars
DENT #565 Practice Management (Orthodontics)
DENT #572 Advanced Specialty Principles-Preclinical
DENT #573 Advanced Specialty Principles-Clinical
DENT #580 Orthognathic Conference
DENT #583 Orthodontic Diagnostic Seminars
DENT #698 Multidisciplinary Seminar

CHAPTER III

CLINIC PROCEDURES

DEPARTMENT OF ORTHODONTICS
SCHOOL OF DENTAL MEDICINE
CASE WESTERN RESERVE UNIVERSITY

GENERAL INFORMATION

SERVICES AND CAPACITY

Full comprehensive orthodontic treatment is offered in the graduate orthodontic clinic. Residents are involved, with approximately 900 patients receiving treatment (550 active cases and 350 retention cases). The department starts approximately 300 comprehensive cases each year, and dismisses approximately an equal number after finalizing treatment.

CHARACTERIZATION OF PATIENTS SELECTED FOR TREATMENT

COMPREHENSIVE TREATMENT

Of the approximately 300 new starts each year, the vast majority are children 10-14 years of age (at the start of treatment). This age group is used because it provides the best teaching model for the graduate students and also mirrors the majority of patients the doctors will encounter in private practice after graduation. In addition, a few adult (older than 18 years of age) cases are started each year. In selecting the adult cases, the department is very particular. The instructors seek cases which are good teaching models such as those cases which may require a combined surgical-orthodontic approach.

The department also treats about 50 "early treatment" cases each year and a limited number of patients with various craniofacial defects.

All cases are selected on the basis of teaching merit.

SOURCES OF POTENTIAL PATIENTS FOR THE GRADUATE CLINIC

1. Referral from practitioners in the community
2. Direct inquiries from the patients in the community
3. Inquiries from patients and/or students in the undergraduate clinic
4. Inquiries from patients and/or students involved in treatment by graduate students based in other departments.
5. It is the policy of the School of Dental Medicine that all admitted patients in the undergraduate and pediatric dental clinic between the ages of 7 and 16 receive an orthodontic evaluation. These evaluations are to be scheduled with the front-desk coordinator.

PROCEDURE FOR SELECTION OF PATIENTS FOR COMPREHENSIVE CARE

l. After the initial inquiry as to treatment, the patients are given an appointment for screening.

2. At a specified time, the patients are called to the department for a screening appointment to determine the nature of the problem and gather other information (age, severity of the case, complicating factors, etc.).

3. From these "screened" potential patients approximately 200-250 are selected for comprehensive treatment. The others are either referred to faculty practice, private practitioners, returned to the registration file to be "re-screened" at a later date, or referred to the undergraduate clinic.

SCHEDULE OF FACULTY IN GRADUATE ORTHODONTIC CLINIC

MONDAY
MORNING
Dr. Anwar Alhazmi - .022 MBT
Dr. Norman DeLoach - .022 Roth Self-Ligated Innovation
Dr. Eric Lawrence - .018Roth V-Slot
Dr. Valerie Martone - .022 MBT
Dr. John White- .022 Roth Self-Ligated Innovation / Aligners
AFTERNOON
Adult Orthodontics - Dr. J. Martin Palomo - .022 MBT and .022 CCO

TUESDAY
MORNING
Dr. B. Douglas Amberman - .022 TipEdge
Dr. Sharon Schmahl - .022 MBT
Dr. Thomas Herberger -.022 Roth Self-Ligated Empower
Dr. Dennis Ward - .022 Tweed 0/0

WEDNESDAY
MORNING
Dr. Donald Gustovich - .022 Damon Self-Ligated
Dr. Michael Sabat - .022 Damon Self-Ligated
Dr. Zack Mellion- .022 MBT Self-Ligated SmartClip
Dr. James Trouten- .018 Roth V-Slot
Dr. B. Douglas Amberman - .022 TipEdge
Dr. Andrew Skorobatckyj- .022 MBT

AFTERNOON
Surgical Clinic (SUR) - Dr. Manish Valiathan - .022 MBT
TipEdge Clinic (TIP) - Dr. B. Amberman, Dr. Howard Kossoff, Dr. Liz Bujack - .022 TipEdge

THURSDAY
MORNING
Dr. Sebastian Baumgaertel- .022 Roth
Dr. Ken Lawrence - .022 Roth Modified Self-Ligated Innovation
Dr. James Trouten- .018 Roth V-Slot
Dr. Ryan Wenger - .022 MBT Modified Self-Ligated Innovation
Dr. Terrence Wenger - .022 MBT Modified Self-Ligated Innovation

AFTERNOON
Early Treatment Clinic (ETC) - Dr. Ken Lawrence - .022 MBT
Medicaid Clinic (MED) - Dr. J. Martin Palomo - .022 MBT and .022 CCO
Craniofacial Clinic (CFA) - Dr. Mark Hans - .018 MBT

FRIDAY
Classes – No graduate clinic

USUAL PATIENT PROCEDURES

Graduate Orthodontic Clinic

The following pages outline the usual patient procedures from the initial inquiry to patient closeout. Also included are outlines of procedures to follow under certain circumstances, informational material given to patients at various times, and examples of the forms that patients must sign.

ADMINISTRATIVE PROCEDURES IN THE GRADUATE ORTHODONTIC CLINIC

In our clinic, the charge to the administration is to ensure that the students are instructed in the science and mechanotherapy of orthodontic treatment and that the patients receive quality treatment and care. It is the responsibility of the individual clinic instructor to ensure that each patient receives quality care and attention as the residents receive instruction in their techniques. Finally, it is the responsibility of the residents to carry out the desires of the instructors regarding patient care and to make their patients available for treatment. To ensure the orderly instruction of residents and care of patients, the following guidelines are to be followed by all.

I - SCREENING OF NEW PATIENTS

Patients will be screened on/by:

Monday through Thursday mornings – Clinic Director – **Dr. Howard Kossoff**

Monday Afternoon –	**Dr. Palomo** - Adult patients.
Wednesday Afternoon –	**Dr. Valiathan** – Surgical patients.
Thursday Afternoon -	**Dr. Lawrence** - Young patients/ Growth Modification **Dr. Palomo**- Medicaid patients

The front-desk coordinator will greet the screening patient and announce that a patient is present for screening. The front-desk coordinator will then escort the patient to an available cubicle and notify the attending instructor or resident that the patient is ready for evaluation.

Following evaluation, a brief description of the patient orthodontic situation should be entered in OrthoII™ Patient's Chart in "pre-treatment findings."

A brief description should include:

- Any medical or dental history fact relevant to the case
- Patient's chief complaint and expectation.
- Overjet/Overbite.
- Molar and cuspid Angle classification
- Any fact thought to be relevant to the case
- Treatment recommendation (ready for treatment, not ready at this time, not a teaching case)
- Clinic assignment and estimated fee

Following the evaluation, there are three possible choices for disposition of the patient in the clinic:

1. The patient is unacceptable for treatment within the clinic. If the case is determined not to be a teaching case in the core clinic, the patient is referred to a sub-specialty clinic or dismissed. If the patient is dismissed, the status in OrthoII would be **INACTIVE**
2. The patient is not ready for treatment. In the case of a patient not ready for treatment, he/she is to be told to call back for re-screening in 3, 6 or 9 months or a year -- whatever the instructor and/or resident deems appropriate. The status in Ortho II would be **OBSERVATION**
3. If the patient is tentatively accepted for treatment in the clinic, he/she is to be scheduled for a records appointment. Records appointments can be scheduled by front desk secretary. The clinic director will keep the front desk secretary informed about how to distribute incoming patients among the residents. The status in OrthoII would be waiting for **RECORDS**

The patient should have the Department of Orthodontics protocol explained to them:

1. Only cases considered teaching cases are accepted in our department. The definition of teaching case is: a case that can be handled by an orthodontic resident, a case from which the orthodontic resident could learn, and/or a specific malocclusion which the department feels is necessary to expose the residents to.
2. When a patient is considered a teaching case, he/she is assigned to a resident for a records appointment, and eventually the patient will also be assigned to an instructor, who is a specialist in orthodontics. At most appointments, the patient should see both the resident and instructor assigned to his/her case.
3. Our fee structure demands payment, except for Caresource and WellCare (Medicaid) or BCMH patients. Any patient holding different insurance policies will be helped in getting reimbursement from their companies only after payment in full is obtained.
4. All appointments will be during school hours. School excuses will be provided on request.
5. In most cases, the patient will not be able to choose the day of his/her appointments. It must be coordinated with the instructor's presence.

All screening information should be entered in OrthoII™ The resident/faculty who is performing the screening should put his/her electronic signature (Example: **PAL,** 1st three letters of last name) in the appropriate column in the treatment chart.

If a resident is screening a case, he/she should make sure that the case is considered a teaching case before dismissing the patient. The resident should contact the clinic director. If the clinic director is not available, any faculty member present in the clinic may be consulted to confirm the diagnosis.

The clinic director is the only person responsible for assigning a core clinic case to a resident. If a resident screened the case, it does not mean he/she is taking the case, he/she may request this, but the decision is to be made by the clinic director.

The (1) **Medical/Dental History** form should be completed by the patient prior to any examination. On this form, there is also an (2) **Informed Consent**, giving permission for the taking of diagnostic records, if necessary. The patient should sign this release prior to any examination. On this form,

there is also a place where the patient may check a specific day he/she would not be able to come to the clinic. No promises should be made about specific scheduling. (3) A **Privacy Notification and Authorization** (HIPAA Regulations) are also signed

If a patient is considered a teaching case and would like to pursue treatment in the department, he/she should make an appointment before leaving the clinic. This appointment is for the taking of pre-treatment records, and will be scheduled at the appropriate time or, alternatively, the patient may be scheduled for a "Records Day." The taking of records by the resident does not imply that the patient will be treated by that resident.

II - FINANCIAL ARRANGEMENTS

A current list of fees for services rendered in the orthodontic department is available from the School of Dental Medicine Cashiers Office.

If the decision not to pursue treatment is made after Records (but before treatment is started), the total fee minus the Records + Consultation Fee is refunded.

- Third Party (Insurance) Coverage for Orthodontics: The patient will be assisted with the first insurance claim only after full payment has been made.
- If the patient has orthodontic insurance, the school will provide a completed universal form, detailing the treatment to be provided, treatment start date, and the complete fee when necessary information is provided by the insured. Filing of continuation of treatment plan forms is the responsibility of the insured. The school will not accept assignment of benefits directly from the insurance company. In addition, the financial arrangements and obligations of the patient or parents to the school will in no way be altered by the presence of orthodontic insurance coverage.
- Additional Fees are charged for damaged or lost appliances. Extra fees may be charged to accommodate poor patient cooperation if treatment is to continue. The additional fee will be determined by the clinic director.
- The fees charged by the Department of Orthodontics cover only diagnostic and treatment procedures performed in the Department of Orthodontics. Fees charged for other dental services, performed in other departments in the school or by private dentists, are the total responsibility of the parent or patient.
- Payments for all core clinic services are made to the dental school cashier after obtaining a charge slip from the front desk.
- The patient and parent will be required to sign a HIPAA notification, an Informed Consent Form, and a treatment contract before treatment begins.
- Appointments in the clinic are always scheduled during school hours. If the patient cannot be excused from school for treatment appointments, please let us know. If selected, and the patient cannot attend appointments at the scheduled time, the patient will be dismissed from the clinic.
- **Parents or patients should check with school authorities on their policy concerning medical/dental absences before scheduling a records appointment.**
- Each of our clinical instructors is here to supervise treatment only one or two half days per week.

The patients they select for treatment must come in on the day of the week and during the time the instructor is here throughout the entire course of treatment. This means that, if a patient is selected, for example, by a "Wednesday Morning" instructor, the patient's appointments will always be on a Wednesday morning the entire time the patient comes to see us.

- Fees for patients treated in the subspecialty clinics such as the Craniofacial Anomalies Clinic or Medicaid Clinic, Surgical Clinic or Adult Clinic, are determined by the attending faculty member.

CORE CLINIC SERVICES INCLUDE:

SCREENING

An oral examination to determine if the patient is considered to be a teaching case. If additional diagnosis material is needed (panoramic x-rays, etc), additional charges may be necessary, as stated in the diagnostic procedures part of the fee schedule.

RECORDS

Initial oral examination
Periodic oral examinations
Intra-oral x-rays, panoramic x-rays (or CBCT)
Lateral and frontal cephalometric x-rays (or CBCT)
Photographs, intra-oral and extra-oral
Diagnostic models

CONSULTATION

Our view of the diagnosis and possible treatment approach is explained to the parent/guardian during the special orthodontic consultation.

TREATMENT

Placement of orthodontic appliances as approved during consultation procedure.
Periodic visits as established by supervising instructor.
Patients undergoing comprehensive treatment receive 30 months of active appliance therapy for the stated charge. If, by reason of poor cooperation in following instructions or keeping appointments, active treatment continues past 30 months, additional charges may then be made, if treatment is to continue.

RETENTION

Retention appliance (fixed or removable) prepared as supervising instructor determines.
Only one set of retainers is included in the treatment fee.
An appliance remake due to patient neglect or abuse is not covered by this price structure.

REFUNDS

Refunds Before the Treatment Starts - A refund of the entire fee will be made if the instructor decides the patient is not an appropriate teaching case or if the patient is not started within 6 months of the expected start date.

If the decision not to pursue treatment is made after Records but before Treatment is started, the total fee is refunded minus the Records and Consult Fee.
Treatment refunds are different for each type of treatment:

Phase I Treatment

If treatment is terminated within the first six months by the parent/guardian or the Orthodontic Department, a refund will be issued at the rate of $150.00 per full month remaining in treatment.

If treatment is terminated after six months by the parent/guardian or the Orthodontic Department, there is no refund.

Patients under 18 years of Age – Comprehensive

If treatment is terminated within the first year by the parent/guardian or the Orthodontic Department, a refund will be issued at the rate of $150.00 per full month remaining in the year.

If treatment is terminated after one year by the parent/guardian or the Orthodontic Department, there is no refund.

DAMAGED OR LOST APPLIANCES

Each individual patient under treatment (active or retention) is responsible for the care of his or her appliances. As damage or loss of an appliance can result in delayed or distorted treatment for the patient, re-fabrication of appliances by the residents, or added laboratory expense, clinic guidelines for such situations must be followed:

A. Repeated damage or loss of appliances by the patient are grounds for an additional fee or dismissal from the clinic. Should such a situation arise, the resident should consult with the instructor to determine the course of action to be taken.

B. Isolated cases of damage or loss of appliances are subject to additional fees that must be paid before treatment is continued.

The need to replace lost or damaged appliances is to be determined by the resident and assigned instructor. If a replacement is necessary, the fee will be determined by the clinic director. For a damaged or lost appliance, the cash slip should state what appliance is being replaced and a copy of the charge slip should be included in the patient's chart. If an outside lab is used, the **Lab Summary** should also be filled out in OrthoII.

FULL-BANDED/BONDED FIXED APPLIANCES TOTALLY REMOVED by the patient or parent during the course of treatment and requiring replacement of new bands and wires are to be reassessed an initial appliance placement fee of $500.00 or dismissed from the clinic.

These FEES ARE TO BE PAID TO THE CASHIER of the dental school BEFORE THE REPLACEMENT APPLIANCE IS ORDERED TO THE PATIENT. The parents are to be informed of these additional fees. Ordering and receiving replacement appliances will be handled through the department staff, as in the case of ordering and receiving the initial appliances.

OUTPATIENT SERVICES

Due to the increased cost of materials and more stringent restrictions on staff, faculty and resident

time, there will always be a charge according to the above schedule for all procedures accomplished using the Department of Orthodontics and materials therein.

Fees are due and payable before the procedures are accomplished and paid to the cashier of the dental school. Further, materials, equipment, and supplies for undergraduate orthodontic cases are solely available from the undergraduate instructors. The materials, equipment, and supplies in the graduate clinic are solely for the graduate orthodontic students. The graduate orthodontic clinic is not a dispensary, store, or benevolent organization. Anyone wishing to obtain materials, equipment, or supplies for any reason -- must pay for them before delivery.

III - TREATMENT RECORDS

NOTE: Residents should verify that the informed consent, HIPAA agreement, and treatment contract have been signed by the patient/parent/guardian. They should have previously been signed

If a patient cannot come in on the designated day and/or time that the clinic director assigned, the patient is not considered a teaching case anymore, and will be dismissed from the clinic with a refund minus the diagnostic procedures fees.

At the end of the records appointment, the patient will leave without an appointment. The patient should be contacted after the resident and an instructor have been assigned.

INITIAL DIAGNOSTIC RECORDS

- Full face frontal, full face frontal smile, and profile extra-oral photographs.
- Full face at 45 degrees is optional.
- Frontal, right side including first molar in occlusion, left side including first molar in occlusion, maxillary arch including first molars, and mandibular arch including molars intra-oral photographs.
- Radiographic survey or Cone Beam CT image showing condyles, maxilla and mandible with complete dentition.
- Clinical examination.
- Maxillary and mandibular dental impressions for models or digital models.
- Recording of patient bite in centric relation, and when different, in MIC.
- Patient’s treatment consent, contract, HIPAA agreement signed by patient before records were taken.
- Additional radiographs, or photos should be taken if they are thought to be necessary for diagnostic purposes.

REQUIRED PATIENT RECORDS

The following records are to be routinely gathered on each patient at the stages of treatment indicated.

Residents and faculty should consider the following: THE MINIMAL PATIENT DOCUMENTATION REQUIRED BY THE DEPARTMENT FOR ALL GRADUATE PATIENTS.

Records over and above those indicated are to be accomplished at the instructor's discretion, and as

such the residents should consult their instructors as to the need for progress records, x-rays, etc.

l. ORTHODONTIC CASTS, properly trimmed and polished. Residents are responsible for the entire process on a minimum of two cases when preparing initial records. Digital models may be accepted if approved by the instructor.

2. Radiographic survey or CONE BEAM COMPUTED TOMOGRAPHY IMAGE (CBCT)

3. FULL FACE FRONTAL, FULL FACE FRONTAL SMILE, AND PROFILE EXTRAORAL PHOTOGRAPHS

4. RIGHT, LEFT, FRONTAL, UPPER AND LOWER INTRA-ORAL PHOTOGRAPHS

5. CLINICAL EXAMINATION, stored in "findings"

6. MEDICAL HISTORY, which is updated periodically; minimally at each transfer period.

7. ADDITIONAL PERIAPICAL X-RAYS AS DICTATED BY NEED AND CONCERN THESE RECORDS ARE REQUIRED FOR:

   A. INITIAL RECORDS

   B. DEBONDING RECORDS

   C. For progress images a 6" FOV (small) CBCT using 2 mA should be used.

PATIENT CHART INFORMATION

The Department of Orthodontics utilizes a software orthodontic practice management program to monitor all patient activities. The electronic patient record is the official record of treatment rendered by residents and attending faculty for our patients. As such, ALL treatment must be entered in the computer record for each patient contact. This includes contact by telephone or treatment rendered outside of the orthodontic clinic.

The following information is required in the electronic patient record:

1. Daily record of treatment

2. All appointments (broken, kept, changed)

3. Diagnostic criteria and Treatment plan

4. Clinical examination information (findings)

5. Initial screening information (pre-tx findings)

6. Post-treatment evaluation (post-treatment findings)

7. All digital type records

8. Accurate and current information about patient (address, telephone, dentist, etc)

In addition to the electronic patient records, the items listed below are filed in a binder that serves as the patient's hard copy chart:

1. Properly signed informed consents (2) and treatment contract

2. Either an Orthodontic Treatment Plan signed by the attending instructor or digital approval of the treatment plan signed by a finger print of the instructor.

3. A completed Medical and Dental History form

4. A completed cephalometric analysis page

5. All non-digital radiographs dated and labeled (if not scanned)

6. Cephalometric x-ray **tracings** dated and labeled or digital equivalent

8. **NOTE**: All digital photographs, scanned ceph and pan or CBCT are placed in Dolphin for archive storage.

9. A copies of any correspondence not captured in correspondence history, e.g., extraction letter, letters at beginning and end of treatment

10. Copies of insurance forms and lab requests

11. Informed Consent Form and HIPAA notification signed by the patient or legal guardian if the patient is a minor

To avoid misunderstandings, residents and instructors are encouraged NOT to use ABBREVIATIONS in the PATIENT'S ELECTRONIC CHART. Also, please note that the department has adopted the Universal Tooth Numbering System for use in the department. Permanent Teeth are numbered 1-32, beginning with the upper right third molar (tooth #1), and ending with the lower right third molar (tooth #32).

All patient records of the Department of Orthodontics are to be kept in the Orthodontic Department and not destroyed or removed for any reason, except with specific written permission of the attending instructors or the clinic manager.

Upon graduation, should any resident desire to make duplicate records of any of the patient records, the resident will be granted permission to do so, but the original records are to be kept by the department for legal, teaching and research purposes.

STORAGE OF RECORDS

HIPAA privacy rules require that only authorized personnel are allowed access to the Patient's private records in the chart room. Similarly, the patient electronic record should only be viewed by authorized personnel.

Charts for all active patients (currently in braces) being seen by first, second and third year residents in the graduate clinic, are stowed alphabetically in the standing shelves in the chart room. Charts are not pulled on a routine basis but are available for use if needed. Casts of active patients will be kept in the resident's cubicle with the names facing to the rear. Additional casts will be pulled and returned to the storage area by the resident as the need arises. Cases which are closed out (no longer needed to be appointed on a regular basis) are physically removed from the department just after the transfer period each year and placed in an offsite long term storage facility owned by the university. Cases are stored according to the patient number if they were started after 1990. An index file is present in the departmental office arranged alphabetically. A person desiring to find a particular set of records in long term storage should know the patient's name and number before going to the offsite storage area. The patient's number can be identified in OrthoBox, a computer program where all archived patients are entered. Through OrthoBox the access of archived patient's casts and chart is possible. Access to

OrthoBox should be done through full time faculty or staff.

CHARTS LEAVING THE DEPARTMENT

NO CHARTS ARE TO LEAVE THE DEPARTMENT FOR ANY REASON

If any chart information is requested by other departments and/or doctors, the document released should be a duplicate. The original documents should never leave the department. HIPAA regulations require that only specific information needed by an authorized request be released

RADIOGRAPHIC POLICIES

To insure that the School of Dental Medicine is in conformance with both the American Dental Association's Standards for Radiology Instructions and Radiology Services, and the National Council on Radiation Protection Report No. 35, the following policy is in effect:

l. Students, staff, or patients must not be exposed solely for the purpose of teaching radiographic techniques unless a radiographic examination is indicated, based on clinical findings in each unique case and prescribed by a D.D.S.

2. Students, staff, or patients receiving radiographic examinations based, on the above criteria must be a "registered patient" with the School of Dental Medicine. **Note:** Exceptions, however, will be determined by the Office of Clinical Affairs regarding patients for Board Examinations.

3. In the Department of Orthodontics, generally a radiographic survey may be made on each patient at each stage of evaluation. The decision as to whether it should be an individual tooth periapical film, a panoramic film, or CBCT will be made by the attending instructor.

IV- ASSIGNING OF SUPERVISING INSTRUCTOR

The clinic director or the program director will be responsible for assigning a supervising instructor and resident to each patient.

Any information on day or time preference that the patient may have, should have been collected during the screening appointment and be explained to the clinic director.

If any diagnostic records are to be retaken or added, they should be done before the presentation to the assigned instructor.

The resident will then prepare the case and present it to the assigned instructor to develop a diagnosis and treatment plan.

V- DEVELOPING OF DIAGNOSIS AND TREATMENT PLAN

The Department of Orthodontics' system of assigning patients to a single instructor is for the resident to learn how this particular instructor would treat this case in his/her private office. All the procedures from appliances used, to retention methods are to be determined by the instructor. It is very important that the resident follow the assigned instructor's directions.

Even though the resident may not agree with the instructor, he/she should continue to treat this case as directed. Any major concern should be addressed to the clinic director or program director of the department. The student should not try to treat the case without constant supervision by the instructor.

Once it is known which faculty member is going to supervise the case, the resident should prepare the case for the diagnostic and treatment plan presentation. In some cases, this presentation will be performed during a seminar, and in other cases it will be with the designated instructor only. For a presentation during a seminar, the case should be prepared so it is projected on the screen in the seminar room. For an individual presentation with the instructor, this is not necessary.

It is very important that the resident is familiar with the case, and has attempted a diagnosis and treatment plan for the case prepared before the actual presentation to the instructor. This is a required part of the learning process.

Every patient older than 18 should get a periodontal evaluation before any orthodontic treatment is to be provided. A letter from a periodontist, stating the periodontal situation and releasing the patient for orthodontic treatment should be in the patient's chart. In addition, the ABO requires Periapical radiographs (or equivalent) on adults.

When attempting a treatment plan, the resident should consider and present different treatment options, each one with its advantages and disadvantages, including the option "No Treatment."

If an extraction option is chosen or recommended, an extraction request form should be filled out and signed by both the resident and instructor assigned to the case.

The timing for the presentation on an individual basis with the instructor is done directly with the instructor during his/her available time. The resident should approach the instructor and schedule a time available to discuss the case. The resident should present the case, and then discuss the case with the assigned instructor.

A suggested format for presentation of diagnosis and treatment plan is as follows:

PATIENT'S NAME
15 yr. 11 mo.; Caucasian Female
Initial Exam: 12/09/92
C.C.: crooked teeth, small mouth
Diagnostic Summary

Medical History Non-remarkable

Dental History Intrinsic staining, enamel hypoplasia

Facial Frontal Mesocephalic, ovoid facial form, mentalis strain, increased LFH, lip incompetence, excess gingival display on smiling

Lateral Convex profile, obtuse nasolabial angle

A-P Skeletal Class II skeletal due to high mandibular angle

Dental Class III molar and cuspid relationship in both sides

Overjet: -1 mm

Vertical Skeletal Increased LFH: 72%, 58 %

Dental Open bite: 2 mm

Flat curve of Spee

Transverse Skeletal Acceptable

Dental Acceptable

Perimeter Maxilla 3 mm excess

Mandible 2 mm excess

Dental Status Upper and lower first bicuspids extracted on Phase II, no supernumerary teeth, no caries, fair oral hygiene

Growth Minimum

Cooperation Good

Treatment Objectives

1 - Improve facial esthetics

2 - Correct open bite

3 - Correct A-P relation

4 - Decrease LFH

5 - Improve gingival display

6 - Correct lip incompetence and mentalis strain

Treatment Options

1 - No Treatment

Advantages: - No cost

- No treatment

Disadvantages: - Open bite not corrected

- A-P problem not corrected

- No soft tissue improvement

2 - Surgical Option: Maxillary Impaction + Mandibular Set Back + Genioplasty Augmentation

Advantages: - Improvement of vertical dimension

- Correction of Class II skeletal

- Improvement of facial esthetics

- Soft tissue improvement

Disadvantages: - Surgical risk

- Cost

3 – Non-surgical Option: Extraction of U 7's + Cl III Elastics

Advantages: - Slight improvement of vertical dimension

- Improvement of occlusion

- Avoid surgical risk

Disadvantages: - No facial improvement

- Lower incisors already flared in

- No soft tissue improvement

- No significant improvement of vertical dimension

At the end of the diagnosis and treatment plan discussion, the resident should have a prepared and approved diagnosis and treatment plan. Both diagnosis and treatment plan should be entered in the computer (under **FINDINGS**). The treatment plan is also summarized under the **TREATMENT PLAN** section in Ortho II. In addition, printed and **signed Treatment Plan** is in the patient's folder or digitally stored.

Once the diagnosis and treatment plan have been approved, the resident should call the patient to schedule a consultation appointment.

If anything changes after the consultation appointment, it should be brought to the attention of the clinic director for correction.

VI- CONSULTATION APPOINTMENT

NOTE: The resident should have the treatment Informed Consent Form signed by the patient/parent/guardian during this appointment. This is a different form from the one signed at the screening appointment.

The consent form for use of records must also be signed. This is not optional for this clinic, as this is an educational and research institution.

At the consultation appointment, the resident must show the patient/guardian the AAO Consultation DVD, as well as present to the patient and/or guardian the diagnosis and treatment plan (or treatment options, if applicable).

This appointment should be performed in the consultation room in the Department of Orthodontics, and should include the resident responsible for the case, the patient, and the parent or guardian, if applicable.

The use of audio-visual equipment during this appointment is recommend for a better understanding. The consultation room has dental models fitted with various kinds of appliances, and computer software to use in demonstrating different possible procedures.

The consultation appointment can be isolated, or combined with an initial placement of appliances. The initial placement of appliances can vary from separators to even full bonded arches. It is recommended to combine both appointments **only** in cases where the resident is confident of the acceptance of treatment.

The instructor may also be available for questions and comments, should the need arise.

Factors to be discussed are as follows:

- Diagnosis
- Treatment plan (extractions if necessary and why)
- Oral hygiene and state of the patient's general dental health, stain, caries, decalcification, broken teeth, etc., which are conditions which should be noted in the chart
- The absolute need for cooperation from both the parent and the patient
- The necessity for good oral hygiene and avoidance of certain foods
- The need to miss school. (A school excuse will be provided)
- The consequences of failing to keep appointments, follow instructions, or maintaining good oral hygiene
- Our setup of resident-patient-instructor supervision
- The importance of coming in the same day that the instructor is present
- The potential result (no guarantees are given)
- The retention period
- Dismissing patients for reasons of lack of cooperation
- Estimated treatment time
- Any active dental disease which must be controlled before treatment starts
- The possibility of root resorption

Extractions, if necessary, may be arranged at CWRU or by the patient's, family dentist, or an oral surgeon. A copy of the panoramic x-ray should be attached to the extraction request form. The copy may be a duplicate film, printed digital image or a rendition made from a CBCT.

During this appointment, the patient should receive an extraction request form, if applicable, signed by both the resident, and the instructor assigned to this case. The only people who can sign this form, beside the assigned instructor, are the clinic manager, the program director, and the chairman of the program.

The patient should leave the consultation appointment with a next appointment scheduled for the beginning of active treatment.

VII -ACTIVE TREATMENT

Banding/Bonding "starts" may then be started as soon as possible under the supervision of the instructor. In this regard:

Separators may be placed as needed as soon as the consultation was successfully completed, if placing of bands are in the treatment plan.

All dental disease (caries, periapical pathology, periodontal disease, etc.) must be controlled prior to any orthodontic treatment. This can be done by the family dentist or through the Advanced Education in General Dentistry Department within the dental school. Lengthy delays in this process may result in dismissal as an orthodontic patient.

All patients are to have a prophylaxis before banding/bonding. This is done by the resident regardless

of the timing of any previous prophylaxis.

All appointments are now arranged primarily by the resident. The staff is to schedule new appointments only when the patient calls to cancel an appointment or in exceptional cases.
A letter is sent to the general dentist stating that active orthodontic treatment has begun.

Treatment is to proceed in accordance with the supervising instructor's direction. Patients are to be seen only during the instructor's scheduled time, unless approved by instructor.

Patient treatment record is to be entered into the computer by the resident on an appointment-by-appointment basis.

Progress records. Records during treatment such as radiographs, study models, color photos, and profile photographs are to be taken at the discretion of the individual instructors, and **requires the instructor's signature**.

During the bonding appointment, instructions for hygiene and appliance care should be given to the patient and reviewed with the parent.

ROUTINE PREPARATION TO BE MADE PRIOR TO CALLING AN INSTRUCTOR FOR CONSULTATION ABOUT CLINICAL PATIENTS

1. Patients should be seated comfortably with the unit light properly positioned.
2. All patient casts should be arranged chronologically on the work table.
3. All clinic records for the patient must be reviewed by the resident in order that the progress of clinical treatment may be given in a concise manner to the instructor when he/she is called. The resident must have a close familiarity with the treatment rationale in order that he/she may be prepared to answer any questions which may arise.
4. The resident should determine recommendations which he/she would like to make for continuing treatment of the patient, including archwire modifications, elastic wear, and any other procedure which would influence treatment progress.
5. All instruments on the required list should be readily available at the chair.
6. All instruments must be sterilized before being used for patient care. Instruments must be scrubbed and cleaned of cement before being sent to the sterilizers.
7. Every patient should be seen by the instructor in charge at every appointment unless prior approval is gained for the exception.

APPOINTMENTS

1. Routine appointments for patients are scheduled by the resident through the computer.
2. Residents are urged to observe the appointed times for their patients and not keep them waiting unnecessarily.
3. If the patient repeatedly misses or cancels appointments, this should be called to the attention of the instructor for appropriate action. Two consecutive broken appointments or three total broken appointments are grounds for dismissal.

4. If the patient fails to respond to requests to be appointed or to come in for treatment (whether in the active or retention phase of treatment), this should be brought to the attention of the instructor for his/her information and action.

5. Patients are to be seen on the days and times of the assigned instructor. Inform the clinic director if there is a difficulty.

6. All patients must have appointments made at the end of each visit. Try not to let the patients leave without an appointment, even if the appointment is going to be changed.

PATIENTS ASSIGNED, BUT NEVER STARTED

RECORDS NOT TAKEN

If the patient cannot be contacted with reasonable effort on the part of the resident or if the patient no longer desires treatment in our clinic, the resident should enter such circumstances in the computer.

If the patient is unable to come to the clinic for records (due to poor finances, lack of transportation, etc.) within a reasonable time (usually one month at most), the resident should discuss the situation with the clinic director. Usually a deadline will be determined and the resident should inform the patient and parents of the deadline. If they do not make the deadline, the resident should ask the patient or parents if they desire to be considered for treatment at a later time. Again, if records are not to be taken, the resident should enter the circumstances in the computer.

RECORDS HAVE BEEN TAKEN

If the instructor determines that the patient will not receive treatment in the clinic, he/she should note the circumstances on the computer and electronically sign it. The resident or the instructor should then notify the patient or parents of this action and turn the chart and models in to the clinic director.

If the patient or parents decide they will not proceed with treatment, the resident should note this in the treatment chart in the computer, have the instructor electronically sign the treatment chart, and turn the chart and models in to the clinic director.

PATIENT TRANSFER PROCEDURE

In order to effect an orderly continuation of treatment and prevent chaos in the clinic during transition, the transfer procedure stated below will be strictly followed.

GRADUATION TRANSFERS

In the last month of the last semester of their program, or when indicated by the clinic director, the graduating residents will transfer all of their active core patients to the remaining residents. The usual pattern of transfer will be third year big brother/sister to first year little brother/sister, skipping the second year class siblings.

1. Approximately three months prior to the start of transfers, the clinic director will distribute current patient rosters. The graduating residents should review the list for accuracy.

2. Approximately two months before transfers, the clinic director will meet with each graduating resident and assign the cases to the remaining residents. Transfer forms are filled out on all patients by each graduating resident. All patient assignments are made by the clinic director.

3. At transfer time, all charts and patient's computer records must be complete. .

4. Transfer records. Unless there is concern with regard to the treatment plan or progress of the case, the only record that needs to be taken for active cases is a mid-treatment **panoramic radiograph or a CBCT reconstruction.**. No records are needed for retention transfers.

5. Closed out cases. The names of all patients whose cases were closed out during the year, must be officially removed from the resident's patient list by placing the patient in an **inactive** status in the OrthoII™ program. The resident responsible should communicate to the clinic director when a patient is ready to be archived. After approval, , the chart, models, and all forms should then be given to the clinic business/finance manager for archiving and final processing.

RULES FOR TRANSFERING

These strict guidelines are necessary to perform an orderly transfer of treatment responsibility and to distribute the workload in an equitable manner.

l. During the transfer period, if the instructor is absent on his /her day, the graduating resident must still transfer, providing the necessary signatures have been obtained.

2.Transfers should take place when both the graduating resident and the receiving resident are present that day, in order to ensure proper introductions. There is a special procedure code for "transfers" used in Ortho2 to schedule transfer cases.

3. If the clinic is officially not operating any particular day, no transfers are permitted that day.

4. The graduating resident may introduce a patient to his/her new doctor, but may not schedule the patient with the new doctor until the case is officially transferred. Graduating residents are expected to attend all clinics until the end of their program.

5. After the official transfer, the responsibility for appointments and treatment lies with the new orthodontic resident.

6. **A case cannot be transferred until the clinic director or the program director makes an entry in OrthoII™ approving and specifying the transfer.**

7. The new resident assigned to the case is now responsible for understanding the treatment plan. An update in the Medical and Dental History should be made before any active treatment is to be continued. An entry relating to this update should be put in OrthoII™.

PATIENTS TRANSFERRING OUT OF THE CLINIC

Usually, as the result of a family move away from the area, cases are transferred to another orthodontist somewhere in the country. Several matters need to be attended to when this occurs.

On the last appointment:

1. The patient should be made ready to go as per the instructor's instructions.

2. The patient must pay a records duplication fee of $125 for hard copy records. No charge is made for copies in digital format.

3. A complete set of photos should be taken and the clinic director should decide if any refund is due the patient, according to the terms of the contract signed.

4. The patient and the parent should be given a transfer instruction sheet, and the resident should go over the sheet with them. The **parent should sign a release** to allow transfer of records in the future.

After the patient has left the clinic:

l. The appropriate A.A.O. transfer sheet should be filled out.

2. All x-rays and models should be duplicated if hard copy records are requested. Digital copies should be downloaded to a CD. They should not be sent on the internet unless it is verified to be HIPAA compliant.

3. The resident should have the instructor sign an entry, indicating "the patient has moved to (the new address)" and that the "Case is Dismissed."

4. The chart is then brought to the clinic director.

5. When the diagnostic materials are requested by the new orthodontist, duplicate x-rays and models are sent, along with the transfer forms.

VIII- RETENTION

The OrthoII™ status at the end of the debonding appointment should be **RET.**

Prior to the removal of orthodontic appliances, the resident must obtain authorization from two sources:

1. The Business/Finance Manager - This person must ascertain that any payments due the department have been paid. Any account which is in arrears must, without exception, be made current before removing appliances. This is still applicable because some patients may have had additional charges.

2. The attending instructor - The instructor must see the patient prior to debanding/debonding and initial the patient's records indicating that it is "OKAY to debond."

Different ways of retention may be used, from fixed to removable. The instructor responsible for the case should make the choice of the method of retention used.

The procedure of retainer usage and frequency of appointments are also determined by the assigned instructor.

Final records should be taken during the appliance removal appointment, unless approved by the assigned instructor.

The fee paid covers the final form of retention. If the assigned instructor decides to use a tooth positioner or any other removable active device before the final form of retention, it is still included in the fee paid. If a suck down retainer is recommended, while a Hawley retainer is being prepared, the Hawley retainer is considered the final form of retention. If this is the case, it should be specified in the treatment plan.

The resident is allowed to request any kind of retainer (color, adhesives) for its final form of retention. If an additional retainer is needed because of patient negligence, a fee will apply, and this fee includes only a plain retainer (clear or pink acrylic). For any other request, the clinic director should be contacted to adjust this fee appropriately.

The resident should present the final records to the instructor for quality control. Final records must be presented in November of the graduating year in order to get credit for the debonding. .

A letter is sent to the general dentist stating that active orthodontic treatment has been completed.

The default retention check should be done at 2 months, 4 months, 6 months, 6 months, and 6 months from retainer delivery. This retention time therefore totals 2 years. The instructor may vary from this schedule if desired.

Once the patient is put in the retention stage and the case has been presented to the instructor for final evaluation, the dental casts for this patient should be moved from the resident's cubicle to the resident's drawer located in the back of the clinic. They remain there during the 2 year retention check, and then are stored in Orthobox (A separate computer program used for archiving).

Final records will be displayed and discussed as announced. All patients going from active to the retention must have their status updated.

CLOSE OUT

CHANGE OF PATIENT STATUS FROM RETENTION TO CLOSE OUT

When the instructor feels the patient no longer needs to be seen on a regularly appointed basis, the case should be officially closed out and the patient placed in **INACTIVE** status in OrthoII™. Even though further appointments are no longer necessary, the patient should be told that he/she may contact the clinic at any time in the future with regard to questions about his/her teeth. Prior to officially closing out any patient, the following must occur.

1. The instructor must see the patient at the last appointment and sign the patient record indicating "OKAY to close out."
2. The resident and the instructor must instruct the patient as to future care of the dentition and/or wearing of appliances.
3. The chart must be brought to the clinic director for archiving.
4. At close out time, the chart (including the debonding review in post-treatment findings) and models are deposited with the clinic director for update of departmental records, update of computer records, and physical removal of the closed out record to storage.
5. If the patient is being closed out for lack of parent or patient cooperation ("dismissed"), due to nonpayment of fees, failure to keep appointments, poor oral hygiene, among other reasons, a release form needs to be signed by the parents.

FIVE-YEAR RECALL PROCEDURE

Five years after active treatment has ceased, the patient may be recalled to determine the long term stability of the result. These recalls will be appointed during the time set aside for the course on Diagnostic Seminars as announced. The appointment will last about 30 minutes and some records may be taken. These records will be integrated into the record and used for teaching and research. The record of this activity will be initialed by the clinic director who will coordinate this activity. After the record is complete, the chart and models will be returned to the closed case storage.

REACTIVATED PATIENTS

Every once in a while a patient contacts the clinic concerning the condition of his teeth some time after the case has been closed out. In this circumstance, the patient is then scheduled to see the instructor of record at the first available opportunity. The instructor will be responsible to determine:

l. What the patient's concern is and what he/she wishes done.

2. Whether the case needs to have active treatment re-instituted, retention treatment, or no treatment.

3. If treatment is to be re-instituted in active or retention treatment, a decision needs to be made regarding a fee. A general policy is that there is a fee for revisional treatment. (Exception may be granted on a case by case basis by the clinic director) All notations regarding this visit are to be recorded in the patient's chart.

4. If the case is to be reactivated in active or retention treatment, this information is to be conveyed to the clinic director, along with a recommendation regarding fee, and the clinic director will assign a resident to the case so that re-treatment may commence.

5. The phase of treatment is changed in Ortho II to **PHASE III** (revisional phase) and the case is started again with new **findings** and **treatment plan**

CLINICAL EVALUATION

A clinic evaluation designed as a Mock ABO Clinical Exam takes place halfway during the second year, and at the endo of the third year of residency. The valuation consist of 2 ABO eligible cases being treated by the resident, and surprise case where diagnosis and treatment planning are evaluated.

In this evaluation, the residents present 2 cases. The selection of these cases is done on cases that are ABO eligible. The progress the 2 cases is presented and evaluated by two ABO certified instructors and the program director. The records should be presented in a format similar to the format required by the ABO.

Every year, during **November or December**, an external reviewer is chosen by the program director to evaluate both the program and the residents. Choice of the reviewer alternates between an orthodontist in academics, an orthodontist who is involved with organized dentistry, and a full time clinician. Each resident has part of a day scheduled in which he/she will meet with the evaluator in the Enlow/Gould Seminar Room. The evaluation involves both didactic and clinical knowledge. The resident should have records of patients treated by him/her available for evaluation and inquiry.

Every semester during the orthodontic faculty meetings, the full time and part time faculty are asked to evaluate the residents individually. The clinical status of each resident is discussed noted at this point.

Prior to graduation, finished cases are assessed for quality of the outcome achieved. Of all finished cases, 25 full treatment cases that he/she has started (or provided a majority of treatment) shall be presented for PAR scoring. Objective evaluation: 25 cases started and finished with an average PAR score less than 8 and an average 70% reduction in PAR score.

All residents must take the Phase 2 examination given by the American Board of Orthodontics. Residents usually sit the examination in April of the second academic year of the program. Residents who fail the ABO exam will be placed on probation and may be required to remediate portions of the graduate training program.

TEAM CONCEPT

The Big Brother/Big Sister Team System

The graduate clinic at CWRU operates on a Big Brother/Big Sister system in order to facilitate patient care and speed the process of learning orthodontics. As soon as practical, each first year resident is assigned a family, i.e., a second and third year Big Brother or Sister. The assignments are generally made after the new class has been selected in December. Prior to beginning the program in July, the Big Brother or Sister acts as a personal contact in the department and can assist the new resident in obtaining housing, shopping and general adjustment to a new environment.

After the program starts in June/July the first and third year residents are collectively responsible for the treatment of patients assigned to that team. Patients are sometimes seen in a team setting for the specialty clinics:

In addition, all retention patients who have completed treatment in the core clinic become "team patients" following the placement of the retention appliances. However, all active core patients are assigned to either a second year resident or the first/third year team. Residents are encouraged to work together to maximize the learning experience. This can be especially helpful when one team member has a cancellation and the other team member is over booked. The first six month period of the program is an intense one-to-one tutorial between the third year and first year resident. During this transition time, the third year resident in “good standing” (See definition of good standing elsewhere in this manual.) will be paid as a department consultant. Whether paid or not, the third year resident is responsible for guiding the first year resident through records, diagnosis, treatment planning, chart documentation, and the starting of all the first year assigned patients. Particular attention is paid during the “start-up time in July” to the first year residents during the first semester. During this time, responsibilities also include bonding cases with the first year, training record-taking, and performing initial examinations to recruit patients for the incoming class.

CHAPTER IV

THESIS INFORMATION

DEPARTMENT OF ORTHODONTICS
SCHOOL OF DENTAL MEDICINE
CASE WESTERN RESERVE UNIVERSITY

RESEARCH AND THE THESIS

"RESEARCH: Students in advanced training programs should participate in research endeavors through the initiation and completion of a research project. The basis for this participation stems from the conviction that a research experience can, perhaps better than any other learning experience, develop and refine habits of critical thinking and reading. Moreover, in conducting research, a student learns how to learn. It is difficult to imagine a more appropriate goal for education at any level."

…Council on Orthodontic Education, American Association of Orthodontists (1976).

"Addressing myself now to the contribution of research to learning, I would make the following observations. In the last analysis, there are really only two ways in which to learn. One is essentially passive and is described as being taught. We are subjected to lectures, quizzes, examinations and assigned reading and laboratory exercises and term papers, etc. The second way we learn is by doing, which is essentially an active process. The educational spectrum, beginning at the kindergarten level and moving through the university, the advanced degree and even the post-doctoral fellowship level, should have a judicious balance between these two methods of learning; that is, being taught and learning independently (learning by doing). This should be a process of progressing from dependence to independence throughout the educational spectrum. In this context, research may be defined as the most efficient and most mature method of learning. It is certainly the most efficient. I am sure the individual can obtain and maintain a larger body of knowledge and a greater armamentaria of skills through learning by doing, by means of research, than by being taught or by reading all the textbooks in the world."

....Johns, Millis (1966), President of Western Reserve University.

Enthusiastic interest is shown by the faculty in the other aspect of our mission -- that of contributing to the knowledge of the profession through basic research. In the clinic, today's knowledge is directly translated into treatment of patients; on the other hand, research provides for tomorrow's improvements of the specialty. Each graduate student and his faculty advisors work closely to develop an original clinical/basic science research program. The work on the project usually begins late in the first or early in the second year, and is then carried out during the nonscheduled and off clinic periods. This research experience is an integral part of the Graduate Program, and it is expected that a worthwhile study will be completed which will represent a solid, meaningful contribution to the field of orthodontics.

As a general guide, Master’s projects require about 500 hours to complete. This means that, if a student were engaged in full time research, the project should be able to be completed in about 3 months. As a general policy, the department does not schedule research time, however, whenever Master’s students have unscheduled hours during the week they are expected to busy themselves with thesis work.

In order that this new knowledge may become available to the profession, a written thesis of acceptable literary and scientific merit, suitable for publication, is prepared and then presented in a formal "Thesis Defense" before the assembled faculty. It has been our consistent observation that the research part of our orthodontic program is an exciting, stimulating, interesting, and rewarding experience for each graduate student. We are genuinely proud of our student's achievements in research.

The subjects for research study are virtually limitless and usually develop from areas of specific interest "discovered" by the student during his or her first year of participation in the various seminars

and courses. A reasonable project is worked out with the help of faculty counsel, and this initial step is followed by a period of library reading to determine in depth what is and is not already known about the particular subject. An Institutional Review Board (IRB) application must be submitted and approved prior to beginning the research study. Then, the equipment and materials are organized, and the techniques and methods to be utilized are learned. The work itself begins and, finally, results are analyzed and evaluated. Most of the laboratory equipment that might be required is available, from computers to electron microscopes. Costs for statistical software packages should be included as part of the budget proposal for the thesis project.

Incoming students who already have research experience are certainly welcome and such past work, regardless of topic, will be helpful. Those graduate students without a prior background in research, however, should not feel apprehensive. This "different" form of learning is foreign to the common educational experience, and students will receive help as needed to accomplish a genuinely exciting research study.

The thesis is to be submitted in partial fulfillment of the Master's degree and should be completed within the first 24 months of the program. The department does not award a certificate degree and, therefore, all residents are required to produce a Master's thesis. Each resident is required to submit a finished article suitable for publication in a refereed journal as part of his/her thesis, and is required to complete the Master's program. The article need only to be submitted for publication, not accepted to fulfill the requirement for graduation. After completion of the thesis requirements, the resident will have six (6) more months of clinical activity before graduation.

Specific areas of ongoing research in the department include:

1. Craniofacial anatomy and obstructive sleep apnea syndrome.

2. Three dimensional imaging

3. Growth and aging of the human face

4. Two and three-dimensional facial morphometrics

5. Outcome of orthodontic treatment and demographics of orthodontic practice.

6. Oral health disparities among high-risk populations

7. The role of occlusion in periodontal disease

8. Access to dental care and disparities due to socioeconomic status

9. Misclassification bias and missing data

10. Retention in orthodontics

A list of potential thesis topics submitted by faculty is kept by the department administrator and is a valuable resource for students looking for exciting projects.

GRADUATE THESIS COMMITTEE

During January of the first year of study the student should make an appointment with the program director of the department to discuss his/her potential thesis topic. The program director, with the help of the individual student, will identify a Graduate Thesis Committee, consisting of a minimum of three members of the university faculty, at least two from the department in which the student is enrolled, and at least one member from outside the department. The program director will set up the initial

thesis committee meeting for the student. All subsequent meetings are the responsibility of the student to arrange. Each graduate student will have one primary thesis advisor who will chair the Graduate Thesis Committee. The thesis advisor is appointed by the department program director from the committee's membership and will serve as the student's primary guide for the project. The addition of committee members beyond the required three is not restricted and may include persons outside the university, having qualifications acceptable to the department director.

Working with their Graduate Thesis Committee, the student should develop a general description of the thesis research subject which will be finalized as part of the Research Methods course (DENT 508) taken during the spring semester of the first year. This is followed by the thesis protocol defense that must be scheduled by the end of June. It is the responsibility of the student to convene their Thesis Committee at intervals that are helpful to his/her progress. The department program director must certify to the Associate Dean for Graduate Studies that the final thesis proposal satisfies the academic requirements of the graduate program.

Requirements for the degree of Master of Science in Dentistry include the successful completion of a suitable research experience and the demonstration of scholarly attainment and the ability to conduct directed research. This part of the student's program takes the form of a significant commitment of time and effort to the initiation, completion, documentation and presentation of a research project in the form of a thesis and oral defense. This effort serves as partial fulfillment of the requirements of the degree of Master of Science in Dentistry in that completion of the thesis is required, and, further, this effort represents a minimum of 6 hours of earned credit toward the total credit hour requirement. The subject of the research shall be determined by the student in consultation with his or her Graduate Thesis Committee and the program director of the student's department. While the originality and the quality of the research should be above reproach, the scope of the research project should be in keeping with the Master's level and the time limitations placed upon those involved in a clinically-oriented graduate program. Details in regard to the characteristics of the thesis (format, typing, number of copies, etc.) are available in the student's department and in the Office of Graduate Studies. The final oral defense of the research shall be publicized to the university community and shall be conducted by the Graduate Thesis Committee according to departmental guidelines.

Guidelines and Important Dates to Maintain Good Standing in Research

1. Selection of thesis topic-**End of semester one**

   In order to allow adequate time to develop a thesis topic during the third semester of study, first year residents should select a thesis topic and meet with the department program director to identify potential thesis advisors prior to leaving for Christmas vacation of the first year. The title must be submitted to the program director before you leave for break. The identification of a thesis topic is a requirement of DENT 573 Advanced Specialty Principles-Clinical – I.

2. Thesis Committee- **January 15th of the second semester year one.**

   After you have selected a topic, you should arrange a meeting with the department program director to finalize the choice of thesis advisor and thesis committee membership. It is expected that a thesis advisor will be selected no later than March of the first year. The thesis advisor will direct the research project. Due to the broad nature of the research projects selected in the department, the advisor need not be appointed in the department of orthodontics. However, the Graduate Thesis

Committee must include at least two members of the orthodontic faculty. At the time of the protocol defense, the resident, in consultation with his/her advisor and department program director, should have selected the make-up of the total committee. The committee shall consist of the advisor and at least two other members. One member of the committee must be a faculty person outside of the Department of Orthodontics. The Associate Dean for Graduate Studies will be a permanent member of all thesis committees, either in the capacity of an advisor or in his official capacity as Associate Dean for Graduate Studies, representing both the Graduate School and the School of Dental Medicine. It should be emphasized that three members on a committee are the minimum number, but that the total number is the resident's choice in consultation with his/her thesis advisor and, hence, the number may vary, depending on the anticipated technical back-up needed. It is recommended that the resident meet with his/her advisor at least every two months to insure that the project is proceeding on schedule. Quarterly committee meetings are recommended in order to keep the entire committee informed of his/her progress and to insure timely identification and correction of potential problem areas.

3. Study design, protocol development, protocol defense- **June 30th of semester two.**

During the summer semester (May) all first year residents are required to take Research Methods: Preparation (DENT 508). During this course the resident will be required to prepare a thesis proposal based on his/her thesis topic. This course will allow the resident to work on his/her study design and to refine the original thesis idea into a working project. The final assignment in this course will be a detailed thesis proposal. As part of this course requirement, all first year residents must complete an oral protocol defense in the department culminating in a final thesis proposal. The final thesis proposal, approved by the thesis advisor, is to be turned in to the department Program Director and the Assistant Dean for Graduate Studies by the end of June. In this way, the resident will be prepared to begin work on the thesis during July of his/her second year.

As a minimum, the **oral protocol defense** must include the following:

- Title of Project
- Thesis Advisor and committee members
- Conclusions from the literature review.
- Statement of the problem/question.
- Specific aims or objectives.
- Hypothesis
- Study design: case-control, retrospective cohort, cross-sectional, double-blind Randomized Controlled Trial (RCT), etc. Describe study population (what is the sampling frame or list of eligible participants, how were they selected, inclusion/exclusion criteria, dates, etc). Present sample size calculation. Data management: Who is collecting the data? How will data be collected, entered into data base, and recoded (i.e. from continuous to categorical definition). Provide example of data collection tool and/or spread sheet.
- Main outcome(s) – source of data (record, questionnaire, laboratory, etc) and definition(s)
- Potential explanatory variables – source of data and definitions.
- Statistical approach – how will the data be analyzed? Describe the statistical approach. Include dummy tables.
- Interpretation of results. Consider validity: Address whether the finding is likely to be due to chance, bias or confounding.
- Limitations

- Strengths
- What supplies and equipment will be needed for the study?
- Has IRB approval been sought and obtained?
- Has the Case Western Reserve University's Continuing Research Education Credit Program been completed and along with documented training on the protection of human participants in research?
- Budget - Include in the protocol a projected budget for the experimental work. Expenses of the experiment can either be borne by the resident's department or, if no funds are available in that category, then the resident should seek out the Graduate Studies office of the dental school to request funds. Up to $1500 in research support from the School of Dental Medicine is available for each resident during his/her second year of study. Additional funds from the American Association of Orthodontists Foundation may also be available to support resident research.

4. **Time allotted for thesis work**

After an initial, formal oral protocol defense, and assuming that the committee accepts the thesis proposal, it is strongly advised that the resident immediately busy his/herself with the designated research activity. It should be pointed out here that, if the resident is contemplating the use of human or animal subjects, he/she should, as soon as possible, even before the protocol defense, see his/her thesis advisor who will assist in preparing the forms necessary to request official clearance to conduct research on human subjects through the Institutional Review Board (IRB). Such an official clearance is the uncompromising policy of both the Federal Government and Case Western Reserve University, and failure to gain such consent will place the entire legal burden of any potential lawsuits directly on the resident as engaged in unauthorized human involvement ventures. Similarly, the use of animals in research is strictly controlled by the Federal Government and the university's Animal Use Committee and approval of that committee must be obtained prior to ordering animals or beginning experimentation. Unauthorized research is not eligible for any funding and is not permitted in the department. The student should realize that it may take a minimum of two weeks to obtain such clearance and should plan accordingly. In fact, let it be established that, from an aspect of pure courtesy alone, any written document submitted to a faculty member for critical review should afford the reviewer at least a week or ten days to mull over the scientific document. This applies to protocols and, more importantly, to the finalized thesis. The resident is required to register his/her thesis topics and the make-up of committee as soon as formalized with the Associate Dean for Graduate Studies.

During the second year of the residency, the student will usually be given one free afternoon per week in which to conduct research. Accordingly, Friday afternoons are designated for thesis work. It is expected that some of the thesis work can be completed during this time. However, in order to insure ample time for a quality thesis project, students should be prepared to work nights and weekends. The time during the week should be allocated to meeting with advisors and procuring needed direction so that the resident may work independently during the evening and weekend hours.

5. **Student's relation to the thesis advisor and the committee**

The student is expected to do the experimental work, since this is not the advisor's research exercise, but the student's research experience which, as stated in his/her thesis, is a partial fulfillment of the

requirements for the degree of Master of Science in Dentistry. Therefore, the student's advisor should be utilized in a way consistent with the definition of the word advisor; he is expected to advise the student, but not to do the work as the student watches. The student may on occasion use some of the technical assistance available in the dental school. For example, there is nothing improper in the student arranging to have routine histological sections processed by a laboratory. However, it is strongly advised that the student at least process a few blocks from beginning to end in order that he/she will have a first hand experience in the procedures that the laboratory technician goes through in the generating of a complete slide from a bit of unprocessed tissue. If the student is planning unusual histochemical or other procedures and they are an important part of the thesis, the student is expected to develop the appropriate techniques and not turn over the problem to the laboratory technician. The student is free to consult with other members of his/her committee, but this should not be a heavy dependence or a heavy drain on their time or efforts. If, for example, a student is working predominantly with one member of the committee who is not the thesis advisor, it may be that the original selection of the thesis advisor was unrealistic and/or inappropriate. In other words, a good rule of thumb is that the thesis advisor is the individual with whom the student does the majority of his/her work and consultation. If a graduate student or faculty member find themselves in this situation, they should immediately contact the department program director to discuss the issue. Only the department program director can appoint another committee member as thesis advisor.

In January of the second year, the student, in consultation with his/her advisor and the committee, will pick an earliest date for a thesis defense. In order to do this, the student should have essentially completed the research phase by that date and have enough of a data tabulation and rough write-up so that the committee can decide that the investigative phase has come to a reasonable end and that the student may proceed to a final write-up of the results. Students are furnished a copy of the schedule for graduate residency programs of the dental school which lists specific dates concerning theses.

6. **Thesis format**

The thesis form must conform to the structure designated by the Graduate Studies Office of Case Western Reserve University. The resident will be given a copy of their rules and regulations and, in addition to these, he/she will be expected to follow the "style" they prescribe, which essentially is consistent with that found in Kate L. Turabian's "*A Manual for Writers of Term Papers, Theses, and Dissertations*." It is, therefore, suggested that this manual be purchased and that a copy be given to the typist so that he/she can refer to the correct form. While expenses of the investigative phase of the thesis project (within limits) are borne by the school, all expenses in the typing of the thesis are to be borne by the student.

Finally, unanimous approval of all committee members of the thesis itself and the "Final Thesis Defense" is required. This means that all committee members must be present at the oral thesis defense. Under extraordinary circumstances, the department director can petition the Associate Dean for Graduate Studies to allow a thesis committee member to submit written questions to the candidate.

Be sure to refer to the specific dates set by the Office of Dental Graduate Studies (not the student's department) with regard to (1) thesis submission, (2) thesis defense, and (3) application for graduate degree.

Timetable for Thesis Completion and Meeting Corresponding Course Requirements

FIRST YEAR:

December 15th - Selection of Thesis Topic

A working title and basic premise for the student's research should be submitted to the program director before he/she leaves for Christmas break. The identification of a thesis topic is a requirement of DENT 573 Advanced Specialty Principles-Clinical – I.

January 15th - Selection of a Thesis Advisor and Formulation of the Thesis Committee

Although it is possible for the student to work on the thesis topic without a faculty advisor, it is most efficient to select a faculty advisor to assist in formulating and defining the thesis project. Therefore, a meeting with the program director should be arranged to identify a faculty member with research experience in the student's area of study. Working with the program director, an advisor will be identified and a thesis committee formed. The thesis committee will consist of not less than three faculty members, at least one of which must be outside the orthodontic department.

February 15th - First Thesis Committee Meeting

After the thesis committee has been selected, it is a good idea for the resident to arrange a meeting to discuss the project and present the "proposal in progress." The proposal will be part of the Research Methods: Preparation (DENT 514) course, thus having a committee meeting at this time will also be beneficial.

May 15th - Second Thesis Committee Meeting

Prior to the second meeting, the student should distribute to his/her committee the thesis proposal that he/she is developing as part of DENT 514. During the second meeting, the resident should define his/her project in detail. If needed, a pilot study should be conducted during May and June to test the proposed methods and design. The Thesis Committee should approve the data collection tool and calibration/standardization methodology and provide guidance regarding for data entry and data management.

June 30th - Protocol Defense

The student must complete the department protocol defense and submission of the final thesis protocol to the department director and the Assistant Dean for Graduate Studies. Thus, the advisor must approve the final proposal that is to be submitted to the department program director prior to July 1. Once the committee has approved the protocol, a copy is submitted to the Assistant Dean for Graduate Studies (see guideline #4).

SECOND YEAR

July 31st – Research Activity

The student should begin research after obtaining IRB approval and Human Subjects Protection Certification through Case Western Reserve University's Continuing Research Education Credit (CREC) Program by completing the Collaborative IRB Training Initiative (CITI) (http://ora.ra.cwru.edu/research/orc/crec/index.cfm).

August 15th - Third Committee Meeting

During this meeting, the student should identify the scope of the literature to be reviewed and final design considerations of the project should be discussed. The results of the pilot investigation should be discussed and the project fine-tuned.

September 15th - Completed Literature Review

In most cases the Literature Review section of the thesis can be completed before the actual experimental work is finished. Most residents find that the Literature Review is the most time consuming part of the actual writing of the thesis. It is expected to be an in-depth review of current and part work that has been done in the student's area of interest and, therefore, can encompass over 100 articles on a variety of topics related to the thesis. The resident should discuss the scope of literature to be reviewed with his/her advisor during the preparation of the thesis proposal. As part of the fall semester DENT 651, the literature review should be completed and submitted to the Thesis Committee.

June 30th

- Materials and Methods Section

The writing of this section of the thesis can be completed prior to completion of the actual research. At this point, the student should be able to describe his/her methods and have this section approved by his/her committee.

January 15th – Fourth Committee Meeting

The experimental part of the thesis should be well underway at this time and progress should be discussed with the committee. Any final changes in design and implementation should be made at this meeting. The student, in consultation with his/her advisor and the committee, will pick an earliest date for a thesis defense. In order to do this, the student should have essentially completed the research phase by that date and have enough of a data tabulation and rough write-up so that the committee can decide that the investigative phase has come to a reasonable end and that the student may proceed to a final write-up of the results.

February 15th

Data Collection Completed as requirement of DENT 651

May 15th

Fifth Committee Meeting

First draft of the paper to be submitted Completed. At this point all data collection and analyses should be completed and the results should be presented to the committee for preliminary discussion. The first draft of the paper replaces the old results and discussion sections of a traditional thesis document.

Manuscript

The student should meet with his/her thesis advisor to identify the specific journal in which to publish his/her research. The final selection of the journal is up to the advisor. The manuscript should be

prepared according to the journal's "Instructions to Contributors." The resident will be the lead author on all submitted articles, provided that:

1. The manuscript submitted as the Results section of the thesis forms the basis for the publication.

2. The article is submitted for publication within one year from the thesis defense date.

The other members of the thesis committee should be included as secondary authors if they meet the journal's requirements for authorship. The exact order of authors, other than the lead author, is to be determined by the resident in consultation with his/her advisor. Articles submitted after one year from the defense date must acknowledge the resident as an author, but the resident need not be the lead author.

The thesis project is unlike other aspects of the program in that the student is responsible for a good deal of the "learning" that occurs during this part of the program. The guidelines presented here are just that and are not intended to be a blueprint for all projects. In consultation with the advisor, these guidelines will need to be modified to address the specific needs of the project. If at any time the student is uncertain as to what is expected of him/her with regard to the thesis, please contact the department program director.

June 15th - Thesis Defense

Oral defense of thesis, and final written thesis approved by Thesis Committee is required for completion of DENT 651 Spring Semester (Jan 1 to June 30).

Scheduling Your Thesis Defense

In order to allow your classmates and other residents in the department to attend thesis defenses, the defense should be scheduled to start at 12 noon on Wednesday or Friday. Allow a minimum of three hours for your defense. The format will be as follows:

12:00 p.m. - 12:05 Introduction by the thesis advisor

12:05 p.m. - 12:35 Thesis presentation, highlighting the following areas:

a. what you did

b. what you found

c. what it means

12:35 p.m. - 1:00 Questions from other residents attending the defense

1:00 p.m. - 3:00 Questions from faculty, guests and members of the committee

The student's thesis advisor will preside over the defense. A powerpoint presentation, using LCD projector, should be used to facilitate your oral presentation. In order to accommodate the schedules of the committee members, please schedule the defense at least four (4) weeks in advance.

THESIS SPECIFICATIONS

(Department of Orthodontics)

1. The basic thesis specifications for Case Western Reserve University remain intact.

2. A complete manuscript suitable for publication should be included in lieu of the Results and Discussion sections of the thesis.

3. The student and the committee chairperson should select the journal that is most appropriate for publication of the work. Once selected, the student should follow the Instructions for Contributors or Authors submitting to that journal in preparing the manuscript.

4. The student should decide co-authorship of the manuscript after the final defense. As such, the title page for the manuscript should not be included in the final thesis.

5. A bound copy* of the thesis is to be presented to each member of the thesis committee. Three bound copies of the completed thesis are to be made solely for the use in the Orthodontic Department library. These three copies must be on bond paper and contain original pictures. They are to be deposited with the administrative secretary prior to graduation. *The Orthodontic Department will see that the copies are bound free of charge. Binding of personal copies requested by the resident will cost $15 each, payable in advance. In addition, three copies on bond paper must be submitted to the Office of Dental Graduate Studies and a complete electronic copy on CD must be submitted to the Department Administrator.

6. An abstract prepared according to the guidelines (included in this section of the manual) established by the AJO-DO is to be included as an Appendix at the end of the thesis.

CANDIDATES FOR GRADUATION

APPLICATION: All students planning to graduate must file an application for degree in the Office of Graduate Studies not later than two months before the commencement.

IF THE STUDENT CANNOT MAKE THE DEADLINES: The Office of Graduate Studies must be notified so that the student's name may be removed from the graduation list.

REGISTRATION: All thesis students must be registered during the semester in which the degree is awarded. Thesis students must also be registered when they have their final defense, if it is not in the same semester as their graduation.

Master's degree candidates writing a thesis must have completed a minimum of 6 hours of DENT #651 to receive the degree. The minimum number of semester hours of DENT #651 that a student may sign up for is three.

All students should consult their advisors or department program director for course work and other specific requirements within their individual departments.

TIME LIMITATIONS: All the requirements for the Master's degree must be completed within a total period of five consecutive calendar years after matriculation as a graduate student. On rare occasions, an extension may be granted for up to one year by the Assistant Dean for Graduate Studies upon recommendation of the department program director and thesis advisor.

GRADE POINT AVERAGE: Masters must have a cumulative quality-point average of 2.75 in all courses taken for credit for the awarding of the degree.

TRANSFER CREDIT: If part of a student's course work was to be transfer credit from another university, please be sure that a transfer credit form was filled out, signed by the program director and

submitted to the Graduate Studies Office. A maximum of six (6) semester hours is transferable. No hours of thesis are transferable.

ALL STUDENTS WRITING A THESIS: Typing instructions are available in Office of Graduate Studies. After the initial stages of typing, students should bring in a good sampling of their typing format to be checked for form in Office of Graduate Studies. If possible, this sample should include preliminary pages, basic text and anything unusual that is included in the thesis (graphs, photos, charts, etc.). If the initial typing check involves only a very small part of the thesis, the student should bring in a more complete copy when it is available. When the student has his/her typing checked, the forms needed for the final oral defense will be given out.

DELAYED GRADUATION: If a student fails to meet the deadlines for graduation in the calendar, he/she will be allowed a period of grace of one month from the date of the commencement for which he applied to complete all requirements without registration or other special fees. If the requirements, including the final oral examination, are not met within this period of grace, the student must register for the minimum required number of semester hours of DENT #651 for the semester. The degree would be awarded at the next graduation.

To be eligible for the grace period, a student must have applied for graduation by the given deadline date and have registered for the minimum required number of hours of DENT#651 in that semester.

If a student has not fulfilled any of the above requirements, he/she must consult with department program director as soon as possible.

For further clarification of rules, consult the General Bulletin or contact the Office of Dental Graduate Studies.

Master's Degree Candidates schedule their oral exams or comprehensives through their individual departments and Office of Dental Graduate Studies.

PREVIOUS MASTER'S THESES

CWRU SCHOOL OF DENTAL MEDICINE

DEPARTMENT OF ORTHODONTICS

1961

Rogers, Russell
A serial cephalometric radiographic study of certain dimensions of the mandible and their relationship to Class II malocclusion.

Vego, Leroy
A longitudinal study of mandibular arch perimeter with and without lower third molar teeth in young adults.

Warren, Leonard
Longitudinal study of the position of the hyoid in different malocclusions.

1962

Aaronson, Sanford
A cephalometric investigation of the hard and soft tissue changes associated with the sub-condylar osteotomy surgical correction of mandibular prognathism.

Hamman, James
A cephalometric roentgenographic study of changes in incisor angulation accompanying removal of full banded orthodontic appliances.

Slodov, Ike
The effects of banding and various methods of leveling on dental arch length and incisor inclination.

1963

Baxt, Morton
A study of the reliability of measurements obtained from radiographs produced by the Updegrave technique of temporomandibular joint radiography.

Behner, Harvey
A serial cephalometric study of the long axes of the mandibular bicuspid teeth of children from eight to eleven years of age.

Brady, Robert
A longitudinal study of skeletal and dental maturation in subjects with various types of dental occlusion.

1964

Benson, Al
The reliability of repositioning living human subjects for serial temporomandibular joint roentgenography using the Updegrave and a modified Updegrave technique.

Bulchak, Russell
Apical root resorption after orthodontic therapy: a qualitative roentgenographic comparison of the edgewise and the Begg light wire techniques.

Fisher, William
A study of methods establishing a mid sagittal plane in posteroanterior cephalograms.

1965

Datwyler, Darwin Reed
A study of some relationships between mandibular prognathism and somatype.

Goodrich, Glenn
The effect of intermaxillary elastic forces on the temporomandibular articulation.

Randle, Richard Earl
Glucose clearance in the oral cavity before and during orthodontic treatment.

1966

Altiere, James Nick, Jr.
Panoramic radiography in orthodontics using a special cephalostat.

Dietrich, Carl Philip, Jr.
The changes in angulation of the palatal, mandibular and occlusal planes accompanying and following Begg orthodontic treatment.

Winters, Allen Harvey
A comparison of the mechanical effectiveness of manual and electric toothbrushes on fully banded orthodontic patients.

1967

Gattozzi, Ralph S.
Quantitative analysis of the orthopantomograph.

Mittler, William A.
A cephalometric evaluation of anterior overbite reduction with the Begg technique.

Valentine, Richard E.
Skeletal maturation and mandibular growth rate in patients with Class II skeletal discrepancies.

1968

Fanno, James T.
Analysis of the dentitions of an Ohio Pre-Colombian Indian population.

Sabat, Michael R.
An evaluation of a mid-sagittal cephalometric plane for clinical use.

Sheridan, Allan
A quantitative analysis of the Panorex unit using a special cephalostat.

1969

Penman, Richard Allen
A cephalometric appraisal of serial extraction.

Starr, David Donald
Retraction of the mandibular six anterior teeth en masse.

Wenger, Terry Lee
A cephalometric appraisal of the significance of the inter-incisal angle and method of retention in the maintenance of overbite correction.

1970

Bekeny, Andrew Richard
The effects of the rubber tooth positioner on the gingiva of orthodontic patients during retention.

DiGiulio, John Henry
Quantitative measurements from panoramic radiographs.

Peruzzi, Robert A.
The effects of Tweed treatment on various facial patterns.

1971

Ballrick, James
A statistical validation of cephalometric prediction.

Daprano, Angelo Anthony
Canine retraction in healed and recent extraction sites.

Giegerich, Thomas
Intermaxillary tooth mass discrepancy: its incidence and effects on the treated case.

Pelle, Joseph
Inheritance of craniofacial growth in like-sexed siblings.

Ridzon, James R.
A statistical evaluation of moderate dental arch expansion to non-extraction orthodontic therapy.

1972

Boester, Charles Henry
An investigation of the concepts of differential and optimal force in the canine retraction.

Greenberg, Larry Zale
Computerized growth prediction: a statistical evaluation of the Ricketts Synthesis.

Hirschfield, Robert Edward
An evaluation of the effects of various fluoride pretreatment procedures prior to orthodontic banding in increasing the resistance of human enamel to decalcification.

Horii, Michael Jordan
The effect of supra-alveolar fiber transection on the rate of cuspid retraction.

Persky, Sheldon Lawrence
An evaluation of the dento-skeletal changes occurring during scoliosis therapywith a modified Milwaukee brace.

1973

Beeson, Dennis Charles
The effects of electric currents on orthodontic movement, In Vivo.

Brodkowitz, Daniel Irwin
The outcome of orthodontic treatment as a function of craniofacial architecture: a cephalometric investigation of the Begg technique.

Gange, Robert Joseph
The septopremaxillary ligament and nasomaxillary growth in the albino rat.

Nagel, Norman John
A materials evaluation of ten direct bonding systems utilizing polycarbonate brackets.

Tanaka, Marvin Mitsuo
A contemporary validation of the mixed dentition analysis: estimating the size of unerupted cuspids and bicuspids.

1974

Belhobek, Joseph Hubbard
The effect of unilateral progressive condylar compression on mandibular growth.

Ford, Jeffrey Martin
A cephalometric investigation of human craniofacial growth as characterized by a computerized growth equation.

Fuller, David Stewart
An investigation of mandibular condylar growth following condylotomy in the guinea pig.

Neumann, Henry Frederick
A clinical evaluation of decalcification under orthodontic bands following pretreatment with acidulated-phosphate fluorides and adhesive plastic coatings.

Schmohl, Louis William, III
Orthodontic direct bonding systems: In Vivo vs. In Vitro joint strength comparisons.

1975

Behrents, Rolf Gordon - Milo Hellman Award
The influence of the trigeminal nerve on facial growth and development.

Berkowitz, Jackie
The radiographic anatomy of the craniofacial complexes of the rat, guinea pig and rabbit.

Bernabei, Raymond Lee - Harry Sicher Award
A cephalometric investigation of the growth, in situ, of "isolated" mandibular condyles in adult rats following the administration of bovine growth hormone.

Kossoff, Howard Eliot
An evaluation of the accuracy of the Johnston grid in cephalometric growth prediction.

Rhodes, David Alan
Electron microprobe analysis of in vivo exposure of acid-etched enamel.

1976

Bernard, Dennis Orrin
Predetermination of the time of the facial growth spurt utilizing the cervical vertebrae.

Brigham, Gary Paul - Harry Sicher Award
An investigation of antigenic differences among condylar, epiphyseal, and nasal septal cartilages.

Duchon, Stuart Lee
A cephalometric investigation of the soft-tissue profile.

Fink, Ronald Dale
Validation of the contemporary techniques for the prediction of lower third molar impaction.

Paulus, William David
The effect of maternal ethanol inhalation during pregnancy on the craniofacial development of the A/J mouse.

1977

Mayers, Colin Arthur
Asymmetry of the maxillary and mandibular dentition with respect to the palatine raphe.

Klar, Lawrence Alan
An evaluation of the occlusion on post-orthodontic patients.

Bates, Lyn Vandevere
An evaluation of current orthodontic bonding materials and a comparison of the direct and indirect techniques.

Kabinoff, Howard Louis
A comparative evaluation of xeroradiography for its use in orthodontics.

Palmer, Nick Stephen - Harry Sicher Award
In vivo and in vitro studies of anti-cartilage antibodies.

1978

Carmen, Ronald Bruce
A study of mandibular anterior crowding in untreated cases and its predictability.

Cotler, Stuart B.
The functional maturation of the cervical vertebrae.

Opalka, Theodore F., Jr.
Correlation of mandibular skeletal development with anchorage preparation: A cephalometric investigation of Tweed, Begg and a modified non-anchorage edgewise technique.

Gift, Richard E.
The effect of periodontal membrane denervation on orthodontic tooth movement.

Weil, Jeffrey Scott
A comparative study of psycho-sociological factors associated with orthodontic treatment.

1979

Kozar, David Joseph
The effect of chronic maternal marihuana inhalation on craniofacial growth and development of rat offspring.

Dolatowski, Kenneth Paul
A study of the prenatal growth of the human anencephalic craniofacial skeleton

Pooler, Neil Linn
Effects of nitrous oxide inhalation by pregnant mice upon the craniofacial development of their offspring.

Riegel, Ned Irvin
Effect of continuous magnetic radiation upon incisor eruption rate in vivo.

Horvath, Ladd Michael
Intrinsic craniofacial compensation affects in normal development.

1980

Griffith, Richard J.
Microcomputers in orthodontics.

Gustovich, Donald D.
Psychological implications of orthodontic treatment as related to job attainment.

Koenig, William J.
The skeletal nasal airway: a correlative study.

Trouten, James C.
Analysis of skeletal open bite utilizing the counterpart analysis.

1981

Hans, Mark G.
The effects of anti-nasal septal cartilage antibodies on midfacial growth and development

Popovic, Luka
Transverse growth changes in the rabbit maxilla utilizing vestibular shields.

Scotese, Terry Charles
Transverse maxillary restraint in growing rabbits and compensatory growth changes.

Tsolakis, Apostolos
Effects of distal mandibular traction in the rabbit: A cephalometric, histologic and electro-myographic study.

Young, Donald
A cephalometric analysis of myoskeletal relationships.

1982

Bujack, Elizabeth S.
Comparative evaluation of the craniofacial anatomy of the bottlenose dolphin (Tursiops truncatus).

DiPalma, Dennis M.
A morphometric study of orthopedic and functional therapy for the hyperdivergent skeletal pattern.

Kapley, Kenneth
A study of factors relating to mandibular anterior crowding in orthodontically untreated individuals.

Roth, Thomas Evan
Synovial fluid pressure determination in the temporomandibular joint.

White, John Craig
A study of craniofacial asymmetry.

1983

Benson, Jeffrey
The effects of clyclic 3'5' adenosine monophosphate and cyclic 3'5' guanosine monophosphate upon sutural expansion by an orthopedic force.

Pfister, Charles
An analysis of the true skeletal Class III utilizing counterpart analysis.

Ward, Dennis
Changes in synovial fluid pressure due to altered mandibular positions.

Weiss, Ira
The measurement of changes in oxygen concentration, redox potential, pH, and temperature in the periodontal membrane during force application.

Whitney, David
A longitudinal and morphometric analysis of the Class II individual.

Choi, Yeong Chul
A serial headfilm evaluation of the adenoid relationships during facial growth.

Nah, Hyun-Duck
The influence of axonal transport on facial musculature in the growing rat.

1984

Canepa, Charles P.
Histopathologic adaptations to functional forces in the human temporomandibular joint meniscus.

Katsavrias, Elias G.
Effects of experimental alteration of nasal function on craniofacial growth in the guinea pig.

Ornella, Eric M.
Ramal remodeling in the pig as affected by continuous posterior traction and functional hyperpropulsion of the mandible.

Pinkard, Jacques Scott
The effects of electric current on condylar cartilage and bone growth.

Wu, Chou Bing
A morphometric approach to Class II treatment.

1985

Aksharanugraha, Korntip
The effect of stretching on hamster cheek pouch muscle.

Cavalancia, Jeffrey
The relationship of forceful chewing and palatal form in the vervet monkey (Cercopithecus aethiops).

Chen, Fuang-Ling
Cellular response to tension in buccal epithelium.

Krause, Charles Andrew
A morphometric evaluation of congenital clefts of the lip and palate.

Radulovich, Brian Peter
The effect of tension and pressure on PGE_2 and cAMP concentrations in the midsagittal suture of the rat.

Urias, Dayse
A longitudinal study of facial growth in using the counterpart analysis.

1986

Collins, Jeffrey Lee
The effects of mechanical stress upon the content of Leukotriene B_4, C_4 and prostaglandin E_2 in the midsagittal suture of the rat.

DiGangi, Darlene M.
A morphometric study of Herbst appliance treatment.

Lewicki, David Alan
The influence of dentofacial schema complexity of assessing facial attractiveness and benefit of orthodontic treatment.

Moron, Denise
Effects of mandibular advancement on the histochemical characteristics of the lateral pterygoid muscle in young rats.

1987

Kim, Michael T.
A comparison of different histochemical techniques to trace bone mineral deposition.

Kishiyama, Craig A.
An evaluation of response to orthodontic treatment of deep overtie in Eury-, Meso- and Leptoprosopic individuals.

Petrone, Joseph JF.A.
The effects of bite plane therapy on mandibular growth: A catastrophe averted.

Shiao, Michael S.
The effect of Piriprost and Indomethacin on pressure induced calvarial remodeling along midsagittal suture of the rat.

Triantafyllou, Ioannis E.
Craniofacial growth increments after hand-wrist skeletal adulthood.

Yuksel, Derya U.
A longitudinal study on the effects of serial extraction using the counterpart analysis.

1988

Brightman, Laurie J.
The effects of chlorhexidine gluconate on orthodontic patients aged eleven through seventeen with established gingivitis.

Cheng, Man-Ching
Evaluation of craniofacial morphology and occlusion in patients with nasal obstruction.

DeCoster, Thierry M.
Experimental transplantations of cranial and facial sutural articulations: A histological assessment.

Goodrich, Glenn
The effect of whole-body irradiation on osteoclasts during orthodontic tooth movement in the rat.

Parker, Stephan H.
Cephalometric evaluation of response to orthodontic treatment of deep overbite with cervical pull facebow headgear in Eury-, Meso-, and Leptoprosopic individuals.

Udomsiri-Visetsiri, Isaravadee

Magnetic resonance imaging and functional analyses of masticatory biomechanics.

1989

Mussa-Contreras, Roxana
The effect of continuous passive motion in the regeneration of full-thickness articular cartilage defects on the condyle of the TMJ in adult guinea pigs: A pilot study.

Kmentt, Bradley
Designed failure of orthodontic adhesives.

Schratz, Walter W.
Basicranial asymmetry and morphological effects on the condyle and ramus.

Shiau, Jing-Yi
Evaluation of double-sealant indirect bonding technique: Bond strength, fracture site, marginal defects and surface treatment.

Slodov, Andrew
Antigenic determinants of cartilage in the Sprague-Dawley rat.

Thimaporn, Jariya
Effects of unilateral premature fusion of the zygomaxillary suture on the growth of nasomaxillary complex: A histological assessment.

1990

Chaques-Asensi, Jose
Effects of surgical periostomy in animals undergoing experimental mandibular protrusion.

Johnson, Matthew S.
Aesthetic orthodontic arch wires: A quest for materials and a pre-clinical mechanical properties testing protocol.

Martone, Valerie D.
A morphometric study of the Class III pattern related to headform.

Lustman-Rozencweig, Sophie
A comprehensive behavioral management method for adolescent orthodontic patients: An experimental study

Rozencweig, Georges
Diagnosis of temporomandibular joint internal derangement: A comparison between axiography and magnetic resonance imaging.

Souris, George A.
Third molar eruption prediction.

1991

Kruse, Daniel A.
A comparison of dentofacial and temporomandibular joint morphology in children and adolescents.

Moron, Wulfran Benitez (Jr.)
Clinical evaluation of aesthetic arch wires.

Taylor, Michael M.
A Method of Evaluation for the Pharyngeal Tissues and Associated Structures.

Tseng, Chen-Wen
An Assessment of the Relationships Among Dietary Consistency, Bite Force and Palatal Morphology in Growing Monkeys.

Tsolakis, Konstantinos I.
Growth and development following experimental restriction of transverse maxillary growth of the rat.

Writer, Martin C.
Esthetics and orthodontics: The fabrication and testing of a synthetic aesthetic orthodontic archwire.

1992

Dietrich, Carl P., III
Vertical Correction of Open Bite Malocclusions: Fabrication and Testing of a New Orthodontic Appliance.

Nguyen, Hung Tuan,
An Antisera Altering Rat Mid-Facial Development Reacts with Cartilage Proteoglycan and Other Matrix Proteins.

Price, Mark A.
Dental Development in Low-Birth Weight Children.

Tamiolaki, Angeliki
Teenage Patient Cooperation in Private Orthodontic Practice Utilizing Videotape Instruction.

Wright, Douglas F.
Laser Etching of Enamel Surfaces, Bond Strength and SEM Evaluation

Zammit, Mark P.
The Epidemiology of Malocclusion and the Need for Orthodontic Care in Northern Labrador Inuit Youth.

1993

Alvetro-Rossman, Lisa
The Effect of Mid Palatal Suture Separation on Craniofacial Morphogenesis

Chun, Martha
Transverse Changes in the Adult Craniofacial Complex

Hamman, Frances
A Longitudinal Study of the Mature Human Dentition - A Pilot Study

O'Callaghan, Sean
Spatial Resolution of Cephalometric Radiographs

Pracharktam, Nonglak
Cephalometric Assessment in Obstructive Sleep Apnea

Spillas, Gus
The Relevance of Factor Analysis in the Reduction of Cephalometric Data

1994

Brightman, Brenda Bonnie
Recognition of Malocclusion: An Education Outcome Assessment

Cain, David Alan
Histological Analysis of Rebound Growth in The Rat Maxillary Alveolar Complex

Di Battista, Luigi E.
Electrical Stimulation of the Masseter Muscle

Diels, Roger M.
Changes in Soft Tissue Profile in African Americans Males and Females with Class I Bimaxillary Protrusion Following Orthodontic Treatment

Lange, D. William
Soft Tissue Profile Changes in Patients with Class II, Div. 1 Malocclusions Treated with the Bionator Appliance

Pence, Timothy J.
The Effects of Anti-Link Protein on Rat Midfacial Growth and Development

1995

Damon, Clay
Cephalometric Evaluation of Orthodontic Treatment of Excessive Overbite

Dhingra, Seema
Assessment of Orthodontic Treatment Need Using a Cephalometric Index

Holman, J. Kevin
An Assessment of Extraction vs. Non-Extraction Orthodontic Treatment Using The PAR (Peer Assessment Rating) Index

Schmahl, Sharon
An Evaluation of Long-Term Occlusal Stability Following Combined Orthodontic and Orthognathic Surgical Treatment.

Shaheen, Bassam
Identification of Unique Extracellular Proteins in Rat Nasal Septum, Condylar, and Synchondrosal Cartilage.

1996

Baek, Seung-Jin
Correlating Cephalometric and Anthropometric Measurements with Physiologic Measurements of Sleep

Bazzucchi, Andrea
Use of the Active Vertical Corrector in Non-extraction Treatment of Open Bite Malocclusion

Bozek, John P.
Validation of a Cephalometric Index for Orthodontic Treatment Need

Harmon, David, Jr.
The Effects of an Ultrasonic Toothbrush on Orthodontic Patients Aged 11 Through 17.

Najem, Wade J. II
The Correlation of Craniofacial Form Between Siblings

1997

Luks, Virginia G.
Dental Device Treatment for O.S.A.S.: Craniofacial Change Relative to Sleep Quality

Palomo, Juan Martin
A Three Dimensional Study of the Craniofacial Growth and Development of Sixteen Female Bolton Faces

Red, Clarence J., III
The Effect of Operator Experience on Orthodontic Outcome

Signorino, Jamie
The Use of Anti-sialogogues in Bonding Procedures

Wu, Hsin-Hsin
The Effects of Rapid Expansion on Arch Asymmetry in Children

1998

Armogan, Vidya
Assessing treatment need in 10th grade students in Cuyahoga County, Ohio.

Katzan, Charissa
Outcome Assessment of 1-phase and 2-phase orthodontic treatment

Kulnis, Randall
Cephalometric assessment of snoring and non-snoring children

Le, Nhat Minh
Utilization of orthodontic services and outcome of treatment in Cuyahoga County, Ohio

Wenger, Ryan
Evaluation of protraction facemask therapy using Procrustes analysis and traditional cephalometrics.

1999

Eckhardt, Jonathan J.
Characterization of orthodontic treatment provided by general dentists in Ohio.

Feghali, Roland
Comparing intraoral clinical observation with study model assessment of occlusion using the P.A.R. Index

Nguyen, William D.
Pretreatment occlusal characteristics of orthodontic patients vis-à-vis provider education using the peer assessment rating and the index of orthodontic treatment need.

Park, Soon-Jung
Genetic study of craniofacial traits in rats.

Valiathan, Manish
The use of cephalometrics in orthognathic surgical cases.

2001 (no class of 2000 due to program change)

James R. Galati
Segregation of Rat Craniofacial Phenothypic Traits in Brown-Norway/Sprague-Dawley Cross.

Jedidiah Gass
Heritability of Maxillary Midline Diastema

Donald W. Hunt, Jr.
Three-dimensional Analysis of Size and Shape Changes Through Growth in Class II, Individuals

Sally S. Park
The Use of Practice Management Software Programs in EpidemiologicalResearch.

2002

Yumi Abei
Outcome Assessment of Orthodontic Treatment Provided by Orthodontic Specialists and Non-orthodontists

Rachel Hamilton
Efficacy of Early Treatment Using the Index of Complexity, Outcome and Need

Alexandros Moullas
Craniofacial Phenotypic variations Among Laboratory Rat Strains

2003

Laurence A. Golden
Generation of Recombinant Human Beta Defensin 3 and its Microbicidal Activity

Gordon S. Groisser
Analysis of Vertical Changes in Patients Treated With First Molar Extractions

Nawaf A. Masri
The Change of the Lower Incisor During Orthodontic Treatment

Mandana Mozayeni-Azar
Post Treatment Evaluation of Protraction Face Mask Therapy Using Traditional Cephalometrics

2004

Sean P. Bates
Non-Destructive Determination of the Correlation of Skull Radiodensity to Stiffness and Strength in a Fresh-Frozen Cadaver

Lance Q. Bruntz
A Comparison of Scanned Lateral Cephalograms to Corresponding Original Radiographs

David M. Lenhart
Craniofacial Phenotypic Variation Between Two Laboratory Mouse Strains, the A/J and B6

Christopher J. Spoonhower
Familial Aggregation of Congenital Hypodontia

2005

Justin Pagan
Evaluation of Cephalometric Changes in Class II versus Class III individuals

Mohammad R. Razavi
Tooth-Size Discrepancies and Agenesis of Teeth; a Familial Study

Victoria M. Wan
Comparing Bionator and Twin Block Treatment of Class II Malocclusion.

Tasha Woodson Bolden
African American Orthodontists: How they choose to practice.

2006

Jed C. Hildebrand
Evaluation of Digital Dental Casts Using the ABO Objective Grading System.

Clifford J. Lowdenback
Predicting Orthodontic Treatment Duration Using Pretreatment Patient Variables

Nadia Lyotard
Evaluation of Short Term Stability Without Retention: A Pilot Study

Michael W. Paulus
An Evaluation of Dental Arch Relationships Among Children With Unilateral Cleft Lip and Palate Treated at Two Different Centers

2007

Gabrielle Chan
Linear and Angular Measurements from Plain Film Cephalometry, 3DCeph, and CBCT

Sebastian Baumgaertel
The Reliability and Accuracy of Dental Arch Measurements on Three-dimensional Cone Beam Computed Tomography Scans.

Alika Crew
A Study of Orthodontic Stability Following Hawley Retainer Use

Jeffrey Kwong
Image Quality Produced by Different Cone Beam Computer Tomography Settings

Reid Wenger
Predicting Short and Long Active Orthodontic Treatment Duration Using Pre-treatment Variables

2008

John Ballrick
Image Distortion and Spatial Resolution of a Commercially Available CBCT

Eric Hughes
A study of the Most Common Retention Protocols and Appliances Among Orthodontists in the United States.

Boyd Martin
Root Morphology, Surface Area, Root Resorption CBCT

Austin Phoenix
Changes in hyoid bone position following rapid palatal expansion in adolescents

2009

Kurtis Kacer
Self-Reported Retainer Wear Status

Cynthia Leung
Accuracy and Reliability of Cone Beam Computed Tomography for Measurement of Alveolar Bone Height and Detection of Bony Dehiscences and Fenestrations

Breyn Peters-Schuster
A 3D Airway assessment of 12-13 year old subjects

Wanvadee Shewinvanakitkul
A New Method to Measure Buccolingual Inclination Using CBCT

2010

Lisa Austin
A Study of the Orthodontic Retention Preferences of General Dentists in the US

Nikolaos Evangelinakis
Changes in Buccolingual Inclination of mandibular Canines and First Molars After orthodontic Treatment Using CBCT

David J. Sullivan
Longitudinal Airway Changes in Adolescents Using CBCT

Monica Velez
Surface Area and Root Length Changes on Maxillary Incisors After Orthodontic Treatment

Xing Zhong (John) Zhang
Skeletal Effects of Bonded Rapid Maxillary Expander Followed by Fixed Appliance and Class III Elastics on Skeletal Patients with Permanent Dentition

2011

Eleftheria Karamitsou
Pretreatment Buccolingual Inclination of Maxillary Canines and First Molars

Robert Park
Force/deflection properties of new and retrieved .014" and .016" NiTi wires.

Brent Paulus
Alveolar Bone Thickness after Orthodontic Treatment with and without Rapid Maxillary Expansion

Lindsey Schilling
A Comparison of Crown and Root Position of the Mandibular Incisors Before and After Orthodontic Treatment using Cone Beam Computed Tomography

Randa Zarka
Alveolar bone thickness of the maxillary first molar roots before and after orthodontic expansion

2012

Jesse Carmen
Evaluation of the Bone Thickness Surrounding the Mandibular Incisors Before and After Orthodontic

Aparna Chitharanjan
Changes in the Volume of bone in the Maxilla after Comprehensive OrthodonticTreatment with and without Rapid Maxillary Expansion

Michael Miyamoto
Changes in Buccolingual Inclination of Maxillary Canines and First Molars After Orthodontic Treatment

Rongnin (Grace) Wu
Anatomically Based Cranial Landmarks for Three Dimensional Superimposition

2013

Cyrine Cachecho
A Three-Dimensional Evaluation of Class II Subdivision Malocclusion Correction

Garrison Copeland
Case Western Reserve University Transverse Analysis – Clinical Application

Heather Horton
A Method to Compare Relative CBCT Density in the Mandible

Lyndsey McCaskey
Changes in Buccolingual Inclination of Maxillary Canines and Mandibular First Molars after Orthodontic Therapy in Class II Patients Treated with Intermaxillary Elastics.

Laura Streit
CWRU'S Transverse Analysis - Developing Norms

2014

Raweya Yehya Mostafa
Posttreatment Evaluation Through the CWRU's Transverse Analysis and the ABO's Objective Grading System

Celia Fenell
The Reliability and Accuracy of CBCT in Measuring Diameter of Unerupted Teeth

Andrea Font Rytzner
The Envelopes of Error, Reliability and Stability of Nasomaxillary Landmarks to Isolate Treatment Effects in 3-Dimensions

Sara W. Taher
A 3D Analysis of Class III Correction with Fixed Appliances

Fariha Samad
Three-Dimensional Mandibular Regional Superimposition: An Evaluation of the Mental and Mandibular Foramina as Natural Reference Structures

2015

Alexander Apple.
Image Distortion, Spatial Resolution and Segmentation Capabilities of the i-Cat FLX Cone-Beam Computed Tomography Machine

Adriano Farina.
The Relationship Between the Hyoid Bone and the Upper Airway.

Corey Jones.
Does Menopause Affect Cytokine Response to Orthodontic Therapy?

Lucas McGuire.
Association Between Alveolar Bone Width and Post-Orthodontic Tooth Movement.

Sorapan Smuthkochorn.
Differences in Bone Turnover Markers in Pre and Post-Menopausal Women Receiving Orthodontic Treatment.

2016

Mohamed Bazina.
Accuracy and Reliability of Dolphin 3D Voxel Based Superimposition.

Nicholas Kochenour.
Agreement of Orthodontic Diagnosis and Treatment Planning with and without plaster study models.

Keith Payton.
Synthesis and testing of a Novel Fluoride-Releasing Bracket Coating

Prapaporn Shantavasinkul.
Surface Strain Distribution on Orthodontic Mini-Implants under Load.

Ioannis Tsolakis.
When Static meets Dynamic: Comparing CBCT and Acoustic Reflection for Upper Airway Analysis.