



DENTED SITE VISIT

20TH – 24TH MAY 2000

**UNIVERSITY OF OSLO
FACULTY OF DENTISTRY
OSLO
NORWAY**



OSLO MAY 20th - 24TH 2000

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Section 1 – Introduction and General Description

1.1 Preliminary Information

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1.2 The University of Oslo and The Faculty of Dentistry

Head of department Sverre Gundersen e-mail: sverreg@odont.uio.no

The Faculty of Dentistry is one of eight faculties at The University of Oslo. The other seven faculties are The Faculty of Theology, The Faculty of Law, The Faculty of Medicine, The Faculty of Arts, The Faculty of Mathematics and Natural Sciences, The Faculty of Social Sciences and The Faculty of Education. In addition there are a number of centers.

The University of Oslo was founded by King Frederik VI of Denmark/Norway in 1811. Up until 1939 it held the name Det Kongelige Frederiks Universitet (King Frederik`s University), at what time it changed its name to Universitetet i Oslo (The University of Oslo). The original faculties were theology, law, medicine and philosophy. The dental school came into being in 1928, not as a part of the university, but as an independent school of dentistry (College) directly under the supervision of the central authorities (see next chapter). It stayed this way until 1959 when it became a faculty at The University of Oslo. In the meantime, The Faculty of Philosophy had divided into a faculty of arts and a faculty of mathematics and natural sciences. Hence, The Faculty of Dentistry is the sixth faculty of The University of Oslo. Later, in the 1960`s, a faculty of social sciences was established. Latest newcomer is The Faculty of Education, a branch-out of The Faculty of Social Sciences in 1996.

Today, The Faculty of Dentistry has two departments, The Department of Oral Biology and The Institute of Clinical Dentistry. We educate undergraduate students in dentistry and dental hygiene, postgraduate students in dentistry (up to the degree of Dr. Odont) and specialists in various fields of dentistry. Along with the faculties of theology, law and medicine, we produce candidates designated for specific professional careers, in our case health professionals. This differs from the other faculties, with the exception of The Department of Psychology under The Faculty of Social Sciences, whose candidates may go into a number of different careers.

The University of Oslo has recently begun to look at its present organization and we may over the course of the next five years see plans for yet a new organizational structure for the institution as a whole. There may come a proposal for establishing a faculty of health, bringing together medicine, dentistry and possibly also psychology. There has also been talk of reorganizing the professional faculties into schools and still other models may be brought into question as this work progresses.

1.3 The Faculty of Dentistry - Background

Dean Professor Hans R.Haanæs e-mail:hhaanas@odont.uio.no

Vice Dean Professor Arild Stenvik e-mail:stenvik@odont.uio.no

The "School of Dentistry" was established in 1883 in Oslo as an independent unit and continued as independent until 1959 except for a couple of years during World War II when the dental school temporary became a part of The University of Oslo as a faculty. The localities were rather primitive the first years, but from 1909 "Statens Tannlægeinstitut" (National Dental School) was established with better facilities and improvement of the curriculum. In 1928 a new four-storeyed building, 720 sqm. on each floor, was inaugurated. The planning was done in 1924/25 and 3 years later 50 students started their education due to great will, effort and economical funding through the Norwegian Dental Association. The study period increased from 3 to 4 years in 1938, in 1966 to 5 years. In 1959 the School of Dentistry was incorporated into The University of Oslo and became The Faculty of Dentistry with a Dean as the leader instead of a Rector.

A revised curriculum was implemented in 1983. Some adjustments had been done during the years, but it was necessary to include social sciences, verticalisation throughout the study and early contact with patients. Unfortunately, for various reasons the integrated treatment principle and emphasis on holistic patient care, combined with some learning experience in Community Dentistry, was not possible to include in the curriculum in 1983.

The problem-based learning started in 1996 in cooperation with The Faculty of Medicine and the new curriculum was named OSLO '96. This was in fact the first really big change in the dental curriculum. From then both the medical and dental students start jointly twice annually. After almost 2 years they separate into clinical medicine and dentistry. Thus, the students who started in 1996 have one more year to go before their final exam in spring 2001.

In 1966 The Faculty of Dentistry got their own preclinical building at the University Campus at Blindern. This was an important step forward. Biological sciences were almost immediately strengthened and postgraduate education became better coordinated and expanded both in quality and number of subjects. In August 1999 all the biological sciences (Department of Oral biology, IOB) moved from Blindern Campus to Gaustad in a new, modern building named PKIII (Preclinical III) close to the already existing preclinical medical faculty buildings PKI and PKII with the new Rikshospitalets (National Hospital) building as next-door neighbour.

As far back as in 1924 the Department of Pedodontics was established. Here in Oslo we are a bit proud of having had the second first professor in pediatric dentistry in Europe (1929). As far back as 1924 the Department of Pedodontics was established. In 1972 we appointed our first professor in Community Dentistry and in 1992 in Gerodontology. Additionally we feel that our late professor Jens Wærhaug was one of the great pioneers within modern periodontology.

The city of Oslo has about 450.000 inhabitants, among them about 40.000 immigrants from countries outside Europe. The Oslo area with suburbs has about 1 million people. Oslo is the capital in Norway and the largest city. Small is beautiful: Norway has only 4.5 mill. people. The University of Oslo, one of 4 main Universities in Norway, has around 32.000 students and 8 faculties. Besides in Oslo there is a Faculty of Dentistry at The University of Bergen. For the time being 65 dental students in Oslo and 48 students in Bergen start every year. In spite of better dental health it is thought necessary temporarily to increase the number of students with about 30 every year, probably for a 10-15 year period. This is caused by a rather high number of colleagues who started their education in the period 1950-1965 both in Norway and abroad, and they are now reaching the age of retirement. There is an ongoing political debate on establishing a new dental education in Tromsø in addition to the faculties in Oslo and Bergen. Both in Bergen and Oslo we have a hard time recruiting new teachers in scientific positions, especially in the clinics, to replace scientific staff reaching the age of retirement. In addition to the recruitment problem, both Oslo and Bergen consider the need to increase the number of students a temporary problem, and accordingly we do not support the establishing of a brand new expensive dental education in Tromsø.

In Norway, as in other Scandinavian countries, the oral health has improved dramatically during the last 3 decades. A significant decline in dental caries, better oral hygiene with more effective periodontal treatment has resulted in older patients keeping their own teeth. Elderly people in need of complex technological restorations and increased risk of root caries combined with the fact that the mean living age has increased, call for a new concept of more sophisticated professional help, professional ethics and better knowledge about the importance of behavioural and social factors. In the OSLO '96 curriculum we have at least tried to take this new development into consideration. The oral cavity with its surroundings is an important part of the body and should be recognised accordingly by the National Health System seriously. The holistic approach to patient care, the life-long learning principle, the aim to educate colleagues for the future with more critical, but openminded, views are all important aspects addressed in the new curriculum. In addition to the clinical training and education of undergraduate students the Faculty have a 2 year program for the training of dental hygienists, 20 each year. The curriculum may be extended to 3 years in the near future. Furthermore we have about 45 postgraduate students in 3 –5 years programs in various clinical disciplines. The last 10 years a faculty member (professor Harald Eriksen) has acted as "study rector" to structure, harmonise and manage these postgraduate programs. For the time being we are discussing with the Ministry of Social Care and Health to get more economic support for this activity, and also to obtain better financing for the postgraduate students themselves. The University has up to now taken upon it self the responsibility for the education of specialists serving the community without specific funding.

1.4 List names of persons who act as visitors on site visits to other schools.

a) Name: Professor **Arild Stenvik**
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 Languages: English

1.5. Basic data on students

- a) Average number of dental students qualifying per year: **55**
- b) Average number of dental students admitted to the first year: **65**
- c) length of course in years: **5 years**
- d) Is there a separate period of vocational training following graduation as a dentist in your country? **NO**
- e) If yes to d) above, is that organised by the University/Dental School? **YES/NO**

1.6. List the departments in the school and the total number of whole time equivalent clinical academic staff

WTE academic staff

1 Department of oral biology	(9 professors, 8 associate professors, 2 adjunct professors)
2 Institute of Clinical Dentistry	(34 professors, 10.5 associate professors, 1 university lecturer, 5 adjunct professors)
(For departments under the institute – see section 4.2)	

1.7 Number of auxiliaries trained each year

	Annual Output	Length of course (years)
a) dental nurses*		
b) technicians*		
c) hygienists	22 (average)	2
d) dental therapists*		
e) other expanded duty auxiliaries*		

* These groups are educated in the secondary school system or in independent colleges

1.8 Specialist and Higher degree training courses

Subject/Speciality:	Oral Surgery
Degree awarded:	Clinical speciality
Length of course:	5 yrs.
Annual output:	1 per year
Subject/Speciality:	Oral Surgery
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Orthodontics
Degree awarded:	Clinical speciality
Length of course:	3 yrs.
Annual output:	8 per every 3 years
Subject/Speciality:	Orthodontics
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-2 per year
Subject/Speciality:	Periodontics
Degree awarded:	Clinical speciality
Length of course:	3 yrs.
Annual output:	2 per year
Subject/Speciality:	Periodontics
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Pedodontics
Degree awarded:	Clinical speciality
Length of course:	3 yrs.
Annual output:	1 per year
Subject/Speciality:	Pedodontics
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Prosthodontics
Degree awarded:	Clinical speciality
Length of course:	3 yrs.
Annual output:	4 per every 2 years
Subject/Speciality:	Prosthodontics
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year

Subject/Speciality:	Endodontics
Degree awarded:	Clinical speciality
Length of course:	3 yrs. full-time
Annual output:	2 per year
Subject/Speciality:	Endodontics
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Radiology
Degree awarded:	Clinical speciality
Length of course:	3 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Radiology
Degree awarded:	Master of Science (Dentistry)
Length of course:	3 yrs.
Annual output:	0
Subject/Speciality:	Oral Biology
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	1-2 per year
Subject/Speciality:	Cariology
Degree awarded:	Master of Science (Dentistry)
Length of course:	2 yrs.
Annual output:	0-1 per year
Subject/Speciality:	Dentistry
Degree awarded:	Dr. Odont
Length of course:	4 yrs.
Annual output:	4-6 per year

1.9 Staff and Resources. Breakdown of staff numbers in Dental School/Hospital

a) Heads of Departments	2
b) Senior Clinical Academic Staff	64
c) Senior Research/Academic Staff	5
d) All other Clinical Teaching Staff	26
e) All other academic/teaching staff	0.5
f) All administrative and secretarial staff	32
g) All nursing and auxiliary staff	69

- h) Dental Technical Laboratory staff **25**
- i) All clinical staff with exclusively service commitments, excluding those listed and who are not involved in academic dentistry **2.5**

1.10 Staff and resources. Total number of all staff employed in Dental School

224

1.11 Staff and resources. Annual total salary budget for all staff of institution in Euros

9.722.279 EUROS in 1999

1.12 Staff and resources. Approximate ratio of full-time staff to part-time staff in supervision of students' clinical training

1 full time staff member to 4 part time in supervision of students clinical training

1.13 Staff and resources. Average number of hours per week spent by full time senior clinical academic staff in treating patients

8 per week

1.14 Number of hours students spend in patient treatment* (on average) per week:

- :
- a) year 1 12 hours extramural practice in the public dental care system (on observer basis) during the semester as a whole
- b) year 2 20 hours propedeutical bed-side training in somatic university hospitals during the semester as a whole
- c) year 3 The 5th semester is dominated by propedeutical training in phantom head laboratory. Approx. 18 hours clinical training per week in the 6th semester. **
- d) year 4 Approx. 18 hours per week in both 7th and 8th semesters**
- e) year 5 Still under planning. Hours of clinical training per week is expected to rise from the level in the 3rd and 4th year

* Patient treatment includes oral/dental treatment of actual patients and not simulation or time spent in pre-clinical laboratories.

** This describes the normal pattern. In some weeks a clinical session made be used for other purposes such as clinical demonstrations or seminars.

1.15 Number of hours students spend in "simulated" patient treatment per week in manikin or phantom head laboratory)

- a) year 2 6 hours per week in the last two weeks of 4th semester
- b) year 3 Approx. 13 hours per week in the 5th semester (consentrated in 13 of the 20 weeks that make up the semester. During these weeks approx. 20 hours per week)

c) year 4 24 hours concentrated in one week of the 6th semester. Theme: Gold fillings

1.16 Total number of patient visits to the Dental School/Hospital per year by department or clinic

Name/ Department/ Unit	Number of patient visits *
Institute of Clinical Dentistry	93.800 (1999)

* number of patients is less, but the registration system is based upon number of visits

Section 2 – Facilities

2.1 Clinical Facilities

GENERAL EXPLANATION

There are four main clinics:

Clinic for Adult Oral Health Care: Clinical director Ole Skogedal **85** units for basic dental care; **1** unit in a separate room for advanced periodontics and **1** unit in a separate room for advanced endodontics; **5** units in an operational theater for periodontal surgery.

Clinic for Child Oral Health Care: Clinical director Kari Gravem Kvakestad **27** units for basic dental care; **3** units in a polyclinic (traumatology; development disturbances; pediatric oral medicine); **3** separate treatment rooms for special dental care. Two of these rooms are used for dental care in general anesthesia and for treatment under nitrous oxygen sedation. Furthermore it is **21** units for undergraduate orthodontic treatment.

Clinic for Oral Diagnostics: Clinical director Kirsten Ahlsen

6 units at the polyclinic; **8** devices for intraoral radiological imaging; **3** ortopantomographs, **1** CT –lab; **1** – polytome lab, **1** cephalostat. lab

Undergraduate polyclinic: **6** dental chairs/units; **7** dental X-ray apparatus; **1** panoramic machine.

Radiologic postgraduate and staff polyclinic: **1** dental X-ray apparatus; **1** unit (sialographic exam etc); **2** panoramic machines; **1** cephalostat; **1** skull table; **1** Polytome lab and **1** computed tomography (CT) lab for advanced maxillofacial radiology, and **1** computed radiography (CR) lab for imaging research in the maxillofacial area.

Clinic for Advanced Oral Health Care: Clinical director Kari Birkeland

Surgical polyclinic: **11** units for oral medicine and minor oral surgery; **1** separate room for treatment of patients suffering from infectious diseases, **1** consultative room

Operational theater: **4** surgical rooms

Orthodontic postgraduate clinic: 12 units

Total number of dental chairs/units in The Faculty: 194

Strengths

Most of the dental chairs are for multipurpose use. Furthermore, most of the clinical devices are modern and very well functioning. 5th and 6th floor well-designed modern, state-of-the-art facilities. Simple and efficient design to accommodate cross-infection control procedures.

Weaknesses

The units at the post- and under-graduate clinic in orthodontics are too old. No sense of privacy for the patients in some of the clinics. Lack of an effective computerized system for patient administration. Heavy routines for payment from the patients. The floors from 1st – 4th have not been refurnished since 1968. These floors are not effectively used in the new curriculum, because they were designed for disciplinary teaching and not for the more problem oriented teaching in the new curriculum.

Plans for future changes

Rebuild and refurnish the floors from 1st to 4th.

2.2 Teaching Facilities**Preclinical building (PK III) (Gaustad)**

There is one lecture hall, containing 130 seats, one seminar room, containing 60 seats and 11 rooms for PBL study groups. The students have access to two study halls, containing a total of 98 seats, and a computer laboratory with 30 PCs.

In addition, the dental students have access to the medical preclinical buildings (PK I and II). PK I, II and III lie next to each other and are connected by built-in pathways. The two faculties cooperate in the use of the teaching facilities in all three building. Also, the new national hospital (Rikshospitalet) is situated across the street, making this area an important vicinity for educating health professionals at The University of Oslo.

Geitmyrsveien 69/71 (administrative building/clinical building)

There are 4 lecture halls, containing 280 seats, 86 seats, 64 seats and 56 seats. Furthermore, there are 4 seminar rooms, and one seminar room and one group room designated specially for the post graduate students. The faculty also have 6 rooms for PBL study groups in Geitmyrsveien and one computer laboratory with 13 PCs.

Strengths

- lecture halls are furnished with modern audio-visual equipment and interactive learning equipment
- all PBL rooms are furnished with chalk-boards thus fulfilling its main purpose

Weaknesses

- lecture halls are rarely used at full capacity due to the fact that our students are organised in classes no larger than 32

2.3 Teaching laboratories

The Institute of Clinical Dentistry has a phantom head laboratory with 65 units providing shared facilities for all propedeutical dental training. Furthermore, there are 21 dental chairs equipped with manikin heads. This laboratory has 8 dental chairs as well. There is also a clinical dental laboratory in connection with the Clinic for Adult Oral Health Care.

Innovations

Simulation laboratory

2.4 Research Laboratories

The Faculty has the following research laboratories and/or research groups utilizing laboratory facilities.

Institute of Clinical Dentistry (IKO)

Oral research laboratory, head professor Jan Eirik Ellingsen.

The laboratory offers research facilities serving the various clinics within IKO. A variety of clinically related topics are in progress and the following may be mentioned as examples: Surface treatment of titanium dental implants, molecular-biological studies of mineralisation processes, biologically induced regeneration of periodontal structures, endodontic microbiology and halitosis problems.

Institute of Oral Biology (IOB)

Research group on microbiology, head professor Ingar Olsen

The group is working with characterisation and biological activities of oral bacteria and most of the research projects are in cooperation with the clinical departments, particularly periodontology and endodontics. The following projects may illustrate the activity: bacteremia following oral surgical procedures, systemic distribution of oral bacteria, microbiology related to periodontal (apical and marginal) infections and biology and taxonomy of oral pathogen microorganisms.

Research group on bacterial adhesion and metabolism, head professor Anne Aa Scheie.

Adhesive properties and metabolic processes of oral streptococci, particularly related to xylitol, are the two areas primarily focused by the group. The projects are of relevance both regarding oral and general health.

Research group on biochemistry, head professor Harald Osmundsen.

The group is involved in studies of metabolic adaptation with particular reference to fatty acid and lipid metabolism. The group is also involved in development of multimedia software for teaching of pre-clinical biochemistry. The field of research is not particularly dental in orientation, but provides a good match with respect to topics covered in pre-clinical teaching.

Research group on inflammation and tissue injury – immunological and cell mediated mechanisms, heads Karl Schenck/Kristen Helgeland

The group is investigating immunological and cellular mechanisms in tissue damage, with emphasis given to the role of cytokines and matrix metalloproteases in oral tissues.

In addition, the following research groups are integral parts of the Institute of oral Biology (IOB)

Research group on molecular embryology; head associate professor Sigurd From

Research group on mucosal immunology and immunopathology, head professor Trond S Halstensen

Research group on oral physiology; head professor Pål Brodin

Research group on development, structure, composition, patterns and pathology of the dental hard tissues, head professor Randi Furseth Klinge

Research group on salivary glands, head associate professor Edward B Messelt

Strength and weaknesses

Based on a summary of comments related to strengths and weaknesses, it seems that the laboratories are well equipped, but shortage of well qualified technical assistance and poor funding for research activities are major limiting factors.

2.5 Library

Mrs. Wenche Sæterdal, Principal librarian

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General explanation

The Faculty of Dentistry Library in Oslo holds the oldest and most comprehensive collection of dental literature in Norway. The library was established in the present building in 1928. In 1995 this building was totally renewed and the library moved into spacious and modern facilities. The library is a specialist library providing access to resources of literature specific to the research and teaching in dentistry. The book collection consists of approx. 40 000 volumes, within subjects mainly related to clinical and preclinical odontology. The number of journals in subscription are about 300, and in cooperation with the Medical Faculty Library we also provide access to more than 400 electronic full-text journals. Since the introduction of problem-based-learning (PBL) into curriculum in 1996, the stock acquisition is turning more towards literature related to clinical odontology, as the new students start their education together with the medical students and get their library services at the Medical Faculty Library.

Access to other library resources

The library is well equipped with modern technology, such as upgraded computers, CD-Roms and videos and allows the users to access their e-mail and the Internet. The book collection is searchable on the web through the library system BIBSYS, the shared electronic catalogue of all the Norwegian university and research and college libraries. For searching journal articles, the library provide access to a variety of databases like Medline-Ovid, Pub-Med, EMBASE, Cochrane, BIOSIS and ISI.

Information service

More and more of the vital information is published on the library`s home page:

<http://ub.uio.no/uod>

such as access to the databases, access to all the electronic full-text journals, new books, on-line ordering of books and journal articles and Internet resources.

The user education given by the library staff is mainly built up around teaching the undergraduate students how to use the library's collection of books and journals and how to search databases and Internet for useful and reliable information in connection to the introduction of PBL. The postgraduate students studying for their doctoral degree or specialities are given special courses in database searching, personal reference collection and paper writing. Other employees or library visitors are offered user education and help with literature searching on demand.

Strengths

The library benefits from its excellent facilities, its skilled and experienced staff, effective document delivery and the quite long opening hours: Weekdays from 9.00 to 20.00, Saturdays from 9.00-13.00. Since the students are the most frequent users of the library, we are constantly trying to expand our book collection to keep up with their information needs and help them in solving their PBL-exercises.

2.6 Visitors comments - Facilities

The Institute of Clinical Dentistry has comprehensive facilities in an attractive environment. The adult oral health clinic has recently been re-equipped with multi-function units and facilities are excellent.

The phantom head teaching laboratory is excellent and funding has now been achieved for a new simulation laboratory.

The exceptionally well-equipped clinical research laboratory offers superb research facilities for topics related to clinical studies.

The teaching and research facilities in the newly built Department of Oral Biology building (PKIII) are extensive and quite outstanding.

The library facilities too in both the Institute of Clinical Dentistry and Department of Oral Biology are excellent.

Floors 1 – 4 of the Institute of Clinical Dentistry originally equipped in 1968 are however in need of upgrading, part of which is scheduled to commence shortly. Because of the nature of the old equipment in the Orthodontics clinic, this is now used for only one and a half days each week. Replacement with multi-purpose units would permit more flexible use of the space and an increase in the number of students who could be accommodated.

Formal collaboration between the Institute of Clinical Dentistry and the two adjacent hospitals seems limited and there is a lack of an effective computerised system of patient management.

The advanced oral health care clinic, whilst progressive in its design, is not yet fully operational.

Section 3 - Organisational and Administrative Structures

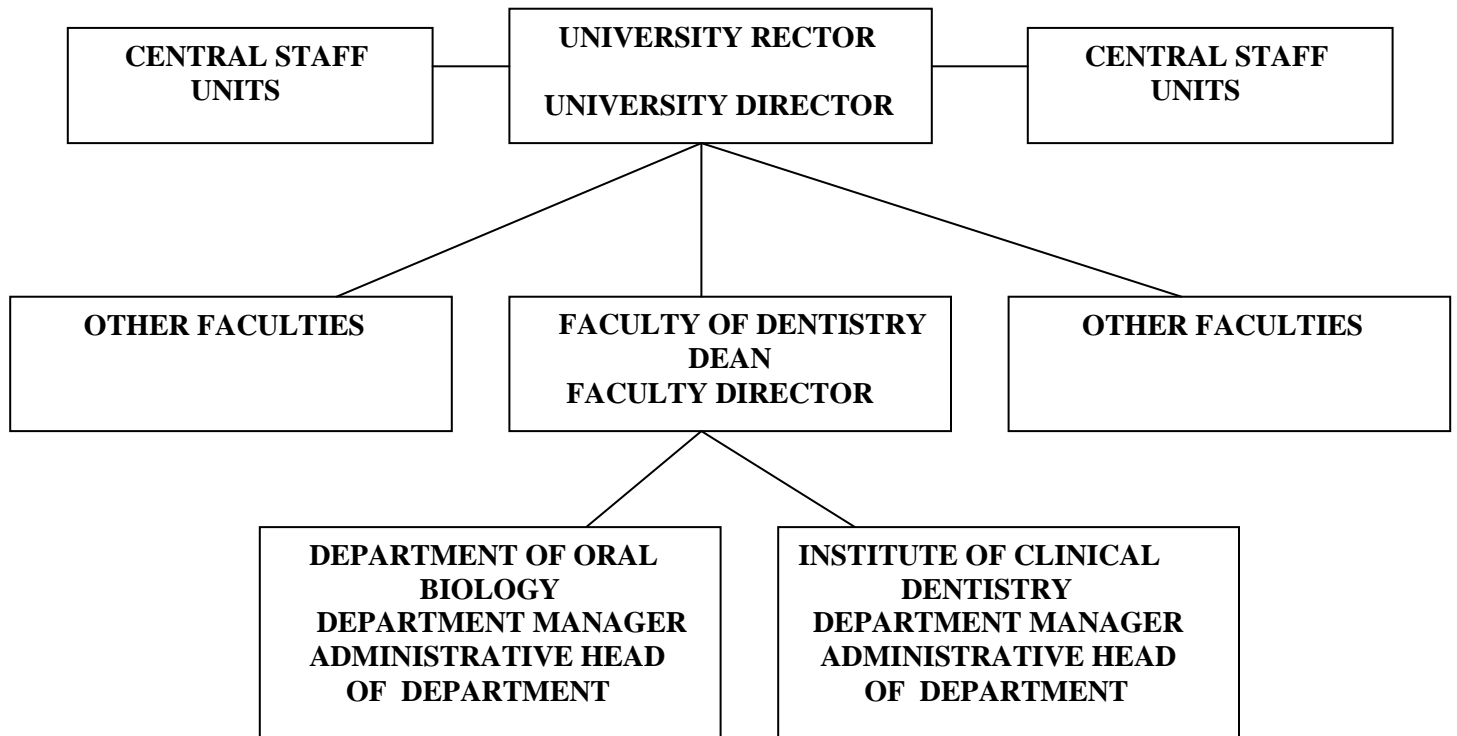
Person in School who will explain and show this to the visitors:

Name: Faculty Director Bente Torgersen

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3.1 Organisational structure

The organisational structures under which the school operates including its relationship to hospital, university, medical school/faculty as well as the departmental structures within the dental school.



The organisational structure of the university and distribution of authority is regulated by law, Lov om universiteter og høyskoler av 1995 (The Law of universities and colleges of 1995). A distinct feature of the system is its dual authority chain, that is the academic line and the administrative line of authority. This division in the chain of command is upheld at all levels in the organisation (3 levels), beginning with the university rector (executive academic leader) and the university director (executive administrative leader) and down to the departmental level. The university law states that all governing bodies, regardless of level in the organisation, must have at least 51 % representation from the academic staff. Students, administrative and technical staff are also represented in all governing bodies. The Faculty of Dentistry is special in that we run our own dental clinical unit. The Faculty of Medicine relies on cooperation with the owner of university hospitals (The Department of Social Care and Health) for the training of medical students, as do we to a smaller extent in some of the semesters.

3.2 Organization of IT

IT-sector at the university in general is divided into two parts, centralized(USIT, University center for IT) and localized(LITA, Local IT , at each faculty). USIT is responsible for the network connection of all the faculties, making the software available for installation, user support for network-servers, arranging courses and making deals with different hardware and software venders. The local IT-section of the faculty of dentistry takes care of more than 350 PCs mostly running MS Windows 95/98 or Windows NT, few Macintosh PCs, administration of a patient management system, faculty's WEB-site, daily IT-support for more than 700 users and etc. All the PCs are connected to the local area network which is connected to the Internet.

Access to computers

There are about 50 PCs (mostly Pentium III) available for students in 3 different computer laboratories. Most of the students have their personal user-accounts(every student/employee has right to have a user account) and they save their documents on our network file server which is backed up every night. The servers are based on UNIX, LINUX and MS Windows NT. MS Office97 is the main office tool where SPSS, PhotoShop, Endnote, Reference Manager are some of the tools that are used for statistics, image processing and for management of references(bibliography.) respectively. All the lecture theatres are equipped with a PC connected to the network to be used for presentations and net-based learning.

Internet/intranet

Most of the PCs are connected to Internet and the students, instructors, lecturers and other research fellows are provided with their own user accounts. The communication and information through Email and World Wide Web has increased the recent years. The Local IT-section and the respective departments manage the WEB-site of the faculty.

Interactive multimedia

Interactive multimedia programs have been developed by specialists with special interest in multimedia and learning in the field of endodontics and clinical biochemistry. These are used presently in problem based learning by these specialists. Some efforts are also made in deployment of net based learning at clinical biochemistry section.

Courses provided

The students start their first year with a course in using computers and the mostly used programs at the faculty. In addition, every employer has the possibility to attend courses arranged by USIT. Local-IT section does organize courses whenever needed.

3.3 System for Patient/student administration

The system we had until 1999 for patient administration not y2k compatible and the Local IT-section was forced to convert it y2k compatible. Oracle database is used as server with clients developed in Developer/Designer 2000, a tool from Oracle. The converted system still has the same functionality as the old one which is out dated. An effort was taken to make a better system for six years ago but the project became a failure. The faculty is considering of buying a better system which can satisfy today's needs and which gives room for dynamical changes.

An effective patient/treatment/student management system integrated with finance and digital X-ray is what we hope to achieve in the future. An image bank is another subject being considered which will help to ease the process of multimedia based teaching material.

Section 3.4 Visitors comments – Organisational and Administrative Structures

Dentistry is a separate faculty in the University of Oslo. The governmental structure, revised two years ago, together with the administrative organisation, seems to be working reasonably satisfactorily.

Information technology, in terms of both provision of facilities and support of staff and student usage, is generally very satisfactory. Proposals for future developments should improve this still further.

Section 4 - Staffing

Person in School who will explain and show this to the visitors:

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Name: Professor Pål Barkvoll

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4.1 Strengths and weaknesses of staffing levels and description of innovations in gaining maximum benefit from staff available

Department of Oral Biology

There is a feeling among the academic staff of inadequate numbers of technical employees. Working toward a better ratio between these groups is believed to be an innovative move to gain increased benefit from the staff as a whole.

Institute of Clinical Dentistry

There is a feeling among the staff of inadequate numbers of nurses and clinical instructors. Working toward a better ratio between the students and these groups is believed to improve the clinical teaching situation.

4.2 List of Academic Staff

List of Academic Staff, by Department, their e-mail addresses and their qualifications

Department of oral biology (IOB)

Biochemistry

Professor Harald Osmundsen
Assistant professor Bjørn Brodal
Assistant professor Sverre Dahm

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Anatomy

Associate professor Marie Wika
Associate professor Edward B. Messelt
Associate professor Sigurd From

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Oral anatomy

Professor Steinar Risnes
Professor Randi Furseth Klinge

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Physiology

Professor Asbjørn Røed
Professor Pål Brodin
Associate professor Magne Bryne
Associate professor Hilde Galtung

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Microbiology

Professor Ingar Olsen
Professor Anne Aa. Scheie
Professor Kristen Helgeland
Adjunct professor Dominique Caugant
Adjunct professor Erik Jantzen

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Immunology

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Associate professor Trond Halstensen

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Institute of Clinical Dentistry (IKO)**Pharmacology**

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Adjunct professor Erik Larsson
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Conservative dentistry

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 Professor Frihjof von der Fehr
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Section 4 Visitors comments – Staffing

A dedicated and highly motivated team of experts staffs the Institute of Clinical Dentistry and Department of Oral Biology. The calibre is high and motivation is excellent.

The teaching and clinical staff are well supported by a highly efficient administrative team.

There are however problems with the recruitment of new clinical staff because of competition with more lucrative private practice and the extensive prerequisite training programme. This problem will be exacerbated with the departure of a large number of staff who will reach retirement within the next few years. The Dental Faculty should consider reintroducing arrangements whereby Ph.D studies and clinical specialty training might be combined. There are serious inefficiencies in the current arrangement. Post-graduates following Ph.D programmes are likely to forgo their clinical skills and persons who have followed clinical specialties will of necessity then lose their clinical skills when they proceed to a Ph.D. programme. This problem needs to be addressed.

Section 5-17 The Dental Curriculum

Introduction (*source: Prospectus and Course Catalogue - with ECTS Information, UiO*)

The academic year starts around August 20th and lasts until about June 20th. It is divided into 2 semesters, with the fall semester continuing three weeks into January and the spring semester starting around January 25th. The students have a two week Christmas vacation, approximately one week vacation at Easter and summer vacation between June 20th and August 20th. The course of study in dentistry is of 5 years duration and leads to the degree of Candidata/Candidatus Odontologiae (cand. odont). 65 new students are admitted each year. Each semester is worth 10 Norwegian university credits (30 ECTS) and each year 20 Norwegian university credits (60 ECTS).

The studies consist mainly of natural science components and behavioral science components. The students are also introduced to statistical methods, ethics, the use of online-based services and first aid. Through practical and theoretical training, as well as regular contact with patients, the student develops attitudes and work methods that reflect a sense of responsibility and independence. Upon completing the course of study, the student will have gained a sound foundation in oral medicine that qualifies him/her for independent dental practice and entry into the Public Health Services.

In recent years the undergraduate programme has undergone a major structural change. A new curriculum was implemented in 1996. This new curriculum focuses on future dentists' need for more knowledge in general medicine. Hence the first 3 ½ semesters are joint with the medical studies at the University of Oslo. Basic sciences and laboratory subjects dominate this phase of the curriculum, although clinical behavioral sciences and community aspects are introduced, and the basic science components are brought through to the latter part of the studies. These first 3 ½ semesters are integrated between medicine, nutrition and dentistry with the sole exception of extra mural practice, where the dental students visit dentists in the public health services and institutions for the elderly.

The extra mural practice emphasises another trait of the new curriculum, namely patient contact at the earliest possible stage. During the same period the students are also given propedeutical bed-side training along with the medical students in university clinics. The dental students however concentrate somewhat more on themes connected with the head and thorax regions than the medical students who will cover a broader field.

After the first 3 ½ semesters the student embarks on the specific study of dentistry. The next two semesters cover subjects such as Oral Anatomy, Oral Physiology and propedeutical training in skills lab (training on models). As a whole the theme of the 4th and 5th semesters is »the oral eco-system in balance«. There are also lectures and courses in Pharmacology, Microbiology and theoretical/practical teaching in Behavioural Sciences.

In the 6th semester the students start their clinical training. In this semester the student is given an introductory presentation of the various clinical fields (Oral Diagnostics, Radiology, Conservative Dentistry, Prothetics, Oral Surgery and Oral Medicine and Periodontics). The overall theme now is »the oral eco-system out of balance«. This continues through the 7th and 8th semesters under the headings »oral disease« and »oral rehabilitation«. Clinical training in all fields of adult dentistry dominate and the tasks given to the students get gradually more advanced. In the 9th semester Pedodontics is introduced and finally in the 10th semester all aspects of clinical dentistry are brought together in a »total treatment-aspect«.

Teaching and learning methods

Beside the need for more general medical knowledge and early patient contact, two other pillars of the new curriculum are: thematically integrated teaching and the introduction of problem based learning (PBL) as a method of teaching. The subjects are no longer presented to the students isolated but rather in themes consisting of more than one traditional subject.

Throughout the studies, each week evolves around a new theme relating elements from pre-clinical, para-clinical and clinical subjects. PBL is the key teaching method, though slightly declining in volume as the clinical training takes up more time towards the end of the studies. Thus, the amount of lectures have been substantially reduced in comparison with former curricula, and activating learning methods in small group are dominant. The students must also submit a written project, the theme to be chosen during the 8th semester and the work to be handed in early in the 10th semester.

Extra mural practice continues after the early stages with hospital practice in Oto-Rhino-Laryngological departments in the 7th semester, hospital practice in Surgery departments in the 10th semester and more extensive training in the public dental service also in the 10th semester.

One day per week throughout the studies is free from scheduled activities to ensure time for independent study. Early on formal educational activity will consume about 15 hours per week, including PBL-meetings. Later on the amount of formal education will rise substantially due to the clinical training (up to 30 hours or more per week). Beside PBL the students have lectures, seminars, laboratory courses, clinical demonstration and clinical practice (both within the faculty and outside). PBL is carried out by groups of maximum 8 students, with one tutor present. Seminars/demonstrations will be held for groups of 15-20 students, while the clinical training takes place by groups of 6-8 students, with one or more instructors per group. Hence the amount of tutorial resources put into the programme per student is extensive.

Student Exchange

Through the Socrates/Erasmus programme, in collaboration with the European Union, students at the Faculty of Dentistry have the opportunity to spend three months abroad. At the moment the Faculty has exchange agreements with the University of Madrid (Complutense), the University of Sheffield, Trinity College in Dublin and Karolinska Institutet in Stockholm. On a trial basis, we also have an agreement with the University of Montpellier in the academic year 1999/2000.

The exchange periods are normally limited to three months and are carried through during the latter part of the studies. The number of exchanges at any given moment is set at two students per institution. The exchange students participate in all elements of the educational programme, but with emphasis on clinical training. However they are not compelled to participate in the formal examinations. The teaching is normally given in Norwegian but some of the lectures will be held in English when exchange students are present.

Most important is the ability to communicate with patients, and a good command of English is therefore imperative. Incoming exchange students in Oslo will normally be housed at the student dormitories (studentbyen).

Because of the organisational structure of the curriculum, thematically integrated teaching, the site visit group must take into consideration that the facts and numbers given in sections 5-16 will be somewhat approximal. Some of our teaching methods such as PBL and clinical training can not be broken down to the level of subjects with much accuracy. The tables under question number four will however give some indications as to where in the curriculum the subjects are engaged. Another fact to take into consideration is that the new curriculum was implemented as late as in the fall term of 1996. We have yet to put into action the last year of the curriculum. We have also little experience to put into our evaluation of the study program, especially in the case of the latter, clinical semesters.

Section 5 – The biological sciences

5.1 Biochemistry

Person in School who will explain and show this to the visitors:

Professor Harald Osmundsen, e-mail: haraldo@odont.uio.no

1. The course and its timing in the curriculum

The introductory course in pre-clinical biochemistry is part of the curriculum in the first year of study.

2. Primary aims

- To teach basic concepts of biochemistry, as presented in a physiological context

3. Main objectives

Students are taught:

Basic concepts of thermodynamics

Basic concept of enzymology and metabolic regulation, including enzymekinetics

Intermediary metabolism, involving carbohydrate-, lipid- and aminoacid-metabolism

Integrated metabolism and metabolic regulation

Metabolic adaptations to the fed and fasted state

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	18				

Courses/seminars	4.5				
Clinical training					
PBL	80				
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Methods of learning/teaching

Lectures

Small-group teaching (PBL-groups)

Computer assisted learning, using on site-developed software (net-work based)

WWW-based teaching aids (developed on-site)

Laboratory-course

6. Assessment methods

- Written examination at the end of term

7. Strengths

The combination of lectures, lab-classes and computer-assisted learning has proved useful, and appears popular among students.

8. Weaknesses

Inadequate number of lectures, resulting in information over-load during period of self-study because the students are allocated inadequate time to study the prescribed texts. This point has been repeatedly made in student evaluations, but has proved difficult to rectify.

9. Innovations and best practices

The use of network-based teaching soft-ware

The use of WWW-based teaching aids

Lectures to provide out-line and principles only. Students fill in details during period of self-study

10. Plans for the future

Allocation of an additional week for metabolic biochemistry

Further developments of www-based teaching soft-ware

5.2 Molecular Biology

Given by teachers in The Faculty of Medicine, during the first joint semesters. The teaching of molecular biology is integrated in the cell-biology bloc in the second semester.

5.3 Genetics

Given by teachers in The Faculty of Medicine, during the first joint semesters. There are 4 lectures in the 1st semester and 10 lectures and courses (total 8.5 h) in the 2nd semester.

Section 5 Visitors comments - The Biological Sciences

The course in Biochemistry is of high quality but is concentrated into a 19-week period i.e. one semester. The material covered would be better suited to a year course i.e. two semesters rather than one.

The teaching effort required by staff as a result of the twice-yearly intake of students and use of PBL is so heavy that research opportunities are being prejudiced and career development is beginning to be compromised.

Because of the joint teaching with medical students, some topics appear to be covered in too much detail and there is little opportunity for development of the oral aspects of these subjects.

Section 6 – Pre-Clinical Sciences

6.1 General anatomy

Person in School who will explain and show this to the visitors:

Associate professor Marie Wika e-mail: mariew@odont.uio.no

1. The course and its timing in the curriculum

General anatomy is part of the curriculum for the first two years, semesters 1-4, the preclinical part of dental education. General anatomy is taught in cooperation with Faculty of Medicine.

2. Primary aims

- To give the candidates an up to date education in general anatomy
- To prepare the dental students for their further studies and practice

3. Main objectives

The main objectives are to give up to date knowledge in relevant topics:

- Human biology including evolution and man as a vertebrate animal
- Cell biology
- Genetics
- Embryology (developmental biology)
- More detailed macroscopic knowledge about organ systems from demonstrations and dissections
- More detailed microscopic experience from histology courses
- Relevant courses in genetics and embryology
- Knowledge about techniques and methods used in anatomy

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	57	33			
Courses/seminars	24	48			
Clinical training					
PBL	163	95			
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

Anatomy is integrated in all PBL-cases

5. Methods of learning/teaching

- PBL is the main learning/teaching method (To be registered for the exam 70% attendance is compulsory with a written concentrate from one of the meetings the student has not been to, 80% attendance is compulsory without any written concentrate)
- Courses and lectures are additional offers (not compulsory)

6. Assessment methods

- Exams based on a patient history and questions in relevant topics for each semester or part of semester
- Practical exams (micro/macro)

7. Strengths

The teaching staff has been stable through a 30-year period and has been able to renew both teaching systems and renew its content to include new methods and topics. Our students now have good new facilities available with net connection for every study place and a broad exposure to the Medical faculty staff in addition to the Dental faculty staff

8. Weaknesses

The new teaching system is in a stage of trying and failing, and we have to study its effect on our student group and continuously do improvements to develop the best possible education.

9. Innovations and best practices

- Up to date courses in developmental biology
- Cooperation with Medical Faculty in preclinic Problem Based Learning (PBL)
- Up to date library and net access for the students

10. Plans for the future

Lately a 4 mill NOK funding has been obtained from The Norwegian Council for Science and the Humanities to develop a picture database available for our students through our new high capacity broadband communication cable. Pictures will be produced from new methods and equipments for e.g. TEM, SEM, confocal and fluorescence microscopy available in our new location PKIII for preclinical odontology which is closely connected to our New University Hospital, Rikshospitalet, and which is also closely connected to PKI and PKII the preclinical locations for medical studies. It is also in our plans to increase interactive learning possibilities for our students by internet based learning programs. All this should be a good guarantee that our future dental students get the very best education in general anatomy.

6.2 Oral anatomy (macroscopical and microscopical)

Person in School who will explain and show this to the visitors:

Professor Steinar Risnes e-mail: steinarr@odont.uio.no

1. The course and its timing in the curriculum

Macroscopical and microscopical oral anatomy is taught in the second year of study (4th semester).

2. Primary aims

- Teaching the development and structure, both macroscopic and microscopic, of head and masticatory apparatus with emphasis on oral cavity, jaws and teeth.

3. Main objectives

After the course in oral anatomy, the students should know:

- the macroscopic anatomy of the head, including skull and its individual bones; masticatory, suprahyoidal, facial, tongue, palate, and pharyngeal muscles; branches and distribution of carotid arteries and jugular vein with emphasis on lingual, facial and maxillary arteries and veins; lymph nodes and their draining areas in head and neck; branches, distribution and fiber qualities of trigeminal, facial, glossopharyngeal, vagal(cervical part), and hypoglossal nerves; the anatomy of the labial, buccal, lingual/sublingual, palatal, infratemporal, pterygopalatine, submandibular, masseteric and parotid regions.
- macroscopic and microscopic anatomy of salivary glands (partly in 5th semester)
- morphology and chronology of human permanent and temporary teeth
- development of the teeth through the bud-, cap- and bell-stages including morphogenesis, epithelial-mesenchymal interactions and transforming growth factors. Dentinogenesis, amelogenesis and root development. The structure of the pulp and mineralized dental tissues (enamel and dentin). The development and structure of the periodontium (alveolar bone, periodontal ligament, cementum and gingiva). Tooth eruption and shedding of the primary teeth. The structure of the oral mucous membrane
- embryology and growth of head, face and jaws
- genetics of facial and oral development
- comparative aspects of oral anatomy

Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		51	1		
Courses/seminars		70,5	2		
Clinical training					
PBL		24			
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Methods of learning/teaching

Macroscopic anatomy:

- Lectures
- Courses (dissection and study of models and dissected specimens)
- PBL
- Exercise books

Microscopic anatomy

- Lectures
- Courses (study of histologic sections in light microscope)
- PBL

6. Assessment methods

- OSCE exam
Students spend 2 minutes on each of 40 posts where they may be asked to identify marked structures on anatomical models and dissected specimens, identify teeth, identify histological

sections/images, identify anatomical landmarks on radiographs, answer short questions. Students submit their answers in a written form.

- Essay exam.
Duration 4 hours. 5-6 questions embedded in short story.

7. Strengths

- Good collection of anatomical models, bones/skulls, dissected specimens and histological sections
- adequate teaching facilities (histology room with excellent video-TV demonstration equipment, dissecting room, group rooms, auditorium, study rooms for macroscopic anatomy, PC room)
- Experienced teachers
- PBL allows close contact with students in their learning process
- Integration with other fields (oral physiology, oral pathology, radiology, orthodontics, propedeutics)

8. Weaknesses

The time available for oral anatomy (one half semester) is short
Only one teacher in macroscopic anatomy makes this field vulnerable.

9. Innovations and best practices

In macroscopic anatomy students are forced to be active through their work with exercise books

10. Plans for the future

Plan to place the correctly answered exercise books on the PC-net. This will reduce the need for lectures. A few lectures will be given which can concentrate on principles, overview and specific points of interest. Also exercises resembling the problems raised at the station exams will be put on the net. Histological images may also be put on the net for student exercise. Weekly evaluation of teaching by the PBL-groups.

6.3 Physiology

Person in School who will explain and show this to the visitors:

Professor Asbjørn Roed e-mail: asbjorn@odont.uio.no

1. The course and its timing in the curriculum

Introduction to physiology, including nutrition, is taught in the 1. semester, in the Human biology course. Some topics of cell physiology are taught in the 2. Semester. Autonomous organ and system physiology is taught in the 3. & 4. semesters. Nutrition is included in the 4. Semester. Also somatic organ and system physiology is taught in the 4. Semester. Specific oral physiology topics are taught in the 4., 5. and 6. Semesters.

2. Primary aims

- To teach basic human physiology and nutrition
- To apply knowledge in physiology and nutrition to specific problems related to the oral cavity and the dental profession

3. Main objectives

A general introduction to human physiology and nutrition

Cell physiology, organ physiology, and physiology of the organ systems and the whole organism are included

A specific introduction to oral physiology as a basis for the subsequent teaching in the dental clinic

A correlation between physiology and related preclinical topics like anatomy, cytology and biochemistry

A correlation between physiology and paraclinical topics like pathology and pharmacology

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	22	76	5		
Courses/seminars	11	12			
Clinical training					
PBL*	12x3	15x3			
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

*number of PBLs (with mainly physiological problems) x hours. In the 1. sem., all PBLs in the Human Biology bloc are included because it is difficult to differentiate between physiology and other topics

5. Methods of learning/teaching

Lectures

PBL groups

Laboratory courses and demonstrations

Clinical small groups from 3. semester

6. Assessment methods

- Written examinations at the end of each semester., the examination integrates all the topics in the semester.
- In some semesters there are oral examinations.
- Obligatory attainment to the PBL groups.

7. Strengths

Inclusion of the course in oral physiology in the second half of the 4. Semester. A teaching together with medical students in the first 3 ½ semester broadens the scope of the topics, especially by including cases from pathophysiology and clinic.

8. Weaknesses

Some parts of general physiology are not included (reproduction) and others are rather superficially covered (physiology of the sense organs). Difficulties in attaining professional identity for the dental students when they are thought together with a much larger group of medical students in the facilities of The Medical Faculty.

9. Innovations and best practices

The course in oral physiology including oral reflexes with chewing and swallowing, salivation, pulp and periodontal physiology.

10. Plans for the future

The new plan Oslo 96 is recently implemented. No main changes are planned in the near future; only minor changes to improve the present plan.

Section 6 Visitors comments – Pre-clinical Sciences

The teaching of Anatomy is system orientated and the teaching of Physiology includes Nutrition. Both Physiology and Anatomy are integrated with General Pathology. This approach is progressive and forward-looking. However, students felt that too much time was wasted in semester 1 of first year in an overview of these subjects.

Oral anatomy is condensed into only 10 weeks; it would be advantageous for this to be extended over a longer period both in terms of relevance and for educational reasons.

Histology teaching may be insufficient as it appears to create problems for the teaching of Oral Pathology. Systemic embryology does not seem to be emphasised in the undergraduate course.

Boredom in staff is becoming apparent as a result of repeated PBL sessions and this is exacerbated by the twice-yearly intake of students. The effects on staff research and career development have been referred to in Section 5.

Section 7 – Para-clinical sciences

7.1 Pharmacology

Person in School who will explain and show this to the visitors:

Professor Lasse Skoglund e-mail: lasses@odont.uio.no

1. The course and its timing in the curriculum

The complete course in pharmacology and pharmacotherapy is distributed throughout most of the dental curriculum, from the 2nd to the 5th year.

2. Primary aims

- To teach the pharmacological basis of drug therapeutics.
- To teach evidence based pharmacotherapy with special relevance to dentistry.

3. Main objectives

During the course the students are taught:

- to understand the pharmacokinetic action and parameters describing the fate of drugs in the body
- to know the various classes of drugs used in medicine and dentistry and their mechanisms of action causing wanted and unwanted effects in the body
- how medical and herbal drugs may interact with other drugs or pathological conditions of the patients causing alterations in the patients health status
- evidence based choice of drug therapeutics in dentistry
- to evaluate critically new drugs marketed and maintain a professional relationship with the pharmaceutical industry
- the principles of clinical drug trials
- the national laws and regulations concerning medical and herbal drugs, and the art of drug prescription

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		13	6	12	3
Courses/seminars			6	5	15
Clinical training					
PBL			2	1	
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Methods of learning/teaching

- lectures
- seminars (informal lectures with or without demonstrations)
- courses
- PBL

6. Assessments methods

The methods are not yet finally determined, but consist of:

- written practical tests
- verbal examinations
- written final tests where one or more questions are relating to pharmacology/pharmacotherapy

7. Strengths

- pharmacology rank among the most popular topics during the dental study
- competent and well-trained staff (double specialities)
- teaching of specific topics founded on internationally accepted evidence based research
- good cooperation between our section and most of the other clinical sections at The Faculty of Dentistry
- the research milieu attracts personnel outside our own science community

8. Weaknesses

- The lectures (made by physicians) during the early stages of the preclinical semesters are too heavily orientated towards signal mechanisms. The students fail to see the relevance towards the clinic.
- The teaching of pharmacology is a little bit too fragmented during the semesters.

9. Innovations and Best Practices

- introduction of evidence based drug therapeutics in dentistry
- introduction of herbal medicine into the curriculum
- cooperation with pharmaceutical industry which allows sales representatives to meet students for critical discussions
- proven excellence by own cited papers in international textbooks

10. Plans for future changes

It is planned to make computer based programs relating to specific topics in pharmacology available to students through the university intranet for brushing –up and self-evaluation. Slight increase of the lecture hours in the 6. semester and reorganization of the topic sequence, since it

is the wish for all semesters up to now to have more lectures in specific pharmacological topics. Implementation of plan to move to new premises.

7.2 Microbiology

Person in School who will explain and show this to the visitors:

Professor Ingar Olsen e-mail: ingaro@odont.uio.no

1. The course and its timing in the curriculum

Students are taught general microbiology in the 3rd semester, which is a joint undertaking between the medical and dental faculties. A course in oral microbiology dealing with the oral ecosystem in health is given in the 5th semester. Another course in the 5th semester is devoted to hygiene in the dental clinic. In the 6th semester lectures in oral microbiology are related to adherence of oral microorganisms and how to prevent the detrimental consequences of this. In the 7th semester a lecture on bacterial, viral and fungal infections in the oral cavity is given.

2. Primary Aims

- To teach the students general and oral microbiology as well as clinical hygiene.

3. Main Objectives of Courses

In the course in general microbiology the students are taught

- seeding of bacteria
- preparation of microscopic slides for staining
- Gram-staining and microscopic evaluation of such preparations
- the normal flora
- how to deal with infectious material
- diagnostic considerations to be made for infectious diseases
- description of bacterial culture on artificial media
- reading and application of results from antibacterial tests
- cell culture as a diagnostic method for virus
- detection of influenza virus antigen
- rapid immunological test for detection of bacterial antigens
- bacterial virulence factors
- yeast infections in the mouth/throat
- diagnostic application of antibodies and of cell-mediated immunity
- demonstration of cold agglutinins
- pathogenesis of infections caused by anaerobic bacteria
- spore formation in bacteria
- bacterial toxins in the pathogenesis of anaerobic infections
- principles, diagnosis and treatment of anaerobic infections
- pre- and post-expositional prophylaxis of infections caused by toxin-producing anaerobic bacteria
- principles of action of antibiotics
- antibacterial resistance mechanisms
- measuring serum concentration of antibiotics

The main objectives of the course in oral ecology is to make the students understand factors affecting ecology, such as

- redox potential/anaerobiosis
- pH

- temperature
- nutrients
- adherence
- agglutination
- antimicrobial agents and inhibitors
- host factors including genetics

The main objectives of the course in hygiene in clinical dentistry is to teach the students about

- contagious diseases in the dental clinic
- spread of contagious diseases
- use of gloves
- latex allergy
- stitch injuries
- hepatitis B/vaccine
- clinical and hygienic routines for patient treatment
- clinical routines for treating known carriers of contagious disease
- functions of the sterilisation central in the clinic
- application of equipment and materials in the clinic
- settings for routine patient treatment
- disinfection routines in the clinic

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	2	7	7	1	
Courses/seminars		14	9		
Clinical training					
PBL	4.5	15	4.5	3	
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Methods of learning

- Lectures
- Demonstrations
- Practical courses
- Small group teaching
- Full group teaching
- PBL groups

6. Assessment methods

- Written examination at the end of the semester
- Practical exam in microbiology

7. Strengths

- Versatile teaching possibilities
- Excellent facilities for laboratory training
- Possibility to take part in clinical activity (clinical hygiene)

8. Weaknesses

- Inadequate number of teachers and instructors to follow students' laboratory and clinical activities.
- Considerable distance between preclinical and clinical facilities
- Problems in co-ordinating hygienic measures at different clinical entities.

9. Innovations and Best Practices

Integration of preclinical and clinical disciplines

10. Plans for Future Changes

A new system for teaching students has just been implemented. It is premature to think of major revisions.

7.3 General pathology

Person in School who will explain and show this to the visitors:

Professor Tore Solheim, e-mail: solheim@odont.uio.no

1. The course and its timing in the curriculum

Genetic and cell changes in disease are taught in the 2nd. semester

General disease mechanisms and manifestations are taught in the 3rd semester

2. Primary Aims

- To understand basic disease mechanisms
- To understand that general diseases may have oral manifestations and that the dentist should pay due attention to such diseases during dental treatment.

3. Main Objectives

The students learn about

- inflammations
- tumors
- circulatory disturbances
 - heart
 - infarction
 - heart failure
 - vessels
 - atherosclerosis
 - trombosis
 - embolism
 - aneurysms
- lung diseases
 - inflammations
 - tumors
 - bronchoectasis
 - emphysema

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	2	6			
Courses/seminars	2	4			
Clinical training					
PBL		6			
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Method of Learning/Teaching

- conventional lectures
- microscopical and macroscopical demonstrations
- PBL

6. Assessment Methods

- Part of a written examination
- Practical macroscopical and microscopical oral examination

7. Strengths

- Some aspects may be learned extremely well (to well for dentists?)
- PBL sessions motivates the students and makes them positive to the teaching
- Teaching relevant for the semester examination

8. Weaknesses

- Not especially adapted for dental students
- The study plan has little flexibility for changes
Little time for topics important for dental students

Forensic odontology

This subject will be taught in the 9th semester

Primary aims are

To make the students aware of their juridical and ethical responsibilities

To enable the students to help police and forensic odontologists with the cases

Main objectives are

Identification

Mass disasters

Reconstructive identification

- age, sex, race etc

- denture marking

Archaeology and anthropology

Dental recording

Cases with dental injuries

Tooth mark cases

Juridical system and the forensic expert

Criminal law

Civil law cases

Ethics

Quality assurance

Method of Learning/Teaching

Lectures
Courses
PBL teaching

Assessment Methods

Will be part of the semester examination

Strengths

It has been an extensive course and will probably be so
Students has always found the course interesting

Weaknesses

Only partly a continuous course
Parts will probably be spread out to other teachers

Innovations

If possible I would like to have the students play cases such as a court case

7.4 Immunology

Person in School who will explain and show this to the visitors:

Professor Karl Schenck, e-mail: karls@odont.uio.no

1. The course and its timing in the curriculum

The course in immunology treats mainly immune defenses. A short overview is given in the 1st semester. Basic immunology is taught in the 3rd semester. Autoimmunity and allergy are treated in the 7th semester.

2. Primary Aims

The primary aims of the course in immunology are to give the students an insight into:

- defense against infection (bacteria, virus, yeasts)
- how the immune system can damage the host.

3. Main objectives

- Anatomy of the immune system and lymphocyte recirculation
- B and T cell development
- Antigens
- Antigen receptors and generation of diversity
- Antigen presentation, activation of B and T cells
- Effector functions of antibodies, T cells and the complement system
- B and T cell tolerance and autoimmunity
- Hypersensitivity reactions

Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	1	7		5	
Courses/seminars		20		10	
Clinical training					
PBL	3	6		3	
Other					
Independent study ¹	one day per week	one day per week	one day per week	one day per week	one day per week

5. Method of Learning/Teaching

- Lectures
- PBL
- Courses.

6. Assessment methods

- Examination as part of a written integrated exam.

7. Strengths

- Good timing of the 3 packages.
- The issues treated are relevant for the dental students.

8. Weaknesses

- Teaching too detailed, not enough emphasis on main biological processes and functions.
- Too few PBL.

9. Innovations and Best Practices

PBL teaching.

10. Plans for future changes

None.

Section 7 Visitors comments – Para-clinical Sciences

The teaching of Microbiology seems to be comprehensive and satisfactory. Initially the students receive a course in general microbiology which is followed later by oral microbiology. The Immunology course is also appropriate to the needs of dental students and appears to be very satisfactory.

In the case of Pathology however, PBL leads to substantial omissions which are rectified later in the curriculum in the case of medical students but not dental students.

PBL has also lead to fragmented teaching and incomplete coverage of what students need to know in Pharmacology and Pharmacotherapeutics. However, recent inclusion of these two subjects later in the curriculum should now rectify this.

¹ One day per week throughout the curriculum is reserved for independent study. Also, in the 8 to 10 semester time is reserved for independent work on the project case

Section 8 - Human Diseases

8.1 General Medicine

See section 13.1

8.2 General Surgery

See section 13.1

8.3 Anaesthesiology

See section 13.1

Section 8 Visitors comments – Human Diseases

This course is the responsibility of a dual qualified member of the Dental School staff. Oral surgery determines the amount of general medicine, general surgery and anaesthesiology covered by external staff. The various courses involved are focused to ensure that the students have an adequate background in these subjects. However, it might be appropriate for a general physician to also be involved in determining the content of this course.

Section 9 – Orthodontics and Child Dental Health (incl. Behavioural Science)

9.1 Orthodontics

Person in School who will explain and show this to the visitors:

Professor Arild Stenvik, e-mail: stenvik@odont.uio.no

Professor Bjørn Øgaard, e-mail: bogaard@odont.uio.no

1. The course and its timing in the curriculum

Growth and dentofacial development are integrated parts of the oral biology curriculum during the second year. The students are introduced to clinical orthodontics at the end of the third year, and during the fourth and beginning of the fifth year orthodontic clinical training takes place. Screening and diagnosis will be integrated in the child dental clinic throughout the fifth year. The theoretical subjects are mainly dealt with in group teaching sessions.

2. Primary Aims

Graduating students should be able to

- diagnose malocclusions and evaluate need for treatment
- identify and treat simple malocclusions by interceptive measures, as well as the appropriate time for referral of patients in need of comprehensive treatment
- inform and give advice to the public about orthodontic subjects.

3. Main Objectives

- To develop a knowledge of craniofacial growth and development of the dentition
- To understand the principles of orthodontic diagnosis
- To be able to assess orthodontic treatment need
- To understand principles of orthodontic treatment planning and provision of treatment
- To appreciate the integration of orthodontics in interdisciplinary treatment for children and adults

4. Hours in the Curriculum

The distribution of hours during the 1st to 4th year appears from the table. The curriculum for the 5th year is about to be implemented, and the focus will be on clinical training on orthodontic diagnosis and orthodontics in an interdisciplinary perspective.

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		3	1	4.5	in planning
Courses/seminars			48	8	"
Clinical training			6	126	"
PBL			6	6	"
Other					"
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Method of Learning/Teaching

Problem-based learning is used throughout the curriculum, and orthodontics is an integral part of the problem-based learning programme. Acquisition of theoretical knowledge also takes place through group-activities like seminars conducted by students and supervised by teachers. Clinical activities include treatment of patients with simple malocclusions, screening and assessment of school children, and participation in interdisciplinary evaluation and treatment planning of patients with advanced problems referred to the university clinic.

6. Assessment Methods

Assessment of student performance takes place throughout the course with feedback from tutors and clinical teachers according to competences defined in curriculum. Clinical activity is assessed after each session. Competence tests including an orthodontic component are carried out in the 4th and 5th dental years.

7. Strengths

The programme reflects the structure of the Norwegian orthodontic care scheme (example: remuneration of expenses only if treatment is provided by orthodontic specialists) including definition of tasks and responsibilities for the general practitioner and the orthodontic specialist. Students commence and complete patient treatments in the clinic, orthodontic theory is generally acquired in a setting requiring student activity.

8. Weaknesses

The access to patients fulfilling the criteria for 'interceptive orthodontic treatment' is limited.

9. Innovations and Best Practices

Students screen, diagnose and carry out treatment under supervision of orthodontic specialists serving as teachers.

10. Plans for Future Changes

A detailed curriculum for the 5th year is about to be established, and the plans include

- introduction of interactive data-based learning programs
- systematic orthodontic screening by the students of school children who receive their oral health care at the university clinic
- participation in some clinical sessions at a postgraduate and interdisciplinary level.

9.2 Child Dental Health (incl. Behavioural Science)

Person in School who will explain and show this to the visitors:

Professor Ingeborg Jacobsen, e-mail: ingeborj@odont.uio.no

1. The course and its timing in the curriculum

Pediatric dentistry is an applied clinical discipline in which basic knowledge of all dental as well as behavioural sciences are synthesized and applied to children and adolescents.

2. Primary aims

- Theoretical knowledge of pediatric dentistry and integration of developmental psychology and clinical communication in pediatric dentistry.
- Knowledge, understanding and skills necessary to diagnose, prevent and treat all aspects of oral diseases in children and adolescents.

3. Main objectives

At the end of the course a student should be able to demonstrate knowledge and skills according to established aims within the following themes:

- Basic child psychology and methods of fear and pain control.
- Pediatric cariology and prophylaxis.
- Pediatric endodontics (primary and immature permanent teeth)
- Pediatric traumatology.
- Dental developmental disturbances.
- Pediatric oral medicine.
- Somatic and mental development of the child.
- Pediatric oral surgery and periodontology.
- Dental care of chronically ill and disabled persons.
- Child neglect and abuse.

4. Hours in the curriculum

4a) Pediatric dentistry – hours in curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures				4	30
Courses/seminars					11
Clinical training					192
PBL					24
Other					90*
Independent study				one day per week	one day per week

* Extramural training in the Public Dental Health Service

4b) Behavioural Science – hours in curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	15		4		10
Courses/seminars	6		14		13
Clinical training			6		
PBL	20		4		8
Other					
Independent study	one day per week		one day per week		one day per week

5. Methods of learning/teaching

Treatment planning and patient treatment under supervision (individual and small group teaching).

Role-play

Lectures, seminars and problem-based learning

6. Assessment methods

- One week assessment. The methods are not yet decided.

7. Strengths

Sufficient number of patients through cooperation with The Public Dental Health Service in Oslo (including children with multicultural background).

Separate unit for diagnosis, treatment planning and treatment of referred patients from dentists all over the country.

Stable and highly skilled dental team. Several of the clinical teachers are recognized Specialists in pediatric dentistry.

8. Weaknesses

Shortage of patients in the age groups 12 to 18 years

Shortage of trauma patients needing immediate care

9. Innovations and best practices

Problem- based learning methods

Extramural training in The Public Dental Health Service

Integration of orthodontics and pediatric dentistry

Separate unit for diagnosis, treatment planning and treatment of referred patients

10. Plans for the future

Improved cooperation with a Pediatric Hospital.

Section 9 Visitors comments – Orthodontics and Child Dental Health (incl. Behavioural Science)

The Orthodontics Department works with one of the most successful centres for the treatment of cleft lip and palate in the World.

A major teaching objective in the Department of Orthodontics is the selection of patients for referral for orthodontic treatment. At present patients treated in the Department of Orthodontics are already referred for orthodontic treatment. However, the new curriculum will include an

arrangement by which patients from paediatric dentistry will be included in the orthodontic teaching programme. This will allow students to be taught when to refer patients for orthodontic treatment.

Although the links with the Oslo Public Dental Health Services guarantee students a steady pool of suitable patients for paediatric treatment, unfortunately there is a shortage of patients age 12 – 18.

Currently students receive no training in dental trauma. However, there is a plan being formulated whereby in future students will have access to the Oslo dental emergency trauma clinic.

Section 10 – Public Dental Health

Person in School who will explain and show this to the visitors:

Professor Dorte Holst, e-mail: dholst@odont.uio.no

1. The course and its timing in the curriculum

Dental public health or community dentistry? We use community dentistry, but we may as well use the term dental public health. Community dentistry is integrated into community medicine during the first semester. Community med/dent covers aspects of epidemiology and ethics. In this semester there is a course in biostatistics. In the dental curriculum community dentistry appears in the fifth year, 9th semester. The students should have skills in community dentistry in order to practice dentistry in the light of the individual, his or her situation, his and her context and the society.

2. Primary aims

After completing the 1st semester the students should

- understand the importance of political, cultural and environmental conditions for health and disease occurrence
- have some knowledge about importance features of health and health care in a national and an international perspective
- get an introduction to research principles relevant for describing health and disease and determinants of health and disease
- get knowledge of practical community medicine/dentistry with emphasis on health promotion and disease prevention
- understand how probability statistics and bio-statistics throw light over variation and uncertainty in medicine and dentistry

After completing the 9th and 10th semester (not defined yet, but most likely) the students:

- should be able to analyse and describe the general health care system and the dental care services according to relevant structures of organisation and financing
- can outline and describe the main features of oral health in relevant subgroups of the population. The students know main concepts and methods of epidemiology
- can outline and describe demand and utilization of oral health care services by relevant subgroups
- can analyse the relationship between price and income and demand for oral health care services

can apply the concepts of populations and risk approach to an assessment of preventive services.

4. Hours in the curriculum

The hours are integrated in the general outline of the semester. There are no dental lectures as such, or pure dental PBLs, rather they are part of the whole. The aim of the first semester is to present to all the students the main features of

- the human body
- clinical communication
- society and scientific thinking

The frame for the community dentistry in the 9th semester is one week equivalent, which amounts to 3-4 lectures, 1 PBL and a few seminars. This may not be sufficient for the dental students to acquire a solid approach to community issues. Evaluation will show.

5. Methods of learning/teaching

- Lectures
- Seminars
- PBL sessions

6. Assessment methods

- Evaluation, written examination at the end of the semester. All subjects together.

7. Strengths

The strength is the integration into community medicine and the combination of teaching and PBL learning principles. It is uncertain at the moment to what extent community dentistry will be integrated in the teaching and learning during the purely dental semesters.

8. Weaknesses

The weakness is that the long distance between 1 semester and 9. and 10. semester. Unless the curriculum and teaching plans keep concepts and analysis alive most acquired knowledge will not be practised and therefore forgotten during the semesters until the last year.

9. Innovations and best practices

Too early

10. Plans for the future

The future is ahead

Section 10 Visitors comments – Public Health

The long gap between the course in community medicine taught in semester 1 and that in community dentistry taught in semester 9 is unsatisfactory.

The extent to which the social and public health aspects of oral diseases and their epidemiology is taken into account during the teaching of the clinical subjects is limited.

Future plans for the teaching of preventive dentistry and epidemiology need to be carefully addressed especially in view of the imminent retirement of some staff. Currently this aspect of the course is under further development.

Section 11 – Restorative Dentistry

11.1 Conservative Dentistry (Cariology and operative dentistry)

Person in School who will explain and show this to the visitors:

Associate professor Morten Rykke e-mail: mrykke@odont.uio.no

1. The course and its timing in the curriculum

Conservative dentistry or cariology? We use the term cariology and operative dentistry. The subjects taught start with the recognizing and diagnosis of caries and moves on to the consecutive conditions and to the treatment of caries and tooth wear by preventive and restorative procedures spanning from the 2nd to the 5th year (4th to 10th semester).

2. Primary Aims

To establish a preventive and a scientifically based attitude in cariology.
To develop skills and critical attitudes in restorative/operative dentistry

3. Main objectives

To develop skills in (ability to perform):

- History
- Examination
- Treatment planning
- Implementation of preventive programs
- Operative dentistry with state of the art biomaterials
- Monitoring and maintenance

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		6	30	11	
Courses/seminars			16	14	
Clinical training		18	446	557	
PBL			15		
Other					
Independent study	one day per week		one day per week		one day per week

5. Method of learning/teaching

- Lectures
- Seminars
- PBL sessions
- Treatment planning and patient treatment under individual clinical instruction and small group teaching.

6. Assessment methods

Group and individual exams (written or clinical) on theory and clinical ability at the end of each semester.

7. Strengths

- Motivated, proficient and creative students

8. Weaknesses

Lack of motivation among students and instructors for preventive procedures.
Constant influx of new dental materials with limited or non-existing scientific documentation.
Shortage of patients in the clinics showing representative or common cariologic problems.

9. Innovations and Best Practices

Public dental health practice (3 weeks)
PBL sessions giving proficient students with a critical attitude to cariology.

10. Plans for future changes

Implementation of more evidence based procedures in cariology and operative dentistry.

11.2 Endodontics

Person in School who will explain and show this to the visitors:

Professor Markus Haapasalo, e-mail: haapasal@odont.uio.no

1. The course and its timing in the curriculum

The basic course in endodontics is a lecture and seminar series of the principles and practice of endodontic treatment at the 7th semester (start of 4th year).

2. Primary aims

- To make the student to understand the etiology and pathogenesis of the most usual endodontic diseases and
- To give basic training for diagnosing, treating and for evaluating the treatment results of these diseases.

3. Main objectives

- Etiology and pathogenesis of pulpitis
- Etiology and pathogenesis of apical periodontitis
- Etiology and pathogenesis of tooth resorptions
- Epidemiology of endodontic diseases
- Aseptics in endodontics
- Diagnosis and differential diagnosis of diseases of the pulp and the periapical area
- Endodontic complications
- Endodontic materials
- Endodontic instrumentarium
- Most commonly used endodontic instruments and techniques
- Evaluation of results of endodontic treatment

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures			26	30	
Small groups					
Courses/seminars					
Clinical training			310	367	
PBL					
Other					
Independent study	one day per week	one day perweek	one day per week	one day perweek	one day perweek

5. Methods of learning/teaching

- Lectures
- Seminars
- PBL
- Phantom course ("propedevtikk")
- Clinical training with patients
- Use of endodontic multimedia program

6. Assesment methods

- Written examination at the end of the phantom course and after the last year.
- Semi-annual clinical examinations, where endodontics is part of the examination started spring 2000.

7. Strengths

- High quality clinical teachers
- Good lecturers
- Much know how in digital teaching technics
- Active research on the department

8. Weaknesses

- More time for teaching required
- Too few teachers in permanent positions

9. Innovations and best practices

- Development of endodontic multimedia (private international project that has come to be blessing to the local university!!)

10. Plans for the future

- More academic staff needed
- Stronger use of digital media in teaching and self learning

11.3 Prosthodontics

Person in School who will explain and show this to the visitors:

Associate professor Thomas Eckersberg e-mail: thomase@odont.uio.no

1. The course and its timing in the curriculum

Oral function and dysfunction and prosthetic dentistry is taught from the 3rd to the 5th year (term 5 to term 10)

2. Primary aims

The students should

Understand that the stomatognathic system is the most significant musculo- skeletal system in the body

Learn to diagnose and treat the most common illnesses and diseases occurring in the stomatognathic system

3. Main objectives

Orthofunction of the stomatognathic system

Dysfunction of the stomatognathic system

Temporomandibular disorders

Tooth wear

Fixed prosthodontics

Removable prosthodontics

Implant supported prosthodontics

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures			26	30	
Small groups					
Courses/seminars					
Clinical training			310	367	
PBL					
Other					
Independent study	one day per week	one day perweek	one day per week	one day perweek	one day perweek

5. Methods of learning/teaching

Lectures

PBL

Seminars

Clinical demonstrations

Clinical courses

6. Assessment methods

Presentation of patient with oral examination

Written examination

End of term evaluation of some sort throughout

7. Strengths

Self study effect through PBL training giving more interested students

8. Weaknesses

Difficulty in getting teachers with adequate clinical training

Limited clinical training

The formal training appears disintegrated, possibly through ill formulated PBLs, fewer lectures and extremely little time for seminars

The students know something about most subjects, but there is uncertainty about the depth of their knowledge

No external quality control of neither general patient treatment nor actual work produced

10. Plans for the future

The first two to three terms of clinical training should be within the departments and the last two to three terms work should be carried out in general treatment. This will give the student a more sound basis for his general clinical work

11.4 Gerodontology

Person in School who will explain and show this to the visitors:

Professor Tony Axell, e-mail: tony@odont.uio.no

1. The course and its timing in the curriculum

Education in Gerodontology is given during the 8th to the 10th semester, and as theoretical and clinical courses at an institution for fragile elderly people.

2. Primary aims

- The primary aims are to elucidate the relationship between dental and oral conditions and factors of life quality in elderly people. Also mental state, personality, social network are similarly dealt with.

3. Main objectives

The students are taught to:

recognize mental capacity changes in the elderly and fragile people

communicate with elderly and fragile people

take an adequate anamnesis in the elderly

diagnose and treat cariologic, periodontal, endodontic and prosthodontic problems in the elderly

diagnose and treat oral soft tissue lesions and xerostomia in the elderly

respect autonomy, integrity and self esteem of the elderly

learn about social insurance systems related to different categories of elderly and fragile people

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures				6	4
Small groups				15	3
Courses/seminars				4	4
Clinical training					18
PBL				4	4
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Methods of learning/teaching

Lectures
 PBL
 Small groups
 Seminars
 Clinical work

6. Assessment methods

- Written examination during the evaluation week at the end of the term.
- Evaluation by the students at the end of the course at 4th year.

7. Strengths

Flexible teaching and learning situation
 Good clinical and seminar facilities
 Enthusiastic and hard working staff

8. Weaknesses

Inadequate number of clinical chairs at institutions for the elderly
 Inadequate number of teaching staff

9. Innovations and best practices

Students get their knowledge from spending time at an institution for fragile and elderly people

10. Plans for the future

Increasing and educating the teaching staff
 Building a new clinic for gerodontological teaching
 Development of IT for, among else, PBL and teaching in small groups

11.5 Biomaterials

Person in School who will explain and show this to the visitors:

Professor Nils Jacobsen e-mail: nilsj@odont.uio.no

1. The course and its timing in the curriculum

The biomaterials course is integrated with the preclinical techniques course (3rd year, 5th semester) and with clinical teaching and training in the 3rd, 4th and 5th years (6th, 7th, 8th, and 9th semesters).

2. Primary aims

- To qualify the candidates for selection and use of dental biomaterials on the basis of their physical, chemical, and biological properties. Optimal handling and application of the materials are parts of the qualification.

3. Main objectives

To obtain satisfactory knowledge of

- mechanical and physical characteristics of dental biomaterials in general
- restorative biomaterials and clinical techniques related materials used by the dentist
- dental laboratory materials and techniques
- potential side effects for patients and personnel

To develop attitudes consistent with ethical standards as regards

- patient information on biomaterial properties and patient influence on material choice

- minimizing non-reversible intervention procedures

To stimulate to life long learning within field of dental biomaterials

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures			8	5	
Courses/seminars				3	
Clinical training					
PBL			15	3	
Other					
Independent study *	one day per week	one day perweek	one day per week	one day perweek	one day perweek

* *Independent study hours* are estimated to 6 hours (one day) for each of the PBL-cases. However, it is not known whether *all* free study hours are actually used exclusively for each particular PBL-case. On the other hand, additional study hours may be used for biomaterials during other parts of the integrated curriculum, and some students may choose biomaterials topics for their elective, written project during semesters 8- 10.

In addition, lectures or lecture type introductions to clinical training containing *biomaterials* items are given by teachers in topics such as dental laboratory techniques, prosthodontics, cariology, and implantology. An estimated number of such lectures amounts to 10 in the 5th semester, 3 in the 6th semester, 1 in the 7th semester and 1 in the 8th semester, on topics such as bonding materials, amalgam, composites, glass-ionomers, impression materials, cements, ceramics, gold alloys, implant materials, mucosal reactions etc. One clinical PBL-case focus on material esthetics (color theory). All these activities are registered by other section or departments and are not included in this table.

5. Methods of learning/teaching

- PBL-cases
- Lectures
- Seminars

6. Assessment methods

- Written and/or oral integrated end-term examination

7. Strengths

- Integration with laboratory/clinical activities
- The PBL-approach

8. Weaknesses

Less control of the *biomaterials science* with the integrated curriculum and the PBL-approach, f. i. gold alloys are not included in PBL-cases or lectures at present

9. Innovations and best practices

The main advantage is more active students than before. In addition, see answer to question no. 10

10. Plans for the future

The Faculty of Dentistry is in an implementation phase of a new curriculum based on horizontal and vertical integration. All aspects have to be thoroughly evaluated after the end of term 10 in year 2001, when the first candidates will have completed their undergraduate dental studies according to the new curriculum. Preliminary suggestions for *biomaterials* focus on changes/improvements of PBL-cases and on better coordination between different terms.

11.6 Occlusion and Function of the Masticatory System

See section 11.3

Section 11 Visitors comments – Restorative Dentistry

Patients are mostly elderly and from central and eastern parts of Norway. Because the requests, demands and attitudes of this group of patients are different from that of the average population, students do not get experience with the full spectrum of patients (high demanding, medium demanding and low demanding).

Integrated patient care has been found to be difficult until students have been taught the basics in the different disciplines. Beginning in September 2000, semesters 6, 7, and 8 will be discipline based allowing full implementation of integrated restorative care during semesters 9 and 10.

Facilities in two institutions for the elderly provide the base for the teaching in gerodontology. Although this affords a good facility for this aspect of the course, the teaching time allocated to this was regarded as somewhat inadequate.

Prosthetic work is sent to outside laboratories; accordingly the quality of this work can be uncertain.

In biomaterials, although PBL is working well, not all topics are adequately covered. Students using new materials in outside clinics may not always take into account the merits of these whereas in the dental school, choice of materials is based on rigorous criteria.

Section 12 - Periodontology

Person in School who will explain and show this to the visitors:

Professor Per Gjermo e-mail: gjermo@odont.uio.no

1. The course and its timing in the curriculum

Theoretical and practical training in periodontology from the 3rd to the 5th year (5th through 10th semester).

2. Primary aims

- To teach students the etiology, epidemiology, pathogenesis and treatment principles of periodontal diseases.
- Enable students to diagnose and treat most forms of periodontal diseases.

Main objectives

To teach

the etiology and epidemiology of periodontal diseases
 the microbiology, immunology and pathogenesis of periodontal diseases
 the healing and maintenance of dental implants
 primary and secondary prevention of periodontal diseases

To train:

diagnoses and differential diagnoses related to periodontal diseases
 treatment of various forms of periodontal diseases

To convey:

the understanding of periodontal diseases and their importance in the concept of total oral health care

4. Hours in the curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures			11	11	not clarified
Courses/seminars			24	28	not clarified
Clinical training					
PBL					
Other					
Independent study	one day per week	one day perweek	one day per week	one day perweek	one day perweek

5. Methods of learning/teaching

Lectures
PBL
Seminars
Clinical demonstrations
Treatment of patients

6. Assessment methods

Defined clinical skill must be obtained each term
Integrated theoretical exams

7. Strengths

Well trained and experienced academic staff
Ongoing research projects (see home page)

8. Weaknesses

Shortage of staff for theoretical teaching
Lack of discipline oriented environment in the clinics
Consequences:
- difficult to give systematic training in clinical periodontology
- lack of control of students' progression and skills
- reduced motivation for qualified clinical instructors to take an appointment
Shortage/lack of qualified clinical instructors

Section 12 Visitors comments – Periodontology

The introduction of discipline based clinical teaching during semesters 6, 7 and 8 is welcomed by the Department of Periodontology. This will enable the introduction of integrated care during terms 9 and 10 to be more effective. The heavy clinical teaching workload of the staff is however beginning to have an impact on the research output.

Tentative plans to link the teaching of periodontology with the teaching activities of the School of Dental Hygiene are deemed highly desirable and could be mutually beneficial.

Section 13-Oral surgery and Oral medicine, and Oral Radiology**13.1 Oral Surgery and Oral Medicine**

Person in School who will explain and show this to the visitors:
 Professor Paal Barkvoll e-mail: barkvoll@odont.uio.no

1. The course and its timing in the curriculum

The basic course in oral and maxillofacial surgery and oral medicine deals with dentoalveolar surgery, trauma, biopsies, oral mucosal diseases and diagnosis and treatment of some TMJ disorders (TMJ injections). Start: 3rd year (6th semester). The department is also responsible for the programme in the following disciplines:

- Pre-clinical course in patient examination in the 2nd year (3rd semester)
- ENT in the 4th year (7th semester)
- Internal medicine in the 5th year (9th semester)
- Anesthesiology in the 3rd year (6th semester)

2. Primary Aims

- Diagnostics - basic – both the patient in general and diseases in the oral cavity
- Treatment - such as simple extractions, surgical flaps, biopsies, oral medical diseases.
- Knowledge - when to refer the patient to a specialist

3. Main objectives

- General surgery
- Erupted, unerupted and impacted teeth including autotransplantation
- Periradicular pathology
- Odontogenic infections including indications for referral to hospital, complications, post-operative care
- Inflammatory processes in the maxillofacial area
- TMJ - problems
- Traumatology: dentoalveolar trauma maxillofacial trauma including oral and perioral soft tissue injuries
- Oral cancer and precancer
- Oral mucosal diseases such as lichen planus, herpes, aphthous ulcers, candidiasis etc.
- General diseases with oral manifestations
- Medical risk patients
- Pain and pain diagnostics
- Prescription of medications necessary in oral surgery and oral medicine

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	1	2	12	25	15
Courses/seminars			10	20	20
Clinical training		16	26	76	76
PBL			8	4	4
Other					
Independent study	one day per week	one day perweek	one day per week	one day perweek	one day perweek

5. Method of learning/teaching

- Lectures
- Seminars
- Small group teaching

- Hands on (i.e. arch bars on models)
- Assisting in operations
- Surgical training (roots, 3.rd molars)
- Emergency room service
- Out – patient clinic
- Chair-side teaching

6. Assessment methods

- Integrated examination from the 3rd year (6th semester).
- Evaluation in the clinic at the end of each semester.

7. Strengths

- Possibility to take part in various clinical activities

8. Weaknesses

- Inadequate number of teachers to allow students' own clinical activity
- No formalised collaboration with hospital OMFS departments

9. Innovations and Best Practices

- Holistic view – focus on the patient - hospital training
- ENT integrated in the curriculum - hospital

10. Plans for future changes

- Establish collaboration of teaching with maxillofacial surgery department of Ullevål Hospital and/or Rikshospitalet
- Establish collaboration of teaching with hospital departments in internal medicine and general trauma center

Oral Radiology (Maxillofacial Radiology)

Person in School who will explain and show this to the visitors:

Professor Tore A. Larheim e-mail: larheim@odont.uio.no

1. The course and its timing in the curriculum

Department of Maxillofacial Radiology deals with advanced imaging of the jaw skeleton with soft tissues. We have referrals from all over the country and postgraduate Curriculum in maxillofacial radiology. In the undergraduate Curriculum the discipline is named **oral radiology** in accordance with international terminology.

Oral radiology is introduced with radiographic anatomy integrated in the anatomy course in the 2nd year (4th semester). In the clinic, oral radiology is introduced with emphasis on background radiation, one day course, and exercises with bitewings (patients) and periapicals (students/phantom, no patients) in a one week course integrated with clinical examination of caries in the 3rd year (5th semester), exercises with periapicals (patients) in a one week course in the 3rd year (6th semester), and exercises with panoramic and occlusal views (phantom and students) including diagnostic exercises on film and digital images in the 4th year (7th semester). Each student should focus on indication, radiographic method(s) and description/diagnosis in one patient. Oral tumors: integration of oral surgery, radiology and pathology is taught in the 4th year

(8th semester). In addition to radiologic training in each clinic, the students should give 3 x 3 radiologic reports in the 4th and 5th year (8th, 9th and 10th semester), and be able to evaluate the need for supplementary radiologic examination and perform referrals to specialists in the 5th year (10th semester).

2. Primary aims

To be able to evaluate the need for radiologic examination (based on anamnestic and clinical information) and be qualified to perform diagnostics assessment of diseases, injuries and malformations/disorders in teeth, periodontal tissues, jaw bone and oral soft tissues. Have enough knowledge about conditions in the surrounding anatomical structures as well as specialist examinations in maxillofacial radiology, to be able to communicate with specialists and make referrals for supplementary examination.

3. Main objectives

- To be able to evaluate the need for (routine) radiologic examination as a supplement to (routine) clinical examination
 - To be able to perform common intraoral radiologic examinations (technical performance and diagnostics)
 - To be able to perform certain specialized examinations with the dental X-ray apparatus
 - Should obtain good knowledge about panoramic examination (technical performance and diagnostics)
 - Should obtain good knowledge about digital intraoral radiologic examination methods (technical performance and diagnostics)
 - Should obtain knowledge about maxillofacial radiology
 - Should obtain knowledge about radiation physics and radiation biology
 - Should obtain good knowledge about radiation doses and radiation protection
 - Lectures on: oral implantology, jaw infections and osteomyelitis, jaw cysts and benign lesions, malignant jaw tumours, maxillary sinus diseases, TMJ disorders/diseases – radiological aspect

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		8	10	18	8 (?)
Courses/seminars		8	25	26	30 (?)
Clinical training			12	22	18
PBL					
Other*			29	55	46
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

*Radiologic training in Clinic for diagnostics. 40% of the clinical training at Clinic for diagnostics is considered to be radiologic training

5. Method of learning /teaching

Lectures
 Acting in "role plays" with later plenary discussion
 Written radiologic reports (diagnostic exercises) on film and digital images
 One individual task ("case report") with emphasis on the entire radiologic procedure
 Practical training supervised by instructors, also general practitioners not only specialists or postgraduate candidates in maxillofacial radiology

PBL and problem-bases diagnostic exercises

Assessment methods

- Exercises with written reports during the week courses. The student or group of students also give their reports in plenary discussion.
Students should select one patient in either of the clinics and focus on the entire radiologic procedure, which will be assessed in a plenary discussion.
The knowledge in oral tumors will be tested in an integrated written assessment (oral surgery, radiology and pathology).
Each student should report how many bitewing radiographs, how many periapicals and how many panoramic radiographs they have executed, and some sort of practical assessment test should be made.

7. Strengths

- Oral radiology early introduced in the Curriculum (in the anatomy course)
- Concentrated week courses in the different aspects of oral radiology; students are focused and the whole staff contributes
- Exercises in diagnostics early in the Curriculum
- Training in radiographic techniques early and before the students start working with their "own" patients
- Integrated education, such as with oral tumors
- Only one discipline in Clinic for diagnostics, therefore little competition from other disciplines

8. Weaknesses

- Insufficient intraoral digital radiographic equipment
- Do the students get enough training in bitewing, periapical and panoramic procedures? How to record them?
- Do the students get enough diagnostic exercises in oral radiology?
- Evaluation methods are not settled, neither theoretical nor practical

9. Innovations and best practices

- Each student should learn to use digital intraoral radiographic equipment
- Each student should supervise at least one advanced examination performed by a maxillofacial radiologist
- Diagnostic exercises on conventional and digital radiographic images; the students may use PC in some of their diagnostic exercises
- Digital interactive learning programs

10. Plans for future changes

- Occlusal view examinations will be the first digital interactive learning program made
- Transfer digital dental images from the dental X-ray chair to the student seminar room at Clinic for diagnostics (which will be the first step in the "digital development" in all the clinics)
- Curriculum in 9th and 10th semesters not settled
- Evaluation in 8th, 9th and 10th semesters not settled

Section 13a Visitors comments – Oral Surgery and Oral Radiology

The number of patients made available for extractions from the Oslo Public Dental Health Clinic is reliable and very satisfactory. However the number of teachers to supervise students during minor oral surgery does not always appear to be adequate.

The digital equipment and other facilities in Oral Radiology are excellent and the introduction of an on-going record of students' clinical experiences in the taking of radiographs is welcomed. The staffing and teaching seems to be well planned and well carried out.

Section 14 - Oral Medicine and Oral Pathology

14.1 Oral Medicine

See section 13.1

14.2 Oral Pathology

Person in School who will explain and show this to the visitors:

Professor Hanna S. Koppang e-mail: hanna@odont.uio.no

1. The course and its timing in the curriculum

Oral pathology is an adjunct subject in the curriculum. Lectures, histopathology courses and clinico-pathological seminars are given in the 2nd, 3rd and 4th years (4th, 5th, 7th and 8th semesters).

2. Primary Aims

- To motivate students to take the responsibility for the entire oral cavity and adjacent regions.
- To make students acquainted with the pathology of selected oral diseases.

3. Main Objectives

To make students acquainted with the pathology of selected conditions in

- the periodontium (tumours and inflammations exclusive of marginal periodontitis)
- the salivary glands (tumours and inflammations)
- the oral mucous membrane (infections, aphthous lesions, non-infectious vesiculo-bullous lesions, autoimmune diseases, tumours)
- the jaw bone (primarily tumours)

4. Hours in the Curriculum

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures		1	1	3	
Courses/seminars		2	3	8	
Clinical training					
PBL					
Other					
Independent study	one day per week	one day per week	one day per week	one day per week	one day per week

5. Method of Learning/Teaching

- Lectures
- Guided courses in histopathology

- Clinico-pathological case presentations (seminars)
- Oral pathology is to some extent incorporated in PBL exercises

6. Assessment Methods

- No independent assessment
- Courses are compulsory
- Questions in oral pathology are incorporated in written examinations at the end of the semesters

7. Strengths

Integration of courses/lectures/seminars in oral anatomy/histology, oral surgery/medicine, maxillofacial radiology and oral pathology. Satisfactory/good teaching equipment (microscopes, TV-cameras)

8. Weaknesses

Unsystematic, incoherent teaching (focused on regions, not on disease entities). Extremely vulnerable system (no room for changing schedule if a day is lost or if need for more comprehensive/extensive covering turns up).

9. Innovations and Best Practices

Coordination/integration with preclinical and clinical subjects (oral anatomy/histology, maxillofacial radiology, oral surgery/medicine)

10. Plans for Future Changes

The new curriculum has just been effectuated and will probably not be subject to major changes in the near future.

Section 14 Visitors comments - Oral Medicine and Oral Pathology

The Oral Medicine clinic is the major referral site, together with Bergen, in Norway and offers excellent experience.

The teaching in Oral Pathology is well organised. The department however does not provide a service, this work being contracted out to private laboratories.

The department of Oral Pathology is part of the department of general pathology; this offers merits in terms of both teaching and provision of service.

However, students found the teaching of oral pathology by anatomical region rather than by pathological disorder to be confusing. In recent years, students were regarded as being more interested in pathology than in previous years; increased contact with medical students may be one of the reasons for this.

Section 15 - Integrated Patient Care and Dental Emergencies and Special Needs Patients

15.1 - Integrated patient care

Our course (integrated clinic) takes place during the 6th to 10th semesters. The implementation of the course started in January 1999, and at present it includes the 6th to 8th semesters. The clinical time involved is 3-4 sessions per week.

The subjects that are integrated consists of cariology, periodontology, prosthodontics and oral function, and endodontics. The treatment of the patients is supervised mainly by general dental practitioners. In addition competent practitioners from each department are available.

The strength of the course is the similarity to private or public practice.

Weaknesses are

- staff attitudes concerning change of working environment

- educating general dental supervisors who must cover three fields as opposed to earlier just one

- evaluation of integrated patient care versus specific requirements within each subject

15.2 Dental Emergencies

1. Introduction

The students are exposed to outpatient clinic and dental emergencies in the courses of oral diagnostics that takes place in The Clinic of Oral Diagnostics. Dental emergencies are also taught in other clinics especially Department of Oral Surgery and Oral Medicine .The clinical training concerning dental emergencies are primarily practised in semester 8. –10 and to a small extent in semester 7. The learning of different emergency conditions starts in semester 6.

2. Primary aims

To develop the understanding how to diagnose and treat different dental emergencies in general practices; tooth infections/inflammations and other common oral infections, non-functional tooth restorations or prosthetic reconstruction.

3. Main objectives

The students should be able to diagnose and treat common dental emergencies like acute pulpitis, acute periapical lesions, and traumatic fractures of teeth, treat non-functional restorations and reconstruction. The students should also know when, how and where to refer patients for further diagnosis and treatment.

4. Hours in the Curriculum.

Semester 8: Outpatient works approximately 8,5 hours pr. student

Semester 7: Outpatient works approximately 4 hours pr. student

The timetable for semester 9 and 10 are at the moment not available concerning time for outpatient clinic.

5. Method of learning.

Clinical practice under supervision of the teachers working in the Clinic of Oral Diagnostics.

6. Assessment Methods

Theoretical knowledge is included in the evaluation of each semester. Clinical credits are recorded and the teachers approve clinical work.

7. Strengths

The students are exposed to a “real life” situation in general dental practice.

8. Weaknesses

Clinical facilities are not optimal for doing outpatient work.

9 and 10. Innovations and Best Practises / Plans for the Future Change.

New clinical facilities – and future plans for rebuilding of the clinic will be of great importance for innovations and future changes. At the moment; integral diagnostic perspective within the outpatient clinic.

15.3 Care of Special Need Patients

Various categories of patients attend The Institute of Clinical Dentistry for advice, treatment planning, and instructions. Some of these have special needs related to physiological, mental, or emotional disturbances. In addition to the services provided to these patients, the data recorded have also served as a basis for building of competence and research. These activities have to a limited extent been exposed to the postgraduate students for educational purposes. This aspect is, however, currently addressed in connection with the planning of the new undergraduate curriculum's 5th year. Some of the activities relevant for this section are commented briefly below.

Physiologic disturbances

In co-operation with regional institutions, services are, or have previously been provided to patients with for example syndromes (with craniofacial manifestations), juvenile rheumatoid arthritis, and severe temporomandibular disorders. Some services are organised within the department (Clinic for Advanced Oral Health Care: interdisciplinary specialist treatment, general anaesthesia, TMJ-disorders), whereas others are collaborative projects with external partners (hospitals, community institutions). Postgraduate students have to a certain extent been involved in these activities. A national center for infrequently appearing syndromes with oral manifestations is located at The Faculty of Dentistry.

Psycho-social disturbances

The subject of clinical communication and patient care has been focused over the last year by allocation of positions as research fellows and postdoctoral fellow. Over the last year, one doctoral thesis has addressed the issue of dentophobia, and two other dissertations have dealt with pain control in dentistry.

Section 15 Visitors comments – Integrated Patient Care and Dental Emergencies

From September 2000, integrated patient care will be implemented during terms 9 and 10 following discipline orientated teaching in semesters 6, 7 and 8. In addition to being educationally beneficial to students, it is anticipated that this arrangement will also help in the recruitment and training of part-time clinical teaching staff.

In order to increase the exposure of students to dental emergencies, collaboration with the 24-hour Oslo Public Dental Emergency Health Clinic is essential.

Teaching of students in the management of special care patients however appears to be successful.

Section 16 - Behavioural Sciences

16.1 Behavioural Sciences

(see section 9.2)

16.2 Communications

(see section 9.2)

16.3 Ethics & Jurisprudence

Contact person: Professor Arild Stenvik e-mail: stenvik@odont.uio.no

Introduction

The students are introduced to normative ethics and professional codes of ethics and laws related to provision of health services in general during the first two years. The last two years, the focus is on ethical problems specifically related to oral health care, and laws and regulations applicable to dentists and dental hygienists.

Primary Aims

The students should develop a moral judgement and a sense of responsibility in order to serve society as a professional. Professional activities should be based on a knowledge of laws, regulations and guidelines governing provision of oral health care.

Main Objectives

The graduate should

- understand and apply the principle of informed consent in oral health care
- be able to deal with consent to treatment for under-aged and disabled patients
- relate normative treatment need to the individual patient's priorities and values
- develop a sense of responsibility for participation in the development and improvement of a national oral care scheme
- be motivated to reflect on optimal utilization of resources and fairness in their allocation
- know and respect codes of conduct for health professionals
- have knowledge of the legal aspects of clinical activities like record keeping, confidentiality, complaints, and negligence
- understand the importance of and be motivated for life long learning

Hours in the Curriculum

The distribution of hours appears from the table, and for the 5th year the figures are tentative as the activities are currently about to be implemented.

	1 st year	2 nd year	3 rd year	4 th year	5 th year
Lectures	5				4
Courses/seminars	6	2			8

PBL	6	6			
Other				6 ²	

Method of Learning/Teaching

Methods of learning appear from table above. The seminars will be based on case-stories addressed by the students in small groups followed by plenary sessions for further reflection. Ethical issues specific to the various disciplines are dealt with within each discipline's curriculum.

Assessment Methods

In the 5th year, ethics/law will be integrated in the final examination assessing the student's overall competence.

Strengths / Weaknesses

The medical faculty has a well-staffed department in the ethical/legal area, which takes care of the basic part of the curriculum (first two years). Plans for the curriculum's final year have been established, but at present strengths/weaknesses remain to be assessed. Hopefully, the clinically-oriented approach to reflection on moral issues will open the door for development of a more comprehensive and complete moral vocabulary among the graduates.

Innovations and Best Practices

The University of Oslo has over the last three years focused on ethical issues in an inter-faculty program. The program has provided support for the efforts involved in developing a curriculum integrating ethical issues for medical doctors and dentists.

Plans for Future Changes

As the outcome of the current program remains to be seen, further developments have to be awaited. A particular challenge seems to be to integrate professional guidelines, principles for clinical communication (behavioural science), ethical, and legal issues in settings facilitating discussion and reflection.

16.4 Practice Management

A non-compulsory course in practice management is given to our students by the Norwegian Dental Association (Den norske Tannlegeforening) in the final weeks of the 5th year.

Section 16 Visitors comments – Behavioural Sciences & Ethics and Jurisprudence

There is a general introduction to Ethics and Jurisprudence in semesters 1 to 4 with oral aspects being considered in semesters 9 and 10. The situation seems satisfactory. (Behavioural Sciences – see Section 9.)

Section 17 - Examinations, Assessments and Competences

Person in School who will explain and show this to the visitors:

² Ethical issues are integrated in "Esthetic Dentistry" workshop

Professor Per S. Thrane e-mail: thrane@odont.uio.no

Each semester is ended with one integrated examination, with the exception of the 3rd, 4th and 5th semesters where the examinations consist of two independent parts. Successful completion of the semester examination is a requirement for advancing to the next semester. The examinations take on different forms, from the written essay type to practical propedeutical, practical clinical and the OSCE-type exam. There are also oral exams, individual or in groups. Clinical training is assessed continuously by the instructors. At the end of the clinical courses, the students are assessed by the joint academic staff before the student is allowed to take the formal semester examination. The assessment is made on the background of preset goals of achievements made known to the student at the start of the semester. These goals are grouped in knowledge based, skill based and behavioral based goals and at different levels of advancement.

The students assess the teaching given to them and their tutors. Each PBL-case is assessed separately in addition to the semester evaluation.

The grading system is pass/fail.

Upon obtaining the degree Cand.Odont. the candidates are issued their authorization by the Norwegian Health Authorities. This authorization is necessary in order to be allowed to work as a dentist in Norway.

Section 17 Visitors comments – Examinations, Assessments and Competencies

Unlike EU member states, there is no "competent authority" in Norway to recommend minimum knowledge, skills and competencies prerequisite for the practice of Dentistry. The examinations are based on the University's own criteria of clinical competence. The examining system is organised internally within the institution. Plans to appoint external examiners from other countries are welcome.

The examination and assessment system is under continuing review and on completion of the full five-year cycle of the new curriculum, any necessary changes will be implemented. Students were not always clear about their day to day progress with their clinical work.

Section 18 – Other influences

Professor Hans R.Haanæs e-mail: hhaanas@odont.uio.no

Professor Arild Stenvik e-mail: stenvik@odont.uio.no

18.1 Regional Oral Health Needs

The National Health System has the responsibility to provide treatment free of charge to children up to 18 years (orthodontics excepted) and other defined groups (handicapped, long-term hospitalized etc). Generally, the adult population is being treated in private practice and has to carry expenses themselves. The clinics at The Faculty of Dentistry belongs to the University, and patients are selected for teaching purposes; there are more than 90 000 visits annually.

Patients' access to treatment on a regional level is generally good for all patient categories. Adults seek treatment at the University clinic on their own initiative. An arrangement has been made with the NHS locally that the children in three neighbouring schools receive their oral health care

at the University clinics. Students do also to some extent practice in community settings (hospitals, homes for elderly) for particular groups of patients.

Patients with comprehensive needs for treatment are referred to The Faculty of Dentistry by general practitioners. Many of these patients represent a regional shortage of specialist services, and they receive treatment in the postgraduate clinics. The Faculty also attempt to meet a National need for advanced treatment as patients are referred for diagnosis, advice or treatment requiring particular competence or interdisciplinary treatment. To administer and structure these services in relation to the curriculum, the Clinic for Advanced Oral Care has recently been established.

A National center for diagnosis and treatment of infrequent syndroms with oral implications have been located at the Faculty, and is funded by the Ministry of Health and Social Affaires. The Faculty also takes part in a structured cooperation with the National Hospital and the Regional Hospital (Ullevål) in the care for special groups (children with cleft lip and palate, major craniofacial deformities).

18.2 Evidence Based Treatment

As the PBL approach to education was implemented in 1996, a strong component of research evidence is inherent in the learning process. The students have access to computer facilities, and are expected to review literature and provide evidence for their conclusions. Other group-activities are also focusing on a scientific approach to clinical problems. In the treatment of patients, the scientific basis for treatment plans or interventions has to be clear before treatment is started.

18.3 Involvement in Other University Activities

The students elect representatives to the Faculty Council, Board, and various committees, and they also have representatives in University bodies. A Student's Association is involved in cultural activities, excursions, and in publishing a 'quarterly'. The Students' Union is running cafeterias at the various faculties, as well as lodging services for the students.

18.4 Recreation and sport. Social life

The students have a resort outside the city where they can stay overnight, and which represent a good opportunity for recreation and social life. The dental students from various Nordic faculties have their 'olympic games', and traditionally the students from Oslo and Bergen have a joint annual professional and social meeting at a winter resort. The students also arrange dinner parties where well-established seremonies play an important role.

18.5 Student selection procedures

Application procedures to all higher education in Norway is organised through a central body (Samordnet Opptak), that is all university studies and college studies. This organisation has a smaller permanent staff and relies on part-time help during the months that the selection procedures occur (May to August). Deadline for applications to higher education is April 15th for students with a norwegian/nordic secondary school exam and March 1st for those with exams at secondary school level from other part of the world.

Admission to dental studies is highly restricted. In addition to the general requirements for university studies, students must document a high level of competency in mathematics, physics

and chemistry. In recent years we have registered some 300-350 qualified applicants to the 65 places available (The University of Bergen takes up 48 students per year in Dentistry).

Section 18 Visitors comments – Other Influences

There are many examples of positive collaboration between the Faculty of Dentistry and the oral National Health System in Norway

students receive some of their experience in county clinics

the gerodontology course is based on two institutions for the elderly

the cleft lip and palate centre is one of the leading centres in the world and works closely with the dental faculty.

the advanced oral care clinic

the national centre for the diagnosis and treatment of infrequent syndromes.

Faculty should be congratulated on this level of collaboration, which is of mutual benefit both to the services and undergraduate and postgraduate teaching and research.

It is also noted that changing patterns of oral health in Norway (e.g. retention of teeth into old age) has been taken into account in curricular changes over the years.

Section 19 - Student Affairs

Final year students have exam term at the time of the Site Visit and cannot be expected to meet as a full class. The list below have representatives from all classes. The meeting with will be announced as open for all students.

Dental students

Final Year: Asgeir Grotle
Trine Orten

Fourth Year: Jan Erik Westby
Eva Gustumhaugen
Camilla Steinum
Thomas Soerensen

Third Year: Nina Ellen Torgersbraaten
Kristine Heskje
Irene Dybvik

Second Year: Petter Wilberg
Ingrid Fjaervik

First year: Jon Olav Hunderi

Dental hygienist students

Senior class: Merethe Naess Alsos

Junior class: Silje Aareskjold Lea

This will be the basis of a discussion with visitors.

19.1 Basic Data from Dental Schools

- a. Average number of dental students qualifying per year: **55**
- b. Average number of dental students admitted to the first year: **65 (fixed number)**
- c. Length of course in years and/or semesters: **5/10** years/semesters
- d. Is there a separate period of vocational training following graduation as a dentist in your country? **NO**
- e. If yes to d) above, is that organised by the University/Dental School YES/NO

19.2 List different postgraduate courses

Postgraduate courses:

Clinical Specialty in:

Oral Surgery
Orthodontics
Periodontics
Pedodontics
Prosthodontics
Endodontics
Radiology

Master of Science (Dentistry) in:

Oral Biology
Oral Surgery
Orthodontics
Periodontics
Pedodontics
Prosthodontics
Endodontics
Radiology
Cariology

Dr. Odont

19.3 List of different auxiliary/technology/other courses and number who qualify per year

These groups are educated in the secondary school system or in independent colleges

19.4 Brief description of student counseling services in the University

Faculty administrators, such as study counselors, have student counseling service as one of their responsibilities. In The Faculty of Dentistry there are at the moment 3-4 persons who will regularly give counseling.

Along with The Faculty of Medicine, in the mid-nineties we established a student manned counseling service. This service comes in addition to the faculty administration service. The idea is that advanced students can use their experience in guidance of newcomers. Their guidance can vary from information about practical subjects to confidential counseling on personal matters. The student counseling service should provide a low threshold arena for the students to seek when needed. This service is an innovation at university level in Norway, the idea being taken from other Scandinavian countries.

In addition, The Norwegian Association of Students (Studentsamskipsnaden) provide health services, social care services and other welfare offers. These services are situated on campus.

Section 19 Visitors comments – Student Affairs

Representatives from all five years of the dental curriculum were present at the meeting with visitors.

All complained of the feeling of isolation from the dental curriculum during the first three years. They also regarded the course as being organised by Medical Faculty for medical students with dental students occupying a secondary role. The PBL contained few if any dental examples and students were unclear as to the educational benefits of dental clinic visits held during the first year.

Students are involved at all levels in discussions about curricular changes and staff student relations are good.

Students perceive the day free of clinics in a positive manner.

However there is no student mentor scheme or policy of student support and guidance.

Dental hygienist students made clear that they had no link with the teaching of dental student, hence there was no appreciation of their ultimate role. These students felt that many subjects were covered in a superficial manner and a three-year course would be desirable. They also felt that there were too many assessments and examinations. Entry requirements did not necessitate a science background.

Section 20 - Research and Publications

Person in School who will explain and show this to the visitors:

Name: Professor Harald Eriksen

e-mail: heriksen@odont.uio.no fax: + 47 22 85 23 32

Only publications in international journals with referee system are included

Publications 1998

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Section 20 Visitors comments –Research and Publications

The Dental Faculty in Oslo is justifiably proud of its research activity and publication record going back over a century. This is reflected in the extensive research equipment in the dental hospital and biological sciences research laboratories. However, there is evidence that despite the outstanding research facilities, their optimal use may be prejudiced in the future for a number of reasons such as increased teaching workload following the introduction of PBL and poor salaries for academics relative to other employment opportunities. In the case of clinical academics, the problem of separate training for doctorates and clinical specialities leads to a lengthy and inefficient educational pathway.

Section 21 – Quality Development

General remarks

Self-directed learning, which facilitate life-long learning, is implemented in our new curriculum. The staff is committed gradually to an innovative educational approach. It is our hope and belief that this will help students to develop their competence both for the present situation and the future.

It will be necessary to have an ongoing review of the curriculum especially in the clinical part of the study to develop a balance between educational approaches in relation to the content and skills to be learned. Even if the new curriculum has a broader biological and medical foundation with almost two years joint studies with medical students, one must have in mind that dentistry is a health profession in need of (like surgery) technical skills on a high level. We have to work hard to improve our clinical facilities (having been planned rebuilt for more than 5 years, but only partially completed).

One major problem is the recruitment of qualified persons to staff positions over the next 5 to 10 year perspective, due to the unusually high percentage of staff reaching retirement in this period as mentioned earlier under section 1.3. Additionally, we have to enhance the support to research in both the basic and clinical science areas. A main concern is the combined clinical, tutorial and administrative workload resulting in little time remaining for research. A more differentiated staff (positions allocated to a larger workload on administration, clinical work and teaching) will hopefully result in a decrease of same workload in scientific staff, thus improving on the present situation. Economic support from the Department of Social Care and Health to the postgraduate training programs in near future should also be helpful.

The students contact with research done by staff members is insufficient. We are aware of the problem, but we will probably need a period of stabilization before this situation can be addressed further.

The Faculty will continue to play an active role in international programs and cooperation, concerning undergraduate as well as postgraduate education. Participation in the Socrates/Erasmus-programme, enhancing students and staff to visit abroad has to continue. The need for staff members to partake internationally is not the least.

Quality development structures

The Faculty aims at a continuous quality development of the curriculum through the organisational structure responsible for the study plan. First, we have a Study Council in charge of the overall navigation. The Study Council consists of five representatives, three from the tutorial staff and two students. The Study Council will deal with principal issues, often concerning more than one or a few semesters. It puts emphasis on longitudinal aspects of the curriculum and is responsible for forecasting future needs for adjustments or changes. Next, there are semester boards (planning groups) assigned to the task of the planning and carry through of each semester, eight in all. The Semester Boards are also made up of three teachers and two students. The Board will work closely with the teachers involved in their semester and answers to The Study Council.

Recently The Study Council appointed an Evaluation Committee with special responsibilities for developing better systems for evaluation, whether that be the evaluation of students through exams or the students and others evaluating the curriculum, the teaching environment, teachers/tutors and other staff etc. This committee have two representatives from the faculty teaching staff, two students and one external representative from the university's educational science department. At the moment the committee is especially concerned with the total system for assessing and examinations, to ensure that the system is consistent with the principles of teaching. Also, the committee is working through all PBL-cases presently in use to get an overall picture of the quality of these. The ways in which students evaluate curriculum and staff is currently under development. From the beginning in 1996, the students have evaluated each PBL-case given and also their tutors. This extensive evaluation was regarded as necessary at least in the initial stages. The Evaluation Committee have recognised that PBL-evaluation should continue, but that other forms must be added. For instance, it is the intention to standardise end-evaluation of all semesters. On trial basis, one semester will be evaluated as follows in the spring of 2000. Day one-exam. Day two-students meet in PBL-groups and evaluate all teaching during the semester, exam included. Students also fill in and submit a written evaluation form individually. Same day representatives from the PBL-groups meet with The Semester Board and give preliminary findings. Day three- students, Semester Board and tutorial staff have a plenary evaluation meeting based on all results brought forth (individual and in PBL-groups). The Semester Board will thereafter make a report to The Study Council pointing to topics that should be addressed.

Representatives to the council, boards and committee are appointed by the Dean and The faculty Board to long term service (three year minimum) to make sure that there is a certain continuity in the system. Students can by law only be appointed for one year at a time, but many of the student representatives take reelections.

Section 21 Visitors comments – Quality Development

The Dental Faculty in Oslo is committed to quality assurance hence its active participation in the DENTED programme and its plans to appoint external examiners from abroad.

Section 22 - Visitors Executive Summary on the School

22.1-Main Findings

(a) General

DENTED is a thematic network project supported by the European Union aiming at convergence in standards in European Dental Schools. Towards this aim, dental schools have been asked to host a team of international visitors appointed by DENTED in their schools.

Under the protocol for school visits, it is emphasised that visits are neither inspections nor are they intended to be critical of the dental school being visited. They are rather a process of promoting better understanding and sharing of experiences with a view to improving the quality of dental education throughout Europe.

The visitors greatly appreciated the warm welcome extended to them by the staff and students of the Dental Faculty in Oslo. The visitors were particularly impressed with the quality and comprehensive nature of the documentation prepared before the site visit, especially in terms of clarity and objective assessment of the strengths and weaknesses. The visitors were also impressed by the openness and frankness both in the documentation and interviews with staff and students.

The organisation of the programme was meticulously prepared. This made the work of the visitors all the easier.

The School has a long history dating back to 1883 and has a great tradition to uphold. The staff are justifiably proud of the contribution they have made to dentistry both in Norway and worldwide over this period.

(b) Aims and Objectives

The **aim** of the Faculty is to provide for the training of undergraduate dental students and post-graduate dental students and dental hygienists to the highest standards.

Whilst not mandated by the EU directives, the course fully complies with them.

The **objectives** are

to provide a training and education programme for undergraduate dental students, leading to the required skills and competencies prerequisite for independent practice on graduation, to provide postgraduate training in dental specialties leading to skills appropriate for the status of specialists, to provide opportunities for research training and methodology, to provide a training course for dental hygienists and to provide them with the necessary knowledge and skills to work in dental practice, and to provide a regional and national specialist referral service in the different dental specialties.

Translation of the Aims and Objectives

The structures and processes, including staff and facilities, have been developed to achieve the aims and objectives outlined above.

(c) Programme characters

Structure and Content of the Programme

The dental undergraduate programme is of 5 years duration with entry twice a year. It is structured on a semester basis each year having two semesters and each semester lasting 20 weeks.

The new curriculum developed in 1996 has firmly implemented the holistic approach to dental undergraduate education. With this in mind, dental students follow a joint programme in the basic sciences with medical students and nutrition students during years 1 and 2, being introduced the basic dental science towards the end of the second year (semester 4). This part of the programme takes place on the site of the new national hospital located 4Km from the Institute of Clinical Dentistry. During these years students are trained in the basic sciences.

In years 3, 4 and 5 (semesters 5 – 10) training is undertaken in the Institute of Clinical Dentistry. Traditional subjects related to the practice of dentistry are covered during these years; recent introductions include gerodontology and forensic dentistry.

Educational approach

As a result of a decision to introduce the evidence-based approach to all aspects of health care, PBL is the primary educational approach to undergraduate dental education in the Oslo Dental School. Lectures, directed reading and other methods underpin this approach where appropriate. In their clinical training, students carry out procedures under the direction of highly skilled clinical teachers. The discipline approach is used in semesters 6 to 8, with the integrated approach

now planned for semesters 9 and 10. Collaboration with dental public health clinics and other external services is involved in this part of the curriculum.

Examinations and assessment

There is no “competent authority” in Norway to recommend minimum knowledge, skill and competencies prerequisite for the practice of dentistry. Hence examinations are based on the university’s own criteria of satisfactory knowledge, skill and competencies.

At the end of each semester, students undergo examinations which include, oral, written and group exams. Award is pass/fail and to proceed to the next semester, a pass is required. External examiners selected from within Norway are involved in the final assessment. Plans to appoint external examiners from other countries are welcome.

An overall objective is to reduce the number of examinations and increase in course assessment and self-evaluation. The current new curriculum has operated for only four years, hence the examination and assessment procedures are continually being developed and monitored.

(d) Facilities

In the Institute of Clinical Dentistry has comprehensive facilities in an attractive environment. The adult oral health clinic has recently been re-equipped with multi-function units and facilities are excellent.

The phantom head teaching laboratory is excellent and funding has now been achieved for a new simulation laboratory.

The exceptionally well equipped clinical research laboratory offers superb research facilities for topics related to clinical studies.

The teaching and research facilities in the newly built Department of Oral Biology building (PKIII) are extensive and quite outstanding.

The library facilities too in both the Institute of Clinical Dentistry and Department of Oral Biology are excellent.

Floors 1 – 4 of the Institute of Clinical Dentistry originally equipped in 1968 are however in need of upgrading, part of which is scheduled to commence shortly. Because of the nature of the old equipment in the Orthodontics clinic, this is now used for only one and a half days each week. Replacement with multi-purpose units would permit more flexible use of the space and an increase in the number of students who could be accommodated.

Formal collaboration between the Institute of Clinical Dentistry and the two adjacent hospitals seems limited and there is a lack of an effective computerised system of patient management.

The advanced oral health care clinic, whilst progressive in its design, is not yet fully operational.

(e) Students

General comments

Dental education is entirely funded by the government in Norway and students pay no fees.

During the first two years of the curriculum, students feel isolated from their colleagues and have a lack of identity as dental students. It is recommended that efforts be made to solve this problem. Students clearly enjoy the course in Oslo and staff student relations are excellent. Students appreciate the fact that they are consulted regarding curricular development.

Student competencies

Competencies acquired by the students are in line with the aims and objectives of the course. While the new curriculum is only in its fourth year, an evaluation committee has been set up to monitor and introduce changes as necessary in the curriculum.

(f) Staff

Highly expert and dedicated specialists staff the Faculty of Dentistry. The introduction of PBL has put considerably increased demands on the academic staff in both the teaching commitment and clinical supervision. The academic staff enjoy the support of a highly efficient well-structured administration.

Promotion

Promotion outlets are satisfactory, but the training programmes required to achieve promotion are very demanding and inefficient (see Section 4).

Faculty and Staff development

The recruitment of academic staff is likely to prove problematic in the near future. This will be exacerbated by the imminent retiral of a large proportion of the existing staff. The major contributory factor to this recruitment difficulty is the inefficient method of training academic clinicians in Norway (see section 4). Related to this issue is the current debate regarding the establishment of a third dental school in Norway. In the light of the staffing difficulties described above, this would appear to be contraindicated.

(g) International perspectives

The school has numerous collaborations in the fields of research, student exchange and postgraduate training.

(h) Research and publication

The University of Oslo has a long-standing record of excellence both nationally and internationally in this area. This contribution has been acknowledged in the establishment of the outstanding new basic science research facilities in the Department of Oral Biology and a clinical research laboratory in the Institute of Clinical Dentistry. It is hoped that this excellence will not be jeopardized by the increased demands on staff time associated with the new curriculum and problems being encountered with the recruitment of new academic staff.

(i) Administration of hospital and infrastructure.

The governmental structure works well, but there is a lack of an effective computerised system of patient management. The administration has recently been reorganised in order to reduce the administrative burden on academic staff.

22.2 Strengths

The faculty of dentistry in the University of Oslo provides training and education for undergraduate dental students to provide them with the knowledge, skills and competencies required for the independent practice of dentistry on qualification.

The Faculty has a long and proud history and tradition of both dental education and research.

Overall the facilities are modern and the teaching facilities are excellent, especially the Department of Oral Biology.

Library and research facilities are also excellent.

Plans to re-equip floors 1-4 of the Institute of Clinical Dentistry, including the orthodontic department, are welcome.

The Faculty has a highly expert and dedicated staff.

The Orthodontics Department works with one of the most successful centers for the treatment of cleft lip and palate in the world.

Links with the public health dental services are good.

Oral Radiology is exceptionally well equipped.

The Oral Medicine clinic is one of the two major referral sites in Norway.

Problems resulting from the early introduction of integrated clinical teaching now being addressed.

The Faculty is progressive in its approach to dental education.

22.3 Weaknesses

A high proportion of the 5-year curriculum is devoted to joint teaching with medical students.

There is a lack of student identity in the first four semesters.

Joint courses may result in excessive detail for dentists.

PBL leads to knowledge gaps and is labour intensive. However lectures are a major source of teaching thereby ensuring a reasonably firm knowledge base.

The twice-yearly entry system results in a substantial drain on resources. This results in inefficient use of resources and has led to boredom among staff as a result of frequent repetition of teaching sessions.

The current curriculum format results in late commencement of patient care and limited time for clinical training.

There are problems with staff recruitment which need to be resolved. These include training pathways and pay. In the light of this, the proposal to set up a third dental school in Trømsø would appear to be contraindicated.

Students are not always clear about their day to day progress with their clinical work.

94% of the total budget is committed. There is a need for more discretionary funding to support new initiatives and other innovations

22.4 Innovations

Development of a curriculum which is substantially PBL based but which is underpinned by lectures and other forms of teaching.

The Oral Biology Department

The clinical research laboratory

The advanced oral health care clinic

Radiology teaching and facilities

Semesters 6-8 are discipline based and semesters 9 and 10 are integrated.

One day each week kept free of clinics and other teaching to facilitate self-study.

Collaboration with the National Health Services in Norway.

Plans to appoint external examiners from other countries.

22.5 Best Practices

The holistic view of dental education.

The highly motivated staff at the Institute of Clinical Dentistry and Department of Oral Biology.

The level of collaboration between the Oral Health Services and Dental Faculty is welcome and is beneficial to oral health of Norwegians. Further collaboration should be supported

Participation in DENTED as a commitment to QA.
 Student involvement in course development and other aspects of the Faculty activities

22.6 Recommendations

Re-equipping of floors 1-4 of the Institute of Clinical Dentistry should be carried out as soon as possible.

The problem of staff recruitment and training must be addressed, and the possibility of combining clinical and Ph.D. training should be considered.

It may now be appropriate to reconsider the twice-yearly entry of students and the extent of joint teaching with medical students, especially as the new Oral Biology Department is well staffed and now fully functional. This would offer advantages in terms of student identity, educational benefits and flexibility, efficiency of use of staff time, improved staff morale and improved research opportunities.

Consideration must be given to the fragmentation/omissions in the course resulting from the substantial use of PBL.

The content of the courses in general medicine, general surgery and anaesthesiology should be reviewed.

The problem of the shortage of patients aged 12 – 18 and atypical spectrum of adult patients available for restorative care should be addressed.

Future plans for the teaching and course content in public health, preventive dentistry and epidemiology must be considered.

Improved collaboration with the 24-hour Oslo Public Dental Health Emergency Clinic should be explored.

Provision of a student support and guidance scheme would be beneficial.

Improved integration/collaboration between the Dental School and the School of Dental Hygiene should be investigated.

The visitors hope that these recommendations will be of help to the Faculty of Dentistry in the University of Oslo in achieving even higher standards in what is already an excellent course.