

Model Core Curriculum
for Dental Education
in Japan

AY 2016 Revision

Model Core Curriculum Revision Coordination Committee

Model Core Curriculum Revision Specialist Research Committee

The Model Core Curriculum for Dental Education is an abstraction of the "core", within the respective "curriculum" formulated by each university, which should be taught in common by all universities in Japan; it is systematically organized as a "model" of what that core contains.

In AY2016, it was revised in conjunction with the normal revision cycle (six years), as well as the need to respond to changes to various systems, relevant new laws and law revisions, and social circumstances. After that, Ministry of Education, Culture, Sports, Science and Technology (MEXT) translated it into English as a commissioned project of MEXT.

This is an English version of The Model Core Curriculum for Dental Education, translated by the dental education team of the Model Core Curriculum Expert Research Committee established at the contractor Tokyo Medical and Dental University in AY2017. To consist terms used in translation with an English version of The Model Core Curriculum for Medical Education, the team cooperated with the medical education team of the Model Core Curriculum Expert Research Committee established at The Tokyo University in AY2017, a contractor translated it with subsequent revision by the committee members.

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About notation, etc.

* Numbering hierarchy is as follows: ABC, 123, 1)2)3), (1)(2)(3); Objectives are numbered as 1. 2. 3., etc.

* The word “explain” in objectives denotes a deeper understanding and ability to describe than “outline” .

* Dental terminology is consistent with the contents of AY 2018 the National Dental Practitioners Examination.

* Parentheses denote a synonym, explanation, or example of the preceding term.

Ex: Proactively participate in scientific research (including clinical research, epidemiological research, and life science research).

* When an acronym is used in the first instance, it is preceded by the entire words for which it stands and placed inside arrows.

Ex: Subjective, objective, assessment, plan (SOAP).

* Group and organization names are abbreviated to exclude portions indicating corporate status.

* All goals and objectives detailed in this Model Core Curriculum begin with "By the time of graduation, all students will be able to-".

Model Core Curriculum for Dental Education—Revision Background

1 Basic Principles and Background

Catch Phrase: "Cultivate dentists who can serve diverse needs"

This revision was undertaken with the goal of cultivating dentists who can serve diverse needs.

The revision considered the many changes occurring in international public health and healthcare systems, including dentistry, and is meant to cultivate dentists with practical clinical capability, who can serve the needs of the public in areas such as ethics, medical safety, team-based health care, the Integrated Community Care System, and a healthy, long-living society.

Dentists should be oriented toward meeting the needs of residents and aspiring to ideal dental care; and even if a dentist does not enter clinical practice, their focus should be on contribution to society from a position such as fundamental researcher or administrative officers.

From this same perspective, the two pillars of dental education and dental care administration should support dental students and dentists.

To realize this aim from an education standpoint, this revision clarifies the practical abilities that a student should acquire by graduation, and how they are to be objectively evaluated, with an eye to the Outcome-based Education (OBE: Education which designs, creates, and documents the overall education toward fulfillment of goals to be achieved by graduation, including curriculum) that has been used previously. Put differently, this means that this revision of the Model Core Curriculum is not merely a listing of knowledge to be acquired, but rather a document now focused on how to cultivate dentists who can integrate their acquired knowledge with skills.

Serving the Needs of a Changing Society

Since the last revision, there have also been changes to The Act on Advancement of Dental and Oral Health and joint reform of the social welfare and tax systems, while discussion has advanced regarding the role dentists play in times of disaster in Japan. As a result, students must understand the position of healthcare in society, and the relationship between healthcare costs and funding amid changing patient trends, along with effective use of limited healthcare funds. In addition, study has also advanced regarding evaluation of a student's professional attitude and skills at the end of the Clinical Practicum, including clear mention of evaluation in the National Dental Practitioner Examination System Improvement Study Group Report. Further, as internationalization and informatization progress in society, dentists need to have interaction and exchanges with students from other countries prior to graduation, and to make contributions to and serve the needs of international health, medical practice, and research after graduation. The above revisions do not mean that the purpose of dental education is to merely serve emerging needs superficially; rather, they mean that the purpose is to cultivate dentists who can successfully handle the various changes likely to occur going forward.

Team-based Health Care and Interprofessional Collaboration within the Integrated Community Care System of Providing Health Care

Above all, when considering the simultaneous construction of regional-based cyclic health care system, and the Integrated Community Care System—each of which are currently needed in Japan—an education is required which provides the foundation for a dentist to be oriented toward contributing

broadly in the community, rather than simply inside medical institutions, in ways such as in-home medical care; to prepare to give appropriate direction to practitioners of other disciplines as a member in team-based health care; and to deepened understanding of systemic health, as well as the ability to practice toward a broader understanding of dentistry and dental care.

Consistency Before and After Graduation

Having in this revision, expanded the perspective to include life stages with future changes—one example is that a dentist should have a lifelong awareness of the need to gain further practical ability—the committees consulted with relevant institutions and agencies regarding consistency in undergraduate education (including common achievement tests and evaluation of professional attitude and skills at the end of the Clinical Practicum), the National Dental Practitioners Examination, advanced clinical training, and lifelong learning. The committees wish to state that they performed the revision with the aim of achieving a seamless education beginning before and continuing to after graduation. We also wish to express our gratitude to whom it may concern. The committees desire that, going forward, relevant organizations including the Common Achievement Tests Organization (CATO); Ministry of Education, Culture, Sports, Science and Technology (MEXT); Ministry of Health, Labour and Welfare (MHLW); and the Japan Dental Association (JDA) will continue to study what the grand design of dental education should be, and make efforts to further develop it.

Sharing of the "Basic Qualities and Abilities" Required in Medicine and Dentistry

Going forward, it is anticipated that the formulation and revision of programs such as the Model Core Curriculum will continue in professions other than dentistry. From a team-based healthcare perspective, it will be important that the common values all healthcare professionals must share are aligned across disciplines from the stage of undergraduate education onward, as has been attempted in this revision; for example, with the alignment of "Basic Qualities and Abilities Required" with the corresponding medical education curriculum. Such alignment will require proactive coordination by MEXT.

This advancement of horizontal collaboration across healthcare professions at the undergraduate stage, coupled with the aforementioned vertical collaboration through educational consistency before and after graduation, will serve the expectations of the Japanese public regarding dentistry and dental care.

Quality Assurance of Higher Education

Further, from the perspective of the importance of quality assurance of higher education, introduction of third-party evaluation (accreditation) was started by the revision of the School Education Law since Academic Year (AY) 2004. Efforts have begun toward evaluation in each field, with introduction of legally established specialized graduate institutions, as well as independent introduction of third-party evaluations. In medical fields, evaluation was introduced in AY2013 for six-year pharmaceutical education; in the medical education field, the Japan Accreditation Council for Medical Education (JACME) was established in AY2015, and third-party evaluation is advancing steadily in other fields. In other countries, as well, the quality of dental education is now assured through third parties; the United Kingdom has the General Dental Council (GDC), the United States has the Commission on Dental Accreditation (CODA), and dental education accreditation systems have also been established in other countries including Germany, Malaysia, and Hong Kong.

For the dental education field in Japan, the process of drafting accreditation standards, performing trial evaluations, and cultivating evaluators began since AY2012. Faculties of Dentistry (dental schools) in Japan should hasten a coordinated, specific discussion on an establishment of international-standard dental accreditation system.

It is desirable that a consistent quality assurance in dental education be shared by all universities, and this revision has undertaken to make the Model Core Curriculum the foundation for such an aligned standard.

2 Positioning in University Education

Structure of the Model Core Curriculum

The Model Core Curriculum is an abstraction of the "core", within the respective "curriculum" formulated by each university, which should be taught in common by all universities; it is systematically organized as a "model" of what that core contains. Therefore, as has been noted previously, the specific dental education of each university will assign approximately 60% of learning hours based on the Model Core Curriculum, with the remaining 40% devoted to the respective university's own class settings, educational methods, course orders, and so forth.

On the curriculum setting, it is desired that each university improve its distinctive efforts and curriculum. One example is a university's education to foster a desire in dentists from the undergraduate level to perform dental research, through working in laboratories, etc., or other efforts such as classes where they have opportunities to hear opinions from individuals outside medical practice. In addition, it is desired that universities advance the improvement of faculty's ability for education in order to make such education possible.

To raise the practicability of these efforts, the committees have strived to streamline the Model Core Curriculum. However, we also wish to emphasize that the knowledge and skills required for the advancement of dentistry and dental care are not to be gained entirely in undergraduate education; rather, it is necessary to show in detail what is to be gained at the undergraduate level, with the understanding that dentists will continue to learn throughout their lives.

Development and Sharing of Teaching Materials

The committees asks that the development, formulation, and sharing of specific education methods, teaching materials, and guidelines in academic conferences, societies etc., and proceed with these advances beyond the walls of each university toward the establishment of more effective and efficient dental education methods. This hope is expressed not to deprive universities of their educational autonomy, but rather to convey the perspective of effectively utilizing limited human and other educational resources.

Clinical Practicum and Participation in Care

Further enhancement of the Clinical Practicum is also needed to assure the attainment of international standards going forward. Therefore, a higher level is desired, upon assuring the aptitude and quality of participating students, and sufficiently protecting the safety and privacy of patients, for the Clinical Practicum and Participation in Care, including early clinical exposure and practice necessary for the introduction of that, than has been present before. Additionally, the committees hope for coordination

between entities including dental association, hospital organizations, and government/administration including regional medical care measure councils.

However, dental treatments performed within the Clinical Practicum should be handled with the utmost caution. The relationship between the practice of dentistry performed by students in the Clinical Practicum within dental education, and Article 17 of the Dental Practitioners Act (prohibition of dentistry by non-dentists) is organized as follows: "The undergraduate clinical practice of dentistry is performed with the consent of the patient and with the purpose of improving the qualities of the dentist as part of undergraduate education. When undertaken within a proper system and by appropriate methods, such as performing comparatively less-invasive activities, and with the instruction and supervision of instructors, such practice is appropriate in light of conventional wisdom and eliminates illegality under the Dental Practitioners Act." (June 11, 2003 MEXT Higher Education Bureau, Medical Education Division director Notification: "Concept regarding Undergraduate Clinical Practicum of Dentistry").

In addition, in the absence of consent of each university, the committees have decided not to include Clinical Practicum Guidelines for Participation in Care in this revision, but desire that guidelines upon which all can agree be formulated at an early date.

Three Policies

In April this year, it became obligatory for each university to formulate and make public their Three Policies of diploma, curriculum, and admission with consistency. Therefore, it is strongly required that the finalized curriculum of each university fulfills that obligation.

Requirements of Dental Students

To achieve the main object of this revision—being able to serve diverse needs—students must approach the concepts of dentistry and dental care from a broad perspective.

For example, it is important to remain aware that what is seen in clinical settings is only one small part of a patient's lifestyle; each patient leads a unique life in society. A student who approaches the Clinical Practicum and other learning with this awareness will obtain more meaningful results.

"Able to serve diverse needs" means that a dentist will not only passively respond to the various requests and changes that will occur going forward, but will also be able to create their own career path as a dentist and meet with a variety of opportunities. In reality, approximately 95% of dentists are currently engaged in clinical practice, but the other 5% have advanced into many other areas, including research for basic dental science, legal and social dentistry, civil service, such as health departments, and education. Even as a clinical dentist, one might not only perform regular care in a dental institution, but also make various social contributions including in-home medical care, community education, policy reform, and participation in international health and dental care activities. The committees wish to add that such activities are not only selected at the undergraduate stage, but can also be chosen in a variety of ways after graduation as well.

Even after one has selected the path that they wish to pursue from a variety of options, it is important to continually maintain a broad range of interest throughout one's career. For example, although one might choose the clinical path, they need to maintain a research mindset and awareness while performing care; if one conversely chooses a research path, they must always make efforts to keep in

mind the current state of clinical settings as they pursue new discoveries in health care. It is also easy to understand the importance of remaining aware of people of differing positions and circumstances, and cooperating with dentists who have selected different paths from one's own. Still further, it is imperative that one not only build relationships with fellow dentists, but also with the many individuals who work in the fields of dentistry and dental care, and with others as an interested member of society at large, to fulfill the purpose of "being able to serve diverse needs".

Finally, the committees desire that newly enrolled students will sense from their very first lesson that academic achievement stands upon the efforts of those who have gone before them—that academic knowledge is a noble pursuit. Let each student be aware that since the dawn of time, precious life has underpinned all aspects of our existence, and may they feel the sanctity of life as they approach clinical experience and practicum, dissection, and other learning. Dental students must also not forget that the cooperation of not only the university faculty, but also of the public, and others involved outside the university in dental education, are what make their learning environment possible. For this reason, a student should maintain a sense of gratitude and respect at having obtained the opportunity to learn dentistry through the support of many others; one should give back to society from what they have learned and assume a leadership role in the community, ever striving for self-improvement throughout life so that dentistry and dental care continue to advance into subsequent generations. More than anything, a dental student must maintain the highest ethics and a cultivated mind as a member of society.

Requests to all Involved in Dental Education

Dental education and, above all, the Clinical Practicum, have become aligned much more than before with regional medical care-related dentistry (coordination between clinics and hospital support, etc.) and the Integrated Community Care System. Therefore, community healthcare institutions are asked to provide cooperation in the practical training of the respective universities.

Additionally, in postgraduate clinical settings, the perspectives of team-based health care and interprofessional collaboration require wide collaboration not only from dental or healthcare practitioners, and not only licensed professionals, but many others as well. The committees therefore request the kind cooperation of such individuals and institutions from the undergraduate stage, to enable education that reflects these factors.

We ask also for education to be conducted with consideration of the above Requirements of Dental Students.

3 Request for Cooperation and Communication to the Public

As expressed in the above Requirements of Dental Students, the understanding of patients from among the public who participate in Clinical Practicum and Participation in Care is indispensable. To gain the cooperation of the public in the Clinical Practicum and Participation in Care, it is desired that each university use the following sample "Request for Public Cooperation" or similar format to communicate to the public the necessity and importance of dental education. Through leaflets, pamphlets, posters, or other means, MEXT and MHLW are also asked to make efforts in gaining the understanding and participation of the public in the Clinical Practicum and Participation in Care.

"Request for Public Cooperation" Sample

Request for Public Cooperation

In medical care, the participation of patients and their families is indispensable. Universities and other healthcare professionals are also striving to provide their part of the support necessary to enable health care. Taking this into consideration, the 2014 revision of the Medical Care Act established the responsibility of the public to understand regional medical care, and to select and receive care from appropriate medical/dental institutions. Just as in medical practice, dental education requires the participation and cooperation of the public. Starting with the experience of clinical practicum, students must have a variety of opportunities to directly interact with patients and individuals who require nursing care. In addition, dental education requires the cooperation of healthy individuals to enable the practice of preventive care.

Currently, each university has undertaken the following efforts toward improvement:

- The Clinical Practicum is performed under the careful oversight of a supervisor.
- A systematic dental education is provided based on the Model Core Curriculum*.
- All students participate in the Clinical Practicum only after having taken and passed a common achievement test** which evaluates their overall standard knowledge, basic clinical skills, and professional attitude.

We ask that you take the above into consideration when determining your cooperation.

Thanks to your cooperation, we will also be able to "give back" to the community in the form of provision of good dental care, and further advancements in dentistry and dental care. We therefore request your kind assistance in contributing to the education of dental students in the university hospitals.

* A common, national, systematically organized curriculum taught in each dental school/university and dental faculty, and which accounts for approximately 60% of a student's total learning time.

** In principle a third-party institution, the Common Achievement Tests Organization (CATO), administers Computer-Based Testing (CBT) to confirm knowledge, and the Objective Structured Clinical Examination (OSCE) to confirm skills and professional attitude, utilizing the cooperation of mock patients.

Model Core Curriculum for Dental Education—Revision Overview

In this version the following, plus other various theoretical revisions were made: (1) Vertical connection: Alignment of the Model Core Curriculum, national board examination standards, and postgraduate clinical training achievement objectives; (2) Horizontal connection: Partial sharing of content between the medical and dental model core curricula; (3) Realization of the Basic Qualities and Abilities Required of a Dentist; (4) Enhancement of the Clinical Practicum and Participation in Care; (5) Serving a highly aged society; (6) New education objectives, related to skills such as pre-clinical practice (with model applied practice), to be achieved prior to starting the Clinical Practicum; (7) Fusion of humanities education and preparatory education; (8) Organization of "objectives"; (9) Elimination of asterisks (*); (10) Reduction in overall text volume; (11) Organization of dental terminology; and (12) Dissemination to the world.

A more detailed description follows below.

I. General Overview

This revision of the Model Core Curriculum was undertaken in conjunction with the normal revision cycle (six years) for dental education, as well as the need to respond to changes to various systems, relevant new laws and law revisions, and social circumstances not limited to dentistry or dental care.

(1) Vertical connection: Alignment of the Model Core Curriculum, the National Examination for Dental Practitioners standards, and advanced clinical training achievement objectives

As dentists must continue self-education throughout their lives, it is desirable that there be alignment of not only the Model Core Curriculum learning objectives with the common tests (Computer-Based Testing (CBT) and Objective Structured Clinical Examination (OSCE), but also with national board examination standards, and that there be seamless coordination between postgraduate clinical training achievement objectives and the Japan Dental Association lifelong training. To this end, the committees first undertook to align this revision with national board examination standards. Future revisions will take into account the results of this revision, to further improve consistency between the postgraduate clinical training objectives, the Japan Dental Association lifelong training, and education curricula consistency before and after graduation.

(2) Horizontal connection: Partial sharing of content between the medical and dental model core curricula

In recent years, there has been an increased emphasis on the importance of team-based health care and interprofessional cooperation, but it is not sufficient to simply increase the mention of such in a curriculum. The simultaneous revision timing of the medical and the dental model core curricula has presented a valuable opportunity to make certain core portions of the two shared. For this reason, the catch phrase encapsulating the main theme is "cultivating dentists (or physicians, in medical education) who are able to serve diverse needs", thereby making the aim of both the medical and the dental curricula the same. This means that the Revision Background for both revised model core curricula were made to significantly

overlap and be shared to the maximum degree possible, with section A "The Basic Qualities and Abilities Required of a Dentist (or Physician)", while areas from section B onward are in reference to the respective disciplines.

(3) Realization of the Basic Qualities and Abilities Required of a Dentist

To clarify that these are attainable through a course of study, we changed the word "qualities" to "qualities and abilities". Further, the matter of how to expand upon or specifically describe the revised nine items is left to the discretion of each university.

(4) Enhancement of the Clinical Practicum and Participation in Care

Most students participate in postgraduate clinical training after passing the National Dental Practitioners Examination. There, each will practice as full, responsible dentists using their own judgment, while under supervision of an instructor. To cultivate their qualities and abilities as a dentist after graduation, students need to achieve their objective of mastering the basic examination, skills, and professional attitude of a dentist up to the time of graduation, and acquire a research mindset and basic skills enabling them to contribute to the advancement and improvement of dental science, through sophistication of clinical practice.

The Clinical Practicum includes various levels, ranging from observation to performing treatments. For a student to acquire the necessary skills and professional attitude of a dentist prior to graduation, they are required to perform direct patient care under supervision for the items in section G "Clinical Practicum". To promote and enhance the Clinical Practicum and Participation in Care, the Content and Categories of the Clinical Practicum were created as an appendix to section G "Clinical Practicum".

We also enhanced the practice of Regional Medical Care within the Clinical Practicum in order to cultivate dentists suited to serve a super-aged society and other social needs.

(5) Serving a super-aged society

With the coming of a super-aged society, there is a need to provide comprehensive and continuous "Regional-based Cyclic Health Care" through coordination with related stakeholders such as medical practice, welfare, nursing care, and other relevant institutions. The simultaneous creation of an efficient and high-quality healthcare provision system and an Integrated Community Care System, in addition to the implementation thereof, are reflected in The Act on Amendatory Law to the Related Acts for Securing Comprehensive Medical and Long-Term Care in the Community promulgated in June 2014, as well as in the AY2016 Revision of Reimbursement of Medical Fees. In undergraduate education, too, a curriculum is needed that enables students to attain a specific idea of interprofessional collaboration and cooperation, and team-based health care. In addition to section A "The Basic Qualities and Abilities Required of a Dentist" including subjects such as sections A-7-1) Contribution to Regional Medical Care, A-5 The Practice of Team-based Health Care, and A-4 Communication Abilities, it also touches on the subjects of sections B-2-2) Health, Welfare, and Nursing Care Systems and G-4 Team-based Health Care, Regional Medical Care. Further, it is necessary that students not only gain understanding of and practice in health and nursing care for aged people, but also in community health and related community welfare for all ages, including prevention.

(6) New education objectives, related to skills such as pre-clinical practice (with model applied practice), to be achieved prior to starting the Clinical Practicum and Participation in Care

It is necessary that in the Clinical Practicum and Participation in Care, basic examination and clinical skills are acquired through one's own performance. Professional attitude when interacting with patients is also important. Therefore, before advancing to the Clinical Practicum, a student needs to be sufficiently trained in proper professional attitude and skills using simulation training (pre-clinical practice (model practice using mannequin) and peer-clinical experience). For this reason, this revision newly established the items to be learned in skills and professional attitude prior to the Clinical Practicum, and includes them in section F "Simulation Training (pre-clinical practice with model applied practice, peer-clinical experience)". It is anticipated that the Common Achievement Tests Organization (CATO) will determine the examination questions/stations contained in the common test OSCE based on this revision.

(7) Fusion of humanities education and preparatory education

Recently there has been increased attention to the relationship between preparatory education, which includes humanities, and dental education. The committees made efforts to include in the main body of this revision the necessary portions of what was previously contained in the Preparatory Education Model Core Curriculum. The following content was constructively incorporated as follows: "Human Behavior and Psychology" into section B-3-2) Dental Disease Prevention and Health Management; "Fundamental Statistics, Application of Statistical Methods" into section B-4-2) Health and Medicine Statistics; and "Fundamental Chemistry of Biomolecule/Biological Substances" into section C-1) Fundamental Natural Science.

(8) Organization of "objectives"

To clarify the relationship between what was previously expressed as "general objective and specific objectives", the committees renamed it "**goal and objectives**".

To make the Model Core Curriculum a useful reference for universities in their independent formulation of six-year curricula pursuant to their respective missions and curriculum policies, this revision focuses on presenting the minimum core education that all dental students must obtain before graduating. Although the idea was examined of including in this revision Learning Strategies (LS) and Assessment Methods in order to raise the degree of completeness of original curriculum, these were omitted toward the goal of maintaining the innovation and degree of freedom of each university's education. It may be appropriate to consider including Learning Strategies and Assessment Methods in future revisions.

(9) Elimination of asterisks (*)

In the AY2010 revision of the Model Core Curriculum (hereafter "previous version"), asterisks denoted achievement objectives representing things such as knowledge, skills, and/or professional attitude, to be acquired before commencement of the Clinical Practicum. Items without asterisks were misunderstood as being the items to be acquired after commencement of the Clinical Practicum and before graduation. For this reason, this revision eliminates the use of asterisks in order to emphasize that content includes items to

be learned during the appropriate school year prior to commencement of the Clinical Practicum, and to avoid giving the mistaken impression that the Model Core Curriculum is "the common achievement test problem standard".

How the Model Core Curriculum is used to formulate problem ranges in the common achievement tests (CBT and OSCE) will be determined by CATO.

(10) Reduction in overall text volume

The committees reviewed or deleted some content from objectives. With the basic concept of a Model Core Curriculum showing the minimum content to cover in undergraduate education, and with consideration for the criticism that "the Model Core Curriculum is too voluminous despite ideally including only the minimal dental education", the committees undertook a reduction in overall text volume.

First, focus was placed as much as possible on clearly showing for each item how deeply it is to be learned. The principle of removing one item for every one added was followed.

(11) Organization of dental terminology

As inconsistency of terminology can lead to undue burdens on students learning dentistry, efforts were made to use terms consistently. However, the committees wish to note that this unification of terminology is not meant to limit the use of terminology in areas like individual universities or academic conferences/societies. Because no authoritative glossary exists for dental medicine terminology, this revision was performed in alignment with the usage of Standard of AY2018 the National Dental Practitioners Examination. Going forward, it is anticipated that terminology usage will be unified with the Japanese Association for Dental Science academic glossary that is currently being studied for revision.

(12) Dissemination to the World

To introduce Japanese dental education to the world, this revision is slated to be translated into English as a commissioned project of MEXT.

II. Specific Subjects

A The Basic Qualities and Abilities Required of a Dentist

"The Basic Qualities and Abilities Required of a Dentist" and section A "Basic Items" from the previous version were combined into the single section A "The Basic Qualities and Abilities Required of a Dentist", with all nine items set as goals and objectives.

To cover ethics, medical safety, and team-based health care, research mindset was reviewed, and medical ethics as a dentist and research ethics were studied.

In Learning Modality, the committees clarified this goal: "Gain the basic ability (knowledge, skills, professional attitude, and habits) and liberal arts knowledge, to objectively and critically sort through a variety of information not limited to dental medicine or care, then integrate, organize, and express that information in science and social situations".

Study was made regarding how to include content to bring about Patient-centered Team-based Health Care, including interprofessional collaboration with physicians and dental hygienists in team-based health care, and community coordination among health, health care, welfare, and nursing care functions.

Regarding medical safety, correction was made to address aspects of safety in dental care and crisis management.

B Society and Dentistry

To address changes in social welfare (the healthcare system), study was undertaken regarding the addition of text on the Integrated Community Care System and the role of dentists within that system.

Content regarding personal identification, cause of death investigation, and abuse was enhanced. Regarding Personal Identification by Dentists, the objective of being able to "explain systems for identity confirmation by dentists and related cause of death investigation, etc." was added.

C Bioscience

Content was enhanced for learning basic bioscience, to enable education regarding medical diseases and their connection to the relationship between systemic disorders and those of the oral cavity, and study was undertaken of redundancy in content with clinical dental education.

Content and sentence structure were organized to eliminate the need for brackets ([]).

D Dental Devices (Dental Materials, Equipment, and Instruments)

With awareness of the laws (the former Pharmaceutical Affairs Law/Act) related to quality, effectiveness and safety assurance of pharmaceuticals, medical devices, and other products, the committees clarified and reviewed the "Desirable Properties of Dental Devices".

E Clinical Dentistry

To serve the need to understand systemic disorders in light of the super-aged society, content regarding systemic diseases and clinical conditions, and representative medical diseases was included to provide necessary medical knowledge for coordinating with physicians; study of what to include was performed jointly with medical teams/committees.

Section E-4 "Dental Care Expansion" in the previous version was divided into two parts: "Orthodontic and Pediatric Dental Care" and "Elderly people, People with Disabilities, and Mental, Psychosomatic Disorder".

F Simulation Training (Pre-clinical Practice (model practice using mannequin), Peer-clinical Training)

From section E "Clinical Dental Education" in the previous version, the new section F "Simulation Training (Pre-clinical Practice (model practice using mannequin), Peer-clinical Training)" was created. Learning objectives for skill education were created including the basic pre-clinical practice (model practice using mannequin) performance prior to commencement of the Clinical Practicum.

As items to be learned within skill education prior to entering the Clinical Practicum and Participation in Care, the scope of the examination aligned with the common achievement test OSCE were studied.

G Clinical Practicum

The Clinical Practicum was reviewed to a competency basis, comprising Basics of care, Basic examination methods, Basic clinical skills, Team-based health care and regional medical care, and Patient-centered care.

To enable use across fields, the Basics of care covers from medical information to clinical diagnostic reasoning, and further includes items such as Medical safety and infection control through the entire clinical practice.

Basic examination methods comprises medical interview, examination, and clinical testing. Key terms such as team-based health care, regional medical care, coordination between hospitals and care centers, interprofessional collaboration, in-home care, and Integrated Community Care System were included.

Regarding the Clinical Practicum content dental students must perform before graduation, the committees took into consideration the need to perform items under a supervisor; they studied the continuity of the Clinical Practicum, postgraduate clinical training, then specialized education and set achievement objectives in line with those phases, listing them anew in the "Content and Categories of the Clinical Practicum". This was a continuation of the previously used level chart in Clinical Practicum Content that showed the range of practice of dentistry by dental students.

References (available in Japanese)

1. Listing of laws and ordinances related to physicians and dentists: To clarify the laws and ordinances related to the social-dental fields of the Model Core Curriculum, a listing was created of laws and ordinances in which terms relevant to dental education or dentists are mentioned.
2. Overview of medical and welfare professions and national examination items: With consideration of interprofessional collaboration and coordination, a listing of healthcare certifications for which national examinations are conducted, each exam's contents (tested areas and overall subjects), and the number of exam recipients who passed, are listed.
3. Process leading to this revision of the Model Core Curriculum for Dental Education: Introduces the formulation and revision history of the Model Core Curriculum for Dental Education.

Model Core Curriculum for Dental Education (2016 Revision) Overview

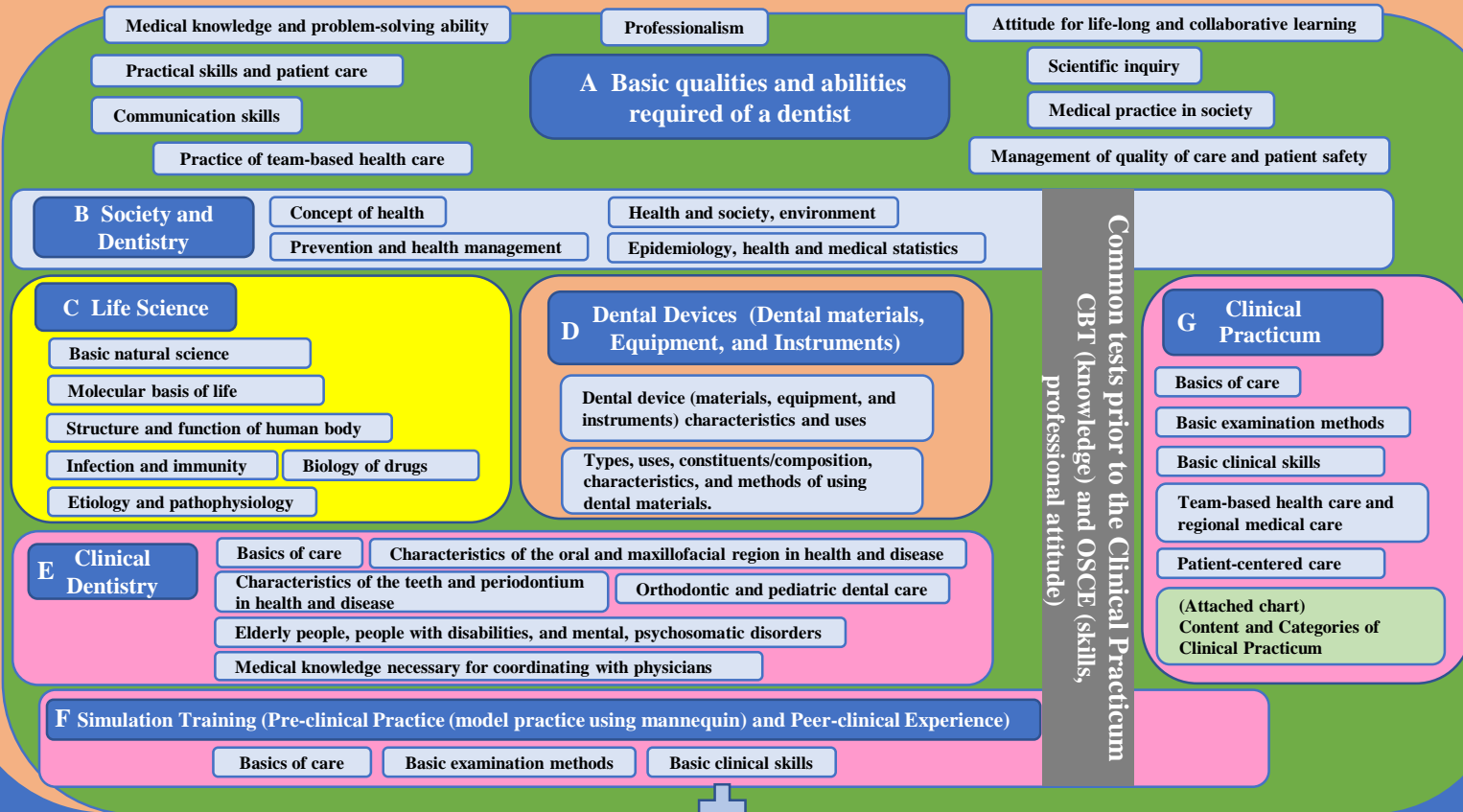
- Requisite practical abilities (knowledge, skills, professional attitude) that a student must acquire by graduation are clarified as “goals” and “objectives”
- Aimed to consist of approximately 60% of a student’s total learning time
- Includes the minimum, essential “basic qualities and abilities required of a dentist”

[Each university’s admission policy]

[Each university’s curriculum policy]

[Each university’s diploma policy]

Catch Phrase: "Cultivate dentists who can serve diverse needs"



Evaluation of skills/professional attitude following clinical practicum

National Dental Practitioners Examination (knowledge) based on Dental Practitioners Act

Each university’s own unique curriculum (approximately 40% of a student’s total learning time)

*Unique educational content established by each university based on its educational ideals (including elective programs selected by students)

Basic Qualities and Abilities Required of a Dentist

1 Professionalism

Understand fully the responsibilities of dentists who are deeply involved in human life and the protection of health, and follow the ethics of dentists while practicing patient-centered medicine.

2 Medical knowledge and problem-solving ability

Acquire necessary knowledge, based on evidence-based medicine (EBM) and experience, and respond to a wide range of symptoms, pathophysiology, and diseases in the continuously evolving field of dental medicine.

3 Practical skills and patient care

Practice dental treatment, while using and honing clinical skills; taking into consideration patient's pain and anxiety.

4 Communication skills

Build good relationships of trust with patients and their families, taking their psychological and social backgrounds into consideration.

5 Practice of team-based health care

Understand and collaborate roles of all people involved, including patients, in health, medical care, welfare, and nursing care.

6 Management of quality of care and patient safety

Provide high-quality and safe medical care for patients as well as health professionals.

7 Medical practice in society

Play social roles required as a health professional and contribute to local and international communities.

8 Scientific inquiry

Understand fully the necessity of medical research for the development of dental medicine and dental practice, acquire critical thinking ability, and participate in academic and research activities.

9 Attitude for life-long and collaborative learning

Strive throughout life to improve the quality of dental care through continuous learning and study with other dental and healthcare professionals.

A. Basic Qualities and Abilities Required of a Dentist

A-1 Professionalism

Understand fully the responsibilities of dentists who are deeply involved in human life and the protection of health, and follow the ethics of dentists while practicing patient-centered medicine.

A-1-1) Medical ethics and bioethics

Goal:

Understand the importance of, and acquire the knowledge and professional attitude concerning, the ethics of medical practice and research to comply with ethics in medicine, dental care and research.

Objectives:

1. Outline the historical flow and issues of medical ethics and bioethics.
2. Outline the international norms of medical ethics such as the Hippocratic Oath, Declaration of Geneva, Declaration of Helsinki, etc.
3. Explain clinical ethics issues (including issues related to life and death).
4. Explain the ethical issues concerning medical research.
5. Explain issues regarding information ethics.
6. Consider the purposes of research; the advancement of medicine and health care, and the furthering of benefit to patients.

A-1-2) Patient-centered viewpoint

Goal:

Prioritize patient safety and always maintain a patient-centered perspective; understand patient rights, and the current state and problems of patient rights, to encourage patients to actively participate in their treatment.

Objectives:

1. Explain patient rights.
2. Explain patient autonomy.
3. Explain the countermeasures for situations where the patient cannot make decisions.
4. Explain the significance and importance of informed consent.

A-1-3) Responsibilities and discretionary authority as a dentist

Goal:

Have humanity, deep recognition of the dignity of life, and awareness of duties and liabilities as a dentist to protect human life and health.

Objectives:

1. Explain professionalism as a dentist.
2. Explain the importance of building relationships of trust with patients.

3. Explain the specialty of healthcare services (information asymmetry, medical uncertainty) and the limits of treatment.
4. Explain the social responsibility and legal liability (criminal liability, civil liability, administrative penalties based on the Dental Practitioners Act) imposed on a dentist.
5. Explain and recommend the most appropriate dental care for the patient, as well as alternative methods.

A-2 Medical knowledge and problem-solving ability

Acquire necessary knowledge based on evidence-based medicine (EBM) and experience, and respond to a wide range of symptoms, pathophysiology and diseases in the continuously evolving field of dental medicine.

A-2-1) Ability to explore and solve problems

Goal:

Discover tasks on one's own and acquire the ability to solve them through self study.

Objectives:

1. Discover necessary tasks on one's own.
2. Prioritize tasks needed according to importance and necessity.
3. Discover concrete methods for problem solving and solve said problems.
4. Discover better ways to solve problems in collaboration with other learners and faculty members.
5. Establish appropriate self-assessment and develop specific strategies for improvement.

A-2-2) Learning modality

Goal:

Acquire basic abilities (knowledge, skills, professional attitude and behavior) including those of liberal arts to objectively and critically select and express various information other than dental medicine or medical care in science and society.

Objectives:

1. Identify important issues and problems, domestic and international, concerning contents of lectures, textbooks/papers, researched information, etc.
2. Integrate information obtained, objectively and critically organize ideas and express them clearly.
3. Follow determined forms to publish and present experiment and practice details.
4. Instruct junior colleagues and others appropriately.
5. Participate in elective curriculum according to interests (research in medical sciences, etc.).

A-3 Practical skills and patient care

Practice dental treatment, while using and honing clinical skills; taking into consideration patient's pain and anxiety.

Goal:

Acquire the practical ability to give general care to the oral and maxillofacial regions, based upon integrated knowledge, skills, and professional attitude, while maintaining respect for the patient.

Objectives:

1. Build a good relationship with patients and carry out patient education as necessary through appropriate medical interviews.
2. Examine the oral and maxillofacial regions based on an assessment of the general condition.
3. Diagnose oral and maxillofacial diseases properly, and formulate a treatment strategy and plan that respects the patient perspective.
4. Obtain informed consent aimed at patient-centered care.
5. Practice basic clinical procedures maintaining the appropriate professional attitude.
6. Evaluate and appropriately assess course of treatment and results on one's own.

A-4 Communication skills

Build good relationships of trust with patients and their families, taking their psychological and social background into consideration.

A-4-1) Communication**Goal:**

Understand the importance of, and obtain the ability to carry out, communication in establishing relationships of trust.

Objectives:

1. Explain the significance, purpose, and modes of communication (verbal, semi-verbal, and non-verbal).
2. Build good interpersonal relationships through communication.
3. Conduct basic communication in a medical interview.

A-4-2) Patient-dentist relationship**Goal:**

Acquire ability to understand the individual background of the patient and to grasp the problems to build a good relationship between the patient, his/her family and the dentist.

Objectives:

1. Give due consideration to mental and physical suffering of patients and their families.
2. Explain to patients in easy-to-understand language.
3. Grasp the patients' psychological and social background, the tasks necessary to lead an independent life, and extract and organize the problems.
4. Explain that medical practice is performed according to a contract based on a strong relationship of trust

between the patient and dentist.

5. Explain how to deal with patients' requests (consultation, transfer to another dentist, or referral).
6. Protect the patient's privacy.
7. Understand and appropriately handle the confidentiality obligation of patient information and the importance of providing information to patients, and others.

A-5 Practice of team-based health care

Understand and collaborate the roles of all people involved, including patients, in health, medical practice, welfare, nursing care.

A-5-1) Patient-centered team-based health care

Goal:

Understand the importance of patient-centered team-based health care and acquire the ability to cooperate with other healthcare professionals.

Objectives:

1. Explain the significance of patient-centered team-based health care.
2. Explain the roles, cooperation, and responsibility of each member of the healthcare team (dentist, physician, pharmacist, nurse, dental hygienist, dental technician, other healthcare professionals).
3. Explain the role of the dentist in interprofessional collaboration between health, medical care, welfare and nursing care.
4. Explain the procedure of referring a patient to another medical institution.
5. Explain the confidentiality obligation of patient information and the importance of providing information to patients and others.
6. Explain second opinion.
7. Explain the relationship of dentistry to final stage of life, and expression and decision of the patient's will.

A-6 Management of quality of care and patient safety

Provide high-quality and safe medical care for patients as well as health professionals.

A-6-1) Safety assurance

Goal:

Recognize that medical accidents (including incidents and healthcare-associated infections) can occur on a daily basis, learn from past cases, prevent accidents and gain the necessary knowledge to give priority to patient safety and provide reliable and safe dental care.

Objectives:

1. Explain the generating factors of medical accidents (human error, system and organizational error, etc.).
2. Explain prevention measures for medical accidents, etc.

3. Explain the importance of reporting, communicating, consulting and recording in medical records at clinical settings.
4. Explain the importance of sharing and analyzing medical safety information.
5. Outline the medical safety management system required at medical institutions.
6. Outline causes and countermeasures for healthcare-associated infections.
7. List specific examples of accidents in dental care.

A-6-2) Countermeasures against and prevention for medical accidents, etc.

Goal:

Learn countermeasures and prevention measures in the event of medical accidents.

Objectives:

1. Explain the difference between medical accident and medical malpractice.
2. Explain the Medical Accidents Investigation System according to the Medical Care Act.
3. Explain the emergency treatment, records, and reporting in the event of a medical accident.
4. Explain concrete prevention measures and reliability design for medical accidents.
5. Analyze the causes of medical accident cases and formulate prevention measures.
6. Outline basic safety measures such as reliability design.

A-6-3) Health and safety of medical professionals

Goal:

Acquire the basic prevention, countermeasure, and improvement methods for medical accidents that healthcare professionals encounter (including incidents and health-care associated infections).

Objectives:

1. Explain the importance of health management for healthcare workers (including vaccination).
2. Explain standard precautions.
3. Explain infection prevention measures, by infection route.
4. Explain coping methods for a needle-stick injury, etc.
5. Explain the necessity of improving the work environment in clinical settings.

A-7 Medical practice in society

Play social roles required as a health professional and contribute to local and international communities.

A-7-1) Contribution to regional medical care

Goal:

Understand current status and problems of regional medical care and community health, and acquire the ability to contribute to regional medical care.

Objectives:

1. Outline the current state of dental care in regions and society (including remote areas, isolated islands).
2. Explain the medical care plan (catchment area, standard number of beds, regional medical care support hospitals, hospital-clinic-pharmacy collaboration, etc.) and regional medical vision.
3. Understand the concept of the Integrated Community Care System and explain necessity of interprofessional and inter-departmental (including public administration) collaboration in areas of health care (maternal and child health, school health, occupational health, adult/elderly people's health, community health, mental health), medical care, welfare, and nursing care.
4. Understand the role of primary care dentists and the necessity of primary care as the foundation of regional medical care, and acquire necessary skills for practice.
5. Explain in-home medical care, (including homebound dentistry), emergency medical care and the systems of isolated island and remote area health care.
6. Explain Disaster Medicine (medical care when a disaster happens, medical response team, Disaster Medical Assistance Team (DMAT), disaster base hospital, triage, Post-traumatic stress disorder (PTSD), stress, etc.).
7. Participate in and contribute actively to regional medical care.

A-7-2) Contribution to international health care**Goal:**

Understand the current state and problems of medical care in the international community and acquire fundamental groundings for practicing.

Objectives:

1. Respect patient's cultural background and respond to different languages beginning with English.
2. Grasp internationalization in regional medical care and give full consideration to medical practice appreciating diversity of values.
3. Understand and explain international issues on health and medical practice.
4. Understand the characteristics of medical practice in Japan and the significance of contribution to the international community.
5. Understand the importance of international cooperation related to medical practice and explain its mechanism.

A-8 Scientific inquiry

Understand fully the necessity of medical research for the development of dental medicine and dental practice, acquire critical thinking ability, and participate in academic and research activities.

A-8-1) Cultivation of a desire to do medical research (research mindset)**Goal:**

Learn life sciences and medical skills throughout life and nurture research oriented thinking through discovery of causes and pathophysiology.

Objectives:

1. Analyze pathophysiology experienced in medical practice based on the knowledge gained in lecture and practical training of life science.
2. List clinical questions (CQ) to address the treatment of each individual patient.
3. Search for and organize the latest information from textbooks and scholastic papers to analyze patients and diseases.

A-9 Attitude for life-long and collaborative learning

Strive throughout life to improve the quality of dental care through continuous learning and study with other dental and healthcare professionals.

A-9-1) Preparation for life-long learning**Goal:**

Keeping in mind the advancement of dental science, medical practice, science and technology, changes in society (including economic aspects), and work-life balance, acquire the ability to be a lifelong learner who can continue a career as a dentist.

Objectives:

1. Find problems on your own and solve them through self learning.
2. Integrate and organize dental science- and care-related information objectively and critically.
3. Explain the necessity of health care improvement and the importance of scientific research.
4. Participate proactively in scientific research (including clinical, epidemiological, and life science research).

B. Society and Dentistry

B-1 Concept of health

Goal:

Understand the concepts of health and illness/sickness to contribute to health through dental medicine and dental care.

Objectives:

1. Explain the concepts of health, disability and illness/sickness.
2. Explain the relationship between the oral cavity and systemic health of the body.
3. Explain nutrition and food and dietary education.

B-2 Health and society, environment

B-2-1) Dental Practitioners Act, dental treatment laws and regulations

Goal:

Understand the Dental Practitioners Act, dental treatment related laws and regulations in order to practice dental care in compliance with laws and regulations.

Objectives:

1. Explain the Dental Practitioners Act.
2. Outline the Medical Care Act.
3. Explain the Dental Hygienists Act and Dental Technicians Act.
4. Outline pharmaceutical hygiene laws and regulations.
5. Outline health and hygiene laws and regulations.
6. Outline the Medical Practitioners Act, Pharmacists Act, and Act on Public Health Nurses, Midwives and Nurses.
7. Outline other status-defining laws related to dental professions.

B-2-2) Systems of health, medical, welfare, and nursing care

Goal:

Understand the related social system, regional medicine and social environment to provide health care, medical care, welfare, and nursing care appropriately based on the viewpoint of effective use of limited medical resources.

Objectives:

1. Explain health and medical policy.
2. Explain the Health Insurance System and healthcare economy (national healthcare expenditure).
3. Explain the social security system (social insurance, social welfare, public assistance, public health).
4. Explain the social environment surrounding elderly people.

5. Explain the social environment surrounding people with disabilities.
6. Explain abuse-prevention systems and a dentist's related responsibilities.
7. Explain the concept of the social environment (normalization, barrier-free, quality of life (QOL)).
8. Explain collaboration in the general community between health, medicine, welfare, and nursing care (Integrated Community Care System).
9. Explain the necessity of dental treatment in times of disaster.

B-2-3) Personal identification by dentists

Goal:

Understand the importance of personal identification through dental evidence to contribute toward identity confirmation of persons in large-scale disasters.

Objectives:

1. Explain personal identification using dental findings.
2. Explain identity confirmation by dentists and related cause of death investigation systems.

B-2-4) Environment and health

Goal:

Understand the relationship between environment and health in order to take into consideration the influence of environment on health, and on dental care.

Objectives:

1. Explain the influence of environment on health.
2. Explain environmental standards and environmental contamination.

B-3 Prevention and health management

B-3-1) Concept of prevention

Goal:

Understand the concept of prevention in order to carry out public health and dental care.

Objectives:

1. Explain the natural course of illness, primary, secondary, and tertiary prevention.
2. Explain professional care, self-care, and community care.
3. Explain primary care and health promotion.
4. Explain the difference between infectious disease and non-infectious disease prevention.

B-3-2) Dental disease prevention and health management

Goal:

Understand prevention methods and public dental health in order to prevent dental diseases.

Objectives:

1. Explain prevention of the primary dental diseases (dental caries, periodontal disease, and malocclusion).
2. Explain pit and fissure sealing and fluoride application methods in dental caries prevention.
3. Explain the significance and methods of plaque control.
4. Explain dental disease prevention based on life stage.
5. Explain the risk factor(s) for dental diseases.
6. Outline public dental health.
7. Outline human behavior, psychology and health behavior.
8. Outline behavior modification and behavior therapy.

B-4 Epidemiology, health and medical statistics

B-4-1) Dental diseases and epidemiology

Goal:

Understand the concepts and applications to practice epidemiology and evidence-based medicine (EBM).

Objectives:

1. Explain the concepts of epidemiology and evidence-based medicine (EBM).
2. Explain screening test(s).
3. Explain epidemiological indicator(s) of dental diseases.
4. Explain treatment guidelines.

B-4-2) Health statistics

Goal:

Understand the usefulness and limitations of statistics and estimation, considering objective and subjective probabilities, to understand healthcare statistics and its application to grasp health and medical care problems.

Objectives:

1. Explain the principle and methodology of random variables, their distribution and statistical inference (estimation and assay).
2. Explain the main health and medical statistics, (Survey of Dental Diseases, The National Health and Nutrition Survey, national census, Vital Statistics Survey, Patient Survey, Medical Facility Survey, Survey of Physicians, Dentists and Pharmacists, School Health Statistics Research, etc.).
3. Explain the main health indicator(s) (average lifespan, average life expectancy, neonatal-infant mortality rate, etc.).
4. Explain survey methods and statistical analysis methods.

B-4-3) Healthcare information

Goal:

Understand methods for appropriate use and management of healthcare information.

Objectives:

1. Explain the management and security of healthcare information (clinical information, medical record, etc.).
2. Explain the legal basis and points of caution for clinical information disclosure.

C. Life Science

C-1 Basic natural science

C-1-1) Chemical basis of biological substances

Goal:

Understand the chemical basis of substances necessary to learn life and medical sciences.

Objectives:

1. Explain atoms and elements that comprise the human body.
2. Explain the formation of molecules and chemical properties of biological constituents.
3. Explain the interactions between substances, and those between substance and energy.

C-1-2) Physical basis of biological phenomena

Goal:

Understand the physical basis necessary to learn life and medical sciences.

Objectives:

1. Explain the mechanical movements of objects underlying the principles of biological phenomena and medical devices.
2. Explain the characteristics of vibration and wave phenomena, and the basic properties of light and sound.
3. Explain the electromagnetic phenomena as applied in medical devices.

C-2 Molecular basis of life

C-2-1) Basic biological substances

Goal:

Understand the molecular structure, function, and metabolism (normal and abnormal) of basic biological substances.

Objectives:

1. Explain the structure, function, and metabolism of amino acids and proteins.
2. Explain the structure, function, and metabolism of carbohydrates.
3. Explain the structure, function, and metabolism of lipids.
4. Explain biological energy production and use.
5. Explain the function of enzymes and the major metabolic disorders.

C-2-2) Genes and heredity

Goal:

Understand the structure and function of genes and the basic mechanism of heredity.

Objectives:

1. Explain the structure and function of nucleic acids, genes, and chromosomes.
2. Explain the replication and repair mechanism of deoxyribonucleic acid (DNA).
3. Explain the process and regulation mechanism of transcription and translation.
4. Explain the etiology of hereditary diseases.
5. Explain genetic analysis and engineering technology.

C-2-3) Cell structure and function**Goal:**

Understand the basic structure and function of cells, and their proliferation and differentiation mechanism.

Objectives:

1. Explain the overall structure and cell membrane of eukaryotic cells, and the structure and function of the nucleus, cell organelle, and cytoskeleton.
2. Explain cell secretion and absorption.
3. Explain cell cycle and cell division.
4. Explain the types and basic mechanism of cell death.

C-2-4) Cell signaling mechanism**Goal:**

Understand the cell-cell and cell-matrix adhesive mechanisms, and the system of cell signaling.

Objectives:

1. Explain the cell adhesion mechanism.
2. Explain the receptor-mediated cell signaling mechanism by hormones, growth factors, and cytokines.
3. Explain the structure, function, synthesis and destruction of extracellular matrix molecules.

C-3 Structure and function of human body**C-3-1) Regions and anatomical terms to describe directions/positions of the human body****Goal:**

Understand the anatomical nomenclature of body regions and directions.

Objectives:

1. Explain the body regions, directions of motion and positions using anatomical terms.

C-3-2) Embryonic and post-natal development of tissues, organs, and bodies**Goal:**

Understand the process of development of tissues, organs, and bodies.

Objectives:

1. Explain normal ontogeny and organogenesis of human body.
2. Outline pluripotent stem cells and basic embryological engineering.
3. Explain the morphological and functional development of the human body.
4. Explain characteristics and assessment of physical and psychological development of childhood.

C-3-3) Aging of tissues, organs, and bodies

Goal:

Understand the aging, age-related changes of tissues, organs, and bodies after maturation.

Objectives:

1. Outline characteristics, mechanism of aging and human lifespan.
2. Outline the morphological and functional changes of cells, tissues, organs, and bodies due to aging.
3. Explain the mental and psychological changes due to aging.

C-3-4) Tissues and organs of the human body

Goal:

Understand the normal structure, physiological function and mechanism of human organs.

Objectives:

C-3-4)-(1) Epithelial tissue and the integumentary (skin/mucosa) system

1. Explain the structure, function, and distribution of epithelial tissue.
2. Explain the basic structure and function of the skin and mucosa.
3. Explain the structure and distribution of glands and their secretory mechanisms.

C-3-4)-(2) Connective tissue and skeletal system

1. Explain the basic skeletal system and bony joints.
2. Explain the classification, cell types, and intercellular substances of connective (supporting) tissue.
3. Explain tissue and cellular structure of bone and cartilage.
4. Explain the process and regulatory mechanism of osteogenesis (enchondral and membranous ossification), bone growth, and remodeling.
5. Explain the components and calcification mechanism of hard tissues.

C-3-4)-(3) Muscular tissues and system

1. Explain the classifications and distribution of muscular tissue.
2. Explain cell structure and the excitation-contraction coupling mechanism of muscles.
3. Explain the macroscopic structure, function and innervation of major muscles.

C-3-4)-(4) Blood, lymph, and circulatory system

1. Explain the structure, development and function of the heart, and electrocardiogram.
2. Explain blood circulation (pulmonary, systemic and fetal circulation) pathways and the nomenclature of the major arteries and veins of human body.
3. Explain the structure of blood vessels and the regulatory mechanism of blood pressure.
4. Explain blood components and their roles.
5. Explain the structure and function of lymphatic ducts, tissues, and organs.
6. Explain hematopoietic organs and mechanism.
7. Explain hemostasis, coagulation, and fibrinolytic system.

C-3-4)-(5) Nervous system

1. Explain types, routes, and innervation of the peripheral nervous system.
2. Explain the structure and function of the somatic and autonomic nervous systems.
3. Explain the structure and function of the sympathetic and parasympathetic nervous systems.
4. Explain the structure and function (motor, sensory, higher brain, and autonomic functions) of the brain and spinal cord.
5. Explain the structure, distribution, and functional characteristics of cerebral blood vessels.
6. Explain the expression and regulatory mechanism of reflex, semiautonomous movement, and voluntary movement.
7. Explain the structure and function of neurons and glial cells.
8. Explain the generation and conduction mechanisms of nerve action potential.
9. Explain the mechanism for synaptic transmission and neurotransmitters.

C-3-4)-(6) Sensory system

1. Explain the structure and function of special sensory organs.
2. Explain the structure and function of somatic sensory receptors.
3. Outline visceral sensation.
4. Explain types, trigger and regulatory mechanism of pain.

C-3-4)-(7) Digestive system

1. Explain the basic structure, function and regulatory mechanism of the digestive tract.
2. Explain the structure and function of the liver, bile and biliary tract.
3. Explain the structure and function of the pancreas (exocrine and endocrine portions).

C-3-4)-(8) Respiratory system

1. Explain the structure and function of the airway system.
2. Explain the structure and function of the lungs, and respiratory movement.

C-3-4)-(9) Endocrine system and homeostasis

1. Explain the structure and function of the endocrine system, tissues, and hormonal types, function, and its

disorders.

2. Explain the homeostasis, and functional interaction between endocrine and nervous systems.
3. Explain the regulatory mechanism of body temperature.
4. Explain the mechanism of feeding regulation.

C-3-4)-(10) Urinary system and body fluid/electrolyte regulation

1. Explain the structure and function of kidneys, ureter, urinary bladder, and urethra.
2. Explain the regulation mechanism of body fluid volume, components and osmotic pressure.
3. Explain cellular water metabolism and intake/output and its disorder of the major electrolytes.

C-3-4)-(11) Reproductive system

1. Explain the structures and functions of the male and female reproductive organs.

C-4 Infection and immunity

C-4-1) Infection

Goal:

Understand the basic characteristics and pathogenicity of microorganisms, and clinical conditions caused by infection.

Objectives:

1. Explain the basic structure and characteristics of bacteria, fungi, viruses, and protozoa.
2. Explain the infection mechanism and pathogenicity of bacteria, fungi, viruses, and protozoa.
3. Explain the types, prevention, diagnosis, and treatment of infectious diseases.
4. Explain the significance, types, and principles of sterilization and disinfection.
5. Explain the purposes and principles of chemotherapy, and the mechanisms of action and drug resistance mechanism of chemotherapeutic agents.

C-4-2) Immunity

Goal:

Understand the host defense mechanisms of immune response, immunity to infection, allergy, and the major immunodeficiency and autoimmune diseases.

Objectives:

1. Explain the types and functions of innate immunity.
2. Explain the types and mechanisms of acquired immunity.
3. Explain the types and functions of the cells and organs of the immune system.
4. Explain the antigen-presenting function and immune tolerance.
5. Explain the types, pathogenesis, and clinical conditions of allergic disorders.

6. Explain the types, pathogenesis, and clinical condition of immunodeficiency and autoimmune diseases.
7. Explain mucosal immunity.
8. Explain the significance, types, characteristics, and side effects of vaccine.

C-5 Etiology and pathophysiology

C-5-1) Etiology and congenital anomaly

Goal:

Understand etiology and congenital anomalies.

Objectives:

1. Explain abnormalities of chromosomes, genes and ontogeny.
2. Explain the relationship between environment and diseases.

C-5-2) Cell injury, tissue damage, and atrophy

Goal:

Understand cell injury, tissue damage and atrophy, causes and morphological observation.

Objectives:

1. Explain cell injury and tissue damage.
2. Explain degeneration and the pathology of related diseases.
3. Explain necrosis and apoptosis in diseases.
4. Explain atrophy and pseudohypertrophy.

C-5-3) Repair and regeneration

Goal:

Understand the significance of repair and regeneration and their morphological observation.

Objectives:

1. Explain the mechanism of repair and regeneration and the role of stem cells.
2. Explain hypertrophy and hyperplasia.
3. Explain metaplasia.
4. Explain the wound healing process and related cells.
5. Explain organization.

C-5-4) Circulatory disturbance

Goal:

Understand the causes, morphology, and outcome of circulatory disturbance.

Objectives:

1. Explain the signs, causes, outcome, and related diseases of ischemia, hyperemia, and hemostasis.
2. Explain the causes, types, and outcome of hemorrhage.
3. Explain the formation mechanism, morphological characteristics, outcome, and related diseases of thrombus and embolus.
4. Explain the types, morphological characteristics, outcome, and related diseases of infarction.
5. Explain the causes and outcomes of edema.
6. Explain the causes and types of shock.

C-5-5) Inflammation**Goal:**

Understand the concept, pathogenesis, and morphological characteristics of inflammation.

Objectives:

1. Explain the definition and mechanism of inflammation.
2. Explain the cell types and functions related to inflammation.
3. Explain the types, morphological characteristics, and change over time of exudative inflammation.
4. Explain the types, morphological characteristics, and change over time of granulomatous inflammation.

C-5-6) Tumor**Goal:**

Understand the etiology and pathological condition of tumor.

Objectives:

1. Explain the definition of tumor.
2. Explain the etiology of tumor.
3. Explain epithelial dysplasia.
4. Explain the atypia and degree of histological differentiation of tumor.
5. Explain differences between benign and malignant tumor.
6. Explain proliferation, invasion, recurrence, and metastasis of tumor.

C-5-7) Death of an individual body**Goal:**

Understand the causes and pathological conditions of an individual's death.

Objectives:

1. Explain the concept of death and biological death.

C-6 Biology of drugs

C-6-1) Drugs and pharmaceutical products

Goal:

Understand the classifications of pharmaceutical products, and the relationship between chemical compounds (including Kampo medicines) and pharmaceutical products.

Objectives:

1. Explain the categories of pharmaceutical products.
2. Explain labeling and storage of poisonous, deleterious, and narcotic drugs.
3. Explain the Japanese Pharmacopoeia.

C-6-2) Pharmacological action

Goal:

Understand the basic concept of drug actions (including Kampo medicines).

Objectives:

1. Explain the basic categories of pharmacological effects.
2. Explain effects of drugs and mechanisms of action.
3. Explain factors (dose and response, sensitivity) affecting pharmacological effects.
4. Explain impact of continuous drug use (tolerance, accumulation, and dependence).
5. Explain simultaneous drug use (synergism, antagonism, and interaction).

C-6-3) Administration and pharmacokinetics

Goal:

Understand the fate of the administered drugs (including Kampo medicines) in the body.

Objectives:

1. Explain types and characteristics of routes of drug administration.
2. Explain the pharmacokinetics (absorption, distribution, metabolism, excretion) including affects of aging, diseases and drug interaction.

C-6-4) Side and adverse effects of drugs

Goal:

Understand the side and adverse effects of drugs (including Kampo medicines) and their prevention.

Objectives:

1. Explain the general side effects and adverse effects of drugs.
2. Explain appropriate use of antibacterial drugs in consideration of antimicrobial resistance (AMR).

D. Dental Devices (Dental Materials, Equipment, and Instruments)

D-1 Dental device (materials, equipment, and instruments) characteristics and uses

Goal:

Understand the inherent properties, characteristics, and uses of the materials (high-polymer materials, ceramics, metals, composite materials), and equipment and instruments used in dental treatment and dental laboratories.

Objectives:

1. Explain the necessary properties and uses of dental devices (dental materials, equipment, and instruments).
2. Explain the physical (including mechanical and thermal), chemical (including solubility), and biological properties (including bioactivity and side effects) of materials and methods of evaluation.
3. Explain the form/structure and characteristics of dental equipment and instruments.

D-2 Types, uses, constituents/composition, characteristics, and methods of using dental materials

Goal:

Understand the types, uses constituents/composition, characteristics, and methods of using dental materials (including formation, shaping, and heat treatment).

Objectives:

1. Explain the types, uses, constituents/composition, characteristics, and methods of using plastic restoration and prophylactic sealant materials.
2. Explain the types, uses, constituents/composition, characteristics, and methods of using crown restoration and denture materials.
3. Explain the types, uses, constituents/composition, characteristics, and methods of using adhesive, cement/luting, and temporary cementation materials.
4. Explain the types, uses, constituents/composition, characteristics, and methods of using orthodontic materials.
5. Explain the types, uses, constituents/composition, characteristics, and methods of using dental implant, oral surgery, and periodontal treatment materials.
6. Explain the types, uses, constituents/composition, characteristics, and methods of using endodontic materials.

E. Clinical Dentistry

E-1 Basics of care

E-1-1) Basics of examination

Goal:

Acquire the basic knowledge necessary to perform examination, testing, and diagnosis in the oral and maxillofacial regions.

Objectives:

1. List the necessary aspects of examination, testing, and diagnosis.
2. Explain the necessary equipment/instruments for examination, testing, and diagnosis.
3. Explain history taking (including chief complaint, history of present illness, past medical history, family history, life history, social history, and work history).
4. Explain how to take history of present illness (including inspection, palpation, percussion, and auscultation).
5. Explain patient psychology and behavior in the care setting.
6. List the examinations/testing necessary for diagnosis.
7. Explain problem oriented medical records (POMR).
8. Explain informed consent.
9. Explain how to write prescriptions.
10. Explain how to write a dental laboratory order form.

E-1-2) Utilizing imaging in diagnosis

Goal:

Understand the characteristics and application of diagnosis using means such as radiation, and the interpretation of images; and understand the effects of radiation on the human body and methods of radiation protection.

Objectives:

1. Explain the types, properties, measurement methods, and units of radiation.
2. Explain the characteristics of radiation effects (including acute- and late-onset effects) on the human body (including fetus).
3. Explain standards and methods of radiation protection.
4. Explain the principles of x-ray image formation (including causes of image defects).
5. Explain the principles and management of x-ray equipment and its accessories.
6. Explain the types and application of intraoral radiographic examination and application of panoramic radiography.
7. Interpret/read intraoral radiographic and panoramic images.
8. Explain the types and application of craniofacial x-ray examination.
9. Explain the principles and basic characteristics of contrast-enhanced radiography, ultrasonography, computed tomography (CT), dental cone beam CT, magnetic resonance imaging (MRI), and radionuclide study.

E-1-3) Clinical examination

Goal:

Acquire the basic knowledge of clinical examination necessary to perform accurate diagnosis.

Objectives:

1. Explain the purpose and application of clinical examination.
2. List the clinical examinations and necessary equipment for diagnosis.
3. List the purpose and application of electrocardiography and arterial oxygen saturation (SaO₂) measurement (pulse oximetry).
4. Explain the examinations specific to diseases of each organ.
5. Explain the relationship between clinical examination results and diseases.

E-1-4) Anesthesia and systemic management/general care necessary for dental treatment

Goal:

Understand the basics of general care, local anesthesia, psychosedation, and general anesthesia.

Objectives:

E-1-4)-(1) General care

1. Explain the significance and monitoring methods of vital signs.
2. Explain measurement methods for blood pressure, pulse, and respiratory rate and their abnormal findings.
3. Explain body temperature measurement methods.
4. Explain state of consciousness confirmation methods and abnormal findings.
5. Explain the effects of medication(s) a patient is taking in dental treatment and the handling thereof during dental treatment.
6. Explain the evaluation of a patient's systemic condition (including pediatric, pregnant people, and elderly people).

E-1-4)-(2) Psychosedation

1. Explain the characteristics, purposes, and types of psychosedation.
2. Explain the drugs used in inhalation sedation and their applications, contraindications, and complications.
3. Explain the drugs used in intravenous sedation and their applications, contraindications, and complications.
4. Explain perioperative management in psychosedation method.

E-1-4)-(3) Local anesthesia

1. Explain the characteristics, purposes, and types of local anesthesia.
2. Explain the categories of local anesthetic and their mechanisms of action.
3. Explain the factors influencing local anesthetic effect.
4. Explain the type and purpose of use of vasoconstrictors, their characteristics and cautions for clinical use.
5. Explain methods and potential complications (procedural accidents) of performing local anesthesia.

E-1-4)-(4) General anesthesia

1. Explain the concept, types of, and biological responses to general anesthesia.
2. Explain the drugs used in general anesthesia, their basic pharmacological effects, and the devices and instruments to be used.
3. Explain the applications and contraindications of general anesthesia, complications of and perioperative management.

E-1-5) Minor surgery

Goal:

Acquire the basic knowledge necessary to appropriately perform minor surgery.

Objectives:

1. Explain indications and contraindications for tooth extraction (including handling of relative contraindications, and the indications and contraindications of minor surgery).
2. Explain complications (procedural accidents) of minor surgery.
3. Explain the basic procedures and use of instruments necessary for minor surgery.
4. Explain the usage of instruments necessary for incision and abrasion of the mucous membrane.
5. Explain the usage of instruments necessary for suture and hemostasis.
6. Explain disinfection method for the hands, fingers, and operative field.
7. Explain differentiation between cleanliness and uncleanliness.
8. Explain disinfection and sterilization method for instruments.
9. Explain extraction methods for impacted teeth (including wisdom teeth).
10. Explain the purposes and significance of perioperative management.

E-1-6) Emergency treatment

Goal:

Acquire the basics of emergency treatment.

Objectives:

1. Explain the systemic accidental symptoms that can occur during dental treatment.
2. Explain basic life support (BLS).
3. List the drugs used in emergency treatment, and explain their mechanisms of action and applications.

E-2 Characteristics of the oral and maxillofacial region in health and disease

E-2-1) Basic structure and function of the head and neck

Goal:

Understand the basic structure and function of the head and neck.

Objectives:

1. Explain the regions of the surfaces and viscera of the head and neck and their characteristics.
2. Explain the organization and structure of the cranial bones.
3. Explain the organization and function of the masticatory, facial, and anterior cervical muscles.
4. Explain the vascular system of the head and neck.
5. Explain the pathways, distribution, and fiber component of the cranial nerves.
6. Explain the structure and function of the temporomandibular joint.
7. Explain the voluntary movement and reflexes of the mandible.
8. Explain the significance and regulatory mechanism of mastication.
9. Explain the significance and regulatory mechanism of swallowing.
10. Explain the vomiting and choke reflexes.
11. Explain the structure and function of the pharynx and larynx.
12. Explain the structure, distribution, and function of the tonsil.

E-2-2) Structure and function of the oral cavity**Goal:**

Understand the basic structure and function of the oral cavity and adjacent regions.

Objectives:

1. Explain the portions and elements comprising the oral cavity.
2. Explain the classification and characteristics of the lips and oral mucosa.
3. Explain the structure and function of the tongue.
4. Explain dentition and occlusion.
5. Explain properties, components, and function of saliva.
6. Explain the structure, function, and secretory regulation mechanism of the salivary glands.
7. Explain the structure and function of the maxillary sinus and its relationship with the oral cavity.
8. Explain the morphology and function of the oral cavity as an articulatory organ.
9. Explain the characteristics of somatic sensation and pain in the oral and maxillofacial regions.
10. Explain the structure and distribution of gustatory organs and their reception and transduction mechanisms.

E-2-3) Development and age-related changes of the oral and maxillofacial regions**Goal:**

Understand the development and age-related changes (growth and aging) including abnormalities, of the tissues and organs in the oral and maxillofacial regions.

Objectives:

1. Explain embryonic development of the oral and maxillofacial regions.
2. Explain postnatal development of the oral and maxillofacial regions.
3. Explain developmental disorders of the oral and maxillofacial regions and their effects on malocclusion.

4. Explain changes in the oral and maxillofacial regions due to aging and tooth loss.

E-2-4) Diseases of the oral and maxillofacial regions

Goal:

Understand the characteristics of diseases of the oral and maxillofacial regions, and the basic concepts of their causes, diagnosis and treatment.

Objectives:

E-2-4)-(1) Congenital and acquired anomalies

1. Explain congenital anomalies that manifest in symptoms of the oral cavity, cranium, and maxillofacial regions.
2. Explain the pathology of cleft lip and cleft palate and its treatment strategies.
3. Explain the pathology and treatment of jaw deformity.
4. Explain soft tissue disorders.

E-2-4)-(2) Non physiological/physiological trauma

1. Explain the types, characteristics and healing processes of trauma.
2. Explain the treatment strategy for trauma (priority of treatment).
3. Explain the causes, types, symptoms, diagnostic and treatment methods for tooth trauma and alveolar fracture.
4. Explain the causes, types, symptoms, diagnostic and treatment methods for maxillofacial fracture.
5. Explain the categories, symptoms and treatment methods for soft tissue damage.

E-2-4)-(3) Inflammation

1. Explain the pathogenic bacteria and infection routes of odontogenic infections.
2. Explain the difference between acute and chronic inflammation.
3. Explain the examination methods necessary to diagnose inflammation.
4. Explain the clinical condition/pathology, symptoms, examination methods and treatment methods for bacteremia and odontogenic focal infection.
5. Explain the significance and characteristics of anti-inflammatory treatment.
6. Explain the symptoms and treatment methods for the main types of inflammation (including glossitis, cheilitis, inflammation of the oral floor, pericoronitis of wisdom tooth, alveolar osteitis, osteitis of the jaw, periostitis of the jaw, perimandibular inflammation, mandibular osteomyelitis, phlegmon, and odontogenic maxillary sinusitis).
7. Explain the types and characteristics of granulomatous inflammation in the oral and maxillofacial regions.

E-2-4)-(4) Oral mucosal disease

1. Explain the types and characteristics of oral mucosal disease.
2. Explain the symptoms and treatment methods for oral mucosal disease, which mainly manifest as blister, erythema, erosion, ulcer, vitiligo, and pigmentation.

E-2-4)-(5) Cysts

1. Explain the types and characteristics of cyst that occur in the oral and maxillofacial regions.
2. Explain the symptoms, diagnostic methods, and treatment methods for cysts occurring in the oral and maxillofacial regions.

E-2-4)-(6) Tumors and tumor-like diseases

1. Explain the types and characteristics of tumors that occur in the oral and maxillofacial regions.
2. Explain the general symptoms, diagnostic (cytodiagnostic, histopathologic examination, and imaging diagnostic), and treatment methods for benign tumors that occur in the oral and maxillofacial regions.
3. Explain the general symptoms, diagnostic (cytodiagnostic, histopathologic examination, and imaging diagnostic), and treatment methods for malignant tumors that occur in the oral and maxillofacial regions.
4. Explain the types and characteristics of tumor-like diseases.
5. Explain the characteristics, symptoms, and treatment methods for precancerous lesions.
6. List the types and characteristics of precancerous condition.

E-2-4)-(7) Temporomandibular disorders

1. Explain the types and characteristics of temporomandibular joint disease.
2. Explain the symptoms, diagnostic, and treatment methods for temporomandibular joint disease (developmental disorders, trauma, inflammation, regressive temporomandibular disorders, temporomandibular disorders, temporomandibular ankylosis, tumors, and tumor-like diseases).

E-2-4)-(8) Salivary gland disorders

1. Outline the developmental disorders of the salivary glands.
2. Explain the characteristics symptoms, diagnostic, and treatment methods for sialolithiasis.
3. Explain the types, characteristics, symptoms, diagnostic, and treatment methods for sialoadenitis.
4. Explain the types, characteristics, symptoms, diagnostic, and treatment methods for salivary gland tumors.
5. Outline tumor-like diseases.
6. Explain the characteristics, symptoms, diagnostic, and treatment methods for viral sialoadenitis.
7. Explain the characteristics, symptoms, diagnostic, and treatment methods for Sjögren's syndrome.

E-2-4)-(9) Neural disorders

1. Explain orofacial pain.
2. Explain the causes, symptoms, and treatment methods for trigeminal neuralgia.
3. Explain the causes, symptoms, and treatment methods for facial paralysis.
4. Explain the causes, symptoms, and treatment methods for trigeminal paralysis (sensory paralysis, motor paralysis).

E-2-4)-(10) Diseases manifesting symptoms in the oral and maxillofacial regions

1. Explain blood disorders manifesting symptoms in the oral and maxillofacial regions (anemia, hemorrhagic diathesis, leukemia) and screening examination methods for them.
2. List the types and symptoms of infectious diseases manifesting in the oral and maxillofacial regions.

3. List the symptoms of allergic disorders, connective tissue diseases, and immunologic abnormalities manifesting in the oral and maxillofacial regions.
4. List tumors and tumor-like diseases of non-oral/maxillofacial origin, manifesting symptoms in the oral and maxillofacial regions.
5. List the types and symptoms of syndromes manifesting in the oral and maxillofacial regions.
6. List the symptoms, diagnostic and treatment methods of skeletal dysplasia manifesting in the oral and maxillofacial regions.
7. List the drug side effects manifesting in the oral and maxillofacial regions.
8. List the metabolic disorders and their symptoms manifesting in the oral and maxillofacial regions.
9. List the vitamin deficiencies and their symptoms manifesting in the oral and maxillofacial regions.
10. Explain oral symptoms and examination methods for human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS).
11. Explain the causes, symptoms and treatment methods for chronic pain in the oral and maxillofacial regions.

E-2-4)-(11) Functional disorders of the oral and maxillofacial regions

1. Explain the causes, examination, testing, diagnostic, and treatment strategies for disorders resulting from malocclusion and masticatory dysfunction.
2. Explain the causes, examination, testing, diagnostic, and treatment strategies for dysphagia.
3. Explain the causes, examination, testing, diagnostic, and treatment strategies for speech disorders.
4. Explain the causes, examination, testing, diagnostic, and treatment strategies for gustatory disorders.
5. Explain the causes, examination, testing, diagnostic, and treatment strategies for xerostomia.
6. Outline the causes, examination, testing, diagnostic, and treatment strategies for sleep apnea.

E-3 Characteristics of the teeth and periodontium in health and disease

E-3-1) Development, structure, and function of the teeth and periodontium

Goal:

Understand the normal structure and function of teeth and periodontium.

Objectives:

1. Explain the developmental, and replacement processes of the teeth.
2. Explain the anatomy and its characteristics for all types of teeth.
3. Explain hereditary dysplasia of the teeth.
4. Explain the structure, function, and constituents of the hard tissue of the teeth (including deciduous teeth, non-fully formed permanent teeth, and immature permanent teeth).
5. Explain the structure and function of dental pulp.
6. Explain the development, structure, and function of periodontium.

E-3-2) Characteristics and causes of tooth and periodontal disease

Goal:

Understand diseases that occur in the teeth and periodontium.

Objectives:

1. Explain the causes and clinical/pathological conditions of dental hard tissue diseases (including tooth wear (erosion, attrition and abrasion), tooth discoloration, and dentin hypersensitivity).
2. Explain the causes and clinical/pathological conditions of pulpal disease and apical periodontitis.
3. Explain the causes and clinical /pathological conditions of periodontal disease.
4. Explain oral bacteria, plaque (oral biofilm), and calculus.
5. Explain the mechanism of toothache.

E-3-3) Diagnosis and treatment of tooth and periodontal disease

Goal:

Master the basics of treating diseases occurring in the teeth and periodontium.

Objectives:

E-3-3)-(1) Diagnosis and treatment of dental caries and other diseases of dental hard tissue

1. Explain the symptoms, examination methods, diagnosis and treatment methods (including remineralizing therapy) for dental caries and other diseases of dental hard tissue (including tooth wear (erosion, attrition and abrasion), discoloration of vital teeth, and dentin hypersensitivity).
2. Explain the significance of dental treatment and clinical handling/procedure based on minimal intervention (MI).
3. Explain the handling, restoration methods and application of restorative materials.
4. Explain the purpose and significance of pretreatment necessary for restoration.
5. Explain the significance, types and methods of pulp protection.
6. Explain the significance and methods of cavity preparation.
7. Explain the significance, types and characteristics of temporary sealing.
8. Explain the purposes and methods of post-restoration management.

E-3-3)-(2) Diagnosis and treatment of pulpal disease and apical periodontitis

1. Explain the symptoms, examination methods, diagnostic and treatment methods (including direct pulp capping) for pulpal disease and apical periodontitis (and description at the cellular level of the disease).
2. Explain the purpose, timing and methods of root canal filling.
3. Explain the types of, treatment for, and prevention of complications (procedural accidents) in treatment of pulpal disease and apical periodontitis.
4. Explain the post-treatment healing and prognosis of pulpal disease and apical periodontitis.
5. Explain types and applications of surgical endodontics (including use of dental operating microscope).
6. Explain causes, types, and treatment of discoloration of nonvital tooth.
7. Explain the causes, symptoms, diagnosis and treatment of root resorption.

E-3-3)-(3) Diagnosis and treatment of periodontal disease

1. Explain the relationship between periodontal disease symptoms and systemic diseases (including description at cellular, biomolecular levels).
2. Explain the examination methods, diagnosis and treatment strategies (including maintenance methods) for periodontal disease.
3. Explain the procedures and indications for periodontal treatment.
4. Explain the kinds and indications of periodontal surgery.
5. Explain tissue healing process and prognosis of periodontium following periodontal treatment.

E-3-4) Diagnosis and treatment of dental structure and tooth defect/loss

Goal:

Understand the clinical significance and methods of tooth crown restoration or dentition to treat tooth structure loss, or of prosthetic treatment for partial or full loss.

Objectives:

E-3-4)-(1) Treatment by crown and bridge

1. Explain the significance and requisite conditions for crown and bridge.
2. Explain the types, characteristics, and fabrication methods (including CAD/CAM) of crowns and bridges.
3. Explain the significance, types and characteristics of abutment build up.
4. Explain the significance and methods of preparation for abutment tooth.
5. Explain the materials and methods used to perform impression taking and maxillomandibular registration for crown and bridge fabrication.
6. Explain shade selection (shade-taking).
7. Explain the significance and fabricating methods of provisional restoration.
8. Explain the materials and basic handling methods necessary to fabricate a crown and bridge.
9. Explain the methods of fabricating study casts and working casts.
10. Explain the types and characteristics of average value and adjustable articulators.
11. Explain crown and bridge cementation methods.
12. Explain the purposes and methods of crown and bridge maintenance and management.
13. Explain the importance of post-cementation crown and bridge maintenance.

E-3-4)-(2) Removable dentures (partial denture, complete denture)

1. Explain the types and clinical condition of disabilities due to tooth loss and facial or jaw defects.
2. Explain the types, purposes, and significance of removable dentures.
3. Explain the characteristics and indications of removable dentures.
4. Explain the component and system of support, bracing, and retention of removable dentures.
5. Explain the design principles of removable denture.
6. Explain the materials and methods used to perform impression taking and maxillomandibular registration for removable denture fabrication.

7. Explain the method for recording mandibular position and movement in dentition with missing tooth.
8. Explain the basic methods of using adjustable articulator, face-bow transfer, and check-bite method.
9. Explain artificial tooth selection.
10. Explain the occlusal scheme of removable dentures and its significance.
11. Explain the material characteristics and basic methods of use necessary to fabricate removable dentures.
12. Explain the fabrication process for removable dentures.
13. Explain the delivery and adjustment of removable dentures.
14. Explain the maintenance, relining and repair of removable dentures.

E-3-4)-(3) Dental implants

1. Explain the types, characteristics, purposes and significance of dental implants.
2. Explain the indications and complications of dental implants.
3. Explain the necessary examinations and testing for dental implants.
4. Explain the treatment planning and treatment procedures for dental implants.
5. Explain implant surgery methods.
6. Explain the impression taking and maxillomandibular registration for dental implant superstructure.
7. Explain fabricating procedures and attachment methods for dental implant superstructure.
8. Explain the importance of maintenance.

E-4 Orthodontic and pediatric dental care

E-4-1) Treatment for malocclusion

Goal:

Understand the necessity of diagnosis and treatment, and significance of malocclusion.

Objectives:

1. Explain the purpose and significance of orthodontic treatment.
2. Explain the concept of normal occlusion, and conditions to achieve and maintain it.
3. Explain the causes, types, disorders, examinations, testing, diagnosis, treatment and prevention methods of malocclusion.
4. Explain the names of orthodontic devices and their methods of usage in orthodontic treatment.
5. Explain the types, characteristics and purposes of use of orthodontic appliances.
6. Explain the biological responses that can occur due to orthodontic treatment, in cellular or biomolecular terms.
7. List the iatrogenic disorders which can occur due to orthodontic treatment, and explain their prevention methods and treatment.

E-4-2) Pediatric dental treatment

Goal:

Understand the basics of performing pediatric dental treatment.

Objectives:

1. Explain the characteristics and prevention methods of dental caries in deciduous and immature permanent teeth.
2. Explain the examination, testing and diagnosis of dental caries in deciduous and immature permanent teeth.
3. Explain the purposes, types, indications, procedures and points of caution for tooth crown restoration in deciduous and immature permanent teeth.
4. Explain the examination, testing and diagnosis of pulpal disease and apical periodontitis in deciduous and non-fully formed permanent teeth.
5. Explain the types, indications, procedures and points of caution of treatment methods of pulpal disease and apical periodontitis in deciduous and non-fully formed permanent teeth.
6. Explain the characteristics and handling of pediatric periodontal disease.
7. Explain the examination, testing, diagnosis, treatment methods and prognosis of pediatric tooth trauma and mucosal disorders.
8. Explain the concept of occlusal guidance.
9. Explain the purposes, types, indications and points of caution of space maintenance treatment, and the design of space-retaining appliance.
10. Explain the handling of pediatric patients.
11. Explain the signs and handling of child abuse.
12. Explain the effects of oral habits on dentition and occlusion.

E-5 Elderly people, people with disabilities, and mental, psychosomatic disorders**E-5-1) Dental treatment of elderly people****Goal:**

Understand the physical, mental and psychological characteristics and points of caution for dental treatment of elderly people.

Objectives:

1. Explain the physiological, psychological, and behavioral characteristics of elderly people.
2. Explain the diseases common in elderly people, and the medications they take.
3. Explain the tests to detect, and the preventative methods for, oral function degradation (including preventative nursing care).
4. Explain the tools and treatment used in oral health management of elderly people.
5. Explain the systemic management practiced when performing dental treatment on elderly people.
6. Explain the important points of caution for performing dental treatment on elderly people requiring nursing/long-term care (including home healthcare recipients).
7. Explain in-home medical care (including homebound dentistry).
8. Explain the examination, testing, and diagnosis of dysphagia.

9. Explain dysphagia rehabilitation.
10. Explain nutritional management and dietary type adjustment.
11. Explain the signs and handling of elder abuse.

E-5-2) Dental treatment of people with disabilities

Goal:

Understand the physical, mental and psychological characteristics of people with disabilities and the important points to consider in performing their dental treatment.

Objectives:

1. Explain the physical, mental, and psychological characteristics of people with disabilities.
2. Explain the behavior management and important points in performing the dental treatment for people with disabilities.
3. Explain the special care of performing dental treatment on people with disabilities.
4. Explain the oral care and oral hygiene of people with disabilities.
5. Explain the examination, assessment, and diagnosis of dysphagia in the developmental period.
6. Explain rehabilitation of dysphagia in the developmental period.

E-5-3) Mental and psychosomatic diseases/conditions

Goal:

Understand that the mind and body have a close relationship, and acquire basic knowledge of mental and psychosomatic conditions.

Objectives:

1. Explain the psychosomatic correlation.
2. Explain the mental and psychosomatic diseases/conditions that appear in relation to the orofacial region.
3. Explain the purposes and significance of psychological test.
4. Explain burning mouth syndrome (glossodynia).
5. Explain dental phobia.
6. Explain psychosomatic treatment.

E-6 Medical knowledge necessary for coordinating with physicians

Goal:

List the cause of a patient's symptoms and condition, in addition to the representative diseases that cause them, and create a differential diagnosis based on patient information. Also, master the medical knowledge necessary to collaborate with physicians, seek out knowledge regarding coexisting illnesses, and explain the necessity and manner of coordinating medical and dental treatment.

Objectives:

1. Explain systemic symptoms and conditions.

Fever, general malaise, weight loss or gain, shock, consciousness disorder, dehydration, edema, convulsions, dizziness, jaundice, respiratory distress, cyanosis, headache, palpitations, dyspnea, chest pain, sleep disorders, vomiting, diarrhea

2. Explain the points of caution when performing dental treatment on patients with concomitant medical disorders.

3. Explain the points of caution for performing dental treatment on pregnant people.

*Examples of representative medical disease and pathology

Respiratory system: respiratory failure, obstructive pulmonary disorders (including bronchial asthma), restrictive pulmonary disease, aspiration pneumonia

Circulatory system: heart failure, endocarditis, valvular disorders, ischemic heart disease, arrhythmia, hypertension, deep vein thrombosis

Digestive system: peptic ulcer, acute/chronic hepatitis, cirrhosis

Blood, hematopoietic, lymphatic systems: anemia, bleeding tendency, leukemia

Endocrine system: diabetes, thyroid disorders, osteoporosis

Immunity, allergies: immunodeficiency, connective tissue disease, allergic disorders

Nervous system: cerebrovascular diseases, Alzheimer's disease, Parkinson's disease, epilepsy

Dermal system: dermal viral infections (including measles, hand-foot-and-mouth disease)

Renal, urinary systems: chronic kidney disease, acute renal disorder

Infections: viral infections, bacterial infections, fungal infections

Mental: dementia, schizophrenia, anxiety disorder, depression

Pediatric: pediatric convulsive disorders, congenital disorders, developmental disabilities

F. Simulation Training (Pre-clinical Practice (model practice using mannequin) and Peer-clinical Experience)

In the clinical practicum, it is important that students have the professional attitude to directly interact with patients, build communication, and implement informed consent. It is necessary that in the clinical practicum, basic examination and clinical skills are acquired through a student providing direct patient care under supervision. Therefore, before advancing to the clinical practicum, and during the clinical practicum, not only knowledge acquisition for clinical ability, but also a student needs to be sufficiently trained in proper professional attitude and skills through simulation training (pre-clinical practice (model practice using mannequin) and peer-clinical experience).

F-1 Basics of care

Goal:

Master the knowledge, skills, and professional attitude regarding for oral examination, documentation, and medical safety and infection control when performing dental treatment through simulation training (pre-clinical practice (model practice using mannequin) and peer-clinical experience).

Objectives:

F-1-1) Oral examination and documentation

1. Collect and analyze patient information.
2. Explain the necessary examinations and testing based on patient information.
3. Diagnose high frequency dental diseases, and formulate their treatment strategies and treatment plans.
4. Produce a medical record using subjective findings, objective findings, assessment and planning (Subjective, Objective, Assessment, Plan (SOAP)).
5. Obtain informed consent.
6. Consult other medical institutions to receive and provide patient medical information.
7. Explain the relationship between the oral cavity and medical disorders.

F-1-2) Medical safety and infection control

1. Use dental instruments safely.
2. Use dental instruments with consideration for cleanliness.
3. Implement medical safety measures.
4. Practice standard precautions.
5. Provide basic life support (BLS).

F-2 Basic examination methods

Goal:

Through simulation training (pre-clinical practice (model practice using mannequin) and peer-clinical experience), master the knowledge, skills and professional attitude to conduct a medical interview in order to build a good dentist-patient relationship, ascertain systemic condition, and perform the examinations and testing

necessary for dental treatment.

Objectives:

F-2-1) Medical interview

1. Maintain appropriate appearance, language, and professional attitude for patient contact.
2. Conduct basic communication in a medical interview.
3. Take the patient's medical history (chief complaint, history of present illness, past medical history, family history).
4. Select and organize the patient's problems, taking into account their physical, mental, and social difficulties.
5. Adapt appropriately to the patient's anxieties, dissatisfaction, facial expressions, and changes in behavior.
6. Protect the patient's privacy.
7. Explain the diagnostic results and treatment strategy and treatment plan (including the use of space-retaining appliance or orthodontic appliances) to the patient.

F-2-2) Ascertaining systemic condition, necessary examinations and testing for dental treatment

1. Measure and evaluate vital signs (temperature, blood pressure, pulse, respirations).
2. Check and evaluate state of consciousness.
3. Examine the state of the head and neck (inspection, palpation, percussion, auscultation, and thermal pulp test).
4. Perform periodontal tissue examination (plaque disclosing, tooth mobility test, probing depth measurement).
5. Explain the necessity of intraoral radiographic examination to the patient, and perform radiography.
6. Explain the necessity of other required imaging to the patient and order radiographic imaging.
7. Explain the necessity of measurement of root canal length to the patient, and perform it.
8. Explain the necessity of bacteriological examination of root canal to the patient, and perform it.
9. Explain the necessity of salivary secretion test to the patient, and perform it.
10. Explain the necessity of masticatory performance test to the patient, and perform it.
11. Document examination and test results in medical records accurately.
12. Record the state of the oral cavity.

F-3 Basic clinical skills

Goal:

Through simulation training (pre-clinical practice (model practice using mannequin) and peer-clinical experience), master the basic clinical procedures to perform dental care/treatment.

Objectives:

F-3-1) Common matters

1. Follow correct procedure for hand-washing and putting on sterilized gloves.
2. Prepare and clean up the necessary instruments for dental treatment.
3. Perform rubber dam isolation.
4. Administer local anesthesia (topical anesthesia, infiltration anesthesia).

5. Perform primary impression taking.
6. Fabricate study casts.

F-3-2) Dental health guidance

1. Evaluate oral health and risk, and explain it to the patient and concerned persons.
2. Motivate performance of self-care.
3. Perform appropriate oral hygiene instruction.
4. Perform appropriate nutrition guidance.
5. Instruct in appropriate lifestyle habits.
6. Perform smoking cessation instruction and support toward prevention of periodontal disease and oral cancers.
7. Instruct concerning food and nutrition education according to life stage.

F-3-3) Treatment of tooth and periodontal disorders

1. Administer simple treatment for dental caries and other diseases of dental hard tissue (composite resin restoration, glass ionomer cement restoration, metal inlay restoration, and repair restoration).
2. Administer treatment for dentin hypersensitivity (topical application of medicine, dentin covering).
3. Administer simple treatment of pulpal disease and apical periodontitis.
4. Administer preventive treatment of periodontal disease (plaque control instruction).
5. Administer simple treatment of periodontal disease (scaling, root planing).
6. Perform temporary splinting.

F-3-4) Treatment of tooth structure and tooth defect/loss

1. Collect necessary diagnostic information for prosthetic treatment, and create a treatment plan and appliance design based on the information.
2. Perform basic procedures of abutment build up of metal post core, resin post core, and fiber post core.
3. Perform basic procedure for prosthetic treatment utilizing crown and bridge.
4. Perform prosthetic pretreatment for removable dentures (including rest seat preparation).
5. Perform basic procedures of provisional restoration.
6. Perform basic procedures of precise impression taking (agar alginate combined impression, silicone rubber impression).
7. Fabricate working casts, and design appliances based on surveying.
8. Perform basic procedures for maxillomandibular registration and average value articulator mounting.
9. Perform basic procedures for masticatory performance test.

F-3-5) Minor surgery and treatment of oral mucosal disease

1. Perform simple tooth extraction.
2. Perform basic incision, suture, and suture removal.

F-3-6) Orthodontic and pediatric dentistry

1. Administer topical fluoride treatment/application of topical fluoride.

2. Administer pit and fissure sealing of immature permanent teeth.
3. Implement appropriate oral hygiene instruction to guardian for plaque control in children.
4. Analyze, diagnose, and formulate a treatment plan based on models and cephalograms, etc.

F-3-7) Treatment of elderly people and people with disabilities

1. Perform basic support with elderly people and their nursing caregiver.
2. Perform basic support with people with disabilities and their nursing caregiver.
3. Assist in-home medical care (including homebound dentistry).
4. Assist with psychosedation.

G. Clinical Practicum

The clinical practicum consists of items to be performed under the guidance and oversight of a supervisor, through contact with actual patients in affiliated hospitals and other clinical settings.

To ensure mastery of the basic knowledge, skills, and professional attitude needed for comprehensive dental care, the clinical practicum must be performed systematically throughout the entire clinical practice, and not on an independent, individual learning basis. In the clinical practicum, students comply with laws and ordinances, and conduct care according to social systems and dental care-related laws.

A student must practice on their own as much as possible in order to master fundamental examination and other skills before graduation, acquire the desire for study and the basic qualities through clinical activity that enables them to contribute to the advancement and improvement of dental science and health care, and have the qualities and capabilities of a dentist after graduation. The contents of the clinical practicum can be found on pages 56-57 under "Content and Categories of the Clinical Practicum" .

G-1 Basics of care

G-1-1) Clinical diagnosis and treatment plan

Goal:

Master the knowledge, skills, and professional attitude to collect and analyze patient information, perform diagnosis, plan treatment, and create documentation, in order to provide total dental management for each patient.

Objectives:

1. Diagnose dental and oral diseases accurately, formulate treatment strategies and plans, and predict prognosis.
2. Explain the diagnosis, treatment strategy, and treatment plan in a way the patient can easily understand.
3. Document subjective findings, objective findings, assessment, and plan (SOAP) based medical records and order forms.
4. Evaluate treatment results properly, taking into account the patient complaint and findings by the supervising dentist/supervisor.

G-1-2) Medical safety and infection control

Goal:

Master the knowledge, skills, and professional attitude regarding medical safety and infection control necessary to perform dental care.

Objectives:

1. Practice medical safety measures (including standard precautions, infection prevention, and operation of medical devices).
2. Provide basic life support (BLS).
3. Prescribe appropriate antibacterial drugs with consideration for antimicrobial resistance (AMR).

G-2 Basic examination methods

Goal:

Master the knowledge, skills, and professional attitude to build a good patient-dentist relationship, and to ascertain systemic condition, and perform examinations and tests necessary for diagnosis and dental treatment.

Objectives:

1. Perform medical interviews and have good communication with patients.
2. Evaluate systemic condition and examine the maxillofacial and oral cavity areas.
3. Select and implement the imaging and clinical examinations necessary for performing diagnosis and treatment.

G-3 Basic clinical skills

Goal:

Master the basic clinical procedures for practicing dental care.

Objectives:

1. Administer local anesthesia (topical anesthesia, infiltration anesthesia).
2. Perform simple extraction of permanent teeth.
3. Perform minor surgery of soft tissue.
4. Perform operative treatment for dental caries and other diseases of dental hard tissue (including dentin hypersensitivity).
5. Perform treatment of pulpal disease and apical periodontitis.
6. Perform basic periodontal treatment.
7. Perform crown restoration treatment for tooth defects.
8. Perform prosthetic treatment for tooth loss.
9. Implement oral hygiene instruction.
10. Perform treatment to prevent dental diseases.
11. Perform pediatric dental preventive treatment.
12. Analyze and diagnose casts and cephalograms to formulate orthodontic treatment plans.

G-4 Team-based health care and regional medical care

Goal:

Comply with laws and ordinances; understand public health, health care, welfare, and nursing care systems; and master the knowledge, skills, and professional attitude regarding team-based health care, regional medical care, and coordination between hospitals and care centers.

Objectives:

1. Experience regional medical care and community health (in-home medical care (including homebound dentistry)) and the Integrated Community Care System.
2. Experience care coordination between hospitals and care centers and coordination between hospitals.

3. Experience team-based health care by interprofessional collaboration (dental hygienists, dental technicians, physicians, pharmacists, nurses, and other related professions including nursing care professions).

G-5 Patient-centered care

Goal:

Practice patient-centered care in/by the clinical practicum, mastering the knowledge and professional attitude a dentist must possess regarding medical ethics and patient rights.

Objectives:

1. Practice patient-centered care through evidence-based medicine (EBM) and narrative-based medicine (NBM).
2. Obtain informed consent.

As outlined in the "Content and Categories of the Clinical Practicum", it is necessary to appropriately document the evaluation/assessment and learning, and furthermore, it is important that it be made sharable for the versatility of education. Therefore, we desire that the reader will refer to the sample Clinical Practicum Portfolio beginning on page 58.

Content and Categories of Clinical Practicum

G Items		I. Practice under an instructor (direct patient care)	II. Practice under an instructor is preferable (if direct patient care is not feasible, supplement with simulation etc.)	
1 Basics of treatment	Clinical diagnosis, treatment plan	Diagnosis and treatment plan formulation (occlusion is stable)	Diagnosis and treatment plan formulation (occlusion requires stabilization)	
	Photography/Model of clinical condition	Oral, facial photography; study cast fabrication		
	Medical record, prescription	Production of medical record, prescription, dental laboratory order form		
2 Basic examination methods	Medical interview	Medical interview (adult)	Medical interview (elderly people)	
	Vital signs	Blood pressure, pulse, respiration, body temperature measurements		
	Head and neck, and oral examination	Head and neck and oral inspection, palpation, percussion, auscultation		
	Imaging diagnosis	Intraoral radiographic examination	Panoramic radiography	
	Clinical examination			
			Thermal pulp test, electric pulp test, transillumination test	Caries risk test
			Measurement of root canal length	Bacteriological examination of root canal
			Periodontal tissue examination (tooth mobility test, probing depth measurement, plaque index measurement, calculus index measurement, bleeding index measurement)	
			Occlusal examination	Masticatory ability test
3 Basic clinical skills	Common	Hand-washing (for hygiene, surgery); putting on sterilized gloves; gowning technique		
		Local anesthesia (topical anesthesia, infiltration anesthesia)	Local anesthesia (conduction anesthesia)	
		Fabrication of temporary prosthetic (bite plate, tray, others)		
		Production of portfolio	Production and implementation of case report	
	Oral surgery	Simple tooth extraction of permanent tooth	Minor abscess incision, suture, suture removal	
	Conservative dentistry	Composite resin restoration (simple cavity), maintenance, dentin hypersensitivity treatment	Composite resin restoration (complex cavity), repair restoration, metal inlay restoration (complex cavity), glass ionomer cement restoration	
		Rubber dam isolation technique, infected root canal treatment (including root canal filling of single rooted tooth)	Pulp capping (direct, indirect), temporary indirect pulp capping, pulp sedative treatment, pulpectomy, infected root canal treatment (including root canal filling of multiple root tooth)	
		Basic periodontal treatment (plaque control instruction, scaling, root planing), maintenance	Basic periodontal treatment (occlusal adjustment), temporary splint (simple)	
	Prosthetics, Rehabilitation	Prosthetic treatment using crown (preparation for abutment tooth, excluding abutment build up), provisional restoration, maintenance	Abutment build up (metal post core, resin post core, fiber post core) tooth preparation for bridge(s)/fixed partial denture and prosthetic treatment when no parallel relationship problem	
		Simple prosthetic treatment of removable denture, simple repair and adjustment of removable denture, maintenance	Prosthetic treatment of removable prosthetic, repair and adjustment of damaged prosthetic, maintenance	
	Prevention, Instruction	Oral prophylaxis	Topical fluoride treatment/application of topical fluoride, pit and fissure sealing	
		Self-care motivation, oral hygiene instruction	Nutrition guidance, dietary guidance, nutritional guidance to elderly people, lifestyle habit guidance, smoking cessation instruction and support	
	Pediatric, Orthodontic	Same as basics of treatment, prevention and instruction	Model analysis, cephalometric radiograph image analysis, diagnosis, treatment plan formulation	
	Elderly people, People with disabilities			
4 Team-based health care, Regional medical care		Integrated Community Care System experience	Dental health guidance at a social welfare facility, community dental health activity	

*Direct patient care by learner is performed under the supervision of an instructor (attending dentist)

Cited from "Summary of the third follow-up survey based on the first report of the Council for enhancement and improvement in dental education (March 31, 2016) "

III. Assist instructors	IV. Preferable to observe and experience under an instructor
Production of health information exchange document (for medical institutions, hospitals, hospital dental sections, facilities, etc.)	Production of surgery record, anesthesia record
Medical interview (pediatrics, people with special needs, etc.)	Medical interview (when requiring emergency treatment)
	Emergency treatment
Extraoral radiography, cephalometric radiography, dental CBCT	CT, MRI, ultrasonography, contrast-enhanced radiography
Smear test	Blood sampling, blood test, immunological test, biochemical examination, bacterial test, electrocardiography, respiratory function test, psychological examination, hemostatic function test, peripheral nerve conduction test
	Root canal endoscope test, stereomicroscopic test
	Halitosis measurement
Salivary secretion test, examination of stomatognathic function, lingual pressure measurement	Metal allergy test
	Swallowing function test
	Cytological examination, histopathology
Psycho sedation and perioperative management	General anesthesia and general care, inpatient management
Complex tooth extraction of permanent tooth, minor surgery (impacted tooth extraction, apicoectomy, others)	Oral surgery under general anesthesia
Ceramic inlay restoration, resin inlay restoration, laminate veneer restoration, vital tooth whitening	Dental caries removal by lasers
Traumatized tooth treatment, nonvital tooth bleaching, endodontic-periodontic therapy, pulp amputation, apexification, hemisection	Surgical endodontics (apicoectomy, etc.), tooth replantation and transplantation
Temporary splint (complex), periodontal surgery (periodontal curettage, others)	Permanent fixation, periodontal surgery (flap operation others)
Preparation for abutment tooth and prosthetic treatment with fixed partial prosthodontics in complex case	Complex prosthetic treatment of removable abutment, dental implant, temporomandibular joint disorder treatment, CAD/CAM dentistry
Prosthetic treatment of complex removable prosthetic, repair and adjustment of damaged complex prosthetic, dysphagia rehabilitation	Maxillofacial prosthetic treatment
Fluoride mouth-rinsing instruction, etc.	
Health guidance at dental health exam in school, etc.; pediatric dental health guidance	
Caries treatment of deciduous tooth, simple deciduous tooth extraction of deciduous tooth, tooth amputation, fabrication of simple appliance	Behavior modification method(s), occlusal guidance, space maintenance treatment, comprehensive orthodontic treatment
Dental treatment for People with disabilities	Dental treatment under pharmacotherapy for behavior management
oral hygiene instruction transfer/transferring	In-home medical care medical cooperation
In-home medical care (including oral prophylaxis)	Coordination between hospitals and care centers/between hospitals in the Integrated Community Care System, and team-based health care of interprofessional collaboration

Clinical Practicum Portfolio (Example)

1. Treatment objectives

2. Treatment to be given (explain in detail, considering patient privacy)

3. Knowledge/specialized skills gained through the treatment (include reasoning for your self-assessment level)

4. Lessons learned through clinical practicum concerning a dentist's professional attitude

5. Self-assessment and instructor assessment (circle the applicable level)

	Level 5	Level 4	Level 3	Level 2	Level 1
Achievement Level	Level required to complete advanced clinical training	Level required to complete clinical practicum			Level below requirements for completion
Student					
Instructor					

6. Problems encountered in this treatment and solutions, self-learning topics going forward

7. Instructor comments, direction for additional learning

*1-6 filled out by student; 5 & 7 by instructor

This week's reflection (Example)
(From 20yy/mm/dd to mm/dd)

Name _____

(Submit this form to the designated box on the first day of the following week's attendance)

1. Objectives for this week

2. New things learned this week

3. Most memorable things/realizations this week

4. Things that went well this week, things to do better

5. Objectives for next week

Comments, signature of instructor (filled out by instructor)

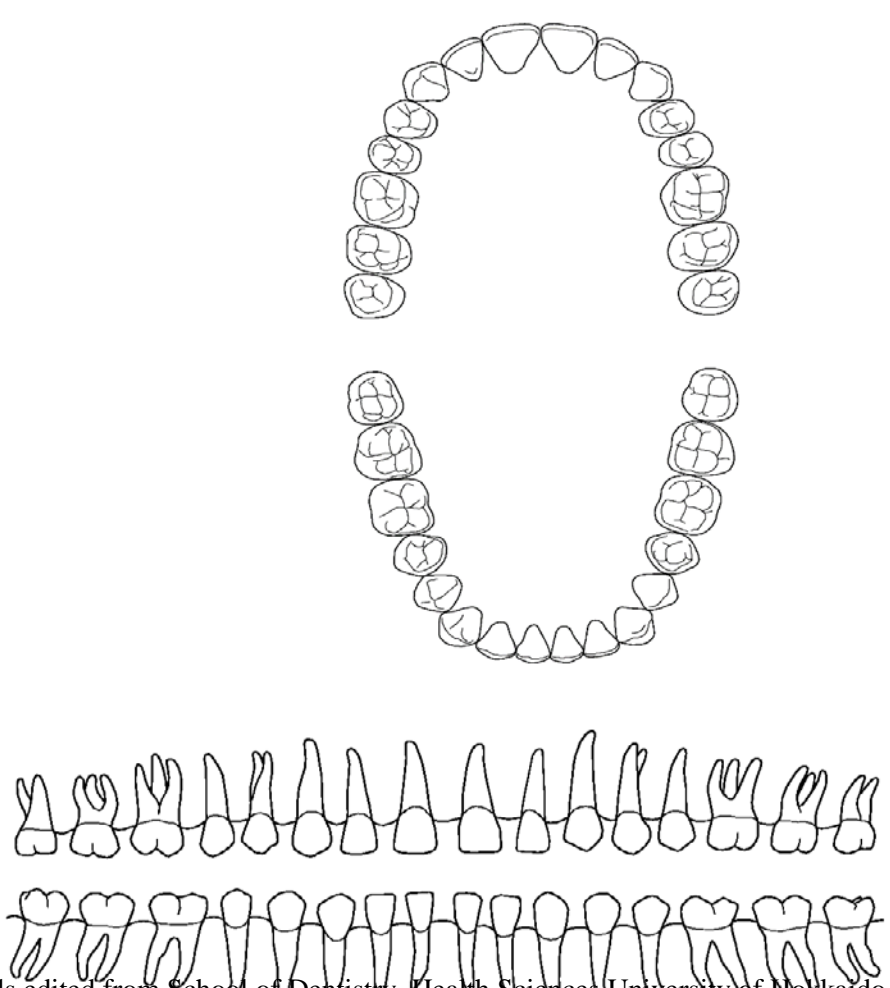
<Portfolio> (Example)

Group No.

Instructor

() Clinic

Name

Patient ID:	Direct care, Date and time: Y M D () : to :
O r a l c a v i t y i n f o r m a t i o n	<p>Oral cavity observations, x-ray observations, symptoms, etc. (charts, drawings allowed)</p>  <p>The diagram shows a dental arch with 16 teeth, including incisors, canines, premolars, and molars. Below it is a panoramic view of the same teeth, showing the roots and crowns from a different perspective.</p>

Materials edited from School of Dentistry, Health Sciences, University of Hokkaido

Clinical diagnosis: Fill in an accurate diagnosis (when multiple, include all)

Treatment: Explain in detail about the symptom(s), surgery method(s), treatment procedure(s), instrument(s)/ drug(s) used (diagrams allowed)

Follow-up visit: Write in detail about the treatment scheduled for next visit

Discussion: List questions you had post practice, write your thoughts in your own words and/or diagrams

Feedback (filled out by instructor)

Return	Stamp

Clinical Practice Prosthetics Portfolio (Example)

Student ID: _____ Name: _____ Date performed: _____ Y M D

III. Crown case: #6 tooth preparation

GIO: Acquire the basic knowledge, skills, and professional attitude regarding a fixed prosthetic appliance for treatment of tooth defects

SBOs: Prepare a crown tooth preparation

Case Overview

Diagnosis/treatment strategy overview

Treatment content/procedures

Instruments/materials used

Materials edited from Faculty of Dentistry, Tokyo Dental College

Self-assessment

5: Performed successfully 4: Performed with some instructor assistance
 3: Performed with instructor assistance throughout 2: Was mostly unable to perform 1: Was unable to perform

Area: Knowledge LS: Pre-treatment report, report to instructor

1. Explain a crown tooth preparation	
1) Explain crown types and their characteristics	5 4 3 2 1
2) Explain the purpose and requirements of tooth preparation	5 4 3 2 1
3) Explain the procedures for tooth preparation (including selection of burs)	5 4 3 2 1

Area: Skills LS: Direct patient care under supervision

2. Perform appropriate tooth preparation. Was able to:	
1) Explain treatment content to the patient	5 4 3 2 1
2) Prepare necessary instruments	5 4 3 2 1
3) Eliminate pain	5 4 3 2 1
4) Retract gingiva	5 4 3 2 1
5) Select appropriate burs and points	5 4 3 2 1
6) Perform tooth preparation keeping dental pulp and core structure in mind	5 4 3 2 1
7) Perform tooth preparation by appropriate shaping	5 4 3 2 1
8) Perform tooth preparation keeping proximal teeth and marginal gingiva in mind	5 4 3 2 1
9) Clean up with consideration for medical safety	5 4 3 2 1

Area: Professional attitude LS: Direct patient care under supervision

3. Perform treatment with consideration for a patient	
1) Perform treatment with consideration for patient safety	5 4 3 2 1
2) Perform treatment with understanding of patients' attitude and requests, and consideration for their discomfort	5 4 3 2 1
3) Perform treatment with consideration for cleanliness and uncleanliness	5 4 3 2 1

Looking back (Write freely)

What went well:	What needs improvements, issues to work on:

Feedback (Filled out by the instructor)

Instructor comments:	Instructor Evaluation Summary
	5 4 3 2 1
	Instructor stamp:

Establishment of Permanent Organizations on Revision of the Model Core Curriculum for
Medical Education and the Model Core Curriculum for Dental Education

May 30, 2007 Established

June 9, 2010 Partially revised

Director-General, Higher Education Bureau

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

1. Purpose

Based on the report of the “Survey/Research Cooperators Conference on Improvement and Enrichment of Medical Education”, permanent organizations for the revision of the Model Core Curriculum for Medical Education and the Model Core Curriculum for Dental Education (hereinafter referred to as the “ Model Core Curricula”) were established.

2. Roles

- (1) Revision of the Model Core Curricula in accordance with revisions of the Standards for Adoption of Questions for in the National Examination for Medical Practitioners and the Standards for Adoption of Questions for the National Examination for Dental Practitioners, and modifications of legal systems, names, etc.
- (2) Verification/evaluation of the Model Core Curricula such as verification of effects of education for students
- (3) Survey/research necessary for revision of the Model Core Curricula
- (4) Necessary matters for utilization of the Model Core Curricula, such as thorough publicity of the Model Core Curricula among related agencies, and verification of status of efforts in universities
- (5) Other necessary matters for revision of the Model Core Curricula

3. Structure of the Organization Established

- (1) An organization which conducts specialized surveys/research, etc. and makes first drafts of revision of the Model Core Curricula (Model Core Curriculum Study Section Committees) and an organization which determines revisions, etc. of the Model Core Curricula (Model Core Curriculum Coordination Committee) were established. The organizations are hosted by the Ministry of Education, Culture, Sports, Science and Technology.
- (2) The structures of the committees in (1) are as shown in the attachment.
- (3) It shall be possible to establish a necessary organization to share surveys/research, etc. where necessary.
- (4) It shall be possible to hear opinions, etc. from related parties where necessary.

4. Members

- (1) Members shall be appointed from among persons with excellent insights into the curricula for medical education or dental education, the national examinations for physicians or dentists, etc. and other related persons.
- (2) The members' term of service shall be until the end of the next fiscal year after the fiscal year, which includes the date of appointment.
- (3) It shall be possible to add members where necessary.
- (4) It shall be possible to re-appoint members.

5. Others

General affairs related to the organizations in 3 shall be processed by the Medical Education Division, Higher Education Bureau (MEXT) .

“Model Core Curriculum Coordination Committee”: List of Members

Hajime Arai (July 2016—)	Chair, The National Associate of Japan Medical Colleges Council; President, Juntendo University
Tetsuo Arakawa (March 2016—June 2016)	Former Chair, The National Associate of Japan Medical Colleges Council; Chair & President, Osaka City University
Yoshinobu Ide (March 2016—)	President, Japanese Association of Private Dental Schools; President, Tokyo Dental College
Kazuhiro Eto (March 2016—)	Vice President, Common Achievement Tests Organization; Professor Emeritus, Tokyo Medical and Dental University
Shigechika Terakado (March 2016—January 2017)	Former Director, Medical Education Division, Higher Education Bureau, Ministry of Education, Culture, Sports, Science and Technology
Akira Terano (March 2016—)	President, Japanese Association of Private Medical Schools; Chancellor, Dokkyo Group of Academic Institutions
Hironobu Uchiki (November 2016—)	Chair, Council of Head of National Medical Schools of Japan; Dean, University of Fukui School of Medical Sciences
○Ryozo Nagai (March 2016—)	President, Jichi Medical University
Takayuki Mori (January 2017—)	Director, Medical Education Division, Higher Education Bureau, Ministry of Education, Culture, Sports, Science and Technology
Masatsugu Moriyama (March 2016—October 2016)	Former Chair, Council of Head of National Medical Schools of Japan; Dean, Oita University Faculty of Medicine

(Observers)

Fumimaro Takaku
(March 2016—)

President, Japanese Association of Medical Sciences;
President, Common Achievement Tests Organization

○ : Chairperson
As of January 13, 2017

“Model Core Curriculum Study Section Committees”: List of Members

(Medical Education)

Miki Izumi
(March 2016—) Professor, Tokyo Medical University Faculty of
Medicine

Eiji Kajii
(March 2016—) Director, Center for Community Medicine, Jichi Medical
University

Satoshi Kamayachi
(March 2016— June 2016) Executive Director, Japan Medical Association

Kiyoshi Kitamura
(March 2016—) Professor, International University of Health and Welfare
Graduate School

○Nobuhiko Saito
(March 2016—) Vice President, Common Achievement Tests
Organization

Yujiro Tanaka
(March 2016—) Executive Director & Executive Vice President of
Hospital Administration and International Health Care
Partnerships, Tokyo Medical and Dental University

Nobuo Nara
(March 2016—) Specially Appointed Professor, Tokyo Medical and
Dental University

Yutaka Hatori
(July 2016—) Executive Director, Japan Medical Association

Tsuguya Fukui
(March 2016—) President, St.Luke’s International University;President
St.Luke’s International Hospital

Osamu Fukushima
(March 2016—) Director, Center for Medical Education, Jikei University
School of Medicine

(Dental Education)

Kinuko Goto (March 2016—)	Associate Professor, Showa University School of Dentistry
Takashi Saito (March 2016—)	Dean, Health Science University of Hokkaido School of Dentistry
Masahiko Shimada (March 2016—)	Director, Tokyo Medical and Dental University Dental Hospital
Tsuneo Sekimoto (March 2016—)	President, Japanese Dental Education Association; Dean, Nippon Dental University School of Life Dentistry at Niigata
Junji Tagami (March 2016—)	Executive Director & Executive Vice President of Education and International Student Exchange, Tokyo Medical and Dental University
Tatsuji Nishihara (March 2016—)	Chair & President, Kyushu Dental University
○Takeyasu Maeda (March 2016—)	Dean, Faculty of Dentistry Niigata University
Shiro Mataka (March 2016—)	Professor, Tokyo Medical and Dental University
Tadahiro Yanagawa (March 2016—)	Vice President, Japan Dental Association
(Public)	
Kimio Hemmi (March 2016—)	President, Japan Municipal Hospital Association
Masago Minami (March 2016—)	Chief Officer, Yomiuri Research Institute, Yomiuri Shimbun
Ikuko Yamaguchi (March 2016—)	Chair, Approved Specified Nonprofit Corporation Consumer Organization for Medical and Law(COML)

(Observers)

Teiji Takei
(July 2016—) Director, Medical Division, Ministry of Health, Labour and Welfare

Masatoshi Watanabe
(March 2016—June 2016) Former Director, Medical Division, Ministry of Health, Labour and Welfare

Nobuhiro Taguchi
(April 2016—) Director, Dental Health Division, Ministry of Health, Labour and Welfare

Yoshinori Toriyama
(March 2016) Former Director, Dental Health Division, Ministry of Health, Labour and Welfare

○ : Chairperson
As of January 13, 2017

“Model Core Curriculum Expert Research Committee”: List of Members in AY2016
(* Established at the contractors, The University of Tokyo and Tokyo Medical and Dental University)

(Medical Education)

Masaomi Ikusaka	Professor, Chiba University School of Medicine
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Model Core Curriculum for Dental Education in Japan

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* Vocabulary in text in English may slightly differ from index based on grammar.

* Sometimes different Japanese terminology have the same English translation.

Therefore you may see the same English terminology in the index under different page references.

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As of March 31,2018