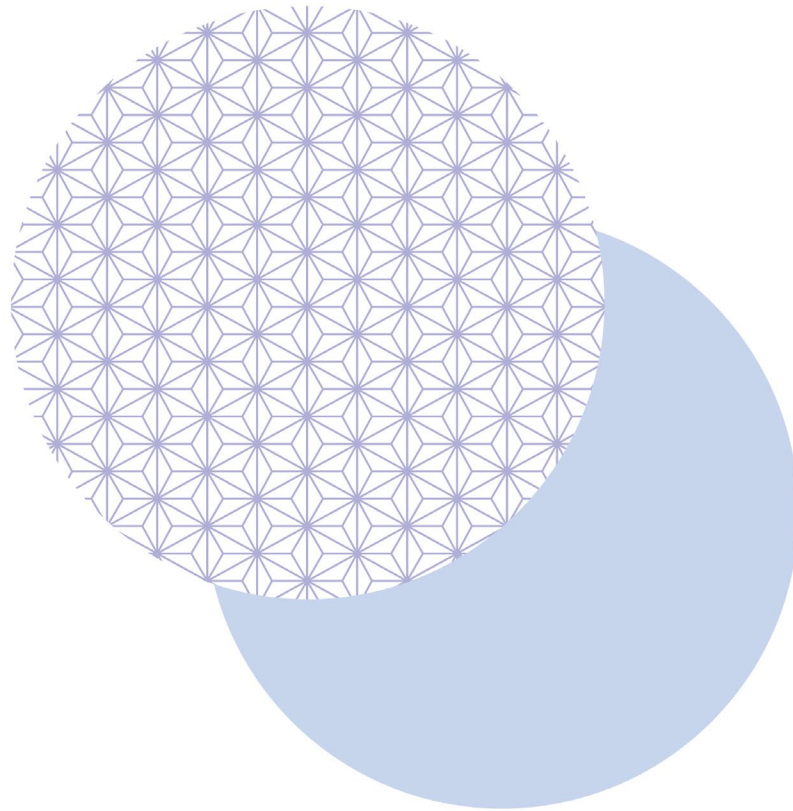


The Model Core Curriculum
for Medical Education
in Japan

2022



Model Core Curriculum
for Medical Education
in Japan

2022 Revision

Medical Education Model Core Curriculum Expert Research Committee

The *Model Core Curriculum for Medical Education* is a systematically organized *model* that is formed by extracting the *core* parts of the *curriculum* that should be commonly addressed by all Japanese universities when formulating their own medical education curricula. It was revised in the 2022 academic year as part of the standard six-year revision cycle, and the revisions reflect and respond to various changes to related systems, relevant new and amended laws, and changing social circumstances. The original version, in Japanese, has been translated into English as part of a project commissioned by the Ministry of Education, Culture, Sports, Science and Technology. This English translation was produced by the Model Core Curriculum Expert Research Committee.

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Notation

- Medical terminology is consistent with the contents of the 2023 ICD-10 Clinical Modification (ICD-10-CM) [1].
- For the names of groups and organizations, the legal entities are omitted.
- All goals and objectives detailed in this core curriculum are intended to begin with “By the time of graduation, one should [be able to]...”
- Where used in learning objectives, the verb “understand” is defined as “to construct meaning from messages presented orally, in writing, in charts and diagrams, etc., such as in lectures and practical training.” The meaning of the verb “understand” also includes the meanings of interpret, give examples, classify, summarize, infer, and make inferences (see Anderson & Krathwohl’s revised taxonomy [2]).

[1] The U.S. Centers for Medicare & Medicaid Services. 2023 ICD-10-CM. <https://www.cms.gov/medicare/icd-10/2023-icd-10-cm>

[2] Anderson LW, Krathwohl DR, editors. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives. Longman, NY, 2000.

Concept of the Model Core Curriculum for Medical Education

I. Positioning within University Education

I-1. Organizing the Model Core Curriculum

The *Model Core Curriculum for Medical Education* (hereafter referred to as simply the *Model Core Curriculum*) is a systematically organized model that is formed by extracting the core parts of the curriculum that should be commonly addressed by all universities when formulating their own curricula. In line with existing practice, approximately two-thirds of the hours of study in the medical education program at each university should be based on the *Model Core Curriculum*, while the remaining one-third should be independently and autonomously set by each university on the basis of its own policies for admissions, curriculum organization and implementation, and graduation approval and degree conferment.

In order to facilitate such efforts, this revised version of the *Model Core Curriculum* has been fundamentally streamlined. On the premise that the knowledge and skills associated with advances in medicine and medical care should be acquired over a lifetime rather than entirely within undergraduate education, it is also important to emphasize the need for careful scrutiny of what should form the basis of undergraduate education. Furthermore, in an era of ever greater developments in information science and technology and unpredictability characterized by the spread of emerging and re-emerging infectious diseases, and in a society where physicians of the future are expected to solve a broad range of problems faced by patients and communities as part of their medical practice, it is necessary to conduct training that develops physicians' ability to think independently and to acquire leadership skills. Therefore, an overcrowded curriculum with excessive content is not necessarily desirable.

The examination question criteria for the Common Achievement Tests (used by universities to evaluate whether students have the knowledge and skills that must be acquired before starting clinical clerkship) are primarily determined by the organization responsible for the administration of the tests. However, in reality, the criteria and scope for the Common Achievement Tests are formulated with reference to the *Model Core Curriculum*, which contains carefully selected core educational content and learning objectives that are common across all universities. The *Model Core Curriculum* will thus become even more significant with the Common Achievement Tests being made an official requirement, as discussed in the following sections.

I-2. Further promotion of participatory clinical clerkship

The *Act for Partial Revision of the Medical Services Act, etc. for the Purpose of Securing a System for Efficient Provision of High-Quality and Appropriate Medical Care*, passed on May 21, 2021, partially amended the *Medical Practitioners' Act*. This amendment (effective April 1, 2023) allows university students who are majoring in medicine and have passed the Common Achievement Tests to practice medicine as part of the clinical clerkship, under the guidance of a supervising physician, in order to acquire the knowledge and skills required of a physician. The legalized status of medical practice by medical students during clinical clerkship is expected to enhance the practical training aspects of the participatory clinical clerkship and further improve the quality of undergraduate education. Participatory clinical clerkship not only allows medical students to gain clinical experience and improve their skills, but also to share medical duties as a member of the clinical team and to use their initiative when actively participating in medical treatment. This is expected to provide opportunities for students to develop the outlook necessary to provide holistic and comprehensive medical care, including understanding patients' backgrounds, values, economic factors, and relationships with family members, and to learn the fundamentals of a physician's professional knowledge, ways of thinking, skills, and attitude.

Therefore, universities are required to guarantee the aptitude and quality of students participating in clinical clerkship, and to further promote participatory clinical clerkship while giving sufficient consideration to patient safety and privacy protection. It is hoped that the *Model Core Curriculum*, including the *Guidelines for Participatory Clinical Clerkship*, will help in this aim.

II. Key Principles and Background

II-1. Mission statement: “Fostering medical professionals who can play an active role in connecting diverse settings and people, with a focus on society and communities of the future”

The respective Model Core Curricula for medical, dental, and pharmaceutical education have undergone simultaneous revision to reflect changes in the nature of medical care, such as those arising from the COVID-19 pandemic, the advancement of medical technology through the use of information science and technology such as artificial intelligence, and the increasing number of patients with multiple coexisting medical conditions in a super-aged society. In this revision, a unified mission statement was adopted for the three fields of medical, dental, and pharmaceutical education: aiming to foster medical professionals who can play an active role in connecting diverse settings and people, with a focus on society and communities of the future.

In the face of problems such as demographic changes, coexistence of multiple medical conditions, high mortality rates, health disparities, uneven distribution of physicians, increasing medical costs, emerging and re-emerging infectious diseases, and disaster risks, social structural changes are expected to further intensify in years to come.

Physicians are required to cultivate the qualities and abilities that are fundamental to being a medical professional, to cooperate and collaborate in multidisciplinary teams, and to play an active role in the diverse and evolving changes in society, as well as to develop an altruistic attitude and an outlook that respects the values of patients and their families. As the environment surrounding medical care changes dramatically with the advancement of medicine and technology, including artificial intelligence, and moreover, with the quality and quantity of information handled in the medical field ever expanding, professionals are also expected to contribute to society by making appropriate use of these technologies.

To foster medical professionals who can accurately grasp the bigger picture, respond flexibly to changing times and unpredictable circumstances in cooperation and collaboration with multiple professions, and remain professionally active throughout their lives, this revision to the *Model Core Curriculum* was made with the above mission statement in mind.

II-2. Qualities and abilities common to medicine, dentistry, and pharmacy required in society in 2040 and beyond

The training of physicians is a long process, requiring a certain period of clinical residency and specialized training in addition to the initial six years of undergraduate education. Therefore, it is necessary to revise the *Model Core Curriculum* in anticipation of a society in 2040 and beyond, in which today’s students will have completed their education and specialized training and be active as medical professionals. The population of people aged 65 and over in Japan will peak around 2040, after which the proportion of older people in the population as a whole is expected to continue rising. As a result, the proportion of patients with multiple coexisting medical conditions and with complex social backgrounds and circumstances is also expected to increase, intensifying the need for medical professionals to take a comprehensive view of these patients and their lifestyles. Furthermore, not only is the burden on people of working age expected to increase as the working-age population declines, but also, in geographical terms, the population is projected to decrease by half in approximately half of all residential areas in Japan. In response to this rapid demographic change, it is socially important to train medical professionals who can respond to drastic changes in the demand for medical care. In addition, although there are limitations to incorporating all of the new science and technology that may be used in the medical field in the future into undergraduate education through the *Model Core Curriculum*, it is necessary for students to acquire a grounding in the application of fundamental aspects of information science and technology, including ethics. For this reason, two new qualities and abilities have been added to this revision of the *Model Core Curriculum* compared with the previous version revised in 2016 (hereafter referred to as the “previous version”): “GE: Generalism” and “IT: Information Technology.”

The basic qualities and abilities required of medical professionals are shared across specialties. Therefore, in this revision, these basic qualities and abilities have, in principle, been made consistent across the three fields of medicine, dentistry, and pharmacy. It is important to promote horizontal coordination of education across disciplines at the undergraduate stage and to share values as medical professionals.

II-3. Consistency between undergraduate and postgraduate education

Consistency between and across undergraduate education (including shared examinations and international certification), national examinations, clinical residency, and lifelong education was discussed with relevant organizations during the process of compiling this version of the *Model Core Curriculum*, and revisions were made with a view to creating a seamless link between undergraduate and postgraduate education. The team wishes to express gratitude to all parties involved for their helpful input. Further efforts will be made to develop concrete measures to ensure consistency with systems related to physician training (such as the Common Achievement Tests being made an official requirement, the legalized status of medical students' participation in medical practice, criteria and standards for national examinations, and clinical residency attainment targets) and to further promote consistent and seamless physician training from undergraduate to postgraduate level.

III. What is Required of Medical Students?

In order for students to be able to develop into physicians who can “play an active role in connecting diverse settings and people,” as set out in the mission statement for this revision, a broad understanding of the concepts of medicine and medical care is required.

For example, one of the roles required of physicians today is preventive medicine. In other words, in considering medical care as a whole, it is necessary not only to diagnose and treat diseases, but also to consider the background of diseases and to recognize the importance of social determinants of health, sports and exercise, and nutrition and dietary education. In taking a broad perspective, it is also important to recognize that individual patients have their own social lives, and that what is seen in the medical setting, including in home-based medical care, is only one aspect of the patient's life. If students approach their studies, including clinical training, with this in mind, they will be able to achieve more meaningful results.

Being able to “play an active role in connecting diverse settings and people” means not only the passive aspect of responding to diverse demands and changes that will occur in the future, but also the possibility of forming diverse career paths and having a diverse range of opportunities as a physician. While it is true that the majority of physicians today are engaged in clinical practice, there are also physicians who have advanced into such diverse fields as forensic medicine, correctional medicine, maintenance of necessary social functions (e.g., quarantine), public administration (e.g., health centers), school health, and education (including other fields), in addition to basic medical science and social medicine. Clinicians are also making diverse contributions to society beyond their daily clinical practice, such as through lectures for the public, policy discussions, and participation in international health and medical care. In this era of 100-year life expectancy, it is important to emphasize that such career choices are not limited to the time of graduation, but that there are also multiple options available to physicians after graduation at various stages of their careers.

Even after choosing one's career path from a variety of options, one must maintain a wide range of medical interests throughout one's life. For example, even after becoming a clinician, one must strive to retain a research mindset in the practice of medicine, and even after becoming a researcher, one must strive to maintain awareness of the clinical field in the pursuit of new medical discoveries. It is also easy to imagine that physicians will be required to have awareness of different positions and situations, and to collaborate with physicians who have chosen other options in their careers. Moreover, rather than building relationships only among physicians, actively building relationships with a broad range of people involved in medicine and health care, and taking an interest and being involved oneself as a member of society, will be essential to achieving the goal of being able to “play an active role in connecting diverse settings and people.”

Finally, because academic study is based on the accumulated learning of predecessors, it is hoped that students will feel the importance of their studies from the very first class of their undergraduate education, and that anatomy practice, clinical experiences, and practical training will allow students to perceive and appreciate the meaning of life and death during their education. Medical students must not forget that their learning environment is based on the cooperation of many people, including patients and those involved in medical education outside the university, as well as university faculty members. Therefore, it is hoped that medical students devote themselves throughout their careers to taking on leadership roles in their communities and to the development of medical care for the next generation, giving back to society through the fruits of their

learning, developing a better understanding of themselves, and showing gratitude and respect for the opportunity to study medicine, which is only made possible through the support and cooperation of many different people. Above all, students are strongly urged to have high ethical and educational standards as members of society.

IV. Requests to All Parties Involved in Medical Education

Universities are expected to cooperate with organizations such as medical associations, hospital groups, local medical policy councils, and other administrative bodies when implementing participatory clinical clerkship and, as a means of providing motivation for students, early clinical exposure programs. In particular, in order to ensure and enhance education relating to “Generalism,” which was newly added as one of the core qualities and abilities in this revision, it is hoped that local medical institutions will cooperate in the practical training conducted by individual universities, including in home medical care and other health services. In the future, medical education, particularly clinical clerkship, is expected to include ever more content reflecting community-based integrated care systems and the uneven distribution of physicians in different regions and specialties.

In addition, from the perspective of team medicine and multidisciplinary cooperation, post-graduation medical practice requires collaboration with many professions, not limited to those in the medical field. For this reason, universities are requested to provide sufficient time for experience and practical training to ensure that students acquire the necessary learning from the undergraduate stage.

V. Informing Patients and the Public and Requesting Their Cooperation

Through the revised *Medical Practitioners’ Act*, medical practice conducted by medical students as part of their training has been given legalized status. For the smooth and safe implementation of participatory clinical clerkship, it is essential to gain the understanding of members of the public, who are directly involved in the process as patients. The *Guidelines for Participatory Clinical Clerkship* included in this document provide information on gaining consent from patients about medical practice by students. However, in order to solicit cooperation and understanding from the public as a whole toward the participatory clinical clerkship program, universities are advised to inform patients and other members of the public of the necessity and importance of medical education by creating suitable written notices based on the following example text (“Thank you for your cooperation in training medical students”).

In addition, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Health, Labour and Welfare (MHLW) have a responsibility to inform and educate patients and the public visiting university hospitals about the educational role these institutions play, to foster understanding among patients, and to create an environment conducive to the smooth implementation of clinical clerkship. Similarly, non-university hospitals and other medical institutions that accept students for clinical clerkship must also promote appropriate consent acquisition and awareness-raising activities.

Example of written notice about student participation in medical practice

Thank you for your cooperation in training medical students

The cooperation of patients and their families is essential in training medical professionals. In 2021, the *Medical Practitioners' Act* was amended to allow university students majoring in medicine to practice medicine under the guidance and supervision of a qualified physician as part of their clinical training, provided that the student has passed a common university examination* to assess whether or not they have the necessary knowledge and skills. Clinical training in university hospitals and other medical institutions enables medical students to develop the qualities and abilities required of physicians through various forms of direct contact with patients and people requiring care. Your assistance in training medical students will enable us to provide better medical care and to achieve advances in medicine and medical treatment in the future. Thank you for your cooperation and understanding.

* The Common Achievement Tests Organization (CATO) conducts the Computer-Based Testing (CBT) to test knowledge, and conducts the Objective Structured Clinical Examination (OSCE) to assess skills and attitudes with the help of simulated patients.

Overview of the Revisions to the Model Core Curriculum for Medical Education

The revisions to the *Model Core Curriculum* are based on the following seven basic principles.

1. Revision of the basic qualities and abilities required of physicians in society in 2040 and beyond
2. Further development of outcome-based education (reorganization of learning objectives, strategies, and assessment)
3. Consideration of measures to ensure consistency with legal and institutional reforms to physician training
4. Streamlining and digitization of documentation in anticipation of changing methods of access and usage
5. Improvements to future researcher training and development
6. Evidence-based Model Core Curriculum content
7. Partial standardization with the Model Core Curricula for Dental and Pharmaceutical Education

I. Revision Principles

I-1. Revision of the basic qualities and abilities required of physicians in society in 2040 and beyond

- In this revision, the basic qualities and abilities required of physicians (hereafter, “qualities and abilities”)¹, which take into account anticipated social changes and advances in science and technology surrounding medicine and medical care, are positioned as outcomes to be acquired through lifelong learning as a medical professional, providing a clear image of physicians of the future. These qualities and abilities are described in Chapter 1.
 - By the year 2040, Japan’s demographic structure is expected to be characterized by an aging society with a declining birthrate, and there will be an increasing need to deal with patients who have multiple coexisting medical conditions. In the increasingly specialized fields of medicine and medical care, the ability to understand the psychological and sociocultural backgrounds of patients and their relationships with their families and local communities is therefore becoming increasingly important.
 - Following the revisions to the *Model Core Curriculum*, it will take approximately 15 to 20 years for each university to initially update its own curriculum and then to deliver graduates who will go through clinical and specialist training to become active as physicians in society. Therefore, the medical care that the *Model Core Curriculum* aims for is based on how society is expected to look 20 years from now.
 - Although it is not easy to predict what a society will look like 20 years into the future with regard to advancements in information science and technology, the ability to properly make use of science and technology, including artificial intelligence (AI), to conduct medical care and medical research in an ever-developing digitalized society is extremely important, as are the ethics behind it.

I-2. Further development of outcome-based education (reorganization of learning objectives, strategies, and assessment)

¹ The *Model Core Curriculum* follows the definition of “qualities and abilities” used by the Ministry of Education, Culture, Sports, Science and Technology, which is “qualities and abilities that can be acquired by an individual.” These qualities and abilities correspond to “outcomes” in outcome-based education, and “competencies” in competency-based education.

By way of example, Article 5, Paragraph 2 of the *Basic Act on Education* states that the purpose of compulsory education is “to cultivate the foundations for an independent life within society while developing the abilities of each individual, and also to foster the basic qualities that are necessary in the people who make up our nation and society.” Here, the term “qualities” is used as a broad concept encompassing abilities, attitudes, and other characteristics. Education is intended to both further improve inborn qualities and to enable learners to acquire certain new qualities [3].

[3] Tanaka S. “Chikujyuu-Kaisyaku Kaitei Kyouiku Kihon Hou [Commentary on the revised *Basic Act on Education*],” Daiichi Hoki, Japan, 2007.

Furthering the development of outcome-based education is one of the most significant changes in this revision of the Model Core Curriculum.

- While the previous version followed the sequential order of courses and subjects, this revised version has been modified to describe specific qualities and abilities in accordance with the concept of outcome-based education.
 - Chapter 2 and Chapter 3 are titled *Learning Objectives* and *Educational Strategies and Assessment*, respectively, which are linked to the qualities and abilities developed in Chapter 1.
- Learning objectives
 - Using intended learning outcomes as a starting point (i.e., the abilities expected to have been acquired by the learner [medical student] upon completion of their education [on graduation]), learning objectives have been formulated for each of the qualities and abilities listed in Chapter 1.
 - The learning objectives are divided into four tiers, as follows.
 1. The first tier refers to the relevant quality/ability, as listed in Chapter 1, denoted by two letters of the alphabet (e.g., *PR: Professionalism*). It includes a short summary of the qualities and abilities (i.e., objectives).
 2. In the second tier, the individual components of each quality/ability are represented by nouns (e.g., *PR-01: Trust*), with some accompanying text describing what the learner will be able to do.
 3. In the third tier, specific competencies are expressed by nouns (e.g., *PR-01-01: Honesty and integrity*).
 4. In the fourth and final tier, the learning objectives are presented as statements that describe specific actions (e.g., *PR-01-01-01: Consider what is meant by acting with honesty and integrity toward patients and society, and behave accordingly*).
 - This four-tier approach replaces the A–G structure in the previous version.
 - The degree of abstraction (granularity) in the learning objectives has generally been maintained from the previous version.
 - Because the current state of medicine and medical care is continually evolving, there is a propensity for the *Model Core Curriculum* to keep expanding in terms of content. For this reason, in addition to the streamlining considerations described below, care was taken to avoid increasing the total content.
- Educational strategies and assessment
 - For the first time, a chapter is included on educational strategies and learner assessment, which are important components of the curriculum. Because educational strategies and learner assessment are often considered as a pair, they are combined here as a single chapter.
 - In the *Educational Strategies* section, useful concepts, models (e.g., SPICES model, Kolb’s experiential learning model), and resources are described, and terms that may be unfamiliar to faculty and students are introduced. In addition to presenting learning methods that are increasingly being adopted, such as role-play and flipped classroom, the guide also discusses the recent evolution of information and communication technologies (ICT). Because educational strategies for clinical clerkship are described in the *Guidelines for Participatory Clinical Clerkship*, Chapter 3 focuses on educational strategies prior to this stage of training.
 - In the *Approaches to learner assessment* section, the important concepts of Miller’s pyramid, assessment of qualities and abilities, formative and summative assessment, validity and reliability of assessment, assessment blueprints, and assessment criteria and standards are explained. In the *Assessment methods* section, written examinations (objective and descriptive), workplace-based assessment (observational assessment), objective structured clinical examination (OSCE), and portfolio assessment are explained, and the Common Achievement Tests and the National Examination for Medical Practitioners are described. Programmatic assessment, which is attracting attention as an important concept internationally, is also described as an example of good practice. In addition, a *Questions about learner assessment* section has been introduced to provide perspectives that will contribute to improved learner assessment. It is hoped that universities will apply the specific circumstances at their institution when

referring to the questions listed in this section, bearing in mind that each question has multiple possible answers.

I-3. Consideration of measures to ensure consistency with legal and institutional reforms to physician training

- Alignment with the Common Achievement Tests
 - The Common Achievement Tests Organization (CATO) has a history of using the *Model Core Curriculum* to formulate questions (or stations) for the Computer-Based Testing (CBT) and OSCE.
 - In order to reduce any potential confusion among universities and other institutions as a result of making major structural changes (i.e., introducing descriptions focusing on qualities and abilities) to the *Model Core Curriculum*, CATO was consulted as part of the revision process, and a table was created that compares the revised learning objectives with those in the previous version (available on the Ministry of Education, Culture, Sports, Science and Technology (MEXT) website).
 - In 2021, in response to the legalization (effective from 2023) of students conducting medical practice as part of their clinical training, known as “participatory clinical clerkship,” the Ministry of Health, Labour and Welfare (MHLW) set up an advisory committee that issued a report reviewing the scope of such medical practice by medical students. As part of the process of revising the *Model Core Curriculum*, information was shared and exchanged with the members of this committee and the MHLW (as the committee’s secretariat), and the relevant implementation guidelines were amended to reflect this information, such as the *Guidelines for Participatory Clinical Clerkship*.
- Alignment with the National Examination for Medical Practitioners
 - In November 2020, the MHLW’s Medical Practice Council issued a report from the Committee for Improvement of the National Examination for Medical Practitioners, which describes the standard criteria for the examination questions.
 - The content of the National Examination for Medical Practitioners evidently has a great impact on medical education at universities. On the basis that the *Model Core Curriculum* should align with the National Examination for Medical Practitioners, the diseases and conditions to be included in the *Model Core Curriculum* were considered in accordance with the principles described in the above report (specifically, the “careful selection of diseases to be tested in line with the blueprint [of the National Examination for Medical Practitioners]”).
 - It is important to continue to review the alignment of the *Model Core Curriculum* with the National Examination for Medical Practitioners, particularly because it will take students six years to graduate and take the National Examination for Medical Practitioners following the curriculum change.
- Promotion of a seamless participatory clinical clerkship program
 - In the previous version of the *Model Core Curriculum*, in order to align with the goals of postgraduate clinical training (residency), the scope of the clinical training program was 2 years of undergraduate clinical clerkship plus 2 years of postgraduate residency.
 - In order to deepen understanding of both clinical clerkship and clinical residency as a continuous and consistent training process, this revision of the *Model Core Curriculum* has been prepared with the cooperation of the MHLW (which is responsible for the clinical residency program) and other relevant parties, and this need for consistency is mentioned in the *Guidelines for Participatory Clinical Clerkship*.
- Compliance with international standards
 - The Japan Accreditation Council for Medical Education (JACME), an international medical education accreditation body, has a significant impact on university medical education in Japan. Because the JACME accreditation of educational programs (“Area 2”) and learner assessment (“Area 3”) is structured in such a way that evaluates each university’s curriculum on the basis of its adherence to the *Model Core Curriculum*, it is important for both universities and students that JACME and the *Model Core Curriculum* are properly aligned. Therefore, multiple discussions were held with JACME to ensure that the JACME criteria and the content of this revision are mutually compatible and consistent.

I-4. Streamlining and digitization of documentation in anticipation of changing methods of access and usage

- Streamlining
 - The need to streamline the *Model Core Curriculum* has been raised as an issue for some time, and with the number of learning objectives increasing as a result of advances in medicine and healthcare, a dedicated team was formed to carefully select appropriate learning objectives and to work on streamlining the overall content.
 - Reducing the number of rare diseases included in the *Model Core Curriculum* has been effective in streamlining its content. Consideration was also given as to whether a specialist-level description of such diseases was necessary, given that each of the qualities and abilities listed in the *Model Core Curriculum* are intended to be outcomes at graduation. In the knowledge domain (*PS: Problem-solving*), a comprehensive review of the diseases included in the previous edition was conducted, including the question criteria for the National Examination for Medical Practitioners.
 - In the learning objectives, major diseases, physical examinations, major symptoms, major clinical and imaging examinations, and basic clinical procedures are organized in a table format to make them easier to understand.
- Digitization
 - The prevailing trend is toward the digitization of documents, and making the *Model Core Curriculum* more convenient and accessible for users is a priority. However, it is also considered important that the document should continue to be published as a booklet.
 - The benefits of digitizing the *Model Core Curriculum* were examined, assuming that the specific target users of the document include university curriculum developers, faculty members and advisors at universities and other institutions, administrative agencies, and students.
 - The objectives of digitizing the *Model Core Curriculum* are to enable users to easily reach the desired chapters and sections using the tag function, and to effectively use the search function to find relevant content.

I-5. Improvements to future researcher training and development

- Emphasis was placed on the importance of medical research, the development of a research mindset, and the fact that research in basic, clinical, and social medicine is fundamental to the practice of medicine.
 - For details, please refer to Section II-1-6, *RE: Research*.

I-6. Evidence-based Model Core Curriculum content

A scientific approach has been taken in revising the *Model Core Curriculum*, making use of the best evidence and teaching data available in the field of medical education.

- Revision of qualities and abilities
 - When revising the list of qualities and abilities, the views of a panel consisting of members of the research team revising the *Model Core Curriculum* and other contributors, along with selected medical students and members of the general public, were evaluated using the modified Delphi method to reach a consensus (conducted over two rounds; average panel size, 40 people).
 - The revised *Model Core Curriculum* was developed in a way that reflects Japanese cultural and societal norms, while also making reference to approaches taken in other countries.
 - A survey was conducted by the Japan Society for Medical Education on the implementation of the participatory clinical clerkship program and verbs related to learning objectives in the medical field, and revisions were made to the content of the *Model Core Curriculum* on the basis of the survey results obtained.
- Major symptoms

- As part of the review of signs and symptoms that medical students should be expected to be familiar with by the time of graduation, signs and symptoms in the revised version of the *Model Core Curriculum* were selected to maintain consistency with physician training programs, such as the National Examination for Medical Practitioners (*National Examination for Medical Practitioners Blueprint*, 2018 version), postgraduate education (clinical residency attainment targets), and continuing education (the Japan Medical Association’s continuing medical education program, 2021). Signs and symptoms were selected and weighted according to the number of subjective symptom complaints among the general public (*Comprehensive Survey of Living Conditions*, 2019), and listed in a table alongside the diseases and conditions that are candidates for differential diagnoses and that span multiple organ systems and specialties. In addition, the list of candidate diseases for differential diagnosis of signs and symptoms in the previous edition of the *Model Core Curriculum* was validated using the modified Delphi method, and was then revised on the basis of the results.
- The *Educational Strategies and Assessment* chapter (Chapter 3) in particular aims to express the current state of knowledge in medical education and to provide a bridge between the results of medical education research and educators in the field by describing good practice that can be used as a reference for curriculum development.

I-7. Partial standardization with the Model Core Curricula for Dental and Pharmaceutical Education

- The basic qualities and abilities required of medical professionals are the same regardless of specialty. In this revision, the required basic qualities and abilities are, in principle, common to the three fields of medicine, dentistry, and pharmacy. This is because it is considered important to develop horizontal coordination in undergraduate education across these professions and to promote shared values as medical professionals.

II. Specific Revisions

II-1. Revised qualities and abilities

Chapter 1 is entitled *Basic Qualities and Abilities Required of Physicians* and lists the ten qualities and abilities that medical graduates are expected to develop throughout their careers. An overview of these, including their relationship to the learning objectives listed in Chapter 2, is as follows.

II-1-1. PR: Professionalism

- This first statement makes clear that as a medical graduate (physician), it should be one’s objective to “acknowledge the professional responsibility of physicians to be deeply involved in people’s lives and to protect health; respect diversity and humanity; and take an altruistic approach to medical practice throughout one’s career.”
- The related learning objectives are listed as *Trust*, *Compassion*, *Self-cultivation*, and *Bioethics*, and their respective outcomes are stated.
- In this revision of the *Model Core Curriculum*, many learning objectives addressed in qualities and abilities other than *PR: Professionalism*, such as “GE: Generalism” and “LL: Lifelong Learning,” are related to professionalism. Professionalism-related learning objectives that were not included under other qualities and abilities, but which are considered important for learning and working as a medical student and physician, are now addressed in *PR: Professionalism*.

II-1-2. GE: Generalism

- This section is a new addition to this revision. With medicine and medical care becoming increasingly specialized and segmented, it is believed that this is an important quality/ability for medical students and physicians to possess. The objective stated for generalism is to “take a multi-systemic view of the patient’s problems and consider the patient’s psychosocial background in order to provide

comprehensive, flexible medical care that responds to the needs of the patient and is not limited to one's own specialty, supporting the achievement of individual and societal well-being.”

- The second tier comprises four components: *Holistic perspectives and approaches*, *Community perspectives and approaches*, *Life perspectives and approaches*, and *Social perspectives and approaches*.
- The *Holistic perspectives and approaches* section deals with evidence-based medicine (EBM) and behavioral science, as well as comprehensive perspectives such as cross-specialty, patient-centered, and palliative care.
- The *Community perspectives and approaches* section emphasizes primary care from the perspectives of medicine, health, welfare, and long-term care.
- The *Life perspectives and approaches* section emphasizes learning based on perspectives relating to the life cycle, from childhood to old age and the end of life.
- The *Social perspectives and approaches* section presents the comprehensive application of cultural and social contexts to clinical practice. Detailed learning objectives relating to social medicine are described in *SO: Medicine in Society* (II-1-10, below).

II-1-3. LL: Lifelong Learning

- The objective stated is to “continuously reflect on one's own practice and train collaboratively with other physicians and healthcare professionals, actively engaging in lifelong education and self-directed learning, in order to practice safe and high-quality medical care.”
- This section touches on access to new medical information, developing an attitude of self-reflection, and career-building as a learner.
- The section describes the importance of educating colleagues and juniors, while continuing to practice self-learning.

II-1-4. RE: Research

- The objective stated is to “understand the importance of medical research for the advancement of medicine and medical care, and support innovation in medicine through involvement in academic and research activities, developing one's scientific thinking skills.” This section emphasizes the importance of fostering researchers, with a view to developing clinicians who will bring intellectual curiosity and a research mindset to everyday medical practice.
- This section emphasizes the importance of medical research for the development of medicine and medical care, and of fostering a research mindset, and is structured in a way that recognizes that research in basic, clinical, and social medicine is fundamental to the practice of medicine.
- This section also includes components on publishing research and research ethics.

II-1-5. PS: Problem-Solving

- The objective stated is to “acquire knowledge and expertise in medicine and related disciplines, and use evidence-based medicine and professional experience to solve problems faced by patients,” and reflects the need to not simply memorize superficial knowledge, but to apply specialized knowledge at a higher level.
- *Basic medical science*, which was scattered throughout the objectives in *C. General Issues in Medicine* in the previous edition, is now listed as one of the second-tier components in this section, and its contents have been reorganized to reflect the knowledge of basic medicine necessary in modern society.
- The content relating to organ-specific and systemic diseases in *D. Normal Structure and Function, Pathophysiology, Diagnosis, and Treatment of Each Organ System of the Human Body* in the previous edition has been divided into separate tables to make it easier to understand, and core knowledge requirements are clearly marked. The diseases that form part of the core knowledge requirement are

selected with reference to the basic items required for the National Examination for Medical Practitioners, and with consideration of the level of knowledge required for graduation from medical school, including frequently occurring diseases, important conditions that require knowledge in multiple disciplines or in-depth knowledge of fundamental medicine, and diseases that are less frequent but should not be overlooked.

- Furthermore, the content of *D. Normal Structure and Function, Pathophysiology, Diagnosis, and Treatment of Each Organ System of the Human Body* in the previous edition has been further broken down into separate tables, arranged principally by organ system, to facilitate understanding of the overall picture.
- The same tabular approach is used for *Growth and development (Pediatrics* in the revised edition), *Genetic / genomic medicine* (no category in the revised edition), *Immunity / allergy (Immunology and allergy* in the revised edition), *Infectious diseases*, and *Tumor (Cancers and neoplastic diseases* in the revised edition), which were described in *E. Systemic Physiological Change, Pathophysiology, Diagnosis, and Treatment* in the previous edition.

II-1-6. IT: Information Technology

- This section has been newly introduced in this revision of the *Model Core Curriculum* to reflect the increasing use of information science and technology in medicine and medical care.
- The objective stated is to “recognize the impact of continuing technological developments on society, and make use of information science and technology, such as artificial intelligence, when engaging in medical research and clinical practice.”
- On this premise, the learning objectives have been organized into three components: *Ethics and rules for dealing with information science and technology*; *Principles of information science and technology necessary for medical care and surrounding society*; and *Application of information science and technology in clinical practice*.

II-1-7. CS: Clinical Skills

- The stated objective is to “practice medical care with an emphasis on quality and patient safety by giving full consideration to patients’ pain and anxiety, and by developing reliable and dependable clinical skills.”
- Taking the question “What are clinical skills?” as a starting point, the objectives were organized into the following four categories: *Gathering patient information collection*; *Integration, analysis, and assessment of patient information and planning treatment*; *Implementation of appropriate patient care, including treatment*; and *Review and improvement of medical care processes*.
- *Physical examinations, Basic clinical departments/specialties, Major symptoms, Major clinical and diagnostic imaging tests*, and *Basic clinical techniques* are listed in separate tables to make them easier to read.
- To reflect and clarify the importance of practicing safe, high-quality medical care, *Quality of care and patient safety* has been created as a standalone learning objective in this section.

II-1-8. CM: Communication

- The stated objective is to “practice safe and high-quality medical care by building good relationships with patients and other people involved in their care, taking patients’ own circumstances into account, and supporting them in their decision-making.” This is intended to reflect that the primary goal of communication as a quality and ability is to communicate with patients.
- The communication-related learning objectives are formed of three pillars: *Language, attitude, personal appearance, and consideration when dealing with patients*; *Gathering information and providing clear explanations to support patient decision-making*; and *Understanding and taking into consideration the*

needs of patients and their families.

II-1-9. IP: Interprofessional Collaboration

- The objective is to “understand the roles of all people involved with patients and their families, including medical care, health care, welfare, and nursing care professionals, and build collaborative working relationships with them, collectively sharing and cooperating on issues that affect patients, their families, and local communities.” In this revision, objectives relating to communication among medical professionals have been moved from *CM: Communication* (Item 8) to this section.
- The two key phrases upon which this section is founded are “medical care, health, welfare, and nursing care” and “patients, their families, and local communities.”

II-1-10. SO: Medicine in Society

- The stated objective is to “recognize that medicine plays a key societal role in promoting health, and strive to provide equitable medical care, maintaining an economic, regional, and international perspective to improve public health.”
- The main learning objectives contained in *B. Society and Medicine/Medical Practice* in the previous edition have been moved to this section, and six components have been established that reflect the importance of medicine in society: *Social security, Epidemiology and medical statistics, Forensic medicine, Medical care from the viewpoint of social structure and change, Medicine from national and international perspectives, and Medical care from a social sciences perspective.*

II-2. Guidelines for participatory clinical clerkship

- Organization of chapters
 - 1. Introduction, 2. Implementation System and Environment, 3. Objectives, 4. Strategy, and 5. Assessment.
- Introduction
 - The descriptions of the purpose of participatory clinical clerkship and the significance of enhancing it as a clinical training program have been revised.
- Implementation System and Environment
 - This section provides guidelines for the organization of the program and describes matters that need to be considered and established in advance to ensure the safe and smooth participation of medical students in medical care.
 - In accordance with the revised *Medical Practitioners’ Act* (effective April 1, 2023) and the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (March 15, 2022), this section includes revised guidelines for the training supervision department of each university to determine the scope of permitted medical practice by students and guidelines for obtaining patient consent. The need to establish a patient consultation and support service has also been added.
 - In accordance with the revised *Medical Practitioners’ Act*, the duty of confidentiality for medical students participating in clinical clerkship has been added.
 - New radiation exposure management guidelines have been added to the student safety management section.
- Objectives
 - The learning objectives for clinical clerkship described in section *G. Clinical Clerkship* of the previous edition have been moved to this section and revised in line with the latest versions in the *Model Core Curriculum*.
- Strategy
 - Strategies for implementing the clinical clerkship (e.g., departments where clinical clerkship is to be

conducted) described in section *G. Clinical Clerkship* of the previous edition have been moved to this section, and the required departments and periods of assignment for clinical clerkship have been revised (refer to section II-4, *Basic medical departments/specialties for participatory clinical clerkship*, below).

- Assessment
 - In addition to the Mini-Clinical Evaluation Exercise (mini-CEX) and Direct Observation of Procedural Skills (DOPS), case-based discussion (CbD) has been introduced as an observational assessment method for the clinical clerkship.
 - The recommended approach for dealing with unprofessional behavior in students has been revised.
 - The Clinical Clerkship E-Portfolio of Clinical Training (CC-EPOC) is described as an electronic tool for recording clinical clerkship activities.
- Entrustable professional activities
 - The concept of entrustable professional activities (EPAs) as a means of assessing the qualities and abilities of learners engaging in clinical practice through the degree to which they can be entrusted with tasks is explained.
 - Examples are provided demonstrating how multiple competencies and learning objectives (from the ten qualities and abilities) can correspond to a single EPA.
 - Examples are provided regarding the use of EPAs for assessment, examples of clinical practice rotations they can apply to, examples of assessment tools, conditions required for students to perform the tasks unsupervised, and training required before carrying out EPAs.
 - The activities that can be entrusted to students described in section *G. Clinical Clerkship* of the previous edition have been moved to *Chapter 3: Assessment* in this revision of the *Model Core Curriculum*, where the “Skills and behaviors to acquire by the end of clinical clerkship” developed by the Common Achievement Tests Organization (CATO) are listed in a reference box.

II-3. Description of infectious diseases

- Previous descriptions of infectious diseases
 - In the previous editions, the descriptions of infectious diseases were dispersed across sections *A-6 Management of quality of care and patient safety*, *B-1 Population-based medical practice*, *C-3 Reaction of individuals*, *E-2 Infectious diseases*, and *F-2 Basic clinical knowledge*.
 - The global spread of COVID-19 has highlighted issues in basing medical education about infectious diseases on the previous version of the *Model Core Curriculum*.
- Organization and careful selection of learning objectives related to infectious diseases
 - In the survey and research report for this project in 2020, it was noted that the concept of infectious diseases was not covered sufficiently within the curriculum.
 - The previous edition primarily focused on microorganisms in relation to infectious diseases. This did not reflect the thought process required in actual clinical practice, where it is important to listen to the patient’s complaints (symptoms or problems), surmise the pathogenesis, and, when an infectious disease is the differential diagnosis, determine the main organ or system affected and the causative microorganism. Careful consideration was given when describing the learning objectives to promote the study of this thought process and to enable students to apply it in real clinical situations.
 - The basis of the revisions was to enable important infectious diseases to be studied systematically. For this reason, “community-acquired infections” and “healthcare-associated infections” are listed in detail, and frequently occurring and important individual diseases from within these categories have been carefully selected and presented in a separate table.
 - In order to present the steps in the thought process necessary in actual clinical practice, *PS-01-03: Individual reactions* has been included as a general introduction to microorganisms to enable comprehensive study of the epidemiology, routes of infection, risk factors, clinical symptoms, physical findings, diagnosis, and treatment of infectious diseases caused by those microorganisms.

II-4. Basic medical departments/specialties for participatory clinical clerkship

- Descriptions of the departments/specialties that form part of the clinical clerkship program were described in both the previous edition of the *Guidelines for Participatory Clinical Clerkship* and the Japanese annotation of the then JACME domain 2.5.
- In order not to cause confusion among students and curriculum developers at each university, discussions were held with JACME to harmonize the content.
 - To promote the participation element of the participatory clinical clerkship, it is necessary for students to be assigned to each department for at least a minimum continuous period of time. However, because it is not desirable to restrict the freedom of universities by proscribing minimum periods of assignment for all departments, it was decided to limit the number of departments that must meet this minimum assignment time requirement.
 - The nineteen departments listed by the Japan Medical Specialty Board as key departments have been denoted as *Basic departments/specialties* for the purposes of clinical clerkship in this revision of the *Model Core Curriculum*.
 - Rotations in six departments (internal medicine, surgery, pediatrics, obstetrics and gynecology, psychiatry, and general practice) have been set a requirement of “at least three consecutive weeks per department, in principle.” Rotations in emergency departments have been set a requirement of “at least three weeks, in principle.”
 - However, the following recommendation has also been included: “it is important to ensure that students are assigned to at least one department for four or more consecutive weeks to foster holistic medical competencies and attitudes.”
 - Participatory clinical clerkship at external clinical teaching hospitals is also permitted to complement university-based clinical clerkship.

Outline of the Model Core Curriculum for Medical/Dental Education (2022 Revision)

- A systematically organized *model* that is formed by extracting the *core* parts of the *curriculum* that should be commonly addressed by all universities when formulating their own curricula.
- First edition established in March 2001. Revised in response to changes in the healthcare environment in 2007, 2010, and 2018.
- **Clarifies** learning objectives related to **essential practical medical competencies (knowledge, skills, and attitudes) that students should acquire by the time of graduation.**
- Accounts for **approximately two-thirds of total study hours for medicine and dentistry** undergraduate courses (the remaining study hours are devoted to the unique and distinctive curriculum set by each university).

Mission statement

"Fostering medical professionals who can play an active role in connecting diverse settings and people, with a focus on society and communities of the future."



Common "Basic Qualities and Abilities Required of Physicians/Dentists" (Red text denotes new additions)

PR. Professionalism

GE. Generalism

LL. Lifelong Learning

RE. Research

PS. Problem-Solving

IT. Information Technology

CS. Clinical Skills

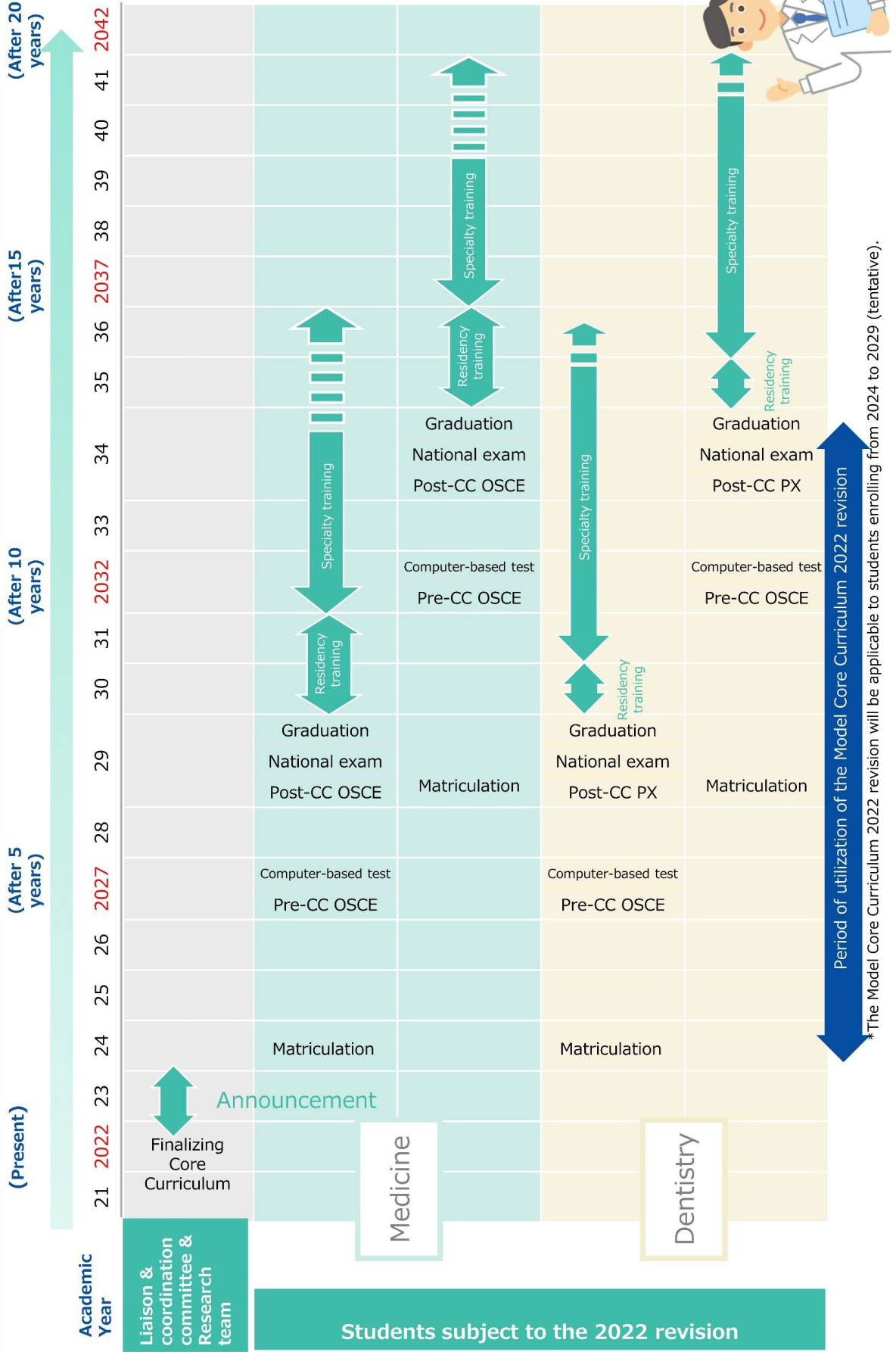
CM. Communication

IP. Interprofessional Collaboration

SO. Medicine in Society



Model Core Curriculum for Medical/Dental Education (2022 revision) Schedule



Period of utilization of the Model Core Curriculum 2022 revision will be applicable to students enrolling from 2024 to 2029 (tentative).



Students subject to the 2022 revision

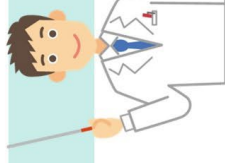
Model Core Curriculum for Medical Education (2022 Revision)

Chapter 1 Basic Qualities and Abilities Required of Physicians

Ten basic qualities and abilities required of physicians and their explanations

PR. Professionalism	GE. Generalism	LL. Lifelong Learning	RE. Research	PS. Problem-Solving	IT. Information Technology	CS. Clinical Skills	CM. Communication	IP. Inter-professional Collaboration	SO. Medicine in Society
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Chapter 2 Learning Objectives + Annexed Tables



- Individual learning objectives linked to the Basic Qualities and Abilities of Physicians are described
- Diseases to be studied, basic medical departments, major symptoms, etc. are listed in separate tables

Chapter 3 Educational Strategies and Assessment

Strategies

- Presentation of useful education theories
- Explanation of common terms

Assessment

- Presentation of assessment concepts
- Description of assessment methods

Participatory Clinical Clerkship Guidelines



- Implementation System and Environment
- Records of learning outcomes and assessment results
- EPA

Chapter 1: Basic Qualities and Abilities Required of Physicians

Medical graduates are expected to not only possess the basic values of physicians but, in order to provide safe and high-quality medical care and build medical expertise, to also develop the following qualities and abilities (outcomes/competencies*) throughout their careers.

PR: Professionalism

Acknowledge the professional responsibility of physicians to be deeply involved in people's lives and to protect health; respect diversity and humanity; and take an altruistic approach to medical practice throughout one's career.

GE: Generalism

Take a multi-systemic view of the patient's problems and consider the patient's psychosocial background in order to provide comprehensive, flexible medical care that responds to the needs of the patient and is not limited to one's own specialty, supporting the achievement of individual and societal well-being.

LL: Lifelong Learning

Continuously reflect on one's own practice and train collaboratively with other physicians and healthcare professionals, actively engaging in lifelong education and self-directed learning, in order to practice safe and high-quality medical care

RE: Research

Understand the importance of medical research for the advancement of medicine and medical care, and support innovation in medicine through involvement in academic and research activities, developing one's scientific thinking skills.

PS: Problem-Solving

Acquire knowledge and expertise in medicine and related disciplines, and use evidence-based medicine and professional experience to solve problems faced by patients.

IT: Information Technology

Recognize the impact of continuing technological developments on society, and make use of information science and technology, such as artificial intelligence, when engaging in medical research and clinical practice.

CS: Clinical Skills

Practice medical care with an emphasis on quality and patient safety by giving full consideration to patients' pain and anxiety, and by developing reliable and dependable clinical skills.

CM: Communication

Practice safe and high-quality medical care by building good relationships with patients and other people involved in their care, taking patients' own circumstances into account, and supporting them in their decision-making.

IP: Interprofessional Collaboration

Understand the roles of all people involved with patients and their families, including medical care, health care, welfare, and nursing care professionals, and build collaborative working relationships with them, collectively sharing and cooperating on issues that affect patients, their families, and local communities.

SO: Medicine in Society

Recognize that medicine plays a key societal role in promoting health, and strive to provide equitable medical care, maintaining an economic, regional, and international perspective to improve public health.

*: The *Model Core Curriculum* follows the definition of “qualities and abilities” used by the Ministry of Education, Culture, Sports, Science and Technology, which is “qualities and abilities that can be acquired by an individual.” These qualities and abilities correspond to “outcomes” in outcome-based education, and “competencies” in competency-based education.

By way of example, Article 5, Paragraph 2 of the *Basic Act on Education* states that the purpose of compulsory education is “to cultivate the foundations for an independent life within society while developing the abilities of each individual, and also to foster the basic qualities that are necessary in the people who make up our nation and society.” Here, the term “qualities” is used as a broad concept encompassing abilities, attitudes, and other characteristics. Education is intended to both further improve inborn qualities and to enable learners to acquire certain new qualities. [3]

[3] Tanaka S. “Chikujyou-Kaisyaku Kaitei Kyouiku Kihon Hou [Commentary on the revised *Basic Act on Education*],” Daiichi Hoki, Japan, 2007.

Chapter 2: Learning Objectives

PR: Professionalism

Acknowledge the professional responsibility of physicians to be deeply involved in people's lives and to protect health; respect diversity and humanity; and take an altruistic approach to medical practice throughout one's career.

PR-01: Trust

Act in a way that always considers what is necessary to earn the public's trust.

PR-01-01: Honesty and integrity

- PR-01-01-01 Consider what is meant by acting with honesty and integrity toward patients and society, and behave accordingly (c.f. considering conflict of interest).
- PR-01-01-02 Consider what behaviors are expected of a member of a professional body in order to be trusted by society, and act accordingly.

PR-01-02: Reflection

- PR-01-02-01 Appropriately recognize one's own limitations and act accordingly.
- PR-01-02-02 Accept feedback from others appropriately.

PR-02: Compassion

Understand and treat others with dignity, courtesy, and compassion.

PR-02-01: Compassion

- PR-02-01-01 Treat others, including patients, with compassion.
- PR-02-01-02 Consider the causes and context when one fails to treat others compassionately.

PR-02-02: Understanding self and others

- PR-02-02-01 Strive to understand others, recognizing the limits of one's own imagination.
- PR-02-02-02 Consider and be aware of one's own prejudices and those held as a group that may act as obstacles to understanding others, and act accordingly.

PR-02-03: Dignity and courtesy

- PR-02-03-01 Consider what is meant by dignity and why it is expected of physicians, and strive to act accordingly.
- PR-02-03-02 Behave with courtesy.

PR-03: Self-cultivation

Acquire the well-rounded education that is required by physicians.

PR-03-01: Self-cultivation

- PR-03-01-01 Acquire an appropriately broad education that befits a physician's deep involvement in people's lives.
- PR-03-01-02 Continue to contemplate questions that have no definitive answers.

PR-04: Bioethics

Learn the importance of ethics in medicine and medical practice.

PR-04-01: Medical ethics

- PR-04-01-01 Understand an overview of ethical issues related to life and death.
- PR-04-01-02 Respect patients' rights, including their right to make decisions for themselves, and collaborate with multidisciplinary professionals and understand diverse values.

- PR-04-01-03 Express one's own opinions on ethical issues in medical practice, analyzing them using ethics-based concepts.

GE: Generalism

Take a multi-systemic view of the patient's problems and consider the patient's psychosocial background in order to provide comprehensive, flexible medical care that responds to the needs of the patient and is not limited to one's own specialty, supporting the achievement of individual and societal well-being.

GE-01: Holistic perspectives and approaches

Understand the problems faced by patients not only from a comprehensive, transdisciplinary perspective but also by taking psychosocial background into account; take responsibility for providing medical care with an attitude that extends beyond one's area of clinical expertise; and engage in clinical practice that is based on best practice in decision-making and behavioral science.

GE-01-01: Transdisciplinary care

- GE-01-01-01 Understand medical issues from a comprehensive, transdisciplinary perspective.
- GE-01-01-02 Understand the importance of involving appropriate medical institutions and departments.
- GE-01-01-03 Use relevant core frameworks and heuristics (e.g., frequency, severity, urgency, anatomical approach, pathophysiological approach, dual process theory, prior probability) to perform clinical reasoning.
- GE-01-01-04 Conduct medical interviews, physical examinations, and tests as necessary for the patient's presenting complaint.
- GE-01-01-05 Understand an overview of undiagnosed health problems and the appropriate methods of intervention.
- GE-01-01-06 Understand an overview of interventions for multiple co-morbidities and for diseases that affect multiple organs.
- GE-01-01-07 Understand an overview of polypharmacy and related interventions.

GE-01-02: Comprehensive perspectives on biological, psychological, and social issues

- GE-01-02-01 Understand comprehensive approaches to biopsychosocial problems.
- GE-01-02-02 Understand approaches that take into account the impact on both the individual and family.

GE-01-03: Patient-centered medicine

- GE-01-03-01 Elicit individual patients' medical expectations, explanatory models, and health perspectives.
- GE-01-03-02 Understand the impact of the patient's social background (e.g., economic and health system-related aspects) on their illness.
- GE-01-03-03 Understand an overview of the effects of continuity of medical care (e.g., time, information, relationships).

GE-01-04: Evidence-based medicine (EBM)

- GE-01-04-01 List the five steps of EBM.
- GE-01-04-02 Define the clinical question using the PICO (PECO) framework (patient/population/problem, intervention (exposure), comparison, and outcome).
- GE-01-04-03 Search for evidence from secondary sources such as databases and clinical guidelines.
- GE-01-04-04 Critically appraise the obtained evidence.
- GE-01-04-05 Understand the different types of clinical practice guidelines, the strength of the recommendations made, and pitfalls in their use.
- GE-01-04-06 Consider the application of evidence to patient care taking into account the patient's unique values and circumstances.

GE-01-05: Behavioral science

- GE-01-05-01 Apply knowledge, theories, and interviewing methods related to behavioral science to diagnosis, treatment, care, and prevention.

- GE-01-05-02 Recommend appropriate social support coordination and cognitive behavioral therapy as needed.
- GE-01-05-03 Apply behavioral economics to health care.

GE-01-06: Palliative care

- GE-01-06-01 Assess holistic suffering (physical, psychosocial, and spiritual) through an understanding of the concept of palliative care.
- GE-01-06-02 Understand an overview of pharmacological and non-pharmacological palliative measures for somatic symptoms in patients with and without cancer.
- GE-01-06-03 Plan for the management of pain and distress in the acute care setting, with an understanding of the importance of communication with the patient and family members regarding end-of-life care.
- GE-01-06-04 Plan for the management of chronic diseases and chronic pain by understanding their pathophysiology, course, and treatment strategies.
- GE-01-06-05 Plan to support the patient and family members in a way that takes into account their suffering and concerns, including appropriate assistance toward balancing care and schooling, working, and parenting.

GE-02: Community perspectives and approaches

Understand the current status of and issues relating to medical care, nursing care, health care, and welfare according to local contexts, and acquire the ability to contribute to the provision of primary care as the foundation of medical care and to improve the quality of the healthcare system.

GE-02-01: Basic concepts in primary care

- GE-02-01-01 Understand local and community health disparities and appropriately assess healthcare system issues such as barriers to accessing medical care.
- GE-02-01-02 Understand the relevance of a patient's geographic and cultural context to health.

GE-02-02: Primary care in the community

- GE-02-02-01 Understand an overview of the current distribution of health care and physicians (regional, departmental, and clinical/non-clinical) in terms of the local context (including urban, suburban, remote areas, and remote islands).
- GE-02-02-02 Respond flexibly as a medical practitioner in a way that reflects the local medical system and the scale and function of its medical institutions.
- GE-02-02-03 Use indices such as incidence and prevalence of each disease in the area where the patient resides, and apply these in clinical reasoning.
- GE-02-02-04 Collect quantitative indicators (e.g., population composition) and qualitative information (geographical, historical, economic, and cultural contexts) for the community and explain local health issues.
- GE-02-02-05 Understand an overview of the significance of community health promotion activities undertaken in collaboration with local residents and healthcare professionals.

GE-02-03: Provision of primary care according to medical resources

- GE-02-03-01 Propose medical care and services adapted to the local human and physical resources available.
- GE-02-03-02 Understand an overview of medical care delivery systems and systems for nursing care, health care, and welfare in situations with limited medical resources, such as remote islands, remote areas, and areas with a shortage of physicians.

GE-02-04: Primary care at home

- GE-02-04-01 Understand the necessity for and challenges related to home care in terms of its current status and how it is adapted to meet patients' needs.
- GE-02-04-02 Understand an overview of the nature of home-based end-of-life care and its challenges.

GE-03: Life perspectives and approaches

Engage in the psychosocial and medical issues that may occur among patients, their families, and people in general by understanding the life stages and growth, development, aging, and death processes that they go through over time.

GE-03-01: Life processes

- GE-03-01-01 Consider patient issues from the perspective of the life cycle (fetal, neonatal, infant, school-age, adolescent, young adult, mature adult, geriatric, and end-of-life stages).
- GE-03-01-02 Consider health management and environmental and lifestyle improvements from the perspective of life stages and life events.
- GE-03-01-03 Identify problems between patients and family members (abuse, neglect, etc.) from the perspective of the family life cycle, family member relationships, and family systems.

GE-03-02: Childhood in general

- GE-03-02-01 Understand physical and physiological development in childhood.
- GE-03-02-02 Understand normal psychomotor development in childhood.
- GE-03-02-03 Understand attachment formation, appropriate childcare methods, and nutrition in childhood.
- GE-03-02-04 Understand nutritional characteristics in childhood, and nutritional education.
- GE-03-02-05 Understand the relationship between the development of immune systems and infectious diseases in childhood.
- GE-03-02-06 Understand the current status of and problems relating to the transition of medical care from childhood to adulthood.

GE-03-03: Fetal, neonatal, and infant stages

- GE-03-03-01 Understand physiological characteristics of fetal circulation and respiration and their changes at birth.
- GE-03-03-02 Understand the physiological characteristics of neonates and infants.

GE-03-04: School-age, adolescence, young adulthood, and adulthood

- GE-03-04-01 Understand the mechanisms of puberty and secondary sexual characteristic development.
- GE-03-04-02 Understand issues associated with school age and adolescence (such as those related to school, friends, etc.).
- GE-03-04-03 Understand issues related to adolescence and young adulthood (such as those related to reproduction, sanctity of life, etc.)
- GE-03-04-04 Understand issues related to adulthood (such as those related to mental health, work, exercise, infertility, etc.).

GE-03-05: Geriatric stage

- GE-03-05-01 Understand the changes in organs and bodily functions associated with aging, their mechanisms, and the physiological changes that accompany these changes.
- GE-03-05-02 Perform a comprehensive geriatric assessment (CGA).
- GE-03-05-03 Understand geriatric syndromes (gait disorders and falls, cognitive dysfunction, voiding disorders, nutritional disorders, feeding and swallowing disorders, etc.).
- GE-03-05-04 Understand the concepts of frailty, sarcopenia, and locomotive syndrome, how to deal with them, and how to prevent them.
- GE-03-05-05 Understand the International Classification of Functioning, Disability and Health (ICF).
- GE-03-05-06 Understand nutrition management for the elderly.
- GE-03-05-07 Understand the nursing care and environmental adjustments required for activities of daily living.

GE-03-06: End of life

- GE-03-06-01 Understand the concept and definition of death and biological death.
- GE-03-06-02 Show consideration for the views on life and death held by the patient and their family members, applying one's knowledge of the physical and mental processes that lead to death.
- GE-03-06-03 Understand end-of-life care.
- GE-03-06-04 Understand the special characteristics of pediatric end-of-life care.
- GE-03-06-05 Understand advanced care planning (ACP), compliance with advance directives, life-prolonging treatment, do-not-resuscitate instructions, death with dignity and euthanasia, and discontinuation and withholding of treatment.
- GE-03-06-06 Understand grief care.

GE-04: Social perspectives and approaches

Understand people's health perspectives, words and actions, and interpersonal relationships that are generated in cultural and social contexts, and apply them to clinical practice from the perspective of cultural anthropology and sociology (primarily medical anthropology and medical sociology).

GE-04-01: Health in medical, cultural, and social contexts

- GE-04-01-01 Apply a comprehensive approach to health issues, using health-related knowledge, such as relevant definitions, healthy life expectancy, salutogenic theory, well-being, quality of life (QOL), social determinants of health (SDH), ICF, and universal health coverage (UHC), in building an understanding of the patient's views on health and values regarding illness.
- GE-04-01-02 Explain the process that a patient goes through to receive medical care from a layperson's perspective.
- GE-04-01-03 Evaluate an individual's nutritional status on the basis of knowledge and statistical information on nutrition and energy metabolism, and plan appropriate dietary support that takes into account the lifestyle and values of the patient and family members.
- GE-04-01-04 Assess an individual's daily activity on the basis of knowledge and statistical information related to physical activity and sports medicine and science, and plan support for activities and exercise that takes into account the lifestyle and values of the patient and family members.
- GE-04-01-05 Assess an individual's rest and mental health on the basis of knowledge and statistical information, and plan support that takes into account the lifestyle and values of the patient and family members.
- GE-04-01-06 Evaluate and plan personal support on the basis of knowledge and statistical information about the health effects of smoking and drinking alcohol, taking into account the lifestyle and values of the patient and family members.
- GE-04-01-07 Understand an overview of SDH and health advocacy.

GE-04-02: Social sciences

- GE-04-02-01 Consider the meaning of a person's words and actions in the context of the person's life history and social relationships.
- GE-04-02-02 Explain the relationship between patients and their families and their living environment, community, and medical institutions from the perspective of cultural anthropology and sociology (primarily medical anthropology and medical sociology).
- GE-04-02-03 Explain various phenomena related to a patient's judgment and behavior using theories and concepts in cultural anthropology and sociology (primarily medical anthropology and medical sociology).

LL: Lifelong Learning

Continuously reflect on one's own practice and train collaboratively with other physicians and healthcare professionals, actively engaging in lifelong education and self-directed learning, in order to practice safe and high-quality medical care.

LL-01: Lifelong learning

Form a system of values that fosters lifelong learning.

LL-01-01: Lifelong learning in practice

- LL-01-01-01 Access the best medical information currently available, recognizing that medical knowledge is being constantly updated.
- LL-01-01-02 Reflect on one's learning and experience, and identify one's own developmental needs.

LL-01-02: Career development

- LL-01-02-01 Develop one's career independently and proactively while cultivating one's own professional values.
- LL-01-02-02 Take care of one's physical and mental health.

LL-02: Education of medical professionals

Contribute to the education of all medical professionals, including not only physicians and medical students, but also other colleagues and healthcare professionals.

LL-02-01: Medical education in practice

- LL-02-01-01 Learn collaboratively with peers (including junior doctors and other colleagues).
- LL-02-01-02 Provide appropriate feedback to peers (including junior doctors and other colleagues).
- LL-02-01-03 Apply adult learning theory to educate peers (including junior doctors and other colleagues).

RE: Research

Understand the importance of medical research for the advancement of medicine and medical care, and support innovation in medicine through involvement in academic and research activities, developing one's scientific thinking skills.

RE-01: Developing a research mindset

Realize the joy of satisfying one's intellectual curiosity and the importance of originality.

RE-01-01: Proactive attitude

- RE-01-01-01 Question established theories.
- RE-01-01-02 Be intellectually curious about everything.

RE-01-02: Inquisitiveness

- RE-01-02-01 Be inspired by cutting-edge research.
- RE-01-02-02 Learn from senior researchers as role models.

RE-02: Understanding established theories

Learn about the great achievements of predecessors and foster new ideas.

RE-02-01: Medicine and healthcare

- RE-02-01-01 Understand that the practice of medicine is based on research in basic medicine, clinical medicine, and social medicine.

RE-02-02: Reading and understanding academic papers

- RE-02-02-01 Read medical articles (in English) and gain an outline understanding of their content.

RE-03: Conducting research

Experience and understand research methods in the natural sciences, humanities, and social sciences.

RE-03-01: Research questions

- RE-03-01-01 Propose research questions based on one's own interests.

RE-03-02: Research plan

- RE-03-02-01 Draft an outline research plan.

RE-03-03: Research methods

- RE-03-03-01 Acquire knowledge of fundamental experimental techniques from practical training in basic medicine.
- RE-03-03-02 Acquire knowledge of basic research methodology from practical training in social medicine (including behavioral science).
- RE-03-03-03 Acquire the ability to apply medical research techniques through laboratory experience, etc.

RE-03-04: Research results

- RE-03-04-01 Record and manage research data appropriately.

RE-04: Publishing research

Explain and discuss the significance and contents of research with others.

RE-04-01: Research presentations

- RE-04-01-01 Summarize one's own research in the form of papers, reports, conference presentations, etc.

- RE-04-01-02 Present research contents in an easy-to-understand manner that is appropriate for the particular audience or readership.
- RE-04-01-03 Ask questions and express opinions in response to other researchers' presentations.

RE-05: Research ethics

Comply with laws and regulations, respect human rights, and behave in a manner that is correct and proper for a medical student.

RE-05-01: Appropriate research conduct

- RE-05-01-01 Explain the types of research misconduct, including fabrication, falsification, plagiarism, etc., and refrain from committing research misconduct.

RE-05-02: Protection of research subjects

- RE-05-02-01 Understand and comply with important rules regarding research involving human subjects (including clinical trials for new drug/device application and specified clinical trials).
- RE-05-02-02 Understand and comply with important rules regarding conflicts of interest and animal and genetic modification experiments.

PS: Problem-Solving

Acquire knowledge and expertise in medicine and related disciplines, and use evidence-based medicine and professional experience to solve problems faced by patients.

PS-01: Basic medical science

Understand biological systems from the molecular level, body composition and bodily functions from the cellular level, how the human body responds and reacts, and the etiology and pathogenesis of diseases caused by disruption of these biological phenomena.

PS-01-01: Science of biological phenomena

- PS-01-01-01 Understand an overview of cell observation methods.
- PS-01-01-02 Illustrate basic cell structure.
- PS-01-01-03 Understand an overview of the structure and function of the nucleus, ribosomes, endoplasmic reticulum, Golgi apparatus, lysosomes and other cytomembrane systems, mitochondria, chloroplast, and cytoskeleton.
- PS-01-01-04 Understand an overview of the structure and function of cell membranes and cell–cell adhesion and binding patterns.
- PS-01-01-05 Understand the characteristics of prokaryotic and eukaryotic cells.
- PS-01-01-06 Understand Mendelian laws, mitochondrial inheritance, epigenetic modification including imprinting, and multifactorial inheritance.
- PS-01-01-07 Understand the relationship between genotype and phenotype.
- PS-01-01-08 Understand the structure of chromosomes, the structure and relationship between genomes, chromosomes, and genes, and the behavior of chromosomes during somatic and meiotic divisions.
- PS-01-01-09 Understand the expression and regulation of genetic information (central dogma), including DNA replication and repair, transcription from DNA to RNA, and translation leading to protein synthesis.
- PS-01-01-10 Understand an overview of genomic analysis technologies including chromosome analysis and DNA sequencing.
- PS-01-01-11 Understand an overview of genome editing technologies and their applications.
- PS-01-01-12 Understand the basic concepts of evolution.
- PS-01-01-13 Understand biological species and their phylogenetic relationships.
- PS-01-01-14 Understand an overview of molecular phylogenetic trees on the basis of comparison of amino acid and nucleotide sequences.

PS-01-02: Composition and function of the human body

- PS-01-02-01 Understand the ionic composition of intracellular and extracellular fluids and the mechanisms of osmotic pressure and (resting) membrane potential formation.
- PS-01-02-02 Understand ion channels, pumps, and active and passive transport processes of substances across the plasma membrane.
- PS-01-02-03 Understand the mechanisms of action potential generation and conduction, synaptic (including neuromuscular junction) morphology, and function (both excitatory and inhibitory) and plasticity of synaptic transmission.
- PS-01-02-04 Understand the types and functions of signal transduction.
- PS-01-02-05 Understand the types, subcellular localization, and functions of receptors, and their intracellular signaling processes.
- PS-01-02-06 Understand intracellular signal transduction by humoral factors (autocrine, paracrine, and endocrine).
- PS-01-02-07 Understand an overview of cytoskeletal proteins and their functions, and cell motility by the actin filament system.

- PS-01-02-08 Understand the processes of secretion and absorption across the plasma membrane, intracellular transport systems, and the role and function of microtubules.
- PS-01-02-09 Understand axonal transport, axonal degeneration, and regeneration.
- PS-01-02-10 Understand the structure and function of epithelial tissues and glands.
- PS-01-02-11 Understand the cells and intercellular matrix (fibrous components and matrix) that make up connective tissues.
- PS-01-02-12 Understand the microstructure and function of blood vessels and lymphatic vessels.
- PS-01-02-13 Understand the microstructure of nerve tissue.
- PS-01-02-14 Understand the structure and function of skeletal muscle, cardiac muscle, and smooth muscle.
- PS-01-02-15 Understand the mechanisms of tissue regeneration.
- PS-01-02-16 Understand positional relationships in directional terms (superior/inferior, anterior/posterior, medial/lateral, superficial/deep, cephalic/caudal, dorsal/ventral, proximal/distal, adduction/abduction).
- PS-01-02-17 Understand the types and mechanisms of organoleptic responses to stimuli.
- PS-01-02-18 Understand reflexes.
- PS-01-02-19 Understand homeostasis and adaptation of the body, and the regulatory mechanisms for homeostasis (feedback regulation).
- PS-01-02-20 Understand rhythmic changes in biological functions and the body's internal environment.
- PS-01-02-21 Understand the importance of the interaction between commensal/intestinal bacteria and the host in maintaining homeostasis.
- PS-01-02-22 Understand an overview of the sequence of events from gametogenesis to birth, embryogenesis, and the process of intraembryonic body cavity formation.
- PS-01-02-23 Understand the formation and differentiation of body segments, differentiation of gill arch and gill sac, and the formation process of the head and neck, and the face and oral cavity.
- PS-01-02-24 Understand the formation process of the skeleton and muscles of the trunk and limbs, and the cardiovascular and urogenital systems.
- PS-01-02-25 Understand the formation process of the digestive and respiratory systems.
- PS-01-02-26 Understand neural tube differentiation and the formation process of the brain, spinal cord, visual organs, balance organs and autonomic nervous system, and skin.
- PS-01-02-27 Understand the function and regulation of enzymes.
- PS-01-02-28 Understand the structure, metabolism, and regulation of carbohydrates (glycolysis, tricarboxylic acid cycle, electron transport chain and oxidative phosphorylation, glycogen metabolism, gluconeogenesis, pentose phosphate pathway) and their physiological significance.
- PS-01-02-29 Understand protein structure, metabolism and regulation, physiological significance, metabolism of major amino acids, and the urea cycle.
- PS-01-02-30 Understand the structure, metabolism and regulation, physiological significance, and transport of lipids (lipoproteins).
- PS-01-02-31 Understand an overview of porphyrin and heme metabolism.
- PS-01-02-32 Understand the synthesis, catabolism, and recycling pathways of nucleotides.
- PS-01-02-33 Understand an overview of oxidative stress (free radicals, reactive oxygen species).
- PS-01-02-34 Understand the types and actions of vitamins and trace elements.
- PS-01-02-35 Understand the interconversion of nutrients and energy metabolism (including definition of energy, nutritional value in food, energy consumption, and estimated energy requirements).
- PS-01-02-36 Understand the metabolism when fasting, starving, after eating, overeating, and exercising.
- PS-01-02-37 Understand an overview of glycoconjugates and conjugated lipids.

PS-01-03: Individual reactions

- PS-01-03-01 Understand the differences in structure and function of bacteria as prokaryotes compared with eukaryotes.
- PS-01-03-02 Understand the mechanisms by which bacteria cause diseases by classifying the routes of bacterial infection.
- PS-01-03-03 Understand the mechanisms of action of protein toxins and non-protein toxins produced by bacteria.
- PS-01-03-04 Describe the bacteriological characteristics, risk factors, routes of infection, and pathogenesis of the major gram-positive cocci, gram-positive rods, gram-negative cocci, and gram-negative rods, and list the diseases they cause.
- PS-01-03-05 Explain the bacteriological characteristics, risk factors, routes of infection, and pathogenesis of acid-fast bacilli, and list the diseases they cause.
- PS-01-03-06 List the microbiological characteristics of spirochete, mycoplasma, rickettsia, and chlamydia and the diseases they cause.
- PS-01-03-07 Understand an overview of the bacteria that make up the microbiome and the functions of the microbiome in various parts of the body.
- PS-01-03-08 Classify viruses according to the structure and properties of viral particles.
- PS-01-03-09 Understand species specificity and tissue specificity of viral infections, their adsorption, invasion, replication, maturation, and release processes, and the changes that occur in virus-infected cells.
- PS-01-03-10 Describe the characteristics, risk factors, routes of infection, and pathogenesis of the major DNA viruses, and list the names of diseases caused by these viruses.
- PS-01-03-11 Describe the characteristics, risk factors, routes of infection, and pathogenesis of the major RNA viruses, and list the names of diseases caused by these viruses.
- PS-01-03-12 Describe the microbiological characteristics, risk factors, routes of infection, and pathogenesis of fungi (zygomycetes, ascomycetes, basidiomycetes, and imperfect fungi) and list the diseases they cause.
- PS-01-03-13 Understand the classification of parasites (protozoa and helminths), and the morphological characteristics, life cycle, risk factors, routes of infection and pathogenesis, infectious epidemiological significance, and characteristics of the biological defense of parasite-infected hosts.
- PS-01-03-14 Understand an overview of the mechanisms of action of antimicrobial agents with respect to the characteristics of microorganisms.
- PS-01-03-15 Understand the principles, types, and problems associated with vaccines against microbial infections.
- PS-01-03-16 Understand the life cycle, risk factors, routes of infection and pathogenesis, and epidemiological significance of microorganisms that cause zoonotic diseases.
- PS-01-03-17 Understand the life cycle, risk factors, transmission routes and pathogenesis, and epidemiological significance of microorganisms that cause vector-borne diseases.
- PS-01-03-18 Understand the tissues and cells involved in the immune response.
- PS-01-03-19 Understand how complement and innate immune cells are activated by pathogens and cause inflammation.
- PS-01-03-20 Understand the basic structure and function of major histocompatibility complex class I and class II molecules and the mechanism of T cell activation by antigen presentation.
- PS-01-03-21 Understand the mechanisms of diversity acquisition based on the structure and reaction patterns of immunoglobulins and T cell antigen receptors, and the structure and genetic reconstitution of immunoglobulin and T cell antigen receptor genes.
- PS-01-03-22 Understand the respective biological defense reactions for which helper T cells (Th1 cells, Th2 cells, and Th17 cells), cytotoxic T cells, and regulatory T cells are responsible.
- PS-01-03-23 Understand the mechanism of antibody production by B cell activation and the role of antibodies.
- PS-01-03-24 Understand the major cells that constitute the innate immune system and their activation mechanisms (TLRs, etc.).

- PS-01-03-25 Understand the types and roles of antigen-presenting cells and the mechanisms of antigen presentation.
- PS-01-03-26 Understand an overview of the characteristics of immune responses to viruses, bacteria, fungi, and parasites.
- PS-01-03-27 Understand an overview of primary and acquired immunodeficiency syndromes.
- PS-01-03-28 Understand the maintenance mechanisms of immune tolerance and the development of autoimmune diseases as a result of their breakdown.
- PS-01-03-29 Understand the mechanisms of allergic reactions.
- PS-01-03-30 Understand the cellular mechanisms involved in cancer immunity.
- PS-01-03-31 Understand the dose–response curve of drug/toxin reactivity for a living organism (or group of organisms).
- PS-01-03-32 Understand the relationship between receptor binding and pharmacological effects of drugs and agonists/antagonists.
- PS-01-03-33 Understand an overview of the adverse effects of drugs and drug–drug interactions.

PS-01-04: Etiology and pathogenesis

- PS-01-04-01 Understand the diversity of individuals based on genomic diversity.
- PS-01-04-02 Understand single gene diseases, diseases caused by chromosomal aberrations, and diseases caused by mitochondrial gene mutations, including the mode of inheritance.
- PS-01-04-03 Understand the relationship between genetic and environmental factors in multifactorial diseases.
- PS-01-04-04 Understand an overview of the relationship between drug efficacy and safety, and genomic diversity.
- PS-01-04-05 Understand the diversity, etiology, and significance of cell injury/degeneration and cell death, including the difference between necrosis and apoptosis.
- PS-01-04-06 Understand the characteristics of cellular and tissue morphological changes in cell injury/degeneration and cell death.
- PS-01-04-07 Understand the pathogenesis of disorders of glucose metabolism.
- PS-01-04-08 Understand the pathogenesis of abnormal protein and amino acid metabolism.
- PS-01-04-09 Understand the pathogenesis of abnormal lipid metabolism.
- PS-01-04-10 Understand the pathogenesis of abnormal nucleic acid and nucleotide metabolism.
- PS-01-04-11 Understand the pathogenesis of abnormal vitamin and trace element metabolism.
- PS-01-04-12 Understand an overview of the pathogenesis of metabolic syndrome.
- PS-01-04-13 Understand the differences between hemodynamic disorders (inhibition, hypoxemia, hyperemia, stasis, hemorrhage) and their respective etiologies and pathogeneses, and the types and pathogeneses of infarction (thrombus, embolus).
- PS-01-04-14 Understand abnormal blood pressure (hypertension, hypotension).
- PS-01-04-15 Understand the definition of inflammation.
- PS-01-04-16 Understand the classification of inflammation, and its histomorphological and temporal changes (local and systemic).
- PS-01-04-17 Understand the healing process of inflammatory tissues.
- PS-01-04-18 Understand inflammation and its relationship with metabolic syndrome, atherosclerosis, neoplasm, and aging.
- PS-01-04-19 Understand autonomous growth and the difference between benign and malignant tumors.
- PS-01-04-20 Understand an overview of the various causes of cancer, including genetic changes.
- PS-01-04-21 Understand the terms dysplasia, carcinoma in situ, advanced carcinoma, early-stage carcinoma, atypia, and polymorphism.
- PS-01-04-22 Understand an overview of pathological diagnosis of cancer and its contribution to treatment.
- PS-01-04-23 Understand an overview of the mechanisms of cancer metastasis.

- PS-01-04-24 Understand an overview of the mechanisms of cancer elimination by the immune system.

PS-02: Normal structure and function of the organs and systems of the human body, and the pathogenesis, diagnosis, and treatment of diseases affecting them

Understand the structure and function of each organ of the body, and apply knowledge of etiology, pathophysiology, symptoms, diagnosis, and treatment of major diseases in clinical settings.

PS-02-01: General introduction

- PS-02-01-01 Understand organ-specific and systemic diseases (Table 1).

PS-02-02: Hematologic, hematopoietic, and lymphatic systems (Table 2-1)

- PS-02-02-01 Understand the basic structure and function of the blood and hematopoietic and lymphatic systems.
- PS-02-02-02 Understand the symptoms seen in diseases of the blood and hematopoietic and lymphatic systems.
- PS-02-02-03 Understand the basic examination methods of the blood and hematopoietic and lymphatic systems.
- PS-02-02-04 Understand the specific treatment methods of diseases affecting the blood and hematopoietic and lymphatic systems.
- PS-02-02-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the blood and hematopoietic and lymphatic systems.

PS-02-03: Nervous system (Table 2-2)

- PS-02-03-01 Understand the basic structure and function of the nervous system.
- PS-02-03-02 Understand the symptoms seen in diseases of the nervous system.
- PS-02-03-03 Understand the basic examination methods of the nervous system.
- PS-02-03-04 Understand the specific treatment methods of diseases affecting the nervous system.
- PS-02-03-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the nervous system.

PS-02-04: Dermatological system (Table 2-3)

- PS-02-04-01 Understand the basic structure and function of the dermatological system.
- PS-02-04-02 Understand the symptoms seen in diseases of the dermatological system.
- PS-02-04-03 Understand the basic examination methods of the dermatological system.
- PS-02-04-04 Understand the specific treatment methods of diseases affecting the dermatological system.
- PS-02-04-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the dermatological system.

PS-02-05: Musculoskeletal system (Table 2-4)

- PS-02-05-01 Understand the basic structure and function of the musculoskeletal system.
- PS-02-05-02 Understand the symptoms seen in diseases of the musculoskeletal system.
- PS-02-05-03 Understand the basic examination methods of the musculoskeletal system.
- PS-02-05-04 Understand the specific treatment methods of diseases affecting the musculoskeletal system.
- PS-02-05-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the musculoskeletal system.

PS-02-06: Cardiovascular system (Table 2-5)

- PS-02-06-01 Understand the basic structure and function of the cardiovascular system.
- PS-02-06-02 Understand the symptoms seen in diseases of the cardiovascular system.
- PS-02-06-03 Understand the basic examination methods of the cardiovascular system.
- PS-02-06-04 Understand the specific treatment methods of diseases affecting the cardiovascular system.

- PS-02-06-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the cardiovascular system.

PS-02-07: Respiratory system (Table 2-6)

- PS-02-07-01 Understand the basic structure and function of the respiratory system.
- PS-02-07-02 Understand the symptoms seen in diseases of the respiratory system.
- PS-02-07-03 Understand the basic examination methods of the respiratory system.
- PS-02-07-04 Understand the specific treatment methods of diseases affecting the respiratory system.
- PS-02-07-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the respiratory system.

PS-02-08: Digestive system (Table 2-7)

- PS-02-08-01 Understand the basic structure and function of the digestive system.
- PS-02-08-02 Understand the symptoms seen in diseases of the digestive system.
- PS-02-08-03 Understand the basic examination methods of the digestive system.
- PS-02-08-04 Understand specific treatment methods of diseases affecting the digestive system.
- PS-02-08-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the digestive system.

PS-02-09: Renal and urinary system (including fluid and electrolyte balance) (Table 2-8)

- PS-02-09-01 Understand the basic structure and function of the renal and urinary system.
- PS-02-09-02 Understand the symptoms seen in diseases of the renal and urinary system.
- PS-02-09-03 Understand the basic examination methods of the renal and urinary system.
- PS-02-09-04 Understand the specific treatments methods of diseases affecting the renal and urinary system.
- PS-02-09-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the renal and urinary system.

PS-02-10: Reproductive system (Table 2-9)

- PS-02-10-01 Understand the basic structure and function of the reproductive system.
- PS-02-10-02 Understand the symptoms seen in diseases of the reproductive system.
- PS-02-10-03 Understand the basics examination methods of the reproductive system.
- PS-02-10-04 Understand the specific treatment methods for diseases affecting the reproductive system.
- PS-02-10-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the reproductive system.

PS-02-11: Pregnancy and delivery (Table 2-10)

- PS-02-11-01 Understand the basic structures and functions associated with pregnancy and delivery.
- PS-02-11-02 Understand the symptoms associated with pregnancy and delivery.
- PS-02-11-03 Understand the basic examination methods for pregnancy and delivery.
- PS-02-11-04 Understand the specific treatment methods associated with pregnancy and delivery.
- PS-02-11-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases associated with pregnancy and delivery.

PS-02-12: Pediatrics (Table 2-11)

- PS-02-12-01 Understand the symptoms seen in diseases affecting children.
- PS-02-12-02 Understand the basic examination methods used in pediatrics.
- PS-02-12-03 Understand the specific treatment methods used in pediatrics.

- PS-02-12-04 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of pediatric diseases and conditions.

PS-02-13: Breast (Table 2-12)

- PS-02-13-01 Understand the basic structure and function of the breast.
- PS-02-13-02 Understand the symptoms seen in diseases of the breast.
- PS-02-13-03 Understand the basic examination methods of the breast.
- PS-02-13-04 Understand the specific treatment methods of diseases affecting the breast.
- PS-02-13-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the breast.

PS-02-14: Endocrine, nutritional, and metabolic systems (Table 2-13)

- PS-02-14-01 Understand the basic structure and function of the endocrine, nutritional, and metabolic systems.
- PS-02-14-02 Understand the symptoms seen in diseases of the endocrine, nutritional, and metabolic systems.
- PS-02-14-03 Understand the basic examination methods of the endocrine, nutritional, and metabolic systems.
- PS-02-14-04 Understand the specific treatments of diseases affecting the endocrine, nutritional, and metabolic systems.
- PS-02-14-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the endocrine, nutritional, and metabolic systems.
- PS-02-14-06 Understand the pathogenesis of metabolic syndrome.

PS-02-15: Ocular and visual system (Table 2-14)

- PS-02-15-01 Understand the basic structure and function of the ocular and visual system.
- PS-02-15-02 Understand the symptoms seen in diseases of the ocular and visual system.
- PS-02-15-03 Understand the basic examination methods of the ocular and visual system.
- PS-02-15-04 Understand the specific treatment methods of diseases affecting the ocular and visual system.
- PS-02-15-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the ocular and visual system.

PS-02-16: Ear, nose, throat, and oral cavity (Table 2-15)

- PS-02-16-01 Understand the basic structure and function of the ear, nose, throat, and oral cavity.
- PS-02-16-02 Understand the symptoms seen in diseases of the ear, nose, throat, and oral cavity.
- PS-02-16-03 Understand the basic examination methods of the ear, nose, throat, and oral cavity.
- PS-02-16-04 Understand the specific treatment methods of diseases affecting the ear, nose, throat, and oral cavity.
- PS-02-16-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of diseases of the ear, nose, throat, and oral cavity.

PS-02-17: Psychiatry (Table 2-16)

- PS-02-17-01 Understand the basic structure and function of the brain and mental system.
- PS-02-17-02 Understand the symptoms seen in psychiatric disorders.
- PS-02-17-03 Understand the basic examination methods used in psychiatry.
- PS-02-17-04 Understand the specific treatment methods of psychiatric disorders.
- PS-02-17-05 Understand the etiology, epidemiology, symptoms, examination, diagnosis, and treatment of psychiatric disorders.

PS-03: Multi-systemic physiological changes, and pathogenesis, diagnosis, and treatment of diseases that affect the whole body

Understand multi-systemic and whole-body physiological changes, and apply knowledge of etiology, pathogenesis, symptoms, diagnosis, and treatment of major diseases in clinical settings.

PS-03-01: Genetic and genomic medicine

- PS-03-01-01 Understand an overview of the Hardy–Weinberg law as a basis for population genetics.
- PS-03-01-02 Create and evaluate a family tree.
- PS-03-01-03 Understand the difference between germline and somatic mutations, and the purpose and significance of genetic testing.
- PS-03-01-04 Understand the characteristics of genetic information (constancy, predictability, shareability, and ambiguity).
- PS-03-01-05 Understand the significance and methods of genetic counseling.
- PS-03-01-06 Understand ethical, legal, and social considerations in genetic medicine.
- PS-03-01-07 Access information related to genetic medicine.
- PS-03-01-08 Understand an overview of appropriate approaches including treatment and prevention based on genetic information for patients with genetic disorders and asymptomatic family members.

PS-03-02: Immunology and allergy

- PS-03-02-01 Understand the concepts of and differentiate between collagen diseases, vasculitis, rheumatic diseases, allergic diseases, and autoimmune diseases, and list the specific diseases included in each category (Table 1).
- PS-03-02-02 Understand the signs and symptoms of collagen diseases, vasculitis, rheumatic diseases, allergic diseases, and autoimmune diseases (Table 2-17).
- PS-03-02-03 Understand the principles of immunoserological testing and the clinical significance of test results (Table 2-17).
- PS-03-02-04 Understand the therapeutic agents used in collagen diseases, vasculitis, rheumatic diseases, allergic diseases, and autoimmune diseases (Table 2-17).
- PS-03-02-05 Explain the etiology, epidemiology, syndromes, major tests/diagnoses, treatments, and complications relating to collagen diseases, vasculitis, rheumatic diseases, allergic diseases, and autoimmune diseases (Table 2-17).

PS-03-03: Infectious diseases (Table 2-18)

- PS-03-03-01 Understand the causative microorganisms of common community-acquired infections.
- PS-03-03-02 Understand the causative microorganisms of common healthcare-associated infections.
- PS-03-03-03 Understand an overview of the common microorganisms that immunocompromised patients are susceptible to.
- PS-03-03-04 Understand the current status of drug resistance, common drug-resistant organisms (methicillin-resistant *Staphylococcus aureus*), and preventive measures such as proper use of antimicrobial agents.
- PS-03-03-05 Understand the relationships between and among the patient (host), the organ/site of infection, and the causative microorganisms.
- PS-03-03-06 Understand the risk factors, routes of infection/entry sites, and pathophysiology of common community-acquired infections.
- PS-03-03-07 Understand the risk factors, routes of infection/entry sites, and pathophysiology of common healthcare-associated infections.
- PS-03-03-08 Understand the difference between sepsis and bloodstream infection, and their respective pathogeneses.
- PS-03-03-09 Understand the routes of transmission of emerging and re-emerging infectious diseases, and understand the required infection control measures.

- PS-03-03-10 Understand and surmise the organs affected and microorganisms involved by taking a medical history and conducting appropriate physical examinations.
- PS-03-03-11 Understand how to diagnose causative microorganisms on the basis of history-taking and physical examination.
- PS-03-03-12 Understand standard laboratory tests (such as two sets of blood cultures, urinalysis/urine culture, and chest X-ray) for patients with fever.
- PS-03-03-13 Understand the principles of antimicrobial therapy (culture specimens should be submitted prior to antimicrobial administration, standard drugs should be selected in accordance with the relevant microorganisms and organs, and the duration of administration should be set).
- PS-03-03-14 Understand empirical antimicrobial therapy (presumptive therapy).
- PS-03-03-15 Understand specific antimicrobial therapy (targeted therapy).
- PS-03-03-16 Understand vaccine-preventable diseases (Table 1).
- PS-03-03-17 Understand occupational health (vaccination, needlestick injuries and body fluid exposure, tuberculosis exposure, etc.).
- PS-03-03-18 Understand the pathogenic microorganisms for which standard precautions and isolation precautions (droplet, contact, airborne, etc.) are required, the personal protective equipment and vaccinations necessary to prevent healthcare workers being exposed to pathogenic microorganisms from patients, and infection control measures following healthcare workers being exposed to bodily fluids.

PS-03-04: Cancers and neoplastic diseases

- PS-03-04-01 Understand the definition of cancers and neoplastic diseases and their characteristics, along with genomic abnormalities and molecular mechanisms such as epigenetic modifications.
- PS-03-04-02 Understand the frequency at which the various types of cancer occur, both in Japan and internationally.
- PS-03-04-03 Understand risk factors such as genetic predisposition, underlying diseases, infectious diseases, and environmental and lifestyle factors for the development of neoplastic diseases, as well as cancer prevention and screening.
- PS-03-04-04 Understand an overview of cancer-specific tests and their findings, such as tumor markers, biomarkers, and cancer gene panel tests.
- PS-03-04-05 Understand and diagnose abnormal findings in endoscopy and imaging tests (X-ray, CT, MRI, PET/nuclear medicine, ultrasound, etc.) for tumors.
- PS-03-04-06 Understand an overview of biopsy, cytology, and pathological examinations of tumors and their findings.
- PS-03-04-07 Understand an overview of TNM classification and the staging system of cancers.
- PS-03-04-08 Understand the symptoms of patients with cancer (Table 2-19).
- PS-03-04-09 Understand the symptoms, diagnosis, and treatment of major hematopoietic cancers.
- PS-03-04-10 Understand the symptoms, diagnosis, and treatment of major brain tumors.
- PS-03-04-11 Understand the symptoms, diagnosis, and treatment of major skin cancers.
- PS-03-04-12 Understand the symptoms, diagnosis, and treatment of major bone and soft tissue cancers.
- PS-03-04-13 Understand the symptoms, diagnosis, and treatment of major thoracic (respiratory) cancers.
- PS-03-04-14 Understand the symptoms, diagnosis, and treatment of major gastrointestinal cancers.
- PS-03-04-15 Understand the symptoms, diagnosis, and treatment of major urologic cancers.
- PS-03-04-16 Understand the symptoms, diagnosis, and treatment of major cancers of the reproductive system.
- PS-03-04-17 Understand the symptoms, diagnosis, and treatment of major breast cancers.
- PS-03-04-18 Understand the symptoms, diagnosis, and treatment of major endocrine system cancers.
- PS-03-04-19 Understand the symptoms, diagnosis, and treatment of major head and neck cancers.
- PS-03-04-20 Understand the major types, symptoms, diagnosis, and treatment of pediatric cancers.

- PS-03-04-21 Understand an overview of the types, symptoms, diagnosis, and treatment of cancers of unknown primary, and metastatic, overlapping, adolescent and young adult (AYA), and rare cancers.
- PS-03-04-22 Understand an overview of cancers prone to oncological emergencies (spinal cord compression, tumor lysis syndrome, superior vena cava syndrome, metabolic disorders, adverse treatment events, etc.) and their respective pathophysiologies, symptoms, and management.
- PS-03-04-23 Understand an overview of surgical treatment of major tumors.
- PS-03-04-24 Understand an overview of indications for radiation therapy and interventional radiology for major tumors.
- PS-03-04-25 Understand an overview of indications for pharmacotherapy (cytotoxic anticancer agents, molecular targeted agents), hematopoietic stem cell transplantation, and cancer immunology for major tumors.
- PS-03-04-26 Understand supportive and palliative care for patients with cancer.
- PS-03-04-27 Understand the social and psychological challenges for patients with cancer.

PS-03-05: Emergency medicine and intensive care (Table 2-20)

- PS-03-05-01 Understand an overview of the regional emergency medical care system through the concepts of the prehospital emergency medical care system, medical control, and primary, secondary, and tertiary emergency care.
- PS-03-05-02 Understand the pathogenesis of and main diagnostic criteria for the following shock categories: (1) distributive shock (anaphylactic, septic, neurogenic); (2) hypovolemic shock (hemorrhagic, fluid loss); (3) cardiogenic shock (myocardial contractility, valve disease, arrhythmia); and (4) obstructive shock (cardiac tamponade, pulmonary embolism, tension pneumothorax).
- PS-03-05-03 Understand the initial management for patients with shock and specific treatment depending on the cause of the shock.
- PS-03-05-04 Understand the pathogenesis of and main diagnostic criteria for the following causes of cardiac arrest: (1) cardiovascular (acute myocardial infarction, acute aortic dissection, ruptured aortic aneurysm, pulmonary embolism); (2) respiratory (airway obstruction, tension pneumothorax, hypoxemia due to parenchymal lesions); (3) neurogenic (severe head and spinal trauma, acute subarachnoid hemorrhage); (4) poisoning and environmental factors (poisoning, heat stroke, hypothermia); and (5) electrolyte and acid-base imbalance (hypo- and hyperkalemia, acidosis, hypoglycemia).
- PS-03-05-05 Understand the initial management of cardiac arrest (cardiopulmonary resuscitation and advanced cardiac life support) and specific treatments depending on its causes.
- PS-03-05-06 Surmise the substance responsible for poisoning the patient from their medical history and physical examination, on the basis of the toxidrome presented.
- PS-03-05-07 Understand an overview of the indications and contraindications for the use of absorption inhibitors, elimination accelerators, and antagonists in the treatment of poisoned patients.
- PS-03-05-08 Understand the etiology (pathogenesis), symptoms, diagnosis, and treatment of poisoning associated with food, gas (carbon monoxide, hydrogen sulfide, cyanide), pesticide (organophosphorus, organochlorine), alcohol, and drugs (sleeping pills, psychotropic drugs, antipyretic analgesics, narcotics, stimulants).
- PS-03-05-09 Understand poisoning by mercury, lead, cyanide, arsenic, paraquat, natural poisons, corrosives (acids, alkalis, hydrogen fluoride), and accidental ingestion of button/coin batteries.
- PS-03-05-10 Understand the symptoms, major examinations, diagnoses, and treatment of disorders caused by high temperatures (heat stroke) and low temperatures (hypothermia)
- PS-03-05-11 Understand the symptoms, major examinations and diagnoses, and treatment of disorders caused by air pressure, vibration, and noise.
- PS-03-05-12 Understand the pathogenesis of and main diagnostic criteria for trauma.
- PS-03-05-13 Understand how to assess the severity of burns (presence/absence of airway burns, burn area and depth) and treatment strategies.
- PS-03-05-14 Understand organ failure (multiple organ failure, cytokine storm, and disseminated intravascular coagulation).

- PS-03-05-15 Understand intensive care and intensive care units.
- PS-03-05-16 Understand the biological invasions and reactions that occur in invasive procedures (i.e., surgery, trauma, burns, etc.).
- PS-03-05-17 Understand the conditions that require mechanical ventilation, extracorporeal membrane oxygen, assisted circulation, and acute blood purification therapy, and their significance.
- PS-03-05-18 Understand temperature management (including therapeutic temperature management) and nutritional management for critically ill patients.
- PS-03-05-19 Understand the concept of post-intensive care syndrome.

PS-03-06: Biological effects and appropriate use of radiation, and radiation hazards

- PS-03-06-01 Understand the types of radiation, radioactivity, and an overview of their properties, quantification methods, and units.
- PS-03-06-02 Understand an overview of internal and external radiation exposure, dose management, and its pathogenesis, symptoms, diagnosis, and treatment.
- PS-03-06-03 Understand the effects (both acute and delayed) of radiation and electromagnetic waves on the human body (including the fetus), and how to use them appropriately.
- PS-03-06-04 Understand the differences in radiation permeability and radiosensitivity of various normal tissues.
- PS-03-06-05 Understand the characteristics of magnetic fields and electromagnetic waves used in MRI and understand adverse events such as heat generation in the human body and implanted metallic devices.
- PS-03-06-06 Understand the three fundamental principles of radiological protection in medical and occupational exposure, and safety management, and implement dose reduction in examinations and therapies that use radiation (X-ray, CT, nuclear medicine, angiography, interventional radiology, fluoroscopy, etc.).
- PS-03-06-07 Understand and determine the effects, costs, risks (e.g., radiation dose, acute and delayed effects), and indications of radiological examinations, including angiography and interventional radiology.
- PS-03-06-08 Understand the biological principles of radiotherapy, effects of radiation on genes and cells, the mechanisms of radiation-induced cell death, and local and systemic effects.

IT: Information Technology

Recognize the impact of continuing technological developments on society, and make use of information science and technology, such as artificial intelligence, when engaging in medical research and clinical practice.

IT-01: Ethics and rules for dealing with information science and technology

Understand ethical considerations, digital professionalism, and basic principles for using information science and technology in medical care, research, and other settings.

IT-01-01: Preparation for dealing with information, science, and technology

- IT-01-01-01 Understand the importance and social significance of using information science and technology in medicine.
- IT-01-01-02 Understand an overview of the regulations, laws, and guidelines related to information science and technology in medicine.
- IT-01-01-03 Discuss ethical issues, such as social disparities caused by the digital divide, that may arise in the use of information science and technology in medicine.

IT-01-02: Ethics and rules for using information science and technology

- IT-01-02-01 Understand the principles of medical data management and storage, including electronic medical records, and comply with relevant regulations, laws, ethical standards, and provisions for protecting personal information.
- IT-01-02-02 Understand and practice appropriate use of social media as a healthcare professional.

IT-02: Principles of information science and technology necessary for medical care and surrounding society

Understand the fundamental theories related to information science and technology necessary for safe and high-quality medical care and research, and acquire the attitude to adapt this knowledge to one's own learning and medical care.

IT-02-01: Medical care using information science and technology

- IT-02-01-01 Use digital devices, such as PCs and smartphones, to make use of information science technology, such as the internet and apps, in medical practice.
- IT-02-01-02 Solve problems using the information and data collected using information science and technology.

IT-02-02: Knowledge of advanced information science and technology

- IT-02-02-01 Understand information science and technology related to medical care (medical information systems, wearable devices, applications, artificial intelligence, telemedicine technology, and the Internet of Things [IoT]) and discuss their potential applications.
- IT-02-02-02 Understand the role required of medical professionals when applying information science and technology to medical care by working together with relevant specialists.

IT-03: Application of information science and technology in clinical practice

Acquire digital communication skills and practical skills in using digital tools that are effective in optimizing patient care and learning, including in telemedicine.

IT-03-01: Communication skills using information science and technology

- IT-03-01-01 Demonstrate effective documentation and use of features unique to electronic medical records.
- IT-03-01-02 Understand the pros and cons of remote communications, and select and use appropriate tools (e-mail, video conference systems, and social media) according to the intended purpose.

IT-03-02: Learning skills using information science and technology

- IT-03-02-01 Use appropriate digital devices and applications (e-learning, mobile technology, etc.) for self-learning and cooperative learning.
- IT-03-02-02 Develop flexibility in using new information science and technology in one's own learning and medical practice.

CS: Clinical Skills

Practice medical care with an emphasis on quality and patient safety by giving full consideration to patients' pain and anxiety, and by developing reliable and dependable clinical skills.

CS-01: Gathering patient information

Gather information necessary for medical treatment via various sources, including from the patient, family members, and other medical professionals.

CS-01-01: Medical interview

- CS-01-01-01 Use basic communication skills in medical interviews.
- CS-01-01-02 Establish the patient's medical history (presenting complaint, history of present illness, medications, allergies, past medical history, family history, preferences, lifestyle, social and occupational history, living environment, home situation, travel history, and review of systems) via a medical interview, and select and organize the information obtained.
- CS-01-01-03 Obtain necessary information from people close to the patient.

CS-01-02: Physical findings

- CS-01-02-01 Perform a medical examination according to the patient's condition.
- CS-01-02-02 Assess general appearance (body shape, nutrition, posture, gait, facial features, skin, and speech).
- CS-01-02-03 Check vital signs (temperature, pulse, blood pressure, respiratory rate, and oxygen saturation).
- CS-01-02-04 Examine the patient in appropriate positions (standing, sitting, Fowler's, supine, and lithotomy position).
- CS-01-02-05 Perform physical examinations for each part of the body (Table 3).
- CS-01-02-06 Perform necessary basic medical examinations for each medical specialty (Table 4).

CS-02: Integration, analysis, and assessment of patient information and planning treatment

Integrate all the information obtained, analyze it from various perspectives, assess the necessary medical care, and plan the medical care that should be provided.

CS-02-01: Medical records

- CS-02-01-01 Gather appropriate patient information and produce a problem-oriented medical record.
- CS-02-01-02 Document the clinical course in terms of subjective findings, objective findings, assessment, and planning.
- CS-02-01-03 Summarize the past medical history in the medical record.

CS-02-02: Clinical reasoning

- CS-02-02-01 Understand the causes and pathophysiology of major symptoms (Table 5).
- CS-02-02-02 Consider and discuss differential diagnosis of major symptoms (Table 5) and explain the main diagnostic criteria.
- CS-02-02-03 Demonstrate clinical reasoning and make diagnostic inferences on the basis of the presenting complaint in the basic medical departments/specialties (Table 4).
- CS-02-02-04 Understand the basic pathogenesis and epidemiology of diseases in the basic medical departments/specialties (Table 4).

CS-02-03: Medical examination (planning and analytical evaluation)

- CS-02-03-01 Understand the purpose and significance of major clinical and imaging tests (Table 6), select the minimum number of tests required to verify the diagnostic hypothesis, and interpret the results.

- CS-02-03-02 Understand the correct methods of specimen collection and storage for major clinical and imaging tests (Table 6).
- CS-02-03-03 Understand how to perform major clinical and imaging tests (Table 6) in a safe manner (patient and specimen verification, test complications, infection prevention, and accuracy control).
- CS-02-03-04 Understand the characteristics (sensitivity, specificity, false positives, false negatives, pretest and posttest probability, likelihood ratio, receiver operating characteristic (ROC) curve) and criteria (reference value, reference range, cutoff value, panic value) of major clinical and imaging tests (Table 6)
- CS-02-03-05 Understand physiological variability, measurement error, accuracy control, and human error in major clinical and imaging tests (Table 6).
- CS-02-03-06 Understand patient-specific clinical characteristics and interpret results.
- CS-02-03-07 Understand and interpret the purpose and indications for major clinical and imaging tests (Table 6).

CS-02-04: Treatment (planning and progress evaluation)

- CS-02-04-01 Plan initial response to major symptoms (Table 5) and consider whether specialist medical care is required.
- CS-02-04-02 Understand the basics of taking medication and adherence.
- CS-02-04-03 Draft prescriptions.
- CS-02-04-04 Understand the pharmacological effects of medications, and their indications, adverse events, and precautions to be taken when administering them.
- CS-02-04-05 Understand the key points of drug administration with regard to pharmacokinetic characteristics related to age and organ failure.
- CS-02-04-06 Understand pharmacokinetic interactions.
- CS-02-04-07 Understand contraindications and the use of drugs under specific conditions (e.g., anti-doping).
- CS-02-04-08 Understand the major drug allergy symptoms, diagnosis, prophylaxis, and management.
- CS-02-04-09 Understand drug accumulation, tolerance, tachyphylaxis, and dependence.
- CS-02-04-10 Understand the indications, adverse events, and precautions for the administration of anticancer agents.
- CS-02-04-11 Understand the pharmacological actions, indications, adverse events, and dosing precautions for antimicrobial agents.
- CS-02-04-12 Understand the indications, adverse events, and administration precautions for opioid analgesics and sedatives.
- CS-02-04-13 Understand an overview of the pharmacological actions and adverse events of molecular targeted drugs and biopharmaceuticals.
- CS-02-04-14 Understand an overview of the characteristics of Chinese medicine, indications of major Japanese and Chinese herbal medicines (Kampo medicine), and their pharmacological actions.
- CS-02-04-15 Understand an overview of indications for radiotherapy.
- CS-02-04-16 Understand an overview of interventional radiology.
- CS-02-04-17 Understand an overview of the indications for treatments using endoscopy.
- CS-02-04-18 Understand an overview of the indications for treatments using ultrasound.
- CS-02-04-19 Understand the types, indications, and effects of medical coatings.
- CS-02-04-20 Understand the indications and complications of surgical procedures.
- CS-02-04-21 Understand the risk factors of surgery and basic principles of risk management.
- CS-02-04-22 Understand the major postoperative complications and the basic principles of prevention.
- CS-02-04-23 Understand the importance of informed consent for surgery and invasive procedures.
- CS-02-04-24 Understand preoperative risk assessment.
- CS-02-04-25 Understand perioperative medication management and risk.

- CS-02-04-26 Understand perioperative fluid and blood transfusions.
- CS-02-04-27 Understand perioperative pain management.
- CS-02-04-28 Understand an overview of the indications, contraindications, and complications of local anesthesia, peripheral nerve block, plexus block, spinal anesthesia, and epidural anesthesia.
- CS-02-04-29 Understand an overview of preoperative assessment for safe management of anesthesia.
- CS-02-04-30 Understand an overview of patient monitoring during anesthesia, and major abnormal findings and how to manage them.
- CS-02-04-31 Understand the various types of anesthetics and muscle relaxants, and the principles of their use.
- CS-02-04-32 Understand the indications, contraindications, methods, accidents, and complications of inhalation and intravenous anesthesia.
- CS-02-04-33 Understand airway management techniques, including tracheal intubation.
- CS-02-04-34 Understand nutritional assessment, care, and management, the role of nutrition support teams, and nutritional therapies for specific diseases.
- CS-02-04-35 Understand the indications, methods, and complications of parenteral and enteral nutrition, and precautions for long-term administration.
- CS-02-04-36 Understand an overview of the major types of medical devices and their principles of operation.
- CS-02-04-37 Understand an overview of the major types and principles of artificial organs.
- CS-02-04-38 Understand the types and indications of blood products and fractionated plasma products.
- CS-02-04-39 Understand adverse reactions to blood transfusions, transfusion record-keeping requirements, and procedures to prevent incompatible blood transfusions.
- CS-02-04-40 Understand appropriate use of blood transfusion, component transfusion, autologous transfusion, and emergency transfusion.
- CS-02-04-41 Understand an overview of transplantation medicine (organ transplantation, tissue transplantation, hematopoietic stem cell transplantation, etc.) and how it is practiced both in Japan and overseas.
- CS-02-04-42 Understand an overview of the principles of discussing organ and tissue donation options in end-of-life care.
- CS-02-04-43 Understand immune response in transplantation (rejection, graft-versus-host disease).
- CS-02-04-44 Understand an overview of immunosuppressive therapy after transplantation.
- CS-02-04-45 Understand the concept and indications for rehabilitation.
- CS-02-04-46 Assess functional impairment and activities of daily living.
- CS-02-04-47 Understand an overview of physiotherapy, occupational therapy, and speech-language-hearing therapy.
- CS-02-04-48 Understand an overview of the major walking aids, wheelchairs, prostheses (artificial limbs and feet), and orthotics.
- CS-02-04-49 Develop a basic treatment plan for medical conditions in the basic medical departments/specialties (Table 4).

CS-02-05: Educational plan

- CS-02-05-01 Formulate plans for patient education in major diseases.

CS-03: Implementation of appropriate patient care, including treatment

Propose or provide necessary medical care in collaboration with the patient, family members, and other medical professionals, on the basis of an assessment of the patient's condition.

CS-03-01: Investigation techniques

- CS-03-01-01 Perform basic clinical procedures related to investigation (Table 7).

CS-03-02: Treatment techniques

- CS-03-02-01 Perform basic clinical procedures related to treatment (Table 7).

CS-03-03: Emergency and initial response

- CS-03-03-01 Recognize patients who are in a critical condition on the basis of vital and physical signs.
- CS-03-03-02 Perform basic life support.
- CS-03-03-03 Assist in performing initial response (including advanced life support) for common critical conditions.
- CS-03-03-04 Assist in the initial response to trauma.
- CS-03-03-05 Assist in the response to anaphylactic shock.

CS-03-04: Documentation

- CS-03-04-01 Draft various types of medical certificates and patient referral documents.
- CS-03-04-02 Draft various certificates of postmortem examination.

CS-03-05: Collaboration for patient care

- CS-03-05-01 Understand how to consult with other basic medical departments/specialties (Table 4).
- CS-03-05-02 Understand the prevention, evaluation, and treatment of pressure ulcers.

CS-03-06: Clinical conferences

- CS-03-06-01 Present appropriately at clinical conferences and case review meetings.
- CS-03-06-02 Report information obtained from medical consultations and examinations to senior physicians in a clear and concise manner.

CS-04: Review and improvement of medical care processes

Reflect on the medical care performed, verbalize and present it, and make efforts to improve it for the future.

CS-04-01: Reflection conferences

- CS-04-01-01 Participate in morbidity and mortality (M&M) conferences and express one's own opinions.
- CS-04-01-02 Participate in clinico-pathological conferences (CPC) and express one's own opinions.

CS-05: Quality of care and patient safety

Reflect on one's own actions from the perspective of quality of medical care and patient safety, and acquire an outlook focused on organizational improvement and patient-centered care.

CS-05-01: Quality improvement of medical care

- CS-05-01-01 Understand the importance of improving medical care using quality improvement methods, and acquire a focus on continuous evaluation and improvement.

CS-05-02: Health management of medical professionals

- CS-05-02-01 Practice the health management (lifestyle improvements, vaccination, measures to reduce radiation exposure) and occupational infection control (tuberculosis screening, vaccination) measures expected of medical professionals.
- CS-05-02-02 Understand the need to improve the working environment for all healthcare professionals, including oneself, and strive to make such improvements.

CS-05-03: Safety management system

- CS-05-03-01 Understand an overview of the management system for patient safety and the roles within the system (risk manager, patient safety management committee, etc.).

- CS-05-03-02 Understand criminal and civil liability related to medical errors and administrative penalties under the *Medical Practitioners' Act* (July 30, 1948).

CS-05-04: Infection control

- CS-05-04-01 Understand the role and significance of systems related to healthcare-associated infections (hospital infection control committee, nosocomial infection surveillance, infection control team, infection control manual, etc.), and participate in those systems.
- CS-05-04-02 Explain the need for and practice standard precautions.
- CS-05-04-03 Respond appropriately when encountering a needlestick accident or exposure to bodily fluids.

CS-05-05: Consideration and promotion of patient safety

- CS-05-05-01 Practice basic precautions (patient identification, double-checking, checklist method, alerting patients to drugs with similar names, fail-safe/fail-proof concepts, etc.).
- CS-05-05-02 Share information on patient safety (adverse drug reactions, drug-related accidents, medical errors, what not to do, good practice, etc.) and analyze the information for post-procedural use.

CS-05-06: Patient safety practices

- CS-05-06-01 Understand and act on the importance of patient safety management for individuals and organizations.
- CS-05-06-02 Understand the importance of medical records, and document and handle them appropriately.
- CS-05-06-03 Respond to inquiries with sincerity.
- CS-05-06-04 Respond to, record, and report medical incidents² when they occur.

² The definition of “incidents” in the Model Core Curriculum corresponds to that in the *Guidelines for Disclosure of Medical Incidents at National University Hospitals* (National University Hospital Council of Japan, 2012). The definition covers the entire range of incidents from Level 0 (“an error or a failure related to medicine or medical equipment was observed, but was not performed on the patient”) to Level 5 (death of the patient).

CM: Communication

Practice safe and high-quality medical care by building good relationships with patients and other people involved in their care, taking patients' own circumstances into account, and supporting them in their decision-making.

CM-01: Language, attitude, personal appearance, and consideration when dealing with patients

Establish good relationships with patients through appropriate communication skills, including nonverbal communication, taking into consideration patient privacy, suffering, etc.

CM-01-01: Appropriate communication skills with patients and their family members

- CM-01-01-01 Demonstrate verbal communication skills to build good relationships.
- CM-01-01-02 Demonstrate awareness of nonverbal communication (professional appearance, eye contact, facial expressions, gestures, etc.).
- CM-01-01-03 Be respectful with language and in attitude when interacting with patients and family members.
- CM-01-01-04 Communicate with awareness of the psychological factors (positive and negative emotions, etc.) involved in interpersonal relationships.
- CM-01-01-05 Listen to patients and their family members, and state facts and express opinions in a way that they can understand.

CM-01-02: Respect for the patient's situation and consideration of their suffering

- CM-01-02-01 Show full consideration of the mental, physical, and social distress and suffering that patients and their family members are experiencing.
- CM-01-02-02 Listen closely to patients and their family members, and understand and show empathy toward their feelings, such as anger, sadness, and anxiety.

CM-02: Gathering information and providing clear explanations to support patient decision-making

Support patients in making the best decisions regarding their own treatment and management, taking into consideration the diversity among patients and their families, and explaining necessary information in an easy-to-understand manner.

CM-02-01: Explaining to the patient in simple language

- CM-02-01-01 Communicate with consideration for the diversity of patients and their family members (elderly, children, disabled, LGBTQ, nationality, race, and cultural, linguistic, and customary differences, etc.).
- CM-02-01-02 Explain concepts in simple terms, using as little jargon as possible to help patients to understand more easily.

CM-02-02: Encouraging patients to change their behavior

- CM-02-02-01 Share information and opinions with patients and their family members, and support decision-making based on understanding and consent.

CM-02-03: Supporting patient decision-making

- CM-02-03-01 Understand issues that hinder patients' self-decision-making.
- CM-02-03-02 Respect the patient's experience and listen to them attentively so that they can make their beliefs and values clear.
- CM-02-03-03 Explain the best available evidence in an easy-to-understand manner, using as little jargon as possible to support patient decision-making.
- CM-02-03-04 Plan a treatment plan based on goals consistent with the patient's values.

CM-03: Understanding and taking into consideration the needs of patients and their families

Have a broad perspective on the psychological and social backgrounds of patients and their families, and respond to patients' difficulties and provide necessary information.

CM-03-01: Identification of patient and family issues and acquisition of necessary information

- CM-03-01-01 Assess the patient's psychological and social background and their needs for independent living.
- CM-03-01-02 Identify and organize issues and problems that the patient may have.
- CM-03-01-03 Gather necessary information from the patient's proxy, representative, or guardian when no information can be obtained from the patient.

CM-03-02: Consideration of the psychological and social backgrounds of patients and their families

- CM-03-02-01 Communicate with the patient from the viewpoint of family and community.
- CM-03-02-02 Participate in medical treatment that takes into account psychological and social backgrounds.
- CM-03-02-03 Understand the uncertainties inherent in medicine, and demonstrate the appropriate actions and attitude.

IP: Interprofessional Collaboration

Understand the roles of all people involved with patients and their families, including medical care, health care, welfare, and nursing care professionals, and build collaborative working relationships with them, collectively sharing and cooperating on issues that affect patients, their families, and local communities.

IP-01: Foundation for collaboration

Communicate stakeholders' roles, knowledge, opinions, and values with consideration for different individual backgrounds as part of the process of setting common goals with those cooperating in important issues for patients, families, and the community.

IP-01-01: Patient-centered health and welfare

- IP-01-01-01 Share information related to patients and families with students of other disciplines and medical faculties.

IP-01-02: Interprofessional communication

- IP-01-02-01 Explain, respond, and ask questions with respect for the roles and opinions of students of other disciplines and medical faculties.

IP-01-03: Referral and consultation between physicians

- IP-01-03-01 Refer and consult with appropriate facilities, specialties, and physicians for appropriate diagnosis, testing, and treatment.
- IP-01-03-02 Share ideas and expectations among physicians to ensure continuity of patient care and physician accountability.

IP-02: Collaborative practice

Make use of each stakeholder's knowledge and skills to enable them to fully perform their particular professional role, building relationships of mutual trust based on each other's individual roles, thoughts, actions, feelings, and values, and responding appropriately to the conflicts that sometimes arise between different disciplines and professions.

IP-02-01: Professional roles

- IP-02-01-01 Communicate one's knowledge and values to students of other disciplines and medical faculties.
- IP-02-01-02 Fulfill one's own role among students of other disciplines and medical faculties.

IP-02-02: Relationship management

- IP-02-02-01 Learn and develop together with students of other disciplines and medical faculties.
- IP-02-02-02 Understand concepts related to interpersonal relationships and interpersonal behavior.

IP-02-03: Reflection on one's own profession

- IP-02-03-01 Explain the role of the physician to students of other disciplines and medical faculties.
- IP-02-03-02 Relate one's own values, words, and actions to those of students of other disciplines and medical faculties.

IP-02-04: Understanding of other professions

- IP-02-04-01 Understand the roles of other professions according to their work environment (hospital, clinic, care facility, etc.) or other affiliations (team, department, etc.).

SO: Medicine in Society

Recognize that medicine plays a key societal role in promoting health, and strive to provide equitable medical care, maintaining an economic, regional, and international perspective to improve public health.

SO-01: Social security

Understand the social security system that protects the constitutional “right to life,” what public health is, community health, occupational health, and health risk management. Learn the significance and usage of health statistics.

SO-01-01: Public health

- SO-01-01-01 Understand the concept of public health.
- SO-01-01-02 Understand the concept of cohesive and connected society.
- SO-01-01-03 Understand the stages of prevention and their strategies.
- SO-01-01-04 Contribute to public health activities (health checkups, health promotion events, etc.) and understand their significance.

SO-01-02: Social insurance, public assistance, and social welfare

- SO-01-02-01 Understand the significance and overview of basic human rights related to health (e.g., the right to life) and social security (social insurance, social welfare, and public assistance.)
- SO-01-02-02 Discuss ideas for improving social insurance, including pension, long-term care, and medical insurance as universal health coverage, understanding their structures and problems.
- SO-01-02-03 Understand an overview of welfare for people with disabilities, including relevant laws such as the *Act on Providing Comprehensive Support for the Daily Life and Life in Society of Persons with Disabilities* (June 27, 2012).

SO-01-03: Community health

- SO-01-03-01 Understand the roles of public health centers, community and municipal health centers, and regional institutes for hygienic and environmental sciences.
- SO-01-03-02 Understand the significance and outline of health promotion measures such as the *Health Promotion Act* (August 2, 2002) and promotion of good nutrition, physical activity, rest, etc.
- SO-01-03-03 Understand fundamental systems and laws related to community health.
- SO-01-03-04 Understand the significance of mental health and welfare for people with mental disabilities, and related systems and laws.
- SO-01-03-05 Understand the significance and outline of maternal and child health measures, including relevant laws such as the *Basic Law for Child and Maternal Health and Child Development* (December 14, 2018), *Maternal and Child Health Law* (August 18, 1965), *Maternal Health Act* (July 13, 1948), *Child Welfare Act* (December 12, 1947), and *Child Abuse Prevention and Treatment Act* (May 24, 2000).
- SO-01-03-06 Understand the significance and outline of school health, including the *School Health and Safety Act* (May 10, 1958), the role of school physicians, and infectious disease in schools.

SO-01-04: Occupational and environmental health

- SO-01-04-01 Understand the basic concept of occupational health, including its significance and the three pillars of management (working environment management, work practice management, and health management).
- SO-01-04-02 Understand fundamental systems and laws related to occupational and environmental health.
- SO-01-04-03 Understand occupational accidents and occupational diseases and their countermeasures.
- SO-01-04-04 Understand industrial poisoning caused by hazardous substances and its countermeasures.

SO-01-05: Health crisis management

- SO-01-05-01 Understand the concept and types of health crises and how to respond to them (including risk communication).

- SO-01-05-02 Understand fundamental systems and laws related to health crisis management (contingencies for emergencies such as infectious diseases, radiation accidents, and disasters).
- SO-01-05-03 Understand the significance of disaster health care, including disaster base hospitals and various activity teams.

SO-02: Epidemiology and medical statistics

Learn the concept and significance of epidemiology as a research method for human populations, and major research designs. Understand the basic concepts of statistical methods in medicine and biology.

SO-02-01: Health statistics

- SO-02-01-01 Understand major demographic statistics (static and dynamic populations) and classifications and statistics of diseases and disabilities (such as the International Statistical Classification of Diseases and Related Health Problems [ICD]).
- SO-02-01-02 Explain average life expectancy and healthy life expectancy.

SO-02-02: Epidemiology

- SO-02-02-01 Understand the roles of epidemiology from public health and clinical perspectives.
- SO-02-02-02 Understand the difference between proportions, ratios, and rates and typical epidemiological indicators (e.g., prevalence, risk ratios, incidence rates).
- SO-02-02-03 Give examples of major biases and confounding.
- SO-02-02-04 Explain the difference between direct and indirect methods in age-adjustment.
- SO-02-02-05 Understand the main epidemiologic study designs: observational (descriptive, cross-sectional, case-control, cohort) and interventional (randomized controlled trials, etc.).
- SO-02-02-06 Understand epidemiologic approaches specific to acute infectious diseases.
- SO-02-02-07 Support stakeholders in making decisions that have an impact on the population while taking into account the limitations of the evidence.

SO-02-03: Data analysis and statistical methods

- SO-02-03-01 Describe scales (interval, ratio, ordinal, nominal).
- SO-02-03-02 Explain the distribution of data (including missing values).
- SO-02-03-03 Explain confidence intervals for the population mean of a normal distribution.
- SO-02-03-04 Perform correlation analysis, statistical tests (mean, proportion), etc.
- SO-02-03-05 Understand the significance of multivariate analysis.

SO-03: Forensic medicine

Understand the determination of death, diagnosis of death, and autopsy.

SO-03-01: Death and the law

- SO-03-01-01 Understand vegetative state, brain death, cardiac death, and determination of brain death.
- SO-03-01-02 Understand how to handle unusual deaths and coroner's inquests.
- SO-03-01-03 Prepare death certificates or certificates of postmortem examination.
- SO-03-01-04 Understand forensic identification methods.
- SO-03-01-05 Understand pathological autopsy and forensic autopsy (judicial autopsy, administrative autopsy, death investigation and identification autopsy, and autopsy with consent.)

SO-04: Medical care from the viewpoint of social structure and change

Appropriately understand the social issues behind the health problems faced by patients and proactively work to solve them.

SO-04-01: Health and medical care

- SO-04-01-01 Support people to extend their healthy life expectancy.
- SO-04-01-02 Act with an understanding of concepts related to disability and social environments, such as barrier-free access.

SO-04-02: Gender and medical care

- SO-04-02-01 Work proactively to eliminate gender inequality, such as discrimination against women and the LGBTQ community.

SO-04-03: Climate change and medical care

- SO-04-03-01 Understand the relationship between climate change and health care, and envisage how health issues facing patients could be associated with climate change.
- SO-04-03-02 Understand the role of physicians when natural disasters occur, including the spread of emerging infectious diseases.

SO-04-04: Philosophy, ethics, and medical care

- SO-04-04-01 Understand an overview of the concepts and terminology in contemporary thought and philosophy.

SO-04-05: History and medicine/medical care

- SO-04-05-01 Relativize contemporary medical issues, reflecting on the historical evolution and transition of medicine and medical practice.

SO-04-06: Health economics

- SO-04-06-01 Understand the influence of economics on medical practice.

SO-04-07: Social justice

- SO-04-07-01 Describe one's opinion, considering what equity is in distributing health care resources.

SO-05: Medicine from national and international perspectives

Understand an overview of the roles of medicine and medical care systems both in Japan and globally.

SO-05-01: Role of the medical professions and medical care system in Japan

- SO-05-01-01 Understand the professional rights and duties of physicians as defined by the *Medical Practitioners' Act* (July 30, 1948).
- SO-05-01-02 Explain the laws and systems governing the medical profession.
- SO-05-01-03 Understand the types and functions of medical institutions defined by the *Medical Care Act* (July 30, 1948).
- SO-05-01-04 Understand an overview of medical care plans (as defined by the *Medical Care Act*).
- SO-05-01-05 Understand an overview of how problems in regional medical care delivery are related to each other.
- SO-05-01-06 Express one's own opinions about the medical care delivery system and the way physicians work.

SO-05-02: Roles of global health and medical care systems

- SO-05-02-01 Understand an overview of medical and health issues in global health, including their historical and social contexts.
- SO-05-02-02 Understand the significance of universal health coverage, and give examples of problems faced by health care systems around the world.
- SO-05-02-03 Understand an overview of health-related United Nations development goals and international organizations and groups involved in international collaboration in global health.

SO-06: Medical care from a social sciences perspective

Understand people's health perceptions, words, actions, and relationships that are formed in medical, cultural, and social contexts, and apply them to clinical practice from the perspectives, theories, and methods of the social sciences (mainly medical anthropology and medical sociology).

SO-06-01: Relationship between social sciences and medicine

- SO-06-01-01 Explore the ways patients perceive health, illness, and death in various situations, including in their daily lives and in healthcare settings such as outpatient/inpatient care, home care, and nursing care.
- SO-06-01-02 Understand and explain the structure of phenomena related to medical practice with respect to historical trends, social circumstances, and relevant systems.
- SO-06-01-03 Understand the influence of culture and customs on individuals and groups (e.g., methods of communication).

Tables

Table 1. Diseases

Organ system or specialty	Category	Disease	Core requirement
Hematologic, hematopoietic, and lymphatic systems	Anemia	Iron-deficiency anemia	•
		Hemorrhagic anemia	
		Anemia in chronic kidney disease	
		Secondary anemia	
		Paroxysmal nocturnal hemoglobinuria	
		Aplastic anemia	
		Myelodysplastic syndrome	
		Autoimmune hemolytic anemia	
		Vitamin B12 deficiency anemia	•
		Folate deficiency anemia	
	Coagulopathy with bleeding tendency	Hypersplenism	
		Immune thrombocytopenic purpura (ITP)	
		Hemophilia	
		Disseminated intravascular coagulation (DIC)	•
		Hemolytic-uremic syndrome (HUS)	
		Thrombotic thrombocytopenic purpura (TTP)	
		Vitamin K deficiency	
	Coagulopathy with thrombophilia	Protein C/protein S/and antithrombin deficiency	
		Antiphospholipid antibody syndrome	
		Thrombotic thrombocytopenic purpura (TTP)	
Hemolytic-uremic syndrome (HUS)			
Disseminated intravascular coagulation (DIC)			
Other important hematopoietic diseases	Agranulocytosis		
	Hemophagocytic syndrome		
	Graft-versus-host disease (GVHD)		
Nervous system	Cerebrovascular disease	Cerebral hemorrhage	•
		Subarachnoid hemorrhage	•
		Cerebral infarction	•
		Transient ischemic attack	•
		Cerebral aneurysm	
		Cerebral arteriovenous malformation	
		Moyamoya disease	
	Infectious, inflammatory, and demyelinating diseases	Encephalitis/meningitis	•
		Encephalopathy	
		Brain abscess	
		Multiple sclerosis	•
	Dementia and degenerative diseases	Alzheimer's disease	•
		Lewy body dementia	
		Vascular dementia	
		Parkinson's disease	•
		Amyotrophic lateral sclerosis	
		Multiple system atrophy	
	Peripheral nerve,	Nutritional deficiency neuropathy	

Organ system or specialty	Category	Disease	Core requirement
	neuromuscular junction, and musculoskeletal disorders	Toxin-related neuropathy	
		Hereditary neuropathy	
		Guillain-Barré syndrome	
		Facial nerve palsy (Bell's palsy, Ramsay Hunt syndrome)	
		Recurrent laryngeal nerve palsy	
		Major neuralgias (trigeminal neuralgia and sciatica)	
		Myasthenia gravis	•
		Progressive muscular dystrophy	
		Periodic paralysis	
	Seizure-related, functional neurologic, or autonomic nervous system disorders	Generalized epilepsy	•
		Localization-related (focal) epilepsy	•
		Migraine	•
		Tension-type headache	•
	Head injury	Cerebral contusion	•
		Concussion	
		Acute extradural hematoma	
		Subdural hematoma (acute/chronic)	•
Skull fracture		•	
Post-concussion syndrome			
Dermatological system	Eczema and dermatitis	Eczema (including the 'eczema triangle', a diagram mapping eczema progression)	•
		Pruritus with rash/prurigo	
		Contact dermatitis	•
		Atopic dermatitis	•
		Seborrheic eczema	
		Discoid eczema	
		Secondary erythroderma	
		Allergic urticaria	
	Urticaria, erythema, erythroderma, and pruritic rashes	Urticaria	•
		Erythema multiforme	
		Erythema nodosum	
		Erythema annulare	
		Erythroderma	
		Pruritus without rash	
	Drug-related rashes	Generalized skin eruption due to drugs/fixed drug eruption	
		Stevens-Johnson syndrome	•
		Toxic epidermal necrolysis (TEN)	
		Drug-induced hypersensitivity syndrome (DIHS)	
	Pustulosis	Palmoplantar pustulosis	
	Psoriasis keratosis	Psoriasis vulgaris	
		Lichen planus	
		Pityriasis rosea Gibert	
	Skin infection	Impetigo	
Furuncles and carbuncles			

Organ system or specialty	Category	Disease	Core requirement
		Folliculitis	
		Erysipelas	
		Staphylococcal scalded skin syndrome (SSSS)	
		Cellulitis	•
		Necrotizing fasciitis	
		Dermatomycosis (superficial and deep-seated)	
		Cutaneous mycobacterial infections	
		Scabies	•
		Rashes occurring in the context of acquired immunodeficiency syndrome (AIDS) including syphilis, refractory herpes, molluscum contagiosum, Kaposi's sarcoma etc.	•
		Herpes simplex virus	•
		Shingles	•
		Verruca vulgaris	
		Molluscum contagiosum	
		Measles	•
		Rubella	•
		Chicken pox	•
		Erythema infectiosum	
	Hand, foot, and mouth disease		
	Hyperpigmented lesions	Mole	
	Disease of the nails and apocrine glands	Nail disorders (spoon-shaped nails and ingrown nails)	
		Miliaria	
		Hyperhidrosis	
		Anhidrosis	
	Other skin diseases	Acne vulgaris	
		Rosacea	
Bedsore		•	
Keloid scarring			
Epidermal cyst			
Vitiligo vulgaris			
Pyoderma gangrenosum			
Injury from frostbite and electrocution			
Musculoskeletal system	External wound	Limb and spine trauma	
		Spinal cord injury	•
		Bone fracture	•
		Dislocation	
		Tendon, ligament, and meniscal injuries	
		Muscle injury, traumatic rhabdomyolysis, and compartment syndrome	
	Sports injury	Pulled or torn muscle	
		Jammed finger (e.g., from injury with a ball)	
	Strangulated peripheral nerve disorders	Thoracic outlet syndrome	
		Carpal tunnel syndrome	

Organ system or specialty	Category	Disease	Core requirement
		Cubital tunnel syndrome, etc.	
	Infectious joint disease	Septic arthritis	
		Osteomyelitis	
		Intervertebral discitis/pyogenic spondylitis/Pott's disease (spinal tuberculosis)	
	Metabolic bone disease	Osteoporosis	•
		Rickets/osteomalacia	
	Hereditary disease	Scoliosis	
		Clubfoot	
	Osteonecrosis, epiphyseal, and cartilage disorders	Idiopathic osteonecrosis of the femoral head	
		Osteochondritis dissecans	
	Spine and disease of the spinal cord	Spondylolisthesis, myelopathy, and radiculopathy, including ossification of spinal ligaments	
		Herniated intervertebral disc	•
		Spinal stenosis	•
		Spondylolysis and spondylolisthesis	
	Synovitis and arthritis	Arthritis	
		Tenosynovitis	
		Bursitis	
	Other joint disorders	Contracture of the joint	
		Osteoarthritis	•
		Hallux valgus	
Valgus and varus deformity of the knee, knee hyperextension			
Neuropathic arthropathy			
Radial head subluxation/pulled elbow			
Chronic musculoskeletal pain	Shoulder periartthritis		
	Adhesive capsulitis		
Disorders of the locomotor system (other)	Locomotive syndrome, an indicator of decline in physical function from locomotive disorders		
	Sarcopenia		
Cardiovascular system	Heart failure	Left heart failure	•
		Right heart failure	•
		Acute heart failure	•
		Chronic heart failure	•
	Ischemic heart disease	Exertional angina	•
		Variant angina/Prinzmetal angina	•
		Unstable angina	•
		Acute myocardial infarction	•
	Arrhythmia	Sick sinus syndrome	
		Atrioventricular block	•
		Atrial fibrillation	•
		Atrial flutter	•
		Paroxysmal supraventricular tachycardia	•

Organ system or specialty	Category	Disease	Core requirement
		Ventricular tachycardia	•
		Multisource ventricular tachycardia (torsades de pointes)	
		Ventricular fibrillation	•
		Extrasystoles (supraventricular and ventricular)	•
		Wolff-Parkinson-White (WPW) syndrome	
		Brugada syndrome	
	Valvular disease	Mitral valve disease (stenosis and regurgitation)	•
		Aortic valve disease (stenosis and regurgitation)	•
		Tricuspid regurgitation	
	Myocardial and pericardial disease	Idiopathic cardiomyopathy (hypertrophic, dilated, restrictive)	•
		Secondary myocardial disease	
		Acute myocarditis	•
		Infective endocarditis	•
		Acute pericarditis	
		Constrictive pericarditis	
	Congenital heart disease	Atrial septal defect	
		Ventricular septal defect	
		Patent ductus arteriosus	
		Tetralogy of Fallot	
	Arterial disease	Arteriosclerosis	
		Acute aortic dissection	•
		Aortic aneurysm (thoracic and abdominal)	•
		Arteriosclerosis obliterans	•
		Buerger's disease	
	Venous and lymphatic vessel diseases	Takayasu arteritis (aortitis syndrome)	
		Deep vein thrombosis	•
		Superior vena cava syndrome	
Varicose veins of the lower extremities		•	
Lymphedema			
Hypertension	Hypertension (essential/secondary)	•	
	Hypertensive crisis		
Hypotension	Orthostatic hypotension	•	
	Reflex syncope (vasovagal/neurally mediated syncope)		
Respiratory system	Respiratory failure	Hypoxemia and hypercapnia	
	Respiratory infection	Acute upper respiratory tract infection	•
		Tonsillitis	•
		Bronchitis	•
		Bronchiolitis	
		Pneumonia (typical and atypical)	•
		Pulmonary tuberculosis	•
		Non-tuberculous mycobacteriosis	
Pneumomycosis			

Organ system or specialty	Category	Disease	Core requirement	
		Aspiration pneumonia		
		Pulmonary suppuration and pyothorax		
		Croup		
	Obstructive and restrictive ventilatory disorders		Chronic obstructive pulmonary disease (COPD)	•
			Bullous emphysema (bullae and blebs)	
			Bronchial asthma (including cough variant asthma)	•
			Idiopathic interstitial pneumonia	
			Interstitial pneumonia associated with collagen and vascular disease	
			Pulmonary silicosis	
			Asbestosis	
			Radiation pneumonitis	
	Pulmonary vascular disorders		Cor pulmonale	
			Pulmonary thromboembolism	•
			Pulmonary hypertension (primary/secondary)	
	Immune-mediated lung disorders		Hypersensitivity pneumonia	
			Sarcoidosis	
			Eosinophilic pneumonia	
			Drug-induced pneumonia	
	Allergic bronchopulmonary aspergillosis (ABPA)		Allergic bronchopulmonary aspergillosis (ABPA)	
	Abnormal respiration		Hyperventilation syndrome	
Sleep apnea			•	
Lung disease caused by other mechanisms		Bronchiectasis		
		Atelectasis		
		Acute respiratory distress syndrome (ARDS)	•	
		infantile respiratory distress syndrome (IRDS)		
		Lymphangiomyomatosis of the lung (LAM)		
Pulmonary alveolar proteinosis		Pulmonary alveolar proteinosis		
Diseases of the pleura, mediastinum, and diaphragm		Pleuritis		
		Pneumothorax (spontaneous/ tension/ traumatic)	•	
		Mediastinal emphysema		
		Hemothorax		
		Mediastinitis		
		Thoracic deformity (pectus excavatum)		
		Phrenic nerve paralysis		
Diaphragmatic hernia				
Digestive system	Esophageal disease	Esophageal varices/gastric varices	•	
		Gastroesophageal reflux disease (GERD)	•	
		Gastroesophageal reflux disease with esophagitis		
		Mallory–Weiss syndrome		
		Achalasia		
	Gastrointestinal and duodenal disease		Peptic ulcer disease (gastric and duodenal)	•
			<i>Helicobacter pylori</i> infection	
			Acute gastritis	
			Chronic gastritis	

Organ system or specialty	Category	Disease	Core requirement
		Functional gastrointestinal disorders (functional dyspepsia)	•
		Polyps of stomach and duodenum	
		Postgastrectomy syndromes	
		Pyloric stenosis	
		Gastrointestinal anisakiasis	
	Diseases of the small and large intestine	Diverticulitis	
		Diverticular hemorrhage	
		Acute appendicitis	•
		Intestinal obstruction	•
		Intussusception	
		Hemorrhoids	•
		Constipation	•
		Functional gastrointestinal disorders (irritable bowel syndrome)	•
		Infectious enteritis and colitis	
		Ischemic colitis	
		Ulcerative colitis	•
		Crohn's disease	•
		Infantile diarrhea	
		Imperforate anus	
		Hirschsprung's disease	
	Acute hemorrhagic rectal ulcer		
	Superior mesenteric artery occlusion		
	Common diseases of the gastrointestinal tract	Gastrointestinal polyposis	
		Acute gastroenteritis	•
		Drug-induced gastrointestinal disorders	
	Liver disease	Hepatitis A	•
		Hepatitis B	•
		Hepatitis C	•
		Acute hepatitis	•
		Chronic hepatitis	•
		Acute liver failure	•
		Fatty liver	•
		Alcoholic liver disease	•
Drug-induced liver disease			
Liver abscess			
Primary biliary cholangitis (PBC)			
Primary sclerosing cholangitis (PSC)			
Autoimmune hepatitis			
Cirrhosis of liver		•	
Portal hypertension		•	
Hepatic encephalopathy		•	
Liver cancer		•	
Biliary disease	Cholelithiasis	•	
	Cholecystitis	•	

Organ system or specialty	Category	Disease	Core requirement
		Cholangitis	•
		Gallbladder polyp	
		Congenital dilation of the bile duct	
		Pancreatic and biliary confluence abnormalities	
	Pancreatic disease	Acute pancreatitis (alcoholic/biliary/idiopathic)	•
		Chronic pancreatitis (alcoholic/idiopathic)	•
		Autoimmune pancreatitis	
	Diseases of the peritoneum, abdominal wall, and diaphragm	Peritonitis	•
		Hernia (sliding hiatus/incarcerated/strangulated)	
Inguinal hernia		•	
Renal and urinary system (including fluid and electrolyte balance)	Impairment of renal function	Acute kidney injury (AKI)	•
		Chronic kidney disease (CKD)	•
		Chronic renal failure	
	Electrolyte disturbance	Hyper- and hyponatremia	•
		Hyper- and hypokalemia	•
		Hyper- and hypocalcemia	•
		Hyper- and hypophosphatemia	
		Hyper- and hypomagnesemia	
	Acid-base imbalance	Acidosis (metabolic and respiratory)	
		Alkalosis (metabolic and respiratory)	
	Primary glomerular disease	Acute glomerulonephritis	•
		IgA nephropathy	•
		Membranous nephropathy	•
		Focal segmental glomerulosclerosis	
		Minimal change disease	•
	Membranous proliferative glomerulonephritis		
	Hypertension and renal vascular disease	Nephrosclerosis	
		Renovascular hypertension	
	Tubular and interstitial diseases	Renal tubular acidosis	
		Tubulointerstitial nephritis (acute and chronic)	
		Acute pyelonephritis	•
	Renal impairment due to systemic disease	Diabetic nephropathy	•
		IgA vasculitis	
		Renal amyloidosis	
		Anti-glomerular basement membrane disease (anti-GBM disease)	
		Lupus nephritis	
		Vasculitis syndrome	
	Congenital anomalies and trauma	Polycystic kidney disease	
		Vesicoureteral reflux	
Renal trauma			
Urinary tract disease	Urinary stone disease	•	
	Neurogenic bladder		
	Cystitis	•	
	Prostatitis	•	
	Urethritis	•	

Organ system or specialty	Category	Disease	Core requirement
Reproductive system	Diseases of the male reproductive organs	Male infertility	
		Enlarged prostate	●
		Prostatitis	
		Undescended testicle	
		Scrotal/testicular mass	
		Testicular torsion	
	Diseases of the female reproductive organs	Primary dysmenorrhea	●
		Congenital malformations of internal reproductive organs and external genitalia	
		Ovarian dysfunction	
		Menopausal and female climacteric states	●
		Female infertility	
		Uterine fibroids and adenomyosis of the uterus	●
		Endometriosis	●
		Genital tract and pelvic infections	
Pregnancy and delivery	Abnormal pregnancy	Hyperemesis gravidarum	
		Ectopic pregnancy	●
		Miscarriage and threatened miscarriage	●
		High risk pregnancy	
		Gestational hypertension	●
		Multiple gestation	
		Premature rupture of membranes and preterm premature rupture of membranes	
		Threatened preterm labor	●
		Maternal care for abnormalities of the fetal heart rate or rhythm	
	Abnormal delivery	Preterm labor with preterm delivery	●
		Uterine inertia	
		Long labor	
		Obstructed labor due to incomplete rotation of fetal head	
		Placenta previa	
		Placenta accreta	
		Premature separation of placenta/placental abruption	
		Birth injury	
	Puerperal complications	Subinvolution of uterus	
		Puerperal sepsis	
		Mastitis	
	Postpartum hemorrhage	Atonic postpartum hemorrhage	
		Amniotic fluid embolism	
		Disseminated intravascular coagulation (DIC)	
	Complications in pregnancy	Anemia	
		Abnormal glucose tolerance/gestational diabetes	
		Thyroid disorders in pregnancy	
		Immune thrombocytopenic purpura (ITP)	
	Mother-to-child	TORCH syndrome	

Organ system or specialty	Category	Disease	Core requirement
	transmission	Hepatitis B	
		Hepatitis C	
		HIV and AIDS	
		HTLV-I infection	
		Parvovirus B19 infection	
		Group B <i>streptococcus</i> (GBS) infections	
Pediatrics	Diseases of the blood and blood-forming organs	Acute leukemia	•
		Malignant lymphoma	
		Vitamin K deficiency	
	Diseases of the nervous system	Febrile seizures	•
		Night terror	
		Enuresis	
		Acute encephalopathy	
		Cerebral palsy	•
		Hydrocephalus	
	Diseases of the skin	Impetigo	
		Staphylococcal scalded skin syndrome (SSSS)	
		Molluscum contagiosum	
		Measles	•
		Rubella	•
		Chicken pox	•
		Erythema infectiosum	
		Hand, foot, and mouth disease	
	Diseases of the circulatory system	Atrial septal defect	
		Ventricular septal defect	
		Patent ductus arteriosus	
		Tetralogy of Fallot	
	Diseases of the respiratory system	Croup	
		Bronchiolitis	•
		Bronchial asthma (including cough variant asthma)	•
	Diseases of the gastrointestinal system	Hypertrophic pyloric stenosis	
		Imperforate anus	
		Hirschsprung's disease	
		Intussusception	•
		Constipation	
		Infantile diarrhea	•
		Biliary atresia	
		Inguinal hernia	•
	Disease of the renal and urinary system	Hemolytic-uremic syndrome (HUS)	
Nephrotic syndrome		•	
Purpura nephritis			
Congenital anomalies of the kidney and urinary tract			
Vesicoureteral reflux			
Endocrine and metabolic diseases	Short stature associated with growth hormone deficiency		
	Congenital adrenal hyperplasia		

Organ system or specialty	Category	Disease	Core requirement
		Cyclic vomiting syndrome	
	Mental, behavioral, and neurodevelopmental disorders	Autism spectrum disorder (ASD)	
		Attention deficit hyperactivity disorder (ADHD)	
		Specific learning disability	
		Tic disorder	
	Psychosomatic diseases	Psychosomatic illness	
	Immunology and allergy	IgA vasculitis	
		Kawasaki disease	
	Chromosomal abnormality	Down's syndrome	
	Neonatal	Perinatal asphyxia	
		Infantile respiratory distress syndrome (IRDS)	
		Neonatal jaundice (hyperbilirubinemia)	
		Preterm and low birth weight infants	
		Meconium aspiration syndrome	
		Transient tachypnea of the newborn	
	Emergency and intensive care	Sudden infant death syndrome (SIDS)	
		Child abuse	
		Pediatric acute respiratory distress syndrome (PARDS)	
		Sepsis	
Foreign body in the digestive tract			
Foreign body in the respiratory tract			
Breast		Benign breast diseases (mastitis/mastopathy)	
Endocrine, nutritional, and metabolic system	Intracranial and pituitary disease	Acromegaly	
		Cushing disease	
		Hyperprolactinemia	
		Hypothalamus hypopituitarism	
		Central enuresis	
		Syndrome of inappropriate antidiuretic hormone secretion (SIADH)	
		Pituitary tumor	
	Thyroid disease	Hyperthyroidism	•
		Hypothyroidism	•
		Thyroiditis (chronic, painless, subacute)	
	Parathyroid disorders	Hyperparathyroidism	
		Hypoparathyroidism	
		Hypercalcemia associated with malignancy	
	Adrenocortical and adrenal medullary disorders	Cushing syndrome	
		Hyperaldosteronism	
		Primary aldosteronism	
		Adrenal insufficiency (acute and chronic (Addison's disease))	
	Glucometabolic abnormality	Type 1 diabetes mellitus	•
		Type 2 diabetes mellitus	•
		Hypoglycemia	

Organ system or specialty	Category	Disease	Core requirement
	Complications of diabetes mellitus	Diabetic ketoacidosis	●
		Hyperglycemia-hyperosmotic syndrome	●
		Lactic acidosis	
		Diabetic retinopathy	●
		Diabetic nephropathy	●
		Diabetic neuropathy	●
		Diabetic foot	●
	Abnormal lipid metabolism	Dyslipidemia (dyslipidemia, dyslipidemia)	●
		Obesity	
	Vitamin, nucleic acid, and other metabolism abnormality	Avitaminosis	
Hyperuricemia/gout		●	
Systemic amyloidosis			
Childhood diseases	Short stature with failure of growth hormone secretion		
	Congenital adrenal cortical hyperplasia		
Ocular and visual system	Lens disorders	Refractive error (myopia/farsightedness/astigmatism) and dysregulation	
		Conjunctival, scleral, and corneal disorders	Conjunctivitis/keratitis
		Chemical damage (alkali/acid)	
	Eyelid disorders	Hordeolum/chalazion	
	Ocular tissue disorders	Cataract	●
		Glaucoma	●
	Optic nerve and visual pathway disorders	Optic neuritis, papillary stasis	
	Uveal diseases	Uveitis	
	Choroidal and retinal disorders	Fundus changes due to diabetes and hypertension (e.g., diabetic retinopathy)	●
		Rhegmatogenous retinal detachment	
Age-related macular degeneration and retinitis pigmentosa			
Retinal vein occlusion and arterial occlusion embolism			
Ear, nose, throat, and oral cavity	Diseases of the ear	Otitis media (acute, chronic, exudative, pearly)	●
		Otitis externa	
		Hearing loss (noise, drug, sudden, senile)	
		Hearing loss in infants	
		Agoraphobia	
		Benign paroxysmal positional vertigo	●
		Ménière's disease	●
		Vestibular neuritis	
	Diseases of the nose	Nosebleed	●
		Sinusitis (acute/chronic)	●
		Allergic rhinitis	●
		Nasal inflammation	
	Diseases of the pharynx	Pharyngitis	●

Organ system or specialty	Category	Disease	Core requirement
	and larynx	Laryngitis	
		Epiglottitis (including acute epiglottitis)	
		Vocal cord polyp	
		Tonsillitis	•
		Peritonsillitis	
		Peritonsillar abscess	
		Tonsillar hypertrophy of the palate	
	Diseases of the mouth	Dental caries	
		Periodontal diseases (including systemic effects and functions of the mouth (e.g., chewing, biting, clenching))	
		Angular cheilitis	
		Stomatitis	
		Glossitis	
		Sialolithiasis	
	Diseases of the head and neck	Cervical lymph node metastasis, etc.	•
		Sjögren's syndrome	
		Temporomandibular joint dysfunction	
		Cervical lymphadenitis	
		Cervical abscess	
	Otorhinolaryngological and oral trauma/injury	Eardrum damage, etc.	
		Nasal bone fracture	
Blow-by-blow fracture			
Other	Typical foreign body in the ear canal and nasal cavity pharynx larynx trachea, esophagus		
Psychiatry	Mood disorders and schizophrenia	Major depressive disorder	•
		Bipolar disorder (manic-depressive illness)	•
		Schizophrenia	•
	Neurotic and stress-related disorders	Psychogenic hyperventilation	
		Dissociative disorder	
		Acute stress disorder	
		Obsessive compulsive disorder	
		Post-traumatic stress disorder	
		Somatic symptom disorder, pain disorder, hypochondriasis	•
	Physiological and physical factor-related disorders	Psychosomatic disorder	
		Eating disorders (e.g., anorexia nervosa, bulimia nervosa)	
	Developmental disorders	Personality disorders	
		Autism spectrum disorder (ASD)	
		Attention deficit/hyperactivity disorder (ADHD)	
	Organic mental disorders, etc.	Dementia	•
		Addiction (illicit drugs, alcohol, gambling)	
		Psychosis	

Organ system or specialty	Category	Disease	Core requirement
Immunology and allergy	Allergic disease	Anaphylaxis	
		Food allergy	
		Systemic allergic disease	
	Systemic connective tissue disease	Rheumatoid arthritis	●
		Rheumatoid vasculitis with rheumatoid arthritis	
		Adult-onset Still's disease and juvenile idiopathic arthritis (JIA)	
		Systemic lupus erythematosus (SLE) and complications (central nervous system lupus, lupus nephritis, and antiphospholipid antibody syndrome)	●
		Systemic sclerosis	
		Dermatomyositis and polymyositis	
		Mixed connective/tissue disease	
		Sjögren's syndrome	
		Behçet's disease	
	Vasculitis syndrome	Giant cell arteritis	
		Takayasu arteritis (aortitis syndrome)	
		Polyarteritis nodosa	
		Microscopic polyangiitis	
		Granulomatosis with polyangiitis	
		Eosinophilic granulomatosis with polyangiitis	
		IgA vasculitis	●
		Kawasaki disease	●
	Anti-glomerular basement membrane disease (anti-GBM disease)		
	Spondyloarthropathies and related diseases	Ankylosing spondylitis	
		Reactive arthritis	
		Psoriatic arthritis	
		Pustulotic arthro-osteitis	
	Other	Osteoarthritis	
		Crystal-induced arthritis	
Polymyalgia rheumatica			
Fibromyalgia			
IgG4-related disease			
Rheumatic fever			
Autoinflammatory disease			
Acquired immunodeficiency syndrome (AIDS)		●	
Primary immunodeficiency syndrome			
Secondary immunodeficiency syndrome (due to malignancy, medically-induced, or autoimmune disease)			
Infectious diseases	Community-acquired infection	Meningoencephalitis	●
		Pharyngitis	
		Bloodstream infection and infective endocarditis	●
		Pneumonia (typical/atypical)	●
		Intra-abdominal infection	

Organ system or specialty	Category	Disease	Core requirement	
		Cystitis/pyelonephritis	●	
		Skin and soft tissue infection		
		Septic arthritis		
	Healthcare-associated infection		Intravascular indwelling catheter-related infection	●
			Catheter-associated urinary tract infection	●
			Healthcare-associated pneumonia and ventilator-associated pneumonia	
			Surgical site infection	●
			<i>Clostridioides difficile</i> infection	
	Immunosuppressive conditions		Diabetes mellitus	
			Renal diseases	
			Liver diseases	
			Cancer/hematological diseases	
			Neutropenia	
			Immunosuppressant use	
			HIV and AIDS	
	Vaccine-preventable diseases		Organ transplant	
			Measles	
			Rubella	
			Mumps	
			Chickenpox	
			Hepatitis B	
			<i>Haemophilus influenzae</i>	
			Human papillomavirus	
Pneumococcus (<i>Streptococcus pneumoniae</i>)				
Tetanus and diphtheria				
Influenza				
COVID-19				
Cancers and neoplastic diseases	Hematologic, hematopoietic, and lymphatic systems	Acute leukemia	●	
		Chronic myeloid leukemia		
		Myelodysplastic syndrome		
		Adult T-cell leukemia		
		Polycythemia vera		
		Essential thrombocythemia		
		Myelofibrosis		
		Malignant lymphoma		
		Multiple myeloma		
	Nervous system		Glioblastoma	
			Meningioma	
			Schwannoma	
			Metastatic brain tumor	
	Dermatological system		Basal cell carcinoma	
			Cutaneous squamous cell carcinoma	
			Malignant melanoma	
			Malignant lymphoma	
	Musculoskeletal system		Osteosarcoma	

Organ system or specialty	Category	Disease	Core requirement
		Chondrosarcoma	
		Ewing's sarcoma	
		Metastatic spinal tumors	
	Cardiovascular system	Myxedema	
	Respiratory system	Lung cancer	•
		Pleural mesothelioma	
		Metastatic lung cancer	
		Mediastinal tumor (containing thymoma)	
	Digestive system	Esophageal cancer	•
		Gastric cancer	•
		Colon polyp	
		Colorectal cancer	•
		Gallbladder cancer and bile duct cancer	
		Primary liver cancer	•
		Pancreatic neuroendocrine tumor	
		Cystic pancreatic tumors	
		Pancreatic cancer	•
	Renal and urinary system	Kidney cancer	•
		Cancer of the renal pelvis and ureter, bladder cancer	•
	Reproductive system	Prostate cancer	•
		Testicular tumor	
		Cervical cancer	•
		Uterine cancer (endometrial cancer)	•
		Ovarian tumor	•
		Choriocarcinoma Hydatidiform mole	
	Breast	Primary breast cancer	•
		Fibroadenoma	
		Mastopathy	
	Endocrine, nutritional, and metabolic system	Adenomatous goiter	
		Pituitary tumor	
		Thyroid cancer	
Pheochromocytoma			
Multiple endocrine neoplasia			
Ocular and visual system	Retinoblastoma		
Ear, nose, throat, and oral cavity	Tongue cancer		
	Pharyngeal cancer		
	Larynx cancer		
Pediatrics	Brain tumor		
	Hematologic cancers		
	Retinoblastoma		
	Neuroblastoma		
	Nephroblastoma		
	Hepatoblastoma		
	Germ cell tumors, including teratomas		
Hereditary cancers	Familial adenomatous polyposis		

Organ system or specialty	Category	Disease	Core requirement
		Hereditary breast and ovarian cancer syndrome	
		Hereditary nonpolyposis colorectal cancer (Lynch syndrome)	
		Li–Fraumeni syndrome	
	Oncology emergencies	Spinal cord compression by metastatic tumor	
		Tumor lysis syndrome	
		Superior vena cava syndrome	
		Tumor-induced metabolic disorders	
		Adverse events due to treatment	

Table 2-1. Hematologic, hematopoietic, and lymphatic systems

Classification	Items
Structure and function	Bone marrow structure Differentiation and maturation of hematopoietic stem cells Major hematopoietic growth factors (erythropoietin, granulocyte colony-stimulating factor (G-CSF), thrombopoietin) Structure and function of spleen, thymus, lymph nodes, tonsils, and Peyer's patches Types and functions of plasma proteins Structure and function of red blood cells and hemoglobin Types and functions of white blood cells Functions of platelets and mechanisms of hemostasis, coagulation, and fibrinolysis
Symptoms	Fever General malaise Jaundice Lymphadenopathy Anemia Coagulation defect Thrombophilia
Methods of examination	Peripheral blood smear Function studies of coagulation, fibrinolysis, and platelets Bone marrow examination (bone marrow aspiration, bone marrow biopsy) Transfusion related lab tests Protein fractionation and immunoelectrophoresis Genetic testing and chromosome analysis
Specific therapies	Blood transfusion Hematopoietic stem cell transplantation

Table 2-2. Nervous system

Classification	Items
Structure and function	<p>Composition of the central and peripheral nervous system</p> <p>Arterial and venous anatomy of the brain and blood-brain barrier</p> <p>Characteristics of energy metabolism in the brain</p> <p>Major neurotransmitters of the brain (acetylcholine, dopamine, and noradrenaline) and their actions</p> <p>Structure of the meningeal and ventricular system and production and circulation of cerebrospinal fluid</p> <p>Structure, functional localization, and conduction pathways of the spinal cord</p> <p>Spinal reflexes (extension reflex, and the flexor reflex) and reciprocal innervation of muscles</p> <p>Structure of spinal nerves and nerve plexuses (cervical, branchial, and lumbosacral) and nerve distribution to major skeletal muscles and distribution of dermatomes (nerves connected to certain areas of skin)</p> <p>Structure, function, and conduction pathways of the brainstem</p> <p>Names of cranial nerves, localization of nuclei, and anatomical path of cranial nerves</p> <p>Structure of the cerebrum and functional localization of the cerebral cortex (motor cortex, sensory cortex, and language areas)</p> <p>Structure of the limbic system and its relationship to mechanisms of memory and learning</p> <p>Mechanisms controlling voluntary movements via pyramidal tracts</p> <p>Structure and function of the cerebellum</p> <p>Fiber connections and function of the basal ganglia (striatum, globus pallidus, and substantia nigra)</p> <p>Receptive mechanisms and conduction pathways for pain, temperature, and peripheral and visceral sensation</p> <p>Receptive mechanisms and conduction pathways for vision, hearing, equilibrium, smell, and taste sensation</p> <p>Central localization, peripheral distribution, function and transmitters of sympathetic and parasympathetic nervous systems</p> <p>Structure and function of the hypothalamus in relation to endocrine and autonomic functions</p> <p>Mechanisms of stress response and instinctive/emotional behavior</p>
Symptoms	<p>Altered mental status</p> <p>Seizure</p> <p>Vertigo and dizziness</p> <p>Confusion and cognitive impairment</p> <p>Headache</p> <p>Motor paralysis and muscle weakness</p> <p>Gait disturbance</p> <p>Sensory disturbance</p> <p>Aphasia, dysarthria</p> <p>Tremor</p> <p>Ataxic disorders (cerebellar, vestibular, and sensory)</p> <p>Myoclonus, chorea, dystonia, akathisia, athetosis, and tic</p>

Classification	Items
	Intracranial hypertension (acute and chronic) Exencephaly
Methods of examination	Diagnostic imaging of brain and spinal cord (computed tomography (CT), magnetic resonance imaging (MRI)) Electrophysiology study of nervous system (electroencephalogram, electromyogram, peripheral nerve conduction studies)
Specific therapies	Urgent care of cerebrovascular diseases and rehabilitation treatment

Table 2-3. Dermatological system

Classification	Items
Structure and function	Tissue structure of skin Cellular dynamics of the skin, and mechanisms of keratinization Protective immunity of the skin
Symptoms	Skin rash (erythema, purpura, pigmented macules, papule, nodule, mass, blister, pustule, cysts, erosions, ulcers, telangiectasia, sclerosis, scarring, atrophy, scaling, crusting, lichenification, gangrene) Pruritus Mucocutaneous eruption Alopecia
Methods of examination	Skin testing (diascopy, dermographia (Darier's sign), Nikolsky's sign, Tzanck test, photosensitivity testing) Allergy skin testing (skin prick test, skin injection test, patch test) Microbiological testing (specimen collection method, skin lesion potassium hydroxide (KOH) exam) Dermoscopy
Specific therapies	Topical dermatological therapy Cryotherapy Phototherapy (PUVA)

Table 2-4. Musculoskeletal system

Classification	Items
Structure and function	Composition and function of bone, cartilage, joints, and ligaments Anatomy of the head and neck Anatomy and function of the spine Bone structure of the limbs, movement and innervation of major muscle groups Pelvic anatomy and sex-related differences Mechanisms of bone growth, formation, and resorption Muscle groups involved in posture and trunk movement Antigravity muscles (muscles of the body that work to maintain posture against the effects of gravity)
Symptoms	Motor paralysis and muscle weakness Gait disturbance Sensory disturbance Back pain Arthralgia and joint swelling Neck pain
Methods of examination	Manual muscle strength testing for pathological conditions of the musculoskeletal system (range of motion testing and neurological examination of extremities and spine, etc.) Diagnostic imaging of musculoskeletal system (X-ray, CT, MRI, ultrasound, and bone mineral density testing) Synovial fluid testing
Specific therapies	Rehabilitation treatment of musculoskeletal disease Treatment and procedure of sprains, fractures, and dislocations

Table 2-5. Cardiovascular system

Classification	Items
Structure and function	Structure of the heart and characteristics and distribution of blood vessels, nerves, and coronary arteries Microstructure and function of cardiomyocytes Electrical phenomena of cardiomyocytes, and conduction system of the heart Excitation contraction coupling Systemic circulation, pulmonary circulation, and fetal and placental circulation Aorta and major branches (head and neck, upper extremities, chest, abdomen, and lower extremities) Major veins, portal system, and superior and inferior vena cava system Solute and water exchange in capillary blood vessels Lymphatic flow via the thoracic duct Hemodynamics associated with the cardiac cycle Regulatory mechanisms of the cardiac function curve and cardiac output Regulatory circulation of major organs (brain, heart, lungs, kidneys) Mechanisms of blood pressure regulation Circulatory responses for positions and movement and their mechanisms
Symptoms	Weight gain Altered mental status Syncope Edema Cough and sputum production Dyspnea Chest pain Palpitations Back pain Pleural fluid
Methods of examination	Plain chest X-ray Electrocardiogram (ECG) (resting, exercise ECG, and Holter ECG) Echocardiography Cardiac scintigraphy Coronary angiography, coronary CT, MRI Cardiac catheterization (measurement of intracardiac pressure, cardiac function, and shunt fraction)
Specific therapies	Revascularization for ischemic heart disease (percutaneous coronary angioplasty, stent placement, coronary artery bypass graft (CABG)) Non-pharmacologic therapy for arrhythmia (catheter ablation, electrical defibrillation, pacemaker implantation, and implantable cardioverter-defibrillator (ICD)) Cardiac disease management programs including cardiac rehabilitation

Table 2-6. Respiratory system

Classification	Items
Structure and function	Structure of airway, lung lobes, lung areas, and pulmonary hilar Differences between pulmonary circulation and systemic circulation Structure of mediastinum and pleural cavity Mechanisms of respiratory muscle movement and breathing motions Lung volumes and capacities, ventilation, dead space (ventilatory mechanics (intrathoracic pressure, lung compliance, resistance, closing volume)) Relationships between gas exchange and blood flow in the alveoli Effects of pulmonary ventilation and blood flow (ventilation/perfusion ratio) on arterial blood gasses (alveolar-arterial oxygen difference (A-aDO ₂)) Mechanisms of respiratory regulation mediated by the respiratory center Mechanism of transportation of oxygen and carbon dioxide by blood Defense mechanisms of the airways and lung (immunological and non-immunological) and metabolic functions
Symptoms	Cough and sputum Blood in sputum and hemoptysis Dyspnea Chest pain Chest tightness Abnormalities of respiratory rate and rhythm Wheeze Pleural fluid
Methods of examination	Sputum testing (sputum cytology and sputum culture) Pleural fluid analysis, and pleural biopsy Respiratory function tests (spirometry, pulmonary diffusion capacity, flow-volume curve), arterial blood gas analysis, polysomnography, and peak flowmetry Exhaled nitric oxide (NO) test Diagnostic Imaging (X-ray, CT, and MRI), and radionuclide study (positron emission tomography (PET)) Bronchoscopy
Specific therapies	Respiratory physiotherapy and rehabilitation treatment Oxygen therapy Mechanical ventilation

Table 2-7. Digestive system

Classification	Items
Structure and function	Location and morphology of each digestive organ and related blood vessels Relationship between peritoneum and organs Basic structure of the esophagus, stomach, small intestine, and large intestine Mechanism of gastrointestinal motility Action of the autonomic nervous system on the digestive organs Structure and function of the liver Action and secretory mechanism of gastric juice Action of bile and regulatory mechanisms of gallbladder contraction Pancreatic exocrine system and action of pancreatic juice Mechanism of digestion and absorption in the small intestine Mechanism of fecal formation and defecation in the large intestine Actions of main gastrointestinal hormones Structure and function of the teeth, tongue, and salivary glands Mechanisms of chewing and swallowing Roles of normal bacterial flora of the digestive tract (intestinal bacterial flora)
Symptoms	Anorexia Abdominal pain Nausea and vomiting Hematemesis Melena Constipation Diarrhea Jaundice Abdominal distention and abdominal mass Heartburn Hepatomegaly
Methods of examination	Hepatitis virus screening Tumor markers (AFP, CEA, CA 19-9, PIVKA-II, etc.) Diagnostic imaging (X-ray, ultrasound, CT, MRI) Endoscopy Biopsy, cytology
Specific therapies	Tube and enteral nutrition Endoscopic treatments (hemostasis, coagulation, clipping, sclerotherapy, etc.) Endovascular procedures (arterial embolization, etc.)

Table 2-8. Renal and urinary system (including fluid and electrolyte balance)

Classification	Items
Structure and function	<p>Body fluid volume, composition, and osmotic pressure (including differences between children and adults)</p> <p>Location and morphology of the renal and urinary tract system, and vascular distribution and innervation</p> <p>Overall picture of renal function, and structure and function of each part of the nephron</p> <p>Mechanisms of filtration in renal glomeruli</p> <p>Mechanisms of reabsorption and secretion in each renal tubule, and concentrating capacity of urine</p> <p>Regulatory mechanisms of water, electrolytes, and acid-base equilibrium</p> <p>Actions of hormones produced in or acting on the kidneys, and vasoactive substances (erythropoietin, Vitamin D, renin, angiotensin II, and aldosterone)</p> <p>Mechanisms of urinary voiding and storage</p>
Symptoms	<p>Edema</p> <p>Hematuria</p> <p>Proteinuria</p> <p>Abnormal urine output/urination</p> <p>Dehydration</p> <p>Classification of clinical symptoms (acute nephritic syndrome, chronic nephritic syndrome, nephrotic syndrome, rapidly progressive glomerulonephritis, and repetitive or persistent hematuria syndrome)</p>
Methods of examination	<p>Renal function test including glomerular filtration rate (actual and estimated)</p> <p>Diagnostic imaging of the renal and urinary system (X-ray, urography, CT, and MRI)</p> <p>Indications and contraindications of renal biopsy</p> <p>Urodynamic study</p>
Specific therapies	<p>Renal replacement therapy (hemodialysis, peritoneal dialysis, and kidney transplantation)</p>

Table 2-9. Reproductive system

Classification	Items
Structure and function	Gonadal development and processes of sex differentiation Process of male reproductive organ development Morphology and function of male reproductive organs Tissue structure of testis and process of spermatogenesis Tissue structure of the penis and mechanisms of erection and ejaculation Processes of female reproductive organ development Morphology and function of female reproductive organs Onset of menstrual cycle and mechanisms of ovulation Processes of menopause and changes in disease risk factors
Symptoms	Abdominal pain Abdominal distention and abdominal mass Menstrual disorders Erectile dysfunction Ejaculation disorders Testicular dysfunction Abnormal vaginal bleeding Galactorrhea Abnormal vaginal discharge Vaginal dryness Dyspareunia
Methods of examination	Diagnostic imaging of testes and prostate (urography, CT, and MRI), and ultrasound Measurement of hormones in the blood (follicle stimulating hormone (FSH), luteinizing hormone (LH), prolactin, human chorionic gonadotropin (hCG), estrogen, and progesterone) Imaging tests of pelvic organs and tumors (ultrasound, CT, MRI, and hysterosalpingography (HSG)) Measurement of basal body temperature Examination of vaginal discharge
Specific therapies	In vitro fertilization-embryo transfer (IVF-ET)

Table 2-10. Pregnancy and delivery

Classification	Items
Structure and function	Anatomical and physiological changes in pregnancy, delivery, and postpartum Functional and morphological changes of the fetus and placenta during pregnancy Process of a normal pregnancy (including physical changes during pregnancy) Process of a normal delivery Processes during the postpartum period Maternal changes associated with childcare, mental health issues, and maternal and child health
Symptoms	Abdominal pain Nausea and vomiting Abdominal distention and abdominal mass Menstrual abnormality Vaginal bleeding
Methods of examination	Tests in pregnancy (pregnancy test, ultrasound, etc.) Examinations during pregnancy (blood tests, prenatal genetic testing, amniotic fluid testing, amniotic fluid secretion test, nonstress test, ultrasound, ultrasound doppler, and amniotic fluid volume estimation) Delivery examination (ultrasound and cardiotocography)
Specific therapies	Precautions when taking medications during pregnancy Indications for abortion, forceps and suction delivery, and caesarean section

Table 2-11. Pediatrics

Classification	Items
Symptoms	Fever Altered mental status Seizures Edema Rash Cough and sputum production Dyspnea Dysphagia Abdominal pain Nausea and vomiting Melena Constipation Diarrhea Jaundice Abdominal distention and abdominal mass Lymphadenopathy Abnormal urine output/urination Reduced suckling ability Growth disorder Looks unwell
Methods of examination	Newborn screening Newborn hearing screening Health checkup for infants
Specific therapies	Pediatric infusion therapy Immunization

Table 2-12. Breast

Classification	Items
Structure and function	Structure and function of the breast Changes in breast tissue with growth and development Actions of hormones related to lactation
Symptoms	Breast lump Abnormal lactation (blood in breast milk) Breast swelling, pain, and deformity Gynecomastia
Methods of examination	Imaging tests for a breast lump (ultrasound, mammography, and MRI) Cell and tissue diagnostics of breast lumps

Table 2-13. Endocrine, nutritional, and metabolic systems

Classification	Items
Structure and function	Structural classification, mechanism of action and secretory regulation of hormones Names of hypothalamic hormones and pituitary hormones, and their actions and interrelationships Action and secretory regulation of thyroid and parathyroid hormone Structure of the adrenal gland and actions and regulatory mechanisms of the hormones secreted Action of hormones secreted by pancreatic islets Synthesis, metabolic pathways, and actions of male and female sex hormones Digestion, absorption, and bioavailability of macronutrients (carbohydrates, proteins, fats), vitamins, and trace elements Metabolic pathways and interactions of carbohydrates, proteins, and lipids Factors affecting blood hormone concentrations and diurnal changes in hormones
Symptoms	Weight loss Weight gain Menstrual abnormalities Short stature Goiter Physical symptoms due to hormone excess or deficiency Physical symptoms due to excess or deficiency of energy intake
Methods of examination	Measurements of hormone in blood and urine Endocrine function tests and hormone stimulation/stress tests

Table 2-14. Ocular and visual system

Classification	Items
Structure and function	Structure of the eye and associated appendages Receptive mechanisms of conduction pathways for the visual cortex Mechanism of eye movement Function of the light reflex, accommodation reflex, and corneal reflexes
Symptoms	Vertigo and dizziness Headache Nausea and vomiting Vision impairment Visual field defect Eye movement disorders Eye discharge and conjunctival hyperemia Eye floaters Eye pain
Methods of examination	Visual acuity test Visual field test Slit-lamp examination Tonometry (intraocular pressure measurement) Fundoscopy
Specific therapies	Laser treatment

Table 2-15. Ear, nose, throat, and oral cavity

Classification	Items
Structure and function	Structure of the outer, middle, and inner ear Mechanisms and nerve conduction pathways for auditory and balance senses Structure of the oral and nasal cavity, pharynx, and larynx Function and innervation of the larynx Equilibrium mechanisms related to eye movement and postural control Mechanisms and nerve conduction pathways for taste and olfactory senses
Symptoms	Vertigo and dizziness Dysphagia Airway stenosis Hearing loss Epistaxis Sore throat Trismus Hoarseness (recurrent laryngeal nerve paralysis) Tinnitus Nasal obstruction Rhinorrhea Dysosmia Snoring Dysgeusia Abnormal salivation Oral cavity abnormalities
Methods of examination	Audiometry and balance function testing Taste and olfactory evaluation tests Otoscopy, rhinoscopy, laryngoscopy, nasopharynx endoscopy
Specific therapies	Hearing aids and artificial hearing devices Tracheostomy

Table 2-16. Psychiatry

Classification	Items
Symptoms	Altered mental status Anxiety/depression Cognitive dysfunction Insomnia Hallucination/delusions Hypochondria
Methods of examination	Questionnaire/validated scales Brief psychiatric rating scale (BPRS) Hamilton depression rating scale Beck depression inventory State-trait anxiety inventory (STAI) Mini-mental state examination (MMSE) Hasegawa's dementia scale, revised (HDS-R) Electroencephalogram Diagnostic imaging of brain (CT, MRI, SPECT, etc.)
Specific therapies	Psychotherapy Psychopharmacotherapy Application of the <i>Act on Mental Health and Welfare for the Mentally Disabled</i> (May 1, 1950), and the <i>Act on Medical Care and Treatment for Persons Who Have Caused Serious Cases Under the Condition of Insanity</i> (July 10, 2003) Liaison psychiatry

Table 2-17. Immunology and allergy

Classification	Items
Symptoms	Fever General malaise Edema Cough and sputum production Dyspnea Rash Lymphadenopathy Hematuria Arthralgia and joint swelling
Methods of examination	Autoantibody
Specific therapies	Treatment with immunosuppressive drugs Rehabilitation treatment for patients with rheumatic diseases

Table 2-18. Infectious diseases

Classification	Items
Symptoms	Fever/high body temperature General malaise Altered mental status Seizure Edema Rash Cough and sputum Blood in sputum and hemoptysis Dyspnea Chest pain Abdominal pain Nausea and vomiting Hematemesis Melena Constipation Diarrhea Jaundice Lymphadenopathy Hematuria Headache and dull headache Back pain Arthralgia and joint swelling Sore throat Pleural fluid Melena Proteinuria Dehydration Shock

Table 2-19. Cancers and neoplastic diseases

The following does not include organ-specific symptoms.

Classification	Items
Symptoms	Fever General malaise Anorexia Weight loss Lymphadenopathy

Table 2-20. Emergency medicine and intensive care

Classification	Items
Symptoms	Altered mental status Syncope Seizures Dyspnea Chest pain Abdominal pain Nausea and vomiting Hematemesis Motor paralysis and muscle weakness

Table 3. Physical examinations

Items
Check the vital signs (body temperature, heart rate, blood pressure, respiratory rate, oxygen saturation)
Examination of head (face, hair, scalp, and skull)
Examination of eye (visual field, pupil, light reflex eye movement, proptosis, conjunctiva)
Examination of ear (assessment of the pinna and hearing)
Examination of the external auditory canal and eardrum using an otoscope
Examination of the lips, oral cavity, pharynx, and tonsils
Examination of the sinuses
Observation of the anterior nasal cavity using a rhinoscope
Examination of thyroid gland, cervical vessels, trachea, and salivary glands
Examination of the lymph nodes of the head and neck
Inspection, palpation, and percussion of the chest
Auscultation of breath sounds and added sounds
Auscultation of heart sounds and murmurs
Inspection, auscultation (bowel sounds and bruits), percussion, and palpation of the abdomen
Identification of pain on percussion over the spine
Digital rectal examination (including prostate examination)
Breast examination
Assessment of level of consciousness
Examination of the cranial nerves
Examination of the fundi
Examination of tendon reflexes
Examination of cerebellar function and the motor system
Examination of the sensory system (pain, temperature, touch, and deep sensation)
Identification of signs of meningeal irritation
Examination of limbs and spine (kyphosis and pain)
Examination of joints (range of motion, swelling, pain, and deformity)
Musculoskeletal examination (manual muscle strength testing)
Gynecological examination (bimanual examination and use of Cusco's speculum)
Comprehensive geriatric assessment (CGA)

Table 4. Basic medical departments/specialties

Medical department/specialty
Internal medicine
Surgery
Pediatrics
Obstetrics and gynecology
Psychiatry
General medicine
Emergency medicine
Dermatology
Orthopedic surgery
Ophthalmology
Otorhinolaryngology
Urology
Neurosurgery
Radiology
Anesthesiology
Pathology
Biochemistry
Plastic surgery
Rehabilitation

Table 5. Major symptoms

Diseases are listed in order from head to toe, and those that do not fall into that order are in order of condition.

Major symptoms	Differential diseases to consider
Fever	Meningitis, acute sinusitis, tonsillitis, upper respiratory tract infection, influenza (flu), pneumonia, tuberculosis, infective endocarditis, cholecystitis, cholangitis, urinary tract infection, cellulitis, drug-induced fever
General malaise	Hypothyroidism, tuberculosis, heart failure, hepatitis, iron deficiency anemia, depression
Anorexia	Peptic ulcers, acute hepatitis, acute adrenal insufficiency, depression
Weight loss	Hyperthyroidism, chronic obstructive pulmonary disease (COPD), malignant tumors, diabetes mellitus, anorexia nervosa, depression
Weight gain	Hypothyroidism, heart failure, nephrotic syndrome
Altered mental status	Cerebral hemorrhage, cerebral infarction, intracranial hematoma, encephalitis, epilepsy, subarachnoid hemorrhage, meningitis, myocardial infarction, acute aortic dissection, acute gastrointestinal bleeding, sepsis, drug intoxication, alcoholic intoxication, carbon dioxide (CO ₂) narcosis, hypoglycemia, abnormal sodium metabolism, shock
Syncope	Epilepsy, pulmonary embolism, arrhythmia, valvular disease (aortic valve disease)
Seizure	Cerebral infarction, cerebral hemorrhage, encephalitis, encephalopathy, febrile convulsions, epilepsy
Vertigo and dizziness	Cerebral hemorrhage, cerebral infarction, benign paroxysmal positional vertigo, Meniere's disease, vestibular neuronitis
Edema	Hypothyroidism, heart failure, cirrhosis of liver, nephrotic syndrome, chronic kidney disease, drug-induced edema, deep vein thrombosis, lymphedema, angioedema
Rash	Viral exanthem (measles, rubella, chicken pox, herpes simplex virus), shingles, erythema infectiosum, drug related-rash, urticaria, dermatitis (atopic dermatitis), erythema nodosum, eczema
Cough and sputum production	Sinusitis, allergic rhinitis, upper respiratory tract infection, common cold, whooping cough, bronchitis, bronchial asthma, pneumonia, pulmonary tuberculosis, lung cancer, interstitial lung disease, gastroesophageal reflux disease (GERD), drug-induced cough
Blood in sputum and hemoptysis	Bronchiectasis, pulmonary tuberculosis, lung cancer
Dyspnea	Acute epiglottitis, asphyxia, bronchial asthma, pulmonary embolism, acute respiratory distress syndrome (ARDS), chronic obstructive pulmonary disease (COPD), pneumonia, interstitial lung disease, pulmonary tuberculosis, tension pneumothorax, spontaneous pneumothorax, heart failure, anaphylaxis
Chest pain	Pulmonary embolism, pneumothorax, pleurisy, acute coronary syndrome, acute pericarditis, acute aortic dissection, aortic aneurysm rupture, shingles, panic disorder
Palpitations	Hyperthyroidism, arrhythmia, iron deficiency anemia, secondary anemia, panic disorder, anxiety disorder
Dysphagia	Cerebral hemorrhage, cerebral infarction, tonsillitis, esophageal cancer
Abdominal pain	Peptic ulcers, functional dyspepsia (FD), acute gastroenteritis, acute appendicitis, diverticulitis, ischemic colitis, mesenteric artery embolism, constipation, irritable bowel syndrome, intestinal obstruction, intussusception, generalized peritonitis, inguinal hernia, cholecystitis, cholelithiasis, acute pancreatitis, acute coronary syndrome, acute aortic dissection, endometriosis, ectopic pregnancy, miscarriage, premature birth, ovarian cyst (torsion), ovarian cancer (torsion), urinary stone disease, diabetic ketoacidosis

Major symptoms	Differential diseases to consider
Nausea and vomiting	Cerebral hemorrhage, subarachnoid hemorrhage, intracranial hematoma, meningitis, migraine, acute gastroenteritis, acute appendicitis, intestinal obstruction, food poisoning, acute myocardial infarction, pregnancy, diabetic ketoacidosis, abnormal calcium metabolism
Hematemesis	Esophageal varices, Mallory-Weiss syndrome, gastric cancer, peptic ulcers
Melena	Peptic ulcers, inflammatory bowel disease, ischemic colitis, diverticular hemorrhage, colorectal cancer, hemorrhoids, anal fissure
Constipation	Parkinson's disease, hypothyroidism, constipation, irritable bowel syndrome, intestinal obstruction, colorectal cancer, drug-induced constipation
Diarrhea	Hyperthyroidism, acute gastroenteritis, inflammatory bowel disease, irritable bowel syndrome, drug-induced diarrhea
Jaundice	Acute hepatitis, chronic hepatitis, cirrhosis of liver, liver cancer, cholangitis, bile duct cancer, pancreatic cancer, hemolytic anemia, drug-induced jaundice, physiologic jaundice
Abdominal distention and abdominal mass	Cirrhosis of liver, intestinal obstruction, inguinal hernia, pregnancy
Lymphadenopathy	Tonsillitis, viral rash (rubella), tuberculosis, infectious mononucleosis, malignant lymphoma, other malignant tumors
Abnormal urine output/urination	Urinary tract infections, prostatic hyperplasia, overactive bladder, neurogenic bladder, drug-induced, diabetes mellitus
Hematuria	Glomerulonephritis syndrome, renal cell carcinoma, urinary stone disease, urinary tract infections, bladder cancer
Menstrual abnormality	Dysmenorrhea, endometriosis, uterine cancer, pregnancy, drug-induced menstrual irregularities, menopausal and female climacteric states
Anxiety/depression	Dementia, Parkinson's disease, hyperthyroidism, hypothyroidism malignancy, drug-induced, depression, bipolar disorder, anxiety disorders, adjustment disorders
Cognitive dysfunction	Dementia, Parkinson's disease, cerebral infarction, normal pressure hydrocephalus, chronic subdural hematoma, hypothyroidism, drug-induced, depression
Headache	Migraine, tension headache, cluster headache, cerebral hemorrhage, subarachnoid hemorrhage, meningitis, glaucoma, acute sinusitis, giant cell arteritis (temporal arteritis), drug-induced headache
Skeletal muscle paralysis/muscle weakness	Cerebral infarction, transient ischemic attack, cerebral hemorrhage, intracranial hematoma, epilepsy, spinal cord injury, herniated intervertebral disc, amyotrophic lateral sclerosis, Guillain-Barré syndrome, polymyositis, dermatomyositis, abnormal potassium metabolism
Gait disturbance	Cerebral hemorrhage, intracranial hematoma, cerebral infarction, Parkinson's disease, osteoarthritis, spinal stenosis, herniated intervertebral disc, osteoarthritis, bone fracture
Sensory disturbance	Spinal stenosis, herniated intervertebral disc, polyneuritis, diabetes mellitus
Back pain	Acute aortic dissection, acute pancreatitis, pancreatic cancer, urinary stone disease, herniated intervertebral disc, osteoarthritis, spinal stenosis, vertebral fracture, acute low back pain, pyogenic spondylitis
Arthralgia/joint swelling	Pyogenic arthritis, osteoarthritis, rheumatoid arthritis, systemic lupus erythematosus (SLE), reactive arthritis, gout, pseudogout, trauma

Table 6. Major clinical and diagnostic imaging tests

Checklist
Full blood count
Blood biochemistry
Coagulation/fibrinolysis
Immunoserology tests
Urinalysis
Stool (fecal) examination
Blood typing (ABO, RhD), blood compatibility test (cross-matching), atypical antibody screening
Arterial blood gas analysis
Pregnancy test
Microbiological tests (bacterial smear, culture, identification, antibiotic sensitivity test)
Cerebrospinal fluid
Pleural fluid analysis
Peritoneal fluid analysis
Histopathology and cytology (including intraoperative rapid diagnosis)
Genetic testing and chromosome analysis
ECG
Lung function tests
Endocrine and metabolic function tests
Electroencephalography
Ultrasound
X-ray
CT
MRI
Nuclear medicine examination
Endoscopy

Table 7. Basic clinical techniques

Classification	Basic clinical techniques
General procedure	Position change, transfer Skin antisepsis Application of topical medications Airway suction Nebulizer Venous blood sampling Peripheral venous catheterization Insertion and extraction of nasogastric tube Insertion and extraction of urinary catheter Intradermal injection Subcutaneous injection Intramuscular injection Intravenous injection
Examination technique	Urinalysis (including pregnancy test) Microbiological testing (including gram staining) Recording of a 12-lead ECG Rapid bedside ultrasound (including FAST) for clinical decision-making Rapid antigen/pathogen testing Blood glucose test
Surgical procedure	Aseptic technique Surgical hand washing Gowning techniques in the operating room Basic sutures and suture removal

*These techniques should be conducted in a simulation-based education setting for patient safety reasons. This does not preclude other basic clinical techniques and procedures from being performed with appropriate preparation and supervision.

Chapter 3: Educational Strategies and Assessment

I. Educational Strategies

The learning objectives listed in Chapter 2 mainly refer to what knowledge should form part of the education curriculum; i.e., what to teach. However, when planning and implementing educational programs, it is necessary to consider not only what to teach, but also how to teach it (i.e., educational strategies), and how to assess it (i.e., assessment and evaluation methods). In Chapter 3, these two topics are explored in detail. The term “educational strategies” refers to a combination of both specific teaching methods necessary to achieve learning objectives and broader teaching strategies, which include the sequence of learning, human and material resources, who receives the teaching, the number of students taught, and whether the curriculum is elective-driven or uniform.

I-1. Considering educational strategies

When considering how to teach, the specific teaching method should be considered; for example, whether to use lectures, group discussions, problem-based learning (PBL), or other methods. There is no single educational strategy that can be described as the best in all situations, because how to teach successfully depends on various factors such as the learning objectives, educational environment, and characteristics of the students. Therefore, it is necessary to practice the strategy in the field, reflect on it, and continue to improve it. The following sections describe education theories, key questions, and various methods to make learning more effective.

I-2. Education theories that are useful in formulating educational strategies

I-2-1. Adult learning theory

Because the field of medical education exists exclusively within the realm of higher education, an understanding of adult learning theory is essential. Recognizing that the adult learning process is unique, Knowles proposed the idea of adult pedagogy (andragogy) as distinct from child pedagogy (pedagogy), and comprising five components: self-concept, prior experience, readiness to learn, orientation to learning, and motivation to learn. Adult learning theory has been used as the foundation for highly learner-centered medical education curricula (e.g., PBL) developed in the late 20th century. It can be used, for example, to “plan lessons that relate to what the learner has previously learned.”³ In adult learning theory, active learning is recommended.⁴ Examples include requiring independent study before lectures (see I-4-1, *Flipped classroom*) and using ICT to enhance interactive communication.

I-2-2. Behaviorism, cognitivism, and constructivism

Behaviorism is a psychological paradigm that views a person’s learning and thought processes as predictable from his or her behavior. This view was applied in educational psychology in the 20th century as a means of determining what kind of learning content should be given to learners to make them exhibit certain behaviors. However, criticisms arose, such as it not mattering what students thought (or whether they thought anything), provided that their behavior changed, and that it led to the supremacy of examinations, which evaluated only objective knowledge. Whereas behaviorism focuses only on behavior, cognitivism focuses on how people process, store, and retrieve information once it is received, and encompasses attention and awareness, language, emotion, vision, hearing, and movement in learning. Constructivism views learning as an active process in which key concepts and big ideas are formed by layering new information that is meaningful to the learner on top of the learner’s existing knowledge. These concepts are not acquired by solely memorizing detailed knowledge, but through interactions with other learners. While constructivism is compatible with the adult learning theory described above, it is still underused in medical education in Japan.⁵

³ Saiki T, et al. Methods for Effective Teaching and Meaningful Learning in Medical Education [in Japanese]. *Medical Education (Japan)*. 2013;44(3):133-41. <https://doi.org/10.11307/mededjapan.44.133>

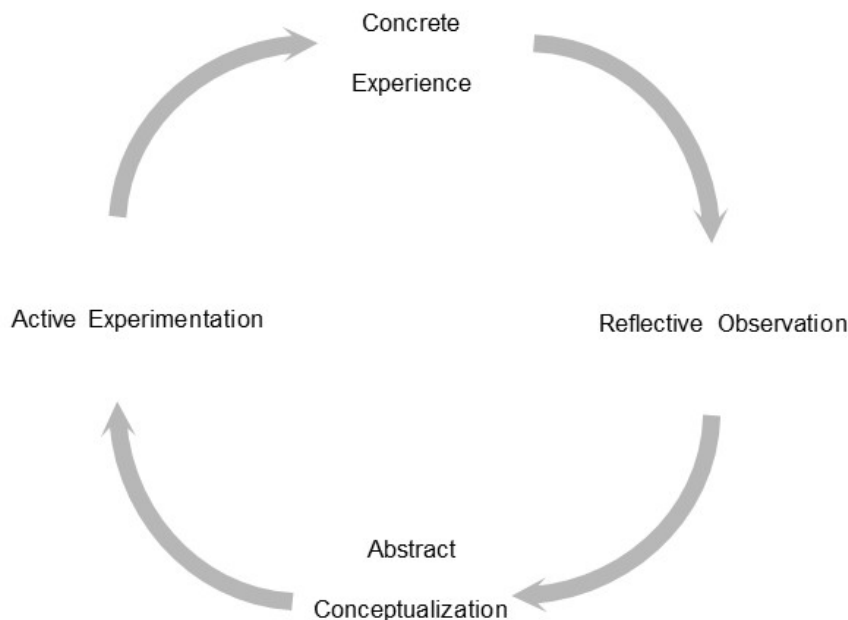
⁴ Kawakami C. Active learning [in Japanese]. In: Nakano T, Komazawa N, editors. *Medical Education Introduction*. Japan Medical Journal, Japan, 2022. p119-22.

⁵ Saiki T. Behaviourism, Constructivism, Learning theory [in Japanese]. *Medical Education (Japan)*. 2012;43(4):290-1. <https://doi.org/10.11307/mededjapan.43.290>

I-2-3. Kolb's experiential learning theory

Kolb regarded learning experiences as a cycle of four processes (Figure 1): concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb's experiential learning model).⁶ Specifically, by reflecting on and analyzing concrete experiences, learners can obtain abstract concepts which include new implications for action. These implications can be actively tested in a small and safe environment and serve as guides in creating new experiences. Particularly in practical training, by creating opportunities for reflection after concrete experiences, this learning cycle can be actively perpetuated, leading to the growth of the learner.

Figure 1. Kolb's Experiential Learning Model



Box 1. Instructional design

1) What is instructional design?

Instructional design is a methodology for designing and implementing high-quality education. The purpose of instructional design is to make education more effective, efficient, and engaging.

Effective education requires designing and implementing education that sets appropriate goals for learners and enables them to achieve those goals. For example, when teaching heart auscultation to students who are yet to complete the Objective Structured Clinical Examination (OSCE), the goal may be to facilitate students' understanding of auscultation techniques and to teach the part of the body to which the stethoscope should be applied. However, if the target students are those who have already completed clinical clerkship, the goal may be to be able to auscultate a heart sound and determine the type of sound to assist in clinical reasoning.

The cost of education, in terms of human, material, time, and financial resources, is a factor in improving efficiency. In the case of auscultation, for example, whether to provide an environment in which each student can practice on a simulated patient or simulator, whether to simulate the experience using apps or devices such as a tablet, or whether to limit the information to lectures and videos are key cost and efficiency considerations. They are also important considerations when choosing an educational strategy.

⁶ Kolb AY, Kolb DA. The Experiential Educator: Principles and Practices of Experiential Learning, Experience Based Learning Systems, HI, 2017.

Providing learners with attractive learning opportunities increases their engagement and promotes their lifelong learning. The attractiveness of the program is also a key factor in the choice of educational strategy. Examples of this include making efforts to increase interest in medicine and medical care through early clinical exposure immediately after enrollment, and making it possible for students to make use of their experiences during clinical training to select a specialty in the future.⁷

2) First principles of instructional design

Various theories have been proposed for instructional design. Merrill identified five common elements as the first principles of instructional design: problem, activation, demonstration, application, and integration.⁸

Problem refers to dealing with a problem or issue that can occur in the real world. For example, the use of the cases commonly encountered in clinical clerkship as learning issues in PBL helps educators clarify learning goals, resulting in greater motivation among students.

Activation refers to recalling previously learned content and experiences and relating them to new knowledge. This can be achieved by comparing a case seen in a clinical setting with knowledge learned in lectures or textbooks, or with other similar cases.

Demonstration refers to showing students concrete examples, and *application* refers to having students perform and demonstrate. An example of a simulation procedure is when the instructor demonstrates the procedure or uses a video as an example, and then has the students practice and perform the procedure.

Integration refers to integrating knowledge and skills into daily life and work. In participatory clinical clerkship and postgraduate clinical training, this means practicing medical procedures in clinical situations, reflecting on the results of the practice, and linking the results to new learning.

I-3. Key questions when considering educational strategies

When analyzing and planning educational strategies for the curriculum, it is helpful to consider the key questions listed below. The first six items are taken from the SPICES model proposed by Harden,^{9,10} and a further three questions have been added to reflect the current medical education landscape.

I-3-1. Student-centered or teacher-centered?

In student-centered education, the teacher is only a guide, and students take responsibility for their own learning, understand their own learning needs and goals, learn in a way of their own choosing, and evaluate themselves (self-directed learning). Students tend to be active learners, and learning materials (including videos) play an important role. Active learning can be described as learner-centered education. For example, creating opportunities for students to actively speak up in group discussions can be described as learner-centered education. In teacher-centered education, the teacher leads learning from the standpoint that the student cannot be expected to see beyond the learning in question before they have learned it (that is, of course, why the student learns in the first place). In this educational approach, because students are not choosing to learn by themselves, they tend to learn passively, and their motivation for learning is somewhat weaker. The educator therefore often plays a charismatic role. Unilateral education, such as lectures and video streaming, can be described as teacher-centered education.

I-3-2. Problem-based or information-oriented?

Solving problems is compatible with the tasks required of clinicians in the clinical setting. Adult learning theory also suggests that PBL is effective, and particularly so for learners who prefer to first encounter and establish a problem in

⁷ Suzuki K. Instructional design for e-learning practices [in Japanese]. Japan Journal of Education Technology. 2006;29(3): 197–205. <https://doi.org/10.15077/jjet.KJ00004286879>

⁸ Merrill, MD. First principles of instruction. Educational Technology Research and Development. 2002; 50(3): 43–59. <https://doi.org/10.1007/bf02505024>

⁹ Harden RM, et al. Educational strategies in curriculum development: The SPICES model. Medical Education. 1984;18(4):284–97. <https://doi.org/10.1111/j.1365-2923.1984.tb01024.x>

¹⁰ Harden RM, Laidlaw JM. Ten questions to ask when planning a curriculum. In: Harden RM, Laidlaw JM, editors. Essential Skills for a Medical Teacher. 2nd Edition. Elsevier Health Science, Netherlands, 2017. p95–102.

practice and then learn the theory to solve it. Information-oriented learning is effective for acquiring facts, concepts, and principles, and for systematically understanding a field of study. The information-oriented approach is also considered effective in conveying the importance of accumulating knowledge in unknown areas. It is effective for learners who prefer to learn the theory first and then put it into practice.

I-3-3. Integrated or discipline-based?

In a discipline-based program, students study each academic field separately. The strengths of this program are that it has a strong educational track record and that it allows students to learn the history of each discipline. In addition, by picking up on what is not known (i.e., the research gap) in each academic field, the program is expected to cultivate their abilities relating to research and scientific inquiry. However, this strategy has the disadvantage of learning becoming siloed. In integrated learning, the educational program is designed to integrate the approaches of basic medicine, social medicine, and clinical medicine. Strategies such as horizontal integration (e.g., where the structure and function of the human body are taught in courses spanning across many fields, such as physiology, anatomy, and surgery) and vertical (continuous) integration (e.g., where cancer-related learning is taught continuously from the lower grades to the upper grades, in both basic medicine and clinical medicine lectures) are effective in building a knowledge base that can be applied to clinical practice.¹¹

I-3-4. Community-based or hospital-based? (Clinical education)

Depending on the learning objectives, the question arises as to where the learner prefers to study: in a hospital or in the community? A hospital-based program is more likely to have many supervising physicians and to provide more experience in inpatient care. In addition, students can learn about highly advanced medical care. On the other hand, in a community-based program, students can learn about primary care, cooperation with nursing care and welfare, and social aspects of medical care. It is recommended that the program is designed through collaboration with educators in the hospital and the community.

I-3-5. Elective-driven or uniform?

The *Model Core Curriculum for Medical Education* covers compulsory subjects for all medical students. It is preferable to always consider what the minimum required learning contents are for students who will not enter that specialty or department in the future. In the case of elective courses, the fact that students can choose their own subjects and learning methods increases their motivation to learn.¹¹

I-3-6. Systematic or opportunistic?

The content learned in clinical practice is dependent on the patients in one's charge and is therefore opportunistic, or ad hoc. Simulation-based education, on the other hand, enables systematic learning that covers all the symptoms and diseases to be studied. Learning through practical experience in the clinical setting is called on-the-job training (OJT), while learning done away from the clinical setting is called off-the-job training (off-JT). The advantage of learning through OJT is that there is no need to transfer the learning to other settings (i.e., what is learned on the spot is applied directly), but as mentioned above, this learning tends to be ad hoc, and thus the learning efficiency is considered poor. Simulation education, however, which is a typical example of off-JT, allows systematic and efficient learning of what needs to be learned, but this learning needs to be transferred to a clinical setting.¹² Lectures can be planned systematically, but PBL tends to be ad hoc. When organizing a PBL-based curriculum, it is necessary to ensure that students are systematically learning the entire content that they should learn.

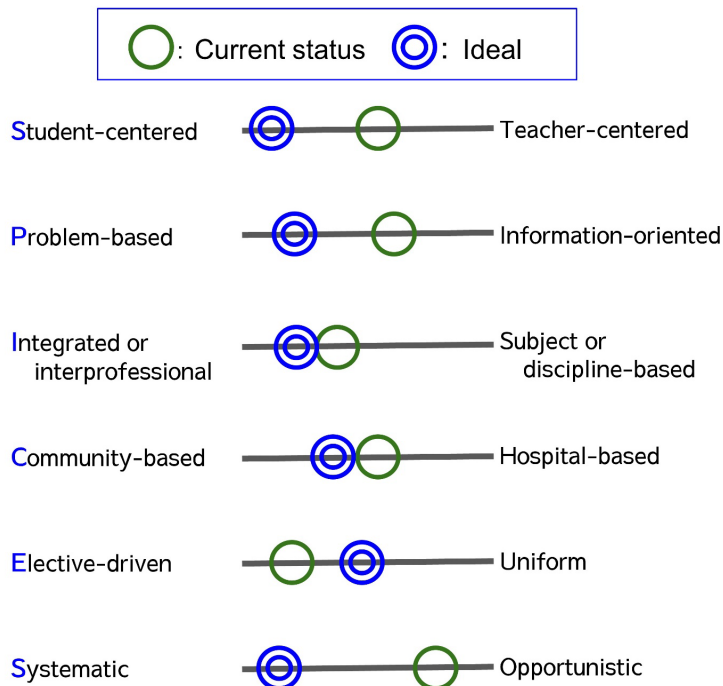
¹¹ Tagawa M, et al. Curriculum development in medical education [in Japanese]. *Medical Education (Japan)*. 2014;45(1):25–35. https://doi.org/10.11307/mededjapan.45.1_25

¹² Rouse WB, et al. Learning in the health care enterprise. *Learning Health Systems*. 2017;1(4):e10024. <https://doi.org/10.1002/lrh2.10024>

Box 2. Examples of good practice: Review of educational strategies using the SPICES model

Using the SPICES model shown in Figure 2,¹³ it is possible to visualize where a curriculum is actually located on each spectrum (marked with ○ in the figure), and where it would ideally be located on each spectrum (marked with ⊙ in the figure). By visualizing the ideal and reality, the SPICES model makes it possible to analyze how to fill this gap, providing a useful overview of curriculum development strategies.

Figure 2. SPICES model



I-3-7. Face-to-face or online?

Online education is a means of providing learning opportunities using ICT such as learning management systems (LMS) and teleconferencing systems, and has made great progress as a result of the circumstances caused by the COVID-19 pandemic. The question “face-to-face or online?” is one that many faculty members ponder on a daily basis. In clinical practice, the advantages of face-to-face education are easy to understand. Conversely, in the case of lectures and small group discussions, online education not only provides almost the same learning effect, but also has the advantage of allowing students to learn at their own pace, such as by reviewing recorded videos. However, it is difficult for students to spend time talking to each other between lectures and to build a learning community. In addition, moving beyond arguments about a binary choice between face-to-face and online education, further developments that combine the advantages of both these approaches,¹⁴ as well as developments that take advantage of metaverse spaces such as virtual, augmented, and mixed reality, are expected in the future. Education that combines the advantages of face-to-face and online approaches is known as hybrid education, and can be broadly classified as blended, distributed, or high-flex.¹⁵ The blended approach is one in which

¹³ Quirk ME, Harden RM. Curriculum Planning and Development. In: Dent JA, Harden RM, Hunt D, editors. A Practical Guide for Medical Teachers. 6th Edition, Elsevier Health Science, Netherlands, 2021, p7–14.

¹⁴ AlQhtani A, et al. Online versus classroom teaching for medical students during COVID-19: Measuring effectiveness and satisfaction. BMC Medical Education. 2021;21(1):425. <https://doi.org/10.1186/s12909-021-02888-1>

¹⁵ Taguchi M. What is a Hybrid Class?: Examination of its Concepts and Issues for the Post-COVID Age [in Japanese]. Kyoto University Researches in Higher Education. 2020;26:65–74. <http://id.ndl.go.jp/bib/031268764>

the format is switched depending on the content and the time of the class, such as online for the first class and face-to-face for the second class. In the distributed model, students are divided into groups, and the face-to-face and online sessions are interchanged. Unlike the blended format, the number of participants in a face-to-face class can be adjusted, making this format suitable for teaching in the context of the COVID-19 pandemic. However, care must be taken when scheduling classes because the order in which the students learn the content may differ. The high-flex format allows students to take a single class in a variety of formats, including face-to-face, simultaneous interactive, and on-demand. For example, a class held in a classroom (face-to-face) can be delivered remotely via a teleconferencing system (simultaneous interactive), and after the class is over, materials can be made available on an LMS for later study (on-demand). While this method is flexible enough to successfully implement distributed education and to provide education to students staying at home, it is also very costly in terms of class preparation and operation.

Box 3. Examples of good practice: Organizing clinical practice using hybrid learning

A situation in which clinical practice is a mixture of inpatient ward training and small group lectures can also be considered as a blended approach. A combination of distance (simultaneous interactive or on-demand) education for knowledge and face-to-face simulation or practice for skills and attitudes can also be considered.

Even if classes are conducted solely using distance education, blended classes that combine simultaneous interactive and on-demand instruction are also possible. However, because all students participate in the classes, whether they are face-to-face or online, care must be taken when using classrooms with limitations on student numbers relating to COVID-19 countermeasures or for other reasons.

Box 4. Examples of ICT usage in education: Virtual reality

Virtual reality (VR) creates a 2-dimensional or 3-dimensional virtual space in which learning activities are conducted. Related terms include augmented reality (AR) and mixed reality (MR).¹⁶

For example, in anatomy training, VR can be used for preliminary learning prior to practicing on a cadaver. In addition, simulation education, which conventionally required the use of expensive mannequins, can be carried out for a large number of people simultaneously or remotely. Although this may be less realistic than using a real cadaver or mannequin-type simulator, there are many advantages, such as the possibility of repeated learning and the ability to use tablets and PCs.

Using tools such as head-mounted displays for projecting images from a 360-degree camera, it is also possible to simulate the clinical environment, such as a hospital or clinic.

I-3-8. Synchronous or asynchronous (on-demand)? (Online education)

Asynchronous (on-demand) learning is a form of education and learning in which the teacher and the student proceed on different timelines. Teachers prepare video lectures and exercises in advance, and students access them at their own time for self-study. If there are any questions, they can be responded to via e-mail or online bulletin board. In order to facilitate this sequence, LMS or other tools are often used.¹⁷ The advantages of using an asynchronous system, especially with regard to knowledge learning, include the ability to repeatedly view videos and materials, and the ability to study using exercises. However, because students are largely required to study alone, it can be difficult for them to maintain their motivation to learn. For this reason, it is necessary to consider combining simultaneous interactive classes as appropriate. It is also useful to provide individual feedback on reports and other assignments.

¹⁶ Jiang H, et al. Virtual reality in medical students' education: Scoping review. *JMIR Medical Education*. 2022;8(1);e34860. <https://doi.org/10.2196/34860>

¹⁷ Stojan J, et al. Online learning developments in undergraduate medical education in response to the COVID-19 pandemic: A BEME systematic review: BEME guide no. 69. *Medical Teacher*. 2021;44(2):109–29. <https://doi.org/10.1080/0142159x.2021.1992373>

Box 5. Examples of ICT usage in education: Learning management systems

LMS are systems for centrally managing teaching materials and assessments for use in online classes.¹⁸

LMS are sometimes referred to as course management systems (CMS) or virtual learning environments (VLE). The following strategies are often used, especially in on-demand education: (1) shareable materials such as videos and PDFs, (2) quizzes such as multiple-choice questions to check knowledge, and (3) discussions among students and questions to teachers through bulletin boards. LMS can also be used in face-to-face classes and simultaneous interactive online classes, such as to have students solve problems on the spot, or as a clicker to find out students' responses. In addition, LMS can be put to practical use as portfolios of practical training records or daily learning logs.

By using LMS to view and track a broad range of information, including the completion status of teaching materials, daily practical records, and grades, such systems can support students in their learning. It is also possible to tailor education to individual needs, such as by providing additional materials to students who want to learn more deeply, or supplementary materials to students who are not progressing well.

I-3-9. How should educational resources be arranged?

When considering strategies, educational resources should be taken into account to ensure feasibility and sustainability. The factors that need to be considered include human resources (who can teach, and who can assist with education (e.g., hospital staff, clinic staff, patients)), time resources (when and how much time can be spent teaching), spatial resources (where teaching can be conducted, and whether it is face-to-face or online), physical resources (what can be used to teach), and financial resources (how much it costs).¹⁹ Considerations of financial resources include honoraria and travel expenses for outside instructors, and running costs for simulators.

I-4. Effective learning methods

This section introduces several effective learning methods among those widely used in medical education in general. Note that the learning methods described in this chapter are not necessarily the best solutions, as the preferred learning methods vary depending on the learning environment and the student. In recent years, with the development of ICT, learning methods have further developed and diversified. For more detailed explanations, please refer to relevant academic articles (e.g., *Journal of the Japanese Society of Medical Education*) and books, and apply the most up-to-date information accordingly.

I-4-1. Flipped classroom

Flipped classroom is a method in which students participate in interactive classes only after they have completed pre-assigned learning tasks based on textbooks, academic literature, and other materials. The teacher facilitates the class to help students apply their knowledge and acquire critical thinking skills on the assumption that students have acquired the necessary knowledge prior to class.

I-4-2. Role-play

Role-play is a method in which one student plays one role (e.g., physician) and another student or faculty member plays another role (e.g., patient), allowing the student to simulate different positions and roles. This method is often employed for learning medical interview and physical examination skills. The advantage is that it enables learning to be repeated, and encourages reflection by allowing students to discuss each other's experiences in performing the role.

I-4-3. Simulation

¹⁸ Ellaway R, et al. AMEE guide 32: E-learning in medical education part 1: Learning, teaching and assessment. *Medical Teacher*. 2008;30(5):455–73. <https://doi.org/10.1080/01421590802108331>

¹⁹ Humphrey HJ. Resources for medical education: Finding the right prescription. *Transactions of the American Clinical and Climatological Association*. 2010;121:76-90; discussion 90–3.

Simulation is a method of artificially creating a learning environment that closely resembles reality, whereby students solve problems on given tasks, assuming that they are in the real world. Simulators are sometimes used as a means of enhancing the sense of reality in such scenarios, but simulated patients, body-part models, VR, and other tools can also be used to achieve similar effects.

I-4-4. Problem-based learning

PBL is a method that cultivates the ability to actively identify and solve problems on one's own, rather than passively memorizing knowledge. Students are expected to discover problems on their own and to solve them by themselves through small group discussions. The instructor does not teach knowledge, but rather monitors the progress of the group and advises the students on whether the problems discovered by students capture the essence and whether their learning to solve the problems is appropriate. Typical PBL requires a degree of manpower to enable students to be divided into small groups that are each tutored in individual rooms by one faculty member, but it is also possible to have multiple groups in a somewhat larger room.

I-4-5. Team-based learning

Team-based learning (TBL) is a method that is characterized by a combined assessment of individual and group scores. Prior to the TBL exercise, the instructor prepares a pre-class assignment, and the students complete this independently. In the class, a readiness assurance test is first provided to determine individual students' readiness. This is followed by a group readiness assurance test using the same questions. After the group test, students can receive immediate feedback by means of scratch cards or other methods. The group continues to work on new problems by applying the knowledge they have acquired in the tests. After the group discussion, the instructor moderates a discussion among the groups, and better solutions emerge through the discussion.

I-4-6. Case-based discussion

Case-based discussion (CbD) is a method of learning skills such as clinical reasoning and decision-making through structured interactions between learners and educators based on a specific case,²⁰ and is sometimes referred to as case-based learning. Because the case describes the context (situation, background, etc.) relevant to the field, it is a more effective method of learning (in terms of knowledge application) than learning without context.²¹

I-4-7. Peer learning

Peer learning, also known as peer-assisted learning (PAL), is a method in which learners of similar learning levels generally teach each other. The form of PAL in which advanced-level students teach junior students is called "near-peer learning" and is synonymous with the Japanese *yanegawara* (roof-tile)-style educational method. The advantages include that effective educational "scaffolding" can be provided and psychological safety can be maintained on the basis of the cognitive proximity of the two groups. However, it is important to conduct faculty development on how to train tutors who teach the content and methods of instruction in order to guarantee the quality of the education.

I-4-8. Participatory clinical clerkship

Clinical training is more problem-based and self-directed, and is consistent with adult learning theory because it involves not only observation but also active participation in the practice of medicine. The educator gradually moves from a demonstration phase to one in which the learner is involved in discussions and clinical experiences. They work to exemplify the knowledge gained and externalize the learner's internal processes, and master the problem-solving processes of the skilled person (cognitive apprenticeship).²² It is advisable to set up the students with small peripheral roles (responsibilities)

²⁰ Kassirer JP. Teaching clinical medicine by iterative hypothesis testing. *New England Journal of Medicine*. 1983;309(15):921–3. <https://doi.org/10.1056/nejm198310133091511>

²¹ Ertmer P, et al. Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*. 2008;6(4):50–72. <https://doi.org/10.1111/j.1937-8327.1993.tb00605.x>

²² Brown JS, et al. Situated cognition and the culture of learning. *Educational Researcher*. 1989;18(1): 32–42. <https://doi.org/10.3102/0013189x018001032>

at first, and then allow them to gradually and proactively take on central roles (legitimate peripheral participation).²³ For more information on clinical practice design, please refer to the *Guidelines for Participatory Clinical Clerkship*.

Box 6. Preparatory education for participatory clinical clerkship (1): Shadowing

Shadowing is an educational opportunity for learners, such as students and trainees, to spend a day, part of a day, or longer, with a professional in order to learn the competencies of that professional, or consider career choices (<https://students-residents.aamc.org/aspiring-docs-fact-sheets-get-experience/shadowing-doctor>). Before becoming a physician, students can understand the complexities of the job while learning about a typical day in the life of a physician. By shadowing a position other than that of a physician, they can also learn about the roles of other professions and teamwork.²⁴ Shadowing itself is a passive learning experience, but it can be used as a preparatory education for participatory clinical clerkship, and can motivate students to learn.

Box 7. Preparatory education for participatory clinical clerkship (2): Early clinical exposure

This practical training exposes students to the field of medicine and medical care during the early years of their undergraduate education, and can improve students' motivation to learn through contact with actual patients and clinicians, who serve as role models. It is important to provide opportunities for reflection, such as writing reports. By doing so, students are able to objectively view and conceptualize their own ideas on the basis of their experiences and identify future challenges (see I-2-3, *Kolb's theory of experiential learning*).

I-4-9. Significant event analysis

Significant event analysis (SEA) is a method that takes any action that is worthy of reflection (i.e., a significant event), reflects structurally on the causes of the event, and applies the outcomes of this process to develop improvement measures. It is often used as a strategy and assessment method for learners to reflect on and learn from their own experiences. Because it is based on reflection, it can be applied to a wide variety of events, but it is particularly useful for education in the affective domain of learning. As an example, in professionalism education, there are instances in which students feel confused about how they should have acted, even though there is a code of conduct. When students have such emotionally charged experiences, they can reflect on them by describing them on the SEA sheet, sharing them with faculty and colleagues, and discussing them further.

I-4-10. Learning portfolio

A learning portfolio is a record of the learner's experiences, progress, and accomplishments in one or more areas intentionally collected by the learner, which requires students to be actively involved in the selection of these learning products and should include the reasons for collecting them and evidence of the learner's reflections.²⁵ Portfolios in medical education are used to document and clarify what has been learned. Therefore, portfolios include a description of the learner's experiences, reflections, assessments of problems, learning content, and plans for how to address new learning needs.²⁶

²³ Lave J, Wenger E. *Situated learning*, Cambridge University Press, UK, 1991.

²⁴ Rosen L, et al. Off to the right start: A model for developing collaboration with nurses early in medical school. *Medical Science Educator*. 2013;23(S3):513–23. <https://doi.org/10.1007/bf03341674>

²⁵ Leon PF, et al. What makes a portfolio a portfolio? *Educational Leadership*. 1991;48(5):60-3

²⁶ Snadden D, et al. Portfolio learning in general practice vocational training - does it work? *Medical Education*. 1998;32(4):401–6. <https://doi.org/10.1046/j.1365-2923.1998.00245.x>

Box 8. Reviewing the lecture-centered curriculum

When reorganizing the curriculum, it is first necessary to check the current timetable against the qualities and abilities listed in the *Model Core Curriculum for Medical Education* and identify any excesses or deficiencies in learning content.

Information on the qualities and abilities to be covered should be shared with the faculty members in charge of each field, and educational strategies should also be reviewed.

If the current curriculum is lecture-centered, the syllabus should be reorganized after discussing with the faculty members in charge of each field what new learning methods they would like to introduce that are suited to the acquisition of each quality and ability, as shown in the table below.

Educational strategies Qualities and Abilities		Reading	Lectures	Online study resources	Small group discussions	PBL	TBL	Peer learning	OJT	Portfolio	Shadowing	Demonstration	Simulation	Role play	Review using audio and video records	...
PR	Professionalism	○	○	○ 2F					◎ 5	◎ 5	○ 1F			◎ 3S	◎ 5S	...
GE	Generalism		○		◎	◎	○		○	◎ 5	◎ 1F				◎ 5S	...
LL	Lifelong Learning		○	○ 2F		◎ 3S		◎ 3S		○	○	◎			○	...
RE	Research	○	○	○	○			○		○	◎ 3S	◎				...
PS	Problem-Solving		○			◎ 3S	○									...
IT	Information Technology		○			○	◎ 3S									...
CS	Clinical Skills		○	○				○	◎			◎	◎	○	◎	...
CM	Communication		○							◎	○				○	...
IP	Interprofessional Collaboration		○		◎ 3S	◎	◎		○					◎	○	...
SO	Medicine in Society	◎ 4F	○		◎ 5F											...

Current : ○, Newly adopted : ◎

*The numbers in the above table indicate the school year, and “F” and “S” represent the first or second semester of the school year, respectively. (e.g., 2F: first semester of 2nd year)

II. Learner Assessment

II-1. Approaches to learner assessment

II-1-1. Miller's pyramid

In 1990, Miller's pyramid²⁷ was proposed as a conceptual diagram for assessment in medical education (see Figure 3) and comprises four levels: *Knows*, *Knows how*, *Shows how*, and *Does*. *Knows*, as the most basic level, represents the knowledge required to demonstrate professional competence. *Knows how* indicates the ability to analyze and interpret collected information and apply it to medical practice. *Shows how* is the ability to demonstrate these skills in action in a simulated environment, and *Does* is the ability to put these skills into clinical practice. In the academic curriculum, considering learning objectives, educational strategies, and assessment in relation to Miller's pyramid helps to better organize these concepts. The ability of learners is a complex combination of *Knows*, *Knows how*, *Shows how*, and *Does*; possessing the cognitive abilities *Knows* and *Knows how* does not guarantee possession of the abilities *Shows how* or *Does*. Assessment methods include a written test to assess *Knows* and *Knows how*, OSCE using a simulated patient or simulator to assess *Shows how*, and workplace-based assessment (observational assessment) to assess *Does*. In the assessment of students, it is necessary to conduct an assessment that checks against learning objectives and strategies and is not biased toward cognitive abilities; in other words, it is necessary to be conscious of *Shows how* and *Does* in the assessment of practical clinical competence. The authenticity of assessment increases with each level from *Knows* to *Does*. In general, the assessment of *Knows* and *Knows how* is the main focus in the lower academic years, but in later academic years, the assessment of *Shows how* and *Does* in the clinical setting becomes the main focus. The assessment of *Does* in clinical practice before graduation leads to learning and assessment in postgraduate clinical residency.

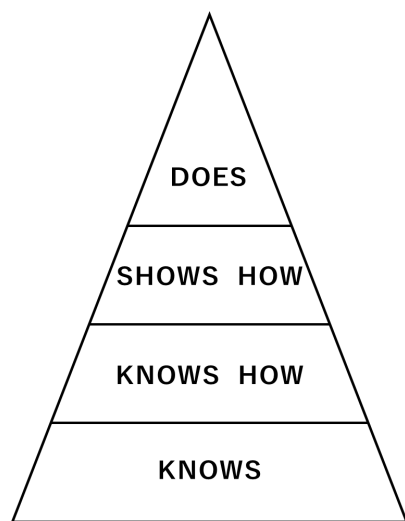


Figure 3. Miller's pyramid²⁷

II-1-2. Assessment of qualities and abilities

The qualities and abilities required of a physician are described as a synthesis of multiple, multidimensional competencies. The qualities and abilities are usually composed of observable and assessable competencies that encompass knowledge, skills, values, and attitudes. By assessing these competencies with reference to Miller's pyramid, an area of competence composed of multiple individual competencies can be assessed. Competencies need to be assessed in a multifaceted manner through written examinations, performance tests (e.g., OSCE), observational assessments, and portfolios, while taking into account their validity.

²⁷ Miller GE. The assessment of clinical skills/competence/performance. *Academic Medicine*. 1990;65(9): S63–7. <https://doi.org/10.1097/00001888-199009000-00045>

II-1-3. Formative and summative assessment

Formative assessment is conducted during the course of study and is intended to make the learner aware of shortcomings in meeting achievement objectives and to encourage improvement. In order to provide effective feedback to the learner, it is important for the instructor to make the subject of the feedback clear and to ensure that its frequency and timing are appropriate.

Summative assessment is conducted at the end of the learning process to determine whether the learner has reached the achievement objective (passing level). The implementation of appropriate summative assessment in medical education is an important societal responsibility for universities and qualification-granting institutions. Credit examinations, advancement examinations, graduation examinations, the Common Achievement Tests, and the National Examination for Medical Practitioners fall within the summative assessment category.

II-1-4. Validity, reliability, and practical factors relating to assessment

Validity and reliability are scientific concepts that define the quality of an assessment. Validity is a concept that indicates whether or not the qualities and abilities that should be assessed are being correctly assessed. It is also an expression of whether the assessment method successfully generalizes and draws conclusions on the absence, presence, and degree of achievement of the relevant qualities and abilities. Validity should be verified from multiple perspectives, including not only consistency between the assessment contents and the learning objectives, but also the quality of the assessment tools, the management and administration methods of the assessment, and the impact of the assessment on the students, instructors, and the organization.

Reliability refers to the reproducibility and consistency of the assessment results across items, time, assessors, and other factors. The reliability of scores is often verified using measures such as Cronbach's alpha coefficient or G-coefficients. It is particularly necessary to verify reliability in tests with a large number of participants. In some cases, this may be considered part of validity testing.

In addition to these scientific concepts, practical factors such as feasibility and educational impact also influence the actual assessment. Feasibility refers to the ease of preparing human and material resources for the assessment plan and the level of understanding and acceptance of the assessment system by the parties involved, and thus determines the ease of implementation. The educational impact is the effect of content, methodology, weight, and result delivery of the assessment on the behaviors of the learner. This should be considered in the assessment plan to promote desirable academic behaviors. For an assessment to be effective, it must be designed with a balance between validity, reliability, and practical factors.

II-1-5. Assessment blueprints

An assessment blueprint is a design specification that indicates in advance that test questions and methods have been systematically created from the areas to be assessed and that the data obtained covers the qualities and abilities to be assessed. Blueprints describe content such as the areas to be covered, descriptions of the learning outcomes to be assessed, the assessment methods, the number of questions, and the distribution of scores. The blueprint is essential to demonstrate the validity of the assessment.

Box 9. Programmatic assessment

Programmatic assessment is a concept of learner assessment that reflects the viewpoint that in the continuous growth of a learner's abilities and qualities, it is not appropriate to judge those abilities and qualities using limited assessment methods at a specific point in time. The term does not refer to quality evaluation of educational programs. The concept includes the following four characteristics. (1) The assessment is designed to be conducted at different points in the curriculum, multiple times, and in various ways. (2) The results of each individual assessment are used for student self-assessment and feedback from the educator (formative assessment), and are retained as quantitative and descriptive information. (3) Quantitative and descriptive information from multiple assessments is comprehensively gathered and consolidated to form a basis for important judgments (summative assessment), such as decisions on advancement and

graduation. Such judgments are not based on a mere aggregation of grades. (4) To enhance their legitimacy, important judgments are made by a panel of multiple stakeholders who are not directly involved in mentoring or educational guidance. The assessment approach characterized by points (1) to (4) is programmed into the curriculum (Figure 4).

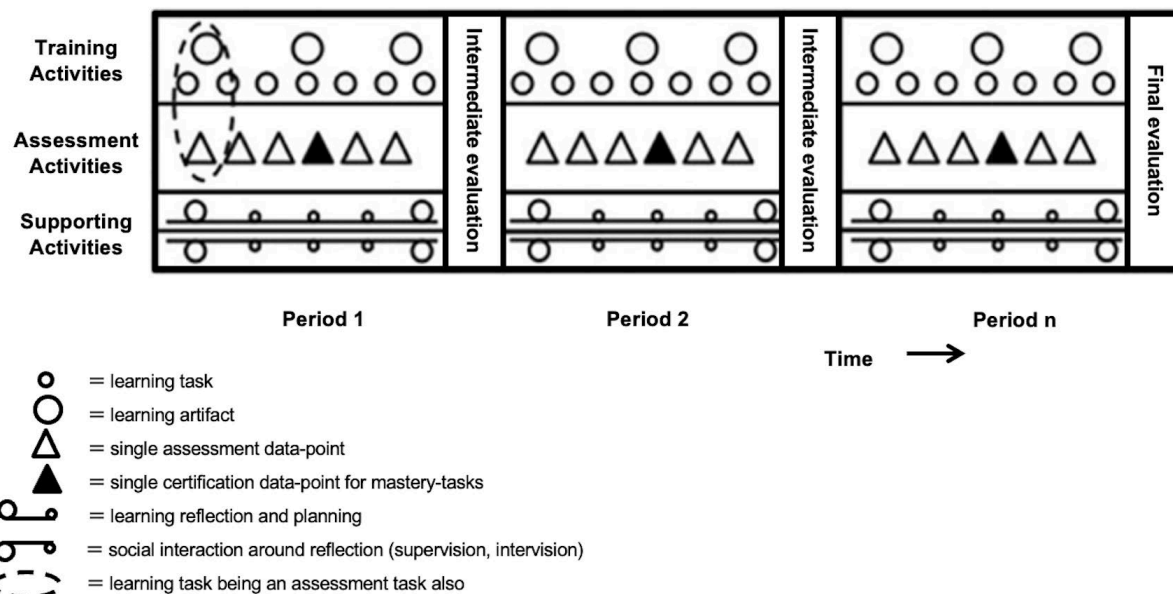


Figure 4. Programmatic assessment model²⁸

II-1-6. Assessment criteria and standards

Assessment criteria are the perspectives (assessment items) from which an assessment is made. Assessment standards are descriptive scales against which each assessment criterion is assessed.

Only a small proportion of assessment tools, such as multiple-choice question (MCQ) tests, produce the same results no matter when and by whom learners are assessed. The majority of assessment tools, such as essay-writing, oral examinations, and performance assessments, are influenced by the subjectivity of the assessor. A rubric, which is a predefined table of assessment criteria and standards, is used to ensure that assessments can be conducted fairly at different times and by different assessors.

II-2. Assessment methods

II-2-1. Written tests

Written tests require learners to answer questions by writing on an answering sheet or by input into a computer. This method is mainly used to assess knowledge (cognitive domain). Because written tests have limitations in terms of assessing skills (psychomotor domain) and attitudes (affective domain), it is advisable to combine them with other assessment methods that are more suitable for these purposes. The two main types of such tests are objective tests and descriptive tests, whose characteristics are described in more detail below. In addition, several further formats have been developed to suit the distinctive characteristics of medical education (see Box 10).

II-2-2. Objective tests

In objective testing, respondents are given a choice of answers and are asked to select and answer the questions. There are several objective methods available, including multiple-choice, true/false (yes/no), sorting, and combination questions.

²⁸ van der Vleuten CP, et al. A model for programmatic assessment fit for purpose. *Medical Teacher*. 2012;34(3):205–14. <https://doi.org/10.3109/0142159X.2012.652239>

While these are easy to process in high volumes and can be scored automatically, they also tend to be superficial in terms of the cognitive abilities that can be assessed, as questions exclusively test whether the examinee can recall information. When preparing questions, it is necessary to carefully scrutinize the question text and the answer choices to more accurately identify the presence or absence of the particular ability that is intended for questioning. The multiple-choice format, in which the examinee selects the appropriate answer from multiple choices indicated by symbols, is used in the National Examination for Medical Practitioners and the Computer-Based Testing (CBT) of the Common Achievement Tests. Examinees are asked to choose one or more answers from the given choices. In addition to the need to carefully scrutinize the questions, which is common to all objective tests, it is known that there are pitfalls unique to this format, such as the fact that answers can be derived from clues provided by the choices, or that appropriate answers may be given even if they are not known. Such pitfalls can be overcome to some extent by devising the number of answer choices and scoring methods.

II-2-3. Descriptive tests

Descriptive tests require written answers, and can be roughly classified into two types: short-answer and essay. The short-answer type consists of questions for which the examinee writes short answers that do not constitute sentences, such as words, phrases, numerical values, mathematical formulas, chemical formulas, and English vocabulary. The essay type principally requires examinees to answer questions in sentences or with longer written compositions, but also includes a broader range of questions such as those which are answered in the form of charts and graphs. Compared with objective tests, descriptive tests are more likely to assess deeper cognitive abilities, such as the ability to apply and analyze information, but test time limitations may mean that not all of the assessment areas can be covered. In addition, descriptive tests are not only relatively labor-intensive in terms of scoring, but it is also necessary to prepare rubrics or other scoring criteria to maintain reproducibility, particularly for essay-type question formats.

Box 10. Written tests tailored specifically to medical education

The following test formats have been developed to assess the examinee's ability to apply knowledge and reasoning in written tests.

- Key features questions: A clinical case is presented, and the examinee is asked about the main points of the medical history, examinations, and tests that lead to the solution of the problem.
- Script concordance test: A case and its clinical hypothesis are presented, and the examinee is asked how the hypothesis changes when certain information is added.
- Sequential questions: The examinee is presented with a case and asked to make sequential decisions at each step of the medical process. Additional information is provided at each step, serving as the correct answer to the previous question. This enables the assessment to focus on the ability to reason at individual stages of the process.

II-2-4. Workplace-based assessment (observational assessment)

In workplace-based assessment, learners are observed and assessed within the clinical setting. Assessment of practical competence is mainly based on the assessor's observations of daily behaviors and attitudes. It is recommended that a rubric be developed so that different assessors can assess learners from a set perspective and on the same scale. However, because variation in assessment results implies multifaceted observations of the learner's competence, it is not necessary to aim to minimize such variation. Instead, in order to generalize the results in terms of competence and to determine a final assessment, it is important to have assessors in various positions (360-degree assessment) and to give detailed substantiation of the behaviors and attitudes observed.

II-2-5. Objective structured clinical examinations

OSCEs assess the performance of the student through predefined stations composed of multiple standardized tasks. Common criteria and standards are used in the assessment. Students are tested in examination rooms equipped with the same materials. These tests are suitable for assessing the skills and attitudes that fall within the qualities and abilities relating to

clinical practice. It has the advantage of objective assessment, but requires a large amount of human, material, and time resources to implement. Large-scale OSCEs are conducted nationwide before and after the clinical clerkship. In addition, OSCEs may be conducted for formative or summative assessment during or after clinical clerkship rotations.

II-2-6. Portfolio assessment

A portfolio is a record of a student's accomplishments and self-reflections that demonstrate improvement in knowledge, skills, attitudes, and understanding, as well as professional development, accumulated over a period of time. In undergraduate medical education, this includes case reports, checklists of procedures experienced, observational assessments, research reports, participation in academic conferences, and self-reflections on what has been learned. Portfolio assessment has gained attention because of the close link it creates between assessment and learning, and because it can assess students in areas that have been traditionally difficult to assess, such as professionalism.

II-2-7. Common Achievement Tests

The Common Achievement Tests consist of two parts. The first is an examination to assess whether medical students have the ability and aptitude to perform clinical clerkship, which includes the CBT and the Pre-Clinical Clerkship (Pre-CC) OSCE. The other is an examination to assess whether medical students have gained an acceptable level of clinical ability through their clinical clerkship to graduate from medical school (the Post-Clinical Clerkship OSCE). The 2021 revision to the *Medical Practitioners' Act* made passing the CBT and the Pre-CC OSCE a requirement for entering clinical clerkship from 2023, and required pass/fail decisions to be made on the basis of nationally standardized criteria from the same year. In addition, the revised Act made passing the Common Achievement Tests a requirement for taking the National Examination for Medical Practitioners from 2025.

The Common Achievement Tests Organization (CATO) is responsible for test preparation (e.g., creating examination cases and tasks for OSCE stations), test implementation and support, and test result analysis. For the OSCE, certified assessors and standardized patients are trained in order to standardize the assessment.

(1) Computer-Based Testing

CBT is an objective examination that consists of questions jointly prepared by university faculty members across Japan and tests examinees on the knowledge required prior to undertaking clinical clerkship. It consists of six blocks: the first to fourth blocks comprise five-choice MCQs, the fifth block comprises other MCQ formats, and the sixth block comprises five-choice sequential MCQs relating to groups of four questions. Because the examinations are administered on different dates at different universities, the questions are combined from a large number of pooled questions for which statistical data have been collected in advance to ensure equal difficulty across the individual examinations. Grades are calculated on the basis of item response theory in order to accurately measure academic performance even for different questions.

(2) Pre-Clinical Clerkship OSCE

The Pre-CC OSCE is an examination system in which individual medical schools cooperate with other medical schools to conduct an appropriate assessment of the basic medical skills and attitudes required for clinical practice before the start of clinical clerkship. This ensures that student participation in the clinical clerkship is effective. Candidates are tested on medical interviews, physical examinations (including examinations for general condition and vital signs, head and neck, chest, abdomen, nervous system, and extremities and spine), basic clinical skills, infection control, and emergency response. The items to be covered in the examination are listed in detail in the *OSCE Learning and Assessment Guide* produced by CATO (https://www.cato.or.jp/pdf/osce_42.pdf).

(3) Post-Clinical Clerkship OSCE

The Post-Clinical Clerkship (Post-CC) OSCE is for all medical students who have completed their clinical clerkship, and is based on the principle of assessing clinical competence at the time of graduation (i.e., the clinical competence required at the start of the clinical residency program). The Post-CC OSCE assesses qualities and abilities relating to the items described in *Skills and Behaviors to Acquire by the End of Clinical Clerkship (CATO)* (see box below). The details of the items to be

assessed are described in the *OSCE Learning and Assessment Guide* produced by CATO, based on the *Model Core Curriculum for Medical Education*. The Post-CC OSCE was officially implemented in 2020. CATO has since established OSCE implementation guidelines, and provides examination cases and tasks for OSCE stations. However, individual universities are also required to devise and conduct their own original cases and tasks, and pass/fail decisions are left to each university.

Box 11. Skills and Behaviors to Acquire by the End of Clinical Clerkship (CATO)²⁹

In order to gain the trust of patients and their family members and to practice patient-centered medicine, medical students must acquire the following skills and behaviors by the end of clinical clerkship.

1. Conduct medical interviews through appropriate communication to obtain necessary information.
2. Perform appropriate physical examinations to obtain necessary information.
3. Perform appropriate clinical reasoning from the information obtained.
4. Provide an oral presentation as appropriate to the situation.
5. Integrate the information obtained, enumerate the problems, and formulate appropriate diagnostic, therapeutic, and educational plans accordingly.
6. Gather evidence for a clinical problem, critically examine the evidence, and consider its application to the patient.
7. Document medical records accurately, clearly, and without delay.
8. Recognize patient safety issues and take appropriate action.
9. Collaborate appropriately with all health professionals.
10. Share necessary information with patients and others to support their decision-making.
11. Perform basic clinical procedures safely and appropriately.
12. Assess the urgency of the situation on the basis of the information obtained, and take appropriate initial action.

The most recent versions of guidance documents relating to the Common Achievement Tests, including the OSCE Learning and Assessment Guide, are available from the CATO website (<https://www.cato.or.jp/>).

II-2-8. National Examination for Medical Practitioners

The National Examination for Medical Practitioners, held at least once a year, is defined in Article 9 of the *Medical Practitioners' Act* (July 30, 1948) as “an examination which tests the requisite knowledge and skills related to medical science and public health in a clinical setting that a person should possess as a medical practitioner.” As a national qualification, it is a rigorous examination that requires high reliability and validity in order to guarantee the quality of physicians, and a medical license is issued by the Minister of Health, Labour and Welfare to those who pass it. The examination content is based on the *Guidelines for the National Examination for Medical Practitioners* and comprises “Core Essentials,” which covers the key attitudes and basic clinical skills required of a doctor, “General Theory of Medicine,” which covers issues common across medical specialties and public health, and “Specialized Theory of Medicine,” which covers diseases and pathological conditions within each field of medicine.

²⁹ Public Interest Incorporated Association, Common Achievement Tests Organization. <http://www.cato.umin.jp/> [in Japanese]

The *Guidelines for the National Examination for Medical Practitioners* contain many items that are also included in the *Model Core Curriculum for Medical Education*, both in terms of basic qualities and abilities required of physicians and the symptoms and pathological conditions for which physicians should gain experience. In addition, the proportion of examination questions for each item is specified in the blueprint for the National Examination for Medical Practitioners. The approach and objectives for the examination questions are periodically reviewed.

The *Guidelines for the National Examination for Medical Practitioners* (2018 edition) are available from the MHLW website (<https://www.mhlw.go.jp/stf/shingi2/0000128981.html>).³⁰

Box 12. Learner assessment and curriculum evaluation

Learner assessment is used to recognize the degree of mastery of learning outcomes (competencies) by the learner and the organization or group to which the learner belongs, and each learner moves toward the achievement of learning goals through assessment. Curriculum evaluation is the process of analyzing the results of the learner assessment to verify whether the curriculum is effectively constructed and implemented. The assessment policy for learning outcomes, which includes the purpose of assessment, assessment criteria, and specific implementation methods, serves as a guideline for adequately grasping and visualizing learning outcomes when implementing learner assessment or curriculum evaluation. Learner assessment is sometimes simply described as “assessment,” while curriculum evaluation is sometimes simply described as “evaluation.”

Box 13. Examples of good practice: Assessment at graduation without graduation examination

Medical education in Japan has long made use of graduation examinations (summative written examinations for which questions are set by each department) to determine whether students have successfully completed clinical clerkship and are therefore eligible for graduation. However, the following issues have been raised:

1. When a single examination is responsible for determining a critical decision, such as whether or not a student can graduate, students are likely to take a short-sighted approach in preparation for the examination, which hinders the development of a continuous approach to learning.
2. It is difficult to assess the skills and attitude domains in a written examination.
3. The examinations are sometimes conducted without verifying whether they have sufficient validity in terms of reflecting competencies required at the time of graduation.

In light of these issues, some universities have abandoned the written examinations and introduced alternative forms of assessment. In response to the first issue, some universities have implemented progress testing (periodical examinations, starting in lower grades, that measure whether the competency levels required for graduation have been reached). Such universities judge the student to have passed the graduation examination if he or she achieves the required scores even in the lower grades. To achieve a progress testing element to examinations held during the clinical clerkship period (e.g., written tests and OSCEs), it is also possible to set the same examinations for students across multiple year groups, or to administer the examinations multiple times.

The introduction of the Post-CC OSCE has overcome the second issue to some extent. Furthermore, in addition to the OSCE stations provided by CATO, individual universities can put forward their own OSCE stations to create their desired summative assessment at the time of graduation. Research is also underway into methods of assessing a wider range of competencies using CBT with added audio and video, rather than traditional paper-based tests.

³⁰ Ministry of Health, Labour and Welfare. <https://www.mhlw.go.jp/stf/shingi2/0000128981.html> [in Japanese]

The third issue is liable to occur in all examinations, but can be overcome by creating a blueprint when designing the examination and verifying whether the content of the questions equally reflects all the competencies required at graduation. Furthermore, a method that systematically incorporates various elements into the assessment, such as programmatic assessment (see Box 9), may be useful. In this case, assessment methods such as observational and portfolio assessment should be introduced to systematically elicit the diverse range of experience gained during clinical clerkship.

II-3. Questions about learner assessment

The planning, implementation, and interpretation of learner assessments are influenced by a variety of academic factors, such as the learning objectives, learning curriculum, and learning environment. The following is a list of questions to consider when designing a learner assessment. However, the possible answers to each question are numerous and varied, and depend on the circumstances at individual institutions, and are therefore not listed.

II-3-1. Assessment of qualities and abilities

- How should the basic qualities and abilities required of physicians be assessed?
- How should qualities and abilities relating to research be assessed? Is a graduation thesis necessary?
- What is the difference between assessing qualities and abilities as competencies or generic skills and assessing knowledge, skills, and attitudes separately?
- How can competency development in students be continuously and comprehensively assessed?

II-3-2. Assessment of clinical clerkship

- What should be kept in mind during the observational assessment of clinical clerkship?
- How can the results of the observational assessment be used for summative assessment of clinical clerkship?
- How should summative assessment of clinical clerkship be conducted for compulsory departments/specialties versus non-compulsory departments/specialties?
- What should be the assessment method at each affiliated hospital?
- Is observational assessment alone sufficient to assess clinical clerkship?
- When creating original OSCE stations for your university, what should the stations focus on and how should they be designed?

II-3-3. Assessment of courses

- What should be the scope of the exam (all areas or by area) for clinical subjects? Is the MCQ format preferable?
- Is a five-choice format optimal for MCQs? What would be the impact of increasing or decreasing the number of choices or using multiple-answer MCQs?
- What would be the impact on the validity and reliability of the assessment if converted to a comprehensive examination covering multiple subject areas?
- What content is not being evaluated by the CBT element of the Common Achievement Tests?
- How should the number and timing of course exams be set? Should they be conducted only once at the end of the course?
- How should report assessments be assigned and graded?
- How should attitudes be assessed for large classes and group learning?

II-3-4. Pass/fail decisions

- How should the pass/fail criteria for course examinations be set, and what is the rationale for a set pass/fail threshold score of 60%?

- Is it acceptable to include attendance points in the pass/fail decision for a course?
- In what circumstances should a reexamination be set?

II-3-5. Assessment method

- Is the National Examination for Medical Practitioners and the Post-CC OSCE sufficient for assessment at graduation?
- What are the advantages and disadvantages of each assessment method at your university (from the perspective of both faculty and students)?
- What can be done to verify and enhance the reliability and validity of each assessment method at your university?
- How should a formative assessment be conducted?
- How should a 360-degree assessment be conducted?

Guidelines for Participatory Clinical Clerkship

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Annex

I. Introduction

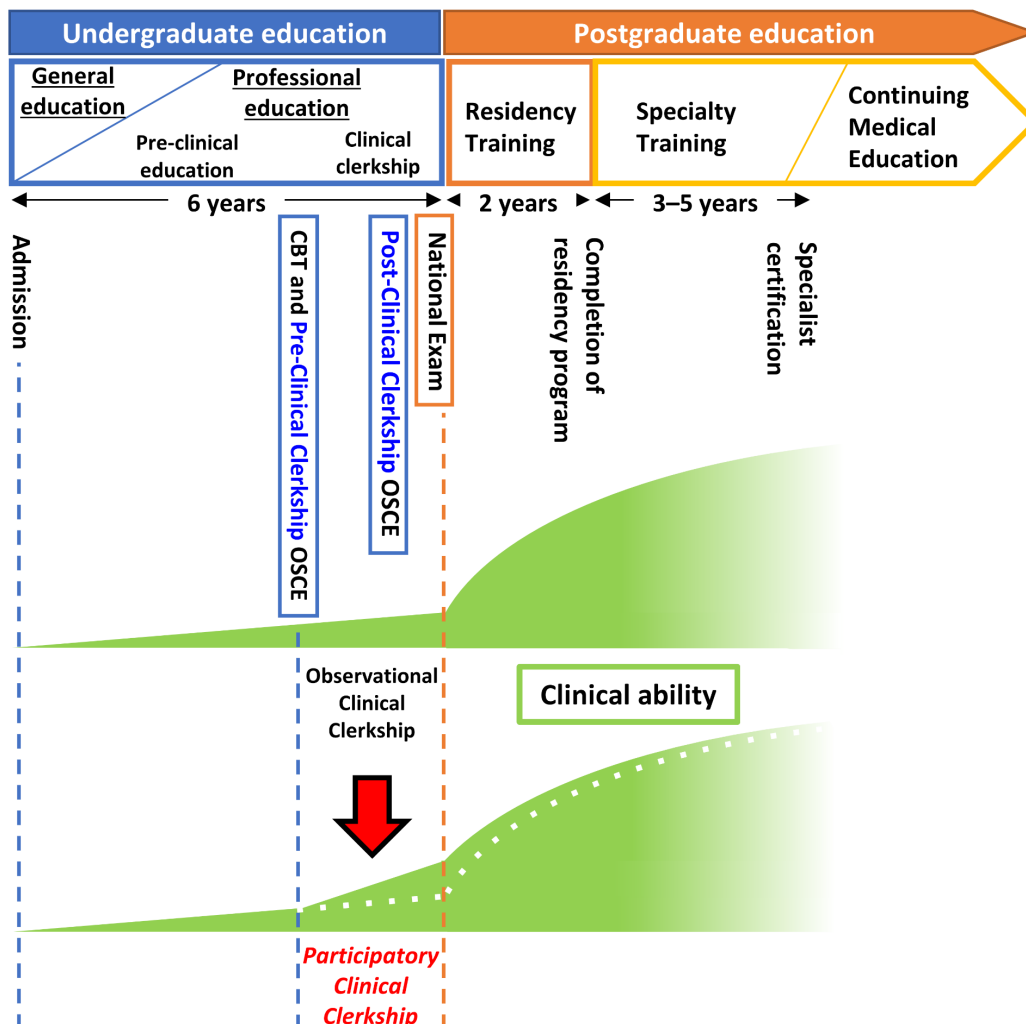
This section introduces the significance and purpose of participatory clinical clerkship and describes how to establish systems for its implementation.

I-1. Significance of enhancing the participatory clinical clerkship

The *Report of the Physicians Committee of the Medical Ethics Council* (May 2020) states the following regarding the need for consistent training of physicians in undergraduate and postgraduate education.

In recent years, the importance of professionalism education, including communication with patients and other medical professionals, has come to the fore in discussions about medical education, the National Examination for Medical Practitioners, and the clinical clerkship system. This is partly due to the aging population, changes in disease structure, and changes in the doctor–patient relationship, but also due to the fact that the growing sophistication and complexity of medical care has increased the medical knowledge and skills that physicians need to acquire. This has led to a recognition that it is necessary for medical students to actively participate in medical care even during their undergraduate education, and that consistent training of physicians centering on medical practice is required at both the undergraduate and postgraduate levels. (...) In the process of developing such a seamless physician training system, (1) the lack of promotion of participatory medical practice as part of undergraduate clinical clerkship (...) has been recognized as a major issue.

Figure 1. Academic benefits of the transition from observational clinical clerkship to participatory clinical clerkship.



I-2. Purpose of the participatory clinical clerkship

The purpose of the participatory clinical clerkship is for students to learn the fundamental medical knowledge, critical thinking, skills, and attitude required of a physician by actively being part of a clinical team and sharing responsibility in its medical practice. In implementing and improving the participatory clinical clerkship, it should be noted that its purpose is not limited to the acquisition of medical knowledge and skills and gaining experience in medical treatment, but also includes the cultivation of critical thinking and response capability in relation to diagnosis and treatment, which are essential skills in the clinical setting, through practicing medicine with actual patients.

The main educational features of the program include the following:

- (1) Students learn not only textbook-style medical knowledge, but also comprehensively learn the competencies required of a physician, including critical thinking skills (clinical reasoning, clinical decision-making, planning of medical treatment, etc.), medical interviewing, physical examinations, basic clinical procedures, writing skills for medical records and other documentation, attitudes in clinical practice (including professionalism as a physician), and attitudes to learning.
- (2) When students learn the basic clinical knowledge, critical thinking, skills, and attitudes required of a physician, it is the patients, physicians, nurses, and other medical staff (interprofessional education) who generally assume the teaching role.
- (3) Specifically, the clinical training team (consisting of university faculty members or physicians from external hospitals cooperating in clinical training) obtains information on the clinical abilities of the students and assigns some of the patient care tasks to them accordingly. Then, as their ability improves, they are assigned more advanced tasks, and thus acquire the necessary knowledge, ways of thinking, skills, and attitudes in a step-by-step and continuous manner.
- (4) In order to achieve this, instead of having students undertake one-to-two-week rotations in each department, with an independent learning assessment conducted each time, it is necessary for students to be assigned to hospital departments and receive continuous assessment by a supervising physician for at least three consecutive weeks (in principle), particularly for internal medicine (including each subspecialty), surgery (including each subspecialty), psychiatry, general medicine, obstetrics and gynecology, and pediatrics. However, in order to cultivate holistic medical skills and attitudes, it is important to ensure that students are assigned to at least one of these departments for at least four consecutive weeks. In the emergency department, the period of assignment must be at least three weeks in total (in principle). The clinical clerkship period may also include practical training in community-based medicine. In addition, even in the case of one-to-two-week assignments to departments other than those listed above, it is necessary for students to undergo continuous learner assessment based on common learning objectives and assessment criteria that extend across departments.
- (5) In addition, physicians involved in training (especially postgraduate residents) are also encouraged to learn and develop by asking questions based on new perspectives raised by students.

I-3. Establishment of systems for implementing participatory clinical clerkship

In implementing the participatory clinical clerkship, it is necessary for all parties concerned to have a common understanding of the fact that students participate in the medical team and assist in providing medical care, as well as to have an awareness of educational characteristics, risk management, and other legal issues relating to the program.

In participatory clinical clerkship, students are responsible for some aspects of patient care, which necessarily involves performing medical procedures. Article 17 of the *Medical Practitioners' Act* (July 30, 1948) stipulates that “No person except a medical practitioner may engage in medical practice.” However, in light of the importance of clinical clerkship and the conditions under which it is conducted, medical practice by medical students as part of their training has been recognized in practical terms as not being unlawful, and is therefore not construed as unlicensed practice of medicine (see the *Final Report of the Clinical Clerkship Review Committee* (1991) (hereafter, the *Maekawa Report*), and the *Research Report on Medical Practices that can be Performed in Clinical Clerkship* (2008) (hereafter, the *Monden Report*)). The *Act for Partial Revision of the Medical Services Act, etc. for the Purpose of Securing a System for Efficient Provision of High-Quality and Appropriate Medical Care* (hereafter referred to as the *Revised Medical Services Act*), passed on May 21, 2021, partially amended the *Medical Practitioners' Act* to allow medical students who have passed the Common Achievement Test (CAT)

to practice medicine under the guidance of a supervising physician during clinical clerkship, effective from April 1, 2023. Although this revision of the law states that the conditions for medical practice by medical students during clinical clerkship should continue to be in line with the existing concept, the law has been changed from the previous notion of legal justifiability (i.e., justifiable noncompliance) to having official legal status “in order to further promote the implementation of participatory clinical clerkship” (from the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (March 2022)). Therefore, those involved in clinical clerkship, especially faculty members involved in teaching, are urged to reconfirm the medical practices that medical students are allowed to perform, reexamine what roles medical students are expected to play in clinical practice under the revised *Medical Practitioners’ Act*, and establish a clinical clerkship program in which medical students are more actively involved in the medical treatment process.

II. Implementation System and Environment

II-1. Organizational structure for implementation

In order to make the participatory clinical clerkship more effective, it is necessary to develop an organizational structure that can accommodate student participation. In doing so, the following points should be considered.

II-1-1. Organizational roles

- (1) Strengthen the roles of the Dean of the medical school, faculty council, academic affairs committee, administrative division, center for medical education, and other educational organizations, and manage clinical clerkship as a whole to maintain standards at a set level through smooth cooperation with the university hospital and other hospitals involved in clinical training.
- (2) Separate the matters to be standardized by the medical school from those to be decided by each clinical department.

II-1-2. Establish a system of medical practice with a strong educational function. In other words, create a system in which students are integrated into the clinical team and their roles and responsibilities are progressively increased.

II-1-3. Improve educational competence and promote understanding among supervising physicians, clinical teams, and other hospital staff, and develop students' awareness of their participation in medical care. (This includes faculty development (FD) workshops for faculty members, physicians involved in training, and other trainers; and staff development (SD) training sessions for administrative staff.)

In addition, it is necessary to clarify the roles of the following persons involved in training, and to develop a training supervision department to ensure that they can fulfill their roles appropriately.

- (1) Dean of the medical school, and faculty council
- (2) Academic affairs committee, administrative division, center for medical education, and other educational organizations
- (3) University hospitals and other external hospitals involved in clinical training
- (4) Training program director and training supervisors in each department
- (5) Supervising physicians (i.e., clinical trainers) in each clinical team
- (6) Residents (i.e., postgraduate trainees)
- (7) Medical students
- (8) Medical professionals other than physicians

II-2. Development of a training supervision department

The development of a university-wide training system, including a system to implement the reform cycle of "implementation → evaluation → improvement" to further enhance participatory clinical clerkship in the future, can be expected to contribute to solving a wide range of issues.

II-3. Stakeholders involved in implementing the participatory clinical clerkship

II-3-1. Supervising physicians

Supervising physicians are clinical trainers who teach, supervise, and assess medical students in the clinical setting. For this reason, attendance at a FD course on clinical training and supervision is strongly recommended.

II-3-2. Medical professionals other than physicians

In the participatory clinical clerkship, medical students participate in medical care as members of the clinical team. Therefore, all medical professionals in that team, including nurses, pharmacists, and clinical laboratory technicians, are involved in the teaching of medical students. In particular, a "360-degree assessment" that includes assessments from

medical professionals other than physicians, as well as from patients and their family members, is desirable to achieve an authentic assessment of trainees.

II-3-3. Training supervisor for each department

Training supervisors are involved in the planning and formulation of the clinical clerkship program, together with the training program director (usually in the training supervision department), and oversee the implementation and assessment of training in their own clinical department under the supervision of that department's director. Attending a FD course on clinical training and supervision is strongly recommended. In principle, training supervisors should have at least 7 years of clinical experience and should have attended a suitable clinical training course covering aspects such as primary care training methods.

II-3-4. Director of department where clinical clerkship is conducted

As the person in charge of the department in which the clinical clerkship is conducted, this person manages the planning and implementation of the clinical training in that department, and supervises the assessment work.

II-3-5. Training program director

The training program director is responsible for all clinical clerkship program-related training for that medical school, managing the program's design, planning, and implementation, as well as providing advice, guidance, and other assistance to medical students.

II-3-6. Administrator

The administrator provides support in all aspects of the system for clinical education and training of medical students throughout the medical school, university hospital, and other institutions cooperating in the clinical clerkship program, and ensures that the work of the training supervision department is carried out smoothly.

II-3-7. Director of clinical training facility

The director of the university hospital or other external institution cooperating in the clinical clerkship program supports the smooth implementation of clinical clerkship in close cooperation with the medical school and in its training program director. The medical school is responsible for training conducted as part of the clinical clerkship, while the facility where the training is conducted is responsible for medical treatment. If any legal issues arise, the director of the clinical training facility should discuss and handle them in collaboration with the medical school.

II-3-8. Administrative division

An administrative system that enables smooth cooperation between the medical school (including the academic affairs and training supervision department heads) and hospitals (including the training, patient safety management, and infection control department heads) is required.

II-3-9. Patient consultation and support service

In driving forward the participatory clinical clerkship program for medical students, it is necessary to establish a point of contact for queries from patients regarding clinical clerkship, including through the use of existing patient consultation and support services, and to make efforts to advertise these services to the public.

II-4. External medical institutions cooperating in clinical training

There are various practices that medical students can be given experience of as a means of acquiring the ability to understand the current status of and issues relating to medical care in the community (including health, welfare, and long-term care), and the ability to practice primary care as the basis of medicine and contribute to the quality improvement of the

overall healthcare system. Such experience can include cooperation between primary and secondary care (and between hospitals), emergency medical care in the community, the pre-hospital emergency medical care system, medical control, the urgency evaluation system, home medical care, interprofessional collaboration, and disease prevention and health promotion in the community. To achieve this, it is necessary to request cooperation in practical training from medical institutions outside the university and to deploy students to those institutions.

In addition, compared with non-university (i.e., external) medical institutions, university hospitals tend to attract a higher proportion of patients with specific conditions requiring highly advanced medical care, such as cancer, and see cases of complex or rare conditions that are difficult to diagnose or treat, or patients who are receiving testing and treatment for the purpose of advanced medical research. Therefore, in order for all students to gain experience in all conditions and diseases required by the *Model Core Curriculum* as part of clinical clerkship, such as frequently occurring symptoms and diseases, primary and secondary emergencies, and general diagnosis and treatment, it is recommended that students do not spend the entire period of clinical clerkship only within university hospitals, but instead be actively assigned to external medical institutions cooperating in the clinical clerkship program.

Furthermore, it is also argued that as an environment in which to begin practical training in clinical reasoning, external medical institutions, which primarily attract patients with relatively short and simple medical histories, are more suitable than university hospitals, which tend to attract patients with relatively long and complex medical histories. However, there are also examples of universities that have devised ways to lengthen the clinical clerkship period and reduce the burden on university hospitals by outsourcing parts of their clinical clerkship program to external medical facilities.

If there is insufficient exposure to cases required to meet the compulsory experience target, it is advisable to propose reconfiguration of clinical clerkship rotations in university hospital departments as necessary, and to consider assigning students to external partner medical institutions for clinical training, while ensuring close educational collaboration with those facilities.

II-5. Student safety management

II-5-1. Clinical training hours

In the *Labor Standards Act* (April 7, 1947), standard working hours are limited to 40 hours per week, 8 hours per day, with at least a 45-minute break for working hours exceeding 6 hours, and at least a 1-hour break for working hours exceeding 8 hours. Although students are not subject to these regulations because they are not classed as workers, it is advisable for the training supervision department to indicate the approach to clinical training hours in order to ensure the safety and health of the students and to maintain study time outside of clinical training.

II-5-2. Health management

(1) Periodic medical checkups

In accordance with the School Health and Safety Act, the medical school must provide students with a periodic medical checkup.

(2) Antibody titer test and vaccinations

Because of the increased contact with patients that arises in participatory clinical clerkship, students should be tested for antibody titers and vaccinated against diseases including measles, rubella, varicella, mumps, and hepatitis B.

II-5-3. Management for students with disabilities or allergies to items or chemicals used in the clinical clerkship

To ensure fairness among students, the university should plan and implement the clinical clerkship after careful and thorough consideration for students with disabilities or allergies to items or chemicals used as part of clinical training.

II-5-4. Radiation exposure management

It is important to manage exposure to radiation for the safety of the students participating in the clinical clerkship.

II-6. Patient safety management and infection control (measures to prevent and respond to medical accidents)

II-6-1. Accidents that harm students (including needlesticks and exposure to blood and bodily fluids)

Supervising physicians and others involved in the clinical clerkship should maintain a well-regulated and sensible lifestyle, give students reminders to keep their physical and mental condition in check at all times, communicate with students on a regular basis, and deal with any complaints of illness in an appropriate manner.

For blood-borne infections that can occur in any department or specialty, it is desirable to prepare guidelines similar to the nosocomial infection control manual regarding prevention measures and how to respond promptly in the event of an accident, and to make these guidelines known to all concerned. In particular, medical procedures that are prone to transmission of blood-borne and other infections should be not only be conducted with thorough instruction and supervision to prevent infection, but also a full explanation of the risks involved should be given and written student consent obtained before performing such procedures. Prior to the start of practical training, antibody titer tests and vaccinations for hepatitis B and other relevant diseases should be conducted.

In the event of an accident, it is necessary to respond promptly in accordance with the guidelines, report the facts of the accident to the training supervision department and other key stakeholders, and also keep a written record of the details of the accident.

II-6-2. Accidents that harm patients as a result of student conduct

(1) Medical practice based on the instructions of the supervising physician

1. If a patient suffers harm or injury as a result of direct medical treatment by a student (including having a fall while being assisted by a student) who is involved in medical care as a member of the clinical team at the hospital or medical facility, the patient who received the medical treatment has a contractual relationship with that hospital or facility, and the supervising physician conducting the clinical training is acting as an employee of that hospital or facility, and therefore the hospital management may be held vicariously liable under the Civil Code.
2. Depending on the circumstances of the accident, the hospital administrator may reasonably hold the supervising physician and student, as employees of the hospital, liable for the accident. The extent to which the parties are legally liable for damages will depend on the outcome of the discussions between the parties or the outcome of a civil lawsuit.
3. Depending on the circumstances of the accident and subsequent actions taken, it is also possible for the individual physician responsible for instructing the student to be held liable. The extent to which the individual physician responsible for the instruction is legally liable for damages will ultimately depend on the outcome of the civil lawsuit.
4. If the physician responsible for the instruction is held liable as a result of the parties' discussions or the outcome of a civil lawsuit, compensation will be paid if that physician has a medical indemnity insurance policy. As far as is understood from investigations conducted for preparation of the *Guidelines for Participatory Clinical Clerkship*, students are considered to be included within the category of "assistants" in the terms and conditions of such insurance policies; therefore, an accident caused by a student is treated in the same way as an accident caused by a nurse, radiology technician, or other medical professional acting under the direct supervision of the physician subscribed to the insurance policy, and therefore compensation will be paid. However, it is necessary to investigate and confirm the details of the specific policy when entering a contract with an insurance company.

(2) Medical practice conducted outside of the instruction and guidance of the supervising physician

If a civil lawsuit finds that the legal liability for the accident in question lies with the student, that student may be held liable for damages. However, if the student has indemnity insurance, the insurance company will compensate the student for the actual amount of the legal liability for damages to the patient's body, life, or property caused by the student's conduct toward the patient during clinical clerkship in Japan, unless the accident was caused intentionally. However, even in such cases, the management of the hospital that runs the training site may also be held liable for compensation.

(3) Medical accidents during clinical clerkship at external medical institutions cooperating in clinical training

After prior discussion, the agreement between the parties should clearly specify how medical accidents during clinical clerkship will be handled.

II-6-3. Accident and indemnity insurance for students

It is advisable for students to purchase “Medical student education and research insurance” to provide compensation in the event of accidents.

II-6-4. Response to incidents and in-hospital violence

During the clinical clerkship, students, like other hospital staff, are under the supervision of the hospital’s patient safety management department. Therefore, it is necessary for those involved in the clinical clerkship program to cooperate with the patient safety management department to ensure that students are instructed to understand and follow the directions in the same safety manuals as hospital staff, and to carry these manuals at all times. It is also necessary to determine and implement a method for reporting incidents involving students.

II-7. Scope of medical practice performed by students during the participatory clinical clerkship

The following is an excerpt from the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (March 2022), which describes how the legal concept of medical practice by medical students is considered within the context of the participatory clinical clerkship program.

Conditions for legally justifiable medical practice as part of clinical clerkship and how these relate to recent amendments to the law

- Regarding medical practice performed by medical students during the clinical clerkship, the *Maekawa Report* states, “The purpose of the crime of unlicensed practice of medicine under the *Medical Practitioners’ Act* is to protect the physical safety and lives of patients. Therefore, medical practice by medical students can be interpreted as being fundamentally not against the law (i.e., being legally justifiable), as long as the purpose, means, and methods are reasonable from the standpoint of socially accepted norms and the same level of safety is ensured as in the case of medical practice by licensed physicians. The conditions for legal justifiability are as follows: (1) the practice must be limited to a certain degree of non-invasiveness; (2) the practice must be conducted under the instruction and guidance of a supervising physician; (3) the medical student must be assessed prior to the start of clinical clerkship; and (4) the consent of the patient and other relevant parties must be obtained.
- In the *Monden Report*, the *Maekawa Report*’s summary of legal justifiability was reviewed again, and it was determined that “this concept is still appropriate under the current circumstances.” The *Monden Report* also states that meticulous guidance and careful supervision by supervising physicians is necessary to “ensure that medical students are aware that they are engaging in medical practice and that the supervising physician can immediately stop or intervene in the procedure if necessary, and to ensure the same degree of safety as that of medical practice by licensed physicians.
- Even after medical practice by medical students receiving legal status under the *Medical Practitioners’ Act* through the *Revised Medical Services Act*, the summaries in the *Maekawa Report* and *Monden Report* are still appropriate as conditions for medical practice by medical students during the clinical clerkship, and such practice should continue to be conducted in accordance with these concepts.

II-7-1. Legal status of students undertaking medical practice

The revised *Medical Practitioners’ Act*, effective from April 1, 2023, requires universities to administer the CAT to assess whether or not students possess the necessary knowledge and skills before starting the clinical clerkship, and permits medical students who have passed the CAT to perform medical practices (excluding those specified by Cabinet Order) under the

guidance and supervision of a physician during the clinical clerkship. However, the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (March 2022) states the following:

- Appropriate guidance and supervision should continue under the management of the department in charge of clinical clerkship at the university, while ensuring patient safety.
- For the foreseeable future, patient consent should not be considered obtained solely on the basis of posting notices in the hospital, but should instead include, for example, obtaining written blanket consent from hospitalized patients, and individual consent for invasive procedures.

In addition, regarding the conduct of medical students during clinical clerkship, the report states the following:

- When medical students practice medicine during the clinical clerkship, they must comply with the scope of permitted medical practice established by the supervising department of the individual university.
- The physician responsible for providing guidance and supervision in the clinical setting shall decide whether or not the medical student will perform the prescribed medical procedures, taking into consideration factors such as the patient’s situation and the medical student’s level of proficiency.
- Universities should make reference to the *Monden Report* when determining the scope of medical practice permitted to be performed during clinical clerkship.

Furthermore, to ensure patient safety and to safeguard students, the issuance of medical prescriptions by medical students is prohibited by government ordinance, even under the guidance and supervision of a physician.

II-7-2. Examples of medical practices and procedures permitted to be performed by medical students for the purposes of physician training (Monden Report)

The following is an example of the scope of acceptable medical practice for medical students, as described in the *Monden Report*, published by the Ministry of Health, Labour and Welfare in July 2008, regarding clinical clerkship in the context of medical education (from the sections *Medical practice that should be started during clinical clerkship for the purposes of physician training (mandatory items)* and *Medical practice that is desirable to be started during clinical clerkship for the purposes of physician training (recommended items)*).

Classification	(1) Mandatory items <u>Medical practice that should be started</u> during clinical clerkship for the purposes of physician training	(2) Recommended items <u>Medical practice that is desirable to be started</u> during clinical clerkship for the purposes of physician training
Medical consultations and examinations	Medical record entry* ¹ Medical interview Vital signs check Physical examination (whole body, each organ/system) Otoscopy, nasal speculum Fundoscopy Basic gynecological examination Breast examination Rectal examination Prostate palpation Geriatric examination (activities of daily living (ADL) assessment, comprehensive geriatric assessment (CGA))	Explanation of medical condition to patient and family Assisting in childbirth Rectoscopy, proctoscopy
General procedures	Skin disinfection Application of topical medications	Application of a cast Collecting blood samples from children

	Airway suctioning ^{※2} Nebulization Venous blood collection Insertion of a peripheral intravenous line ^{※2} Gastric tube insertion ^{※2} Insertion and removal of urinary catheter ^{※2} Injection (subcutaneous, intradermal, intramuscular, intravenous) Vaccination	Cannula replacement Administration of an enema
Surgical procedures	Aseptic techniques Hand disinfection (surgical hand scrub) Gowning technique (i.e., use of gowns in sterile environments) Skin suturing Antiseptic skin preparation and dressing Suture removal Hemostatic techniques Assisting in surgical operation	Abscess incision and drainage Cyst/abscess puncture (on the body surface) Wound care Burn care
Testing and examination techniques	Urinalysis Blood smear preparation and observation Microbiological tests (including Gram staining) Gestation test Ultrasonography (cardiovascular) Ultrasonography (abdomen) Electrocardiography (ECG) Transcutaneous oxygen saturation monitoring Rapid testing for pathogen antibodies Blood glucose measurement	Blood typing Blood compatibility testing Allergy testing Developmental testing, intelligence testing, psychological testing
Emergency ^{※3}	Basic life support Airway management Chest compression Ventilation with bag valve mask Use of automated external defibrillator (AED) ^{※2}	Electroshock Tracheal intubation Orthopedic conservative treatment such as immobilization
Treatment ^{※4}	Ordering prescription medications (oral medications, injections, intravenous infusions, etc.) Dietary instruction Resting level instruction Routine pre- and post-operative management instruction Oxygen dosage adjustment ^{※5} Creation of medical treatment plan	Health education

※1 Refer to *Medical record entry and production of documentation by medical students*, below. ※2 It is important that this procedure be performed only after training using a simulator. ※3 If there is no opportunity to perform these procedures in clinical practice, training using a simulator is also acceptable. ※4 This should only be performed after confirmation by the supervising physician. ※5 For patients who are receiving oxygen.

II-7-3. Scope of medical practice permitted to be performed by medical students during clinical clerkship as prescribed by the training supervision department of each university

As indicated in the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (March 2022), each university may refer to the examples of the scope of acceptable medical practice for medical students detailed in the *Monden Report* when determining the scope of medical practice to be performed by medical students during clinical clerkship. However, with regard to “ordering prescription medications (oral medications, injections, intravenous infusions, etc.)” which is listed as a mandatory item in the above table, this practice should be limited to planning prescription drugs and drafting prescriptions. This is because the issuance of medical prescriptions by medical students is prohibited by government ordinance.

The training supervision department of each university determines the scope of medical practice that is permitted to be performed by medical students during their clinical clerkship, taking the above factors into consideration. When undertaking medical practice during clinical clerkship, medical students must comply with the defined permitted scope of medical practice under the guidance and supervision of a physician. In addition, the physician responsible for providing guidance and supervision in the clinical setting should decide whether or not the medical student can perform a prescribed medical procedure, taking into consideration factors such as the patient’s situation and the medical student’s level of proficiency.

II-7-4. Medical record entry and production of documentation by medical students

(1) Significance of medical students entering clinical content (in which they participated) in medical records

1. Medical record entry and production of documentation by medical students are necessary to ensure the educational effectiveness of the participatory clinical clerkship. Therefore, students should record their participation in medical practice in this way.
2. Similarly to nursing records, medical records and other documentation produced by students are treated as records by assistants to the supervising physician.
3. Medical records and other documentation are used by medical students (as assistants to the supervising physician) to record the results of reviews and investigations by the supervising physician.
4. Medical record entry is an important responsibility for the student. There may be situations in which it is not appropriate for students to participate in medical record entry, such as when they are not accustomed to the process. Therefore, each university should develop its own guidance, as necessary.

(2) Electronic medical records

In cases where electronic medical records have been introduced, it is necessary to consider how medical information should be handled to reflect the fact that it is digitized. Examples include limiting the scope of students’ access to electronic records, such as to only records of patients who are necessary for the purposes of the student’s clinical clerkship, and having supervising physicians check, revise, and add to the information entered into electronic medical records by students.

(3) Medical certificate preparation

Preparing a medical certificate is the responsibility of the physician who examined the patient. Therefore, each university should clarify the scope of the clinical clerkship with regard to the preparation of medical certificates by medical students. In addition, the supervising physician must provide instruction and guidance to the medical student when drafting certificates in order to avoid any disadvantage to the patient.

II-7-5. Protection of personal information

It is necessary to provide thorough training and guidance on the handling of personal information in advance. Before the start of clinical clerkship, medical students are required to pledge that they will make efforts to ensure safety based on the principles of “Patient First,” handle medical information appropriately, follow the instructions of the supervising

physician, improve their medical skills and attitudes, and comply with the ethical norms and morals which are expected of medical students, as well as hospital regulations. It is also necessary to make students understand that if they violate hospital rules and regulations, the university will take the necessary action.

In addition, it is necessary to inform medical students that Article 17-3 of the revised *Medical Practitioners' Act*, effective from April 2023, imposes a duty of confidentiality on medical students who pass the CAT and participate in clinical clerkship. Regarding the protection of personal information, as set out by laws and regulations such as the revised *Act on the Protection of Personal Information* (June 12, 2020), medical students must comply with the policies established by each hospital (department of patient safety management, department of medical information management, etc.) in the same way as any other hospital employee.

II-8. Patient consent

II-8-1. In-hospital notices

While university hospitals serve as institutions for advanced medical care and research, they are also teaching hospitals that train physicians. It is therefore important to gain understanding and consent about medical education activities from patients visiting university hospitals. Notices that medical students are engaged in clinical clerkship in the hospital should be posted in appropriate places in the hospital to inform visitors that students undergoing training are present. Similarly, external medical institutions involved in clinical clerkship should also post notices in their facilities, asking visitors for their understanding and cooperation with the clinical clerkship program.

II-8-2. The need for patient consent

The Report of the *Physicians Committee of the Medical Ethics Council* (Ministry of Health, Labour and Welfare, 2020) states that, if patients develop a better understanding of medical practice conducted by medical students during the participatory clinical clerkship, it would be desirable in the future to allow general procedures to be performed by students without the need for special patient consent. Moreover, the revised *Medical Practitioners' Act*, effective from April 2023, permits medical students who have passed the CAT to perform medical practices (excluding those specified by a Cabinet Order) under the guidance and supervision of a physician during the clinical clerkship. However, the *Study Group Report on the Scope of Medical Practice Performed by Medical Students in Clinical Clerkship* (Ministry of Health, Labour and Welfare, 2022) states that for the foreseeable future, because the general public cannot yet be considered to fully understand that university hospitals are teaching hospitals and are places of education for medical students, patient consent should not be considered obtained solely on the basis of posting notices in the hospital, but should instead include, for example, obtaining written blanket consent from hospitalized patients, and individual consent for invasive procedures.

II-8-3. Blanket consent

At both university hospitals and external medical institutions involved in the participatory clinical clerkship, after indicating to patients the scope of medical practices which are performed by medical students during the participatory clinical clerkship (as determined by the training supervision department of each university), it is necessary to consider obtaining their written "blanket consent" about the general participation of medical students in their medical care. If oral consent is obtained, this fact should be documented in the patient's medical record.

II-8-4. Individual consent

For medical procedures that are not within the scope of permitted medical practice for medical students during the clinical clerkship (as defined by the training supervision department of each university), or medical procedures that are within the scope but are deemed to be highly invasive or embarrassing, it is desirable to explain and obtain consent on an individual basis, over and above obtaining blanket consent.

II-9. Student's written pledge

Before participating in the clinical clerkship, students should be made to submit a written pledge regarding the confidentiality of patients' personal information.

II-10. Faculty development and staff development

When the style of undergraduate clinical training shifts from observational or simulated clinical clerkship to participatory clinical clerkship, this requires teaching methods that are quite different to conventional small-group lectures or observations. Physicians responsible for training and supervising medical students (including university hospital faculty members, other medical staff, residents, and physicians at partner institutions involved in community-based medicine training) are required to provide guidance to the students such that they can set their own learning goals, perform clinical reasoning, exhibit clinical judgment, and develop treatment plans. Supervising physicians are also required to provide clinical guidance, assess students' clinical skills, and support students in reflecting on their professionalism. Furthermore, other medical professionals and non-medical staff at university hospitals and partner medical institutions where clinical clerkship is conducted are required to perform 360-degree assessment. Therefore, in order to maintain and improve the quality of the clinical clerkship program, and to enable all those involved in the program to learn the necessary clinical teaching methods, it is important to conduct FD and SD. The FD and SD should be provided for all physicians and non-physicians who supervise clinical clerkship at either on-campus or off-campus training facilities. In addition, because of overlapping content, physicians who have attended "clinical internship supervisor training seminars" (or other training courses for supervising physicians that have been confirmed to be in accordance with the guidelines established by the Ministry of Health, Labour and Welfare) may not be required to attend FD if they are instead provided with written materials detailing any university-specific content (e.g., regarding specific assessment methods for clinical clerkship).

As mentioned above, the content of the FD (for physicians and others involved in supervising students) could include guidance for students in setting their own learning goals, practical teaching methods for clinical reasoning and judgment, how to use assessment sheets such as the Mini-Clinical Evaluation Exercise (mini-CEX), and how to complete reflections on students' medical professionalism. The content of SD (for other hospital staff) may include the significance of and how to perform 360-degree assessment.

III. Objectives

III-1. Qualities and abilities that physicians are expected to develop throughout their careers

Medical students are expected to achieve the learning objectives relating to the following qualities and abilities as listed in the *Model Core Curriculum*.

- PR: Professionalism
- GE: Generalism
- LL: Lifelong Learning
- RE: Research
- PS: Problem-Solving
- IT: Information Technology
- CS: Clinical Skills
- CM: Communication
- IP: Interprofessional Collaboration
- SO: Medicine in Society

The goal of clinical clerkship is to acquire Clinical Skills (CS) for patient care, which requires Problem-Solving (PS) based on specialized knowledge, as well as Communication (CM) and Interprofessional Collaboration (IP). Furthermore, to be able to respond to the needs of society, medical students are expected to promote an understanding of the role of Medicine in Society (SO) and to acquire a comprehensive approach toward patients and individuals (Generalism; GE) through experience in actual clinical settings. The ability to utilize Information and Technology (IT) is necessary to safely and efficiently carry out these medical activities in the modern era. Activities that improve medical care in the clinical setting will lead to the cultivation of a Research skills (RE) and Lifelong Learning behaviors (LL). It is expected that Professionalism (PR) will be fostered through such a clinical clerkship.

Assessment of achievement level

- 1: Level prior to clinical clerkship
- 2: Level at the beginning of clinical clerkship
- 3: Expected level at mid-point of clinical clerkship
- 4: Expected level at completion of clinical clerkship (at graduation)
- 5: Expected level at midpoint of clinical residency

PR	Professionalism	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Trust: Act in a way that always considers what is necessary to earn the public's trust.												
	Honesty and integrity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reflection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Compassion: Understand and treat others with dignity, courtesy, and compassion.												
	Compassion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Understanding self and others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dignity and courtesy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Self-cultivation: Acquire the well-rounded education that is required by physicians.												
	Self-cultivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Bioethics: Learn the importance of ethics in medicine and medical practice.												
	Medical ethics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GE	Generalism	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Holistic perspectives and approaches: Understand the problems faced by patients not only from a comprehensive, transdisciplinary perspective but also by taking psychosocial background into account; take responsibility for providing medical care with an attitude that extends beyond one's area of clinical expertise; and engage in clinical practice that is based on best practice in decision-making and behavioral science.												
	Transdisciplinary care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Comprehensive perspectives on biological, psychological, and social issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Patient-centered medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Evidence-based medicine (EBM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Behavioral science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Palliative care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Community perspectives and approaches: Understand the current status of and issues relating to medical care, nursing care, health care, and welfare according to local contexts, and acquire the ability to contribute to the provision of primary care as the foundation of medical care and to improve the quality of the healthcare system.												
	Basic concepts in primary care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Primary care in the community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Provision of primary care according to medical resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Primary care at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Life perspectives and approaches: Engage in the psychosocial and medical issues that may occur among patients, their families, and people in general by understanding the life stages and growth, development, aging, and death processes that they go through over time.												
	Life processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Childhood in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fetal, neonatal, and infant stages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	School-age, adolescence, young adulthood, and adulthood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Geriatric stage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	End of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Social perspectives and approaches: Understand people's health perspectives, words and actions, and interpersonal relationships that are generated in cultural and social contexts, and apply them to clinical practice from the perspective of cultural anthropology and sociology (primarily medical anthropology and medical sociology, respectively).												
	Health in medical, cultural, and social contexts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Social sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

LL	Lifelong learning	Self-assessment					Instructor assessment							
		1	2	3	4	5	N/A	1	2	3	4	5	N/A	
	Lifelong learning: Form a system of values that fosters lifelong learning.													
	Lifelong learning in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Career development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Education of medical professionals: Contribute to the education of all medical professionals, including not only physicians and medical students, but also other colleagues and healthcare professionals.													
	Medical education in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RE	Research	Self-assessment						Instructor assessment					
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Developing a research mindset: Realize the joy of satisfying one's intellectual curiosity and the importance of originality.												
	Proactive attitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Inquisitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Understanding established theories: Learn about the great achievements of predecessors and foster new ideas.												
	Medicine and healthcare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reading and understanding academic papers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Conducting research: Experience and understand research methods in the natural sciences, humanities, and social sciences.												
	Research questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Research plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Research methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Research results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Publishing research: Explain and discuss the significance and contents of research with others.												
	Research presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Research ethics: Comply with laws and regulations, respect human rights, and behave in a manner that is correct and proper for a medical student.												
	Appropriate research conduct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Protection of research subjects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PS	Problem-Solving	Self-assessment						Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A	
	Basic medical science: Understand biological systems from the molecular level, body composition and bodily functions from the cellular level, how the human body responds and reacts, and the etiology and pathogenesis of diseases caused by disruption of these biological phenomena.													
	Science of biological phenomena	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Composition and function of the human body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Individual reactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Etiology and pathogenesis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Normal structure and function of the organs and systems of the human body, and the pathogenesis, diagnosis, and treatment of diseases affecting them: Understand the structure and function of each organ of the body, and apply knowledge of etiology, pathophysiology, symptoms, diagnosis, and treatment of major diseases in clinical settings.													
	General introduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Hematologic, hematopoietic, and lymphatic systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Nervous system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Dermatological system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Musculoskeletal system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cardiovascular system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Respiratory system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gastrointestinal system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Renal and urinary system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reproductive system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Pregnancy and delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Pediatrics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Breast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Endocrine, nutritional, and metabolic systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ocular and visual system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ear, nose, throat, and oral cavity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Psychiatry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Multi-systemic physiological changes, and pathogenesis, diagnosis, and treatment of diseases that affect the whole body: Understand multi-systemic and whole-body physiological changes, and apply knowledge of etiology, pathogenesis, symptoms, diagnosis, and treatment of major diseases in clinical settings.													
	Genetic and genomic medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Immunology and allergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Infectious diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cancers and neoplastic diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Emergency medicine and intensive care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Biological effects and appropriate use of radiation, and radiation hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IT	Information Technology	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Ethics and rules for dealing with information science and technology: Understand ethical considerations, digital professionalism, and basic principles for using information science and technology in medical care, research, and other settings.												
	Preparation for dealing with information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ethics and rules for using information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Principles of information science and technology necessary for medical care and surrounding society: Understand the fundamental theories related to information science and technology necessary for safe and high-quality medical care and research, and acquire the attitude to adapt this knowledge to one's own learning and medical care.												
	Medical care using information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Knowledge of advanced information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Application of information science and technology in clinical practice: Acquire digital communication skills and practical skills in using digital tools that are effective in optimizing patient care and learning, including in telemedicine.												
	Communication skills using information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Learning skills using information science and technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CS	Clinical Skills	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Gathering patient information: Gather information necessary for medical treatment via various sources, including from the patient, family members, and other medical professionals.												
	Medical interview	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Physical findings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Integration, analysis, and assessment of patient information and planning treatment: Integrate all the information obtained, analyze it from various perspectives, assess the necessary medical care, and plan the medical care that should be provided.												
	Medical records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Clinical reasoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Medical examination (planning and analytical evaluation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Treatment (planning and progress evaluation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Educational plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Implementation of appropriate patient care, including treatment: Propose or provide necessary medical care in collaboration with the patient, family members, and other medical professionals, on the basis of an assessment of the patient's condition.												
	Investigation techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Treatment techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Emergency and initial response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Collaboration for patient care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Clinical conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Review and improvement of medical care processes: Reflect on the medical care performed, verbalize and present it, and make efforts to improve it for the future.												
	Reflection conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Quality of care and patient safety: Reflect on one's own actions from the perspective of quality of medical care and patient safety, and acquire an outlook focused on organizational improvement and patient-centered care.												
	Quality improvement of medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Health management of medical professionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Safety management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Infection control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Consideration and promotion of patient safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Patient safety practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CM	Communication	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
Language, attitude, personal appearance, and consideration when dealing with patients: Establish good relationships with patients through appropriate communication skills, including nonverbal communication, taking into consideration patient privacy, suffering, etc.													
Appropriate communication skills with patients and their family members		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respect for the patient's situation and consideration of their suffering		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gathering information and providing clear explanations to support patient decision-making: Support patients in making the best decisions regarding their own treatment and management, taking into consideration the diversity among patients and their families, and explaining necessary information in an easy-to-understand manner.													
Explaining to the patient in simple language		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Encouraging patients to change their behavior		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supporting patient decision-making		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understanding and taking into consideration the needs of patients and their families: Have a broad perspective on the psychological and social backgrounds of patients and their families, and respond to patients' difficulties and provide necessary information.													
Identification of patient and family issues and acquisition of necessary information		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consideration of the psychological and social backgrounds of patients and their families		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IP	Interprofessional Collaboration	Self-assessment					Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A
	Foundation for collaboration: Communicate stakeholders' roles, knowledge, opinions, and values with consideration for different individual backgrounds as part of the process of setting common goals with those cooperating in important issues for patients, families, and the community.												
	Patient-centered health and welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Interprofessional communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Referral and consultation between physicians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Collaborative practice: Make use of each stakeholder's knowledge and skills to enable them to fully perform their particular professional role, building relationships of mutual trust based on each other's individual roles, thoughts, actions, feelings, and values, and responding appropriately to the conflicts that sometimes arise between different disciplines and professions.												
	Professional roles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Relationship management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reflection on one's own profession	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Understanding of other professions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SO	Medicine in Society	Self-assessment						Instructor assessment						
		1	2	3	4	5	N/A	1	2	3	4	5	N/A	
	Social security: Understand the social security system that protects the constitutional "right to life," what public health is, community health, occupational health, and health risk management. Learn the significance and usage of health statistics.													
	Public health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Social insurance, public assistance, and social welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Community health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Occupational and environmental health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Health crisis management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Epidemiology and medical statistics: Learn the concept and significance of epidemiology as a research method for human populations, and major research designs. Understand the basic concepts of statistical methods in medicine and biology.													
	Health statistics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Epidemiology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Data analysis and statistical methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Forensic medicine: Understand the determination of death, diagnosis of death, and autopsy.													
	Death and the law	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Medical care from the viewpoint of social structure and change: Appropriately understand the social issues behind the health problems faced by patients and proactively work to solve them.													
	Health and medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gender and medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change and medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Philosophy, ethics, and medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	History and medicine/medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Health economics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Social justice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Medicine from national and international perspectives: Understand an overview of the roles of medicine and medical care systems both in Japan and globally.													
	Role of the medical professions and medical care system in Japan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Roles of global health and medical care systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Medical care from a social sciences perspective: Understand people's health perceptions, words, actions, and relationships that are formed in medical, cultural, and social contexts, and apply them to clinical practice from the perspectives, theories, and methods of the social sciences (mainly medical anthropology and medical sociology).													
	Relationship between social sciences and medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III-2. Medical interview, physical examinations, and medical record entry

(Model Core Curriculum CS-01, Table 3, GE-03-05-02, CS-02-01)

Achievement level

1: No experience. 2: Observe. 3: Can demonstrate (on a simulator). 4: Can do under direct supervision of a teacher or other instructor. 5: Can do under circumstances in which a teacher or other instructor can intervene immediately.

Medical interview, Physical examination, and Medical record	Self-assessment						Instructor assessment					
	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Medical interview	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the vital signs (body temperature, heart rate, blood pressure, respiratory rate, oxygen saturation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of head (face, hair, scalp, and skull)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of eye (visual field, pupil, light reflex eye movement, proptosis, conjunctiva)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of ear (assessment of the pinna and hearing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the external auditory canal and eardrum using an otoscope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the lips, oral cavity, pharynx, and tonsils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the sinuses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Observation of the anterior nasal cavity using a rhinoscope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of thyroid gland, cervical vessels, trachea, and salivary glands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the lymph nodes of the head and neck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection, palpation, and percussion of the chest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auscultation of breath sounds and added sounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auscultation of heart sounds and murmurs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection, auscultation (bowel sounds and bruits), percussion, and palpation of the abdomen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identification of pain on percussion over the spine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital rectal examination (including prostate examination)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breast examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessment of level of consciousness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the cranial nerves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the fundi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of tendon reflexes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of cerebellar function and the motor system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of the sensory system (pain, temperature, touch, and deep sensation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identification of signs of meningeal irritation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of limbs and spine (kyphosis and pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination of joints (range of motion, swelling, pain, and deformity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Musculoskeletal examination (manual muscle strength testing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gynecological examination (bimanual examination and use of Cusco's speculum)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comprehensive geriatric assessment (CGA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical record entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III-3. Clinical reasoning (Model Core Curriculum Table 5)

Able to make a differential diagnosis of major symptoms and explain the main points of the diagnosis.

Major Symptoms	Differential diseases to consider
Fever	☐Meningitis, ☐Acute sinusitis, ☐Tonsillitis, ☐Upper respiratory tract infection, ☐Influenza (flu), ☐Pneumonia, ☐Tuberculosis, ☐infective endocarditis, ☐Cholecystitis, ☐Cholangitis, ☐Urinary tract infection, ☐Cellulitis, ☐Drug-induced fever
General malaise	☐Hypothyroidism, ☐Tuberculosis, ☐Heart failure, ☐Hepatitis, ☐Iron deficiency anemia, ☐Depression
Anorexia	☐Peptic ulcer, ☐Acute hepatitis, ☐Acute adrenal insufficiency, ☐Depression
Weight loss	☐Hyperthyroidism, ☐Chronic obstructive pulmonary disease (COPD), ☐Malignant tumors, ☐Diabetes mellitus, ☐Anorexia nervosa, ☐Depression
Weight gain	☐Hypothyroidism, ☐Heart failure, ☐Nephrotic syndrome
Altered mental status	☐Cerebral hemorrhage, ☐Cerebral infarction, ☐Intracranial hematoma, ☐Encephalitis, ☐Epilepsy, ☐Subarachnoid hemorrhage, ☐Meningitis, ☐Myocardial infarction, ☐Acute aortic dissection, ☐Acute gastrointestinal bleeding, ☐Sepsis, ☐Drug intoxication, ☐Alcoholic intoxication, ☐Carbon dioxide (CO ₂) narcosis, ☐Hypoglycemia, ☐abnormal sodium metabolism, ☐Shock
Syncope	☐Epilepsy, ☐Pulmonary embolism, ☐Arrhythmia, ☐Valvular disease (aortic valve disease)
Seizure	☐Cerebral infarction, ☐Cerebral hemorrhage, ☐Encephalitis, ☐Encephalopathy, ☐Febrile convulsion, ☐Epilepsy
Vertigo and dizziness	☐Cerebral hemorrhage, ☐Cerebral infarction, ☐Benign paroxysmal positional vertigo, ☐Meniere's disease, ☐Vestibular neuritis
Edema	☐Hypothyroidism, ☐Heart failure, ☐Cirrhosis of liver, ☐Nephrotic syndrome, ☐Chronic kidney disease, ☐Drug-induced edema, ☐Deep vein thrombosis, ☐Lymphedema, ☐Angioedema
Rash	☐Viral exanthem (Measles, Rubella, Chicken Pox, Herpes simplex virus), ☐Shingles, ☐Erythema infectiosum, ☐Drug-related rash, ☐Urticaria, ☐Dermatitis (Atopic dermatitis), ☐Erythema nodosum, ☐Eczema
Cough and sputum production	☐Sinusitis, ☐Allergic rhinitis, ☐Upper respiratory tract infection, ☐Common cold, ☐Whooping cough, ☐Bronchitis, ☐Bronchial asthma, ☐Pneumonia, ☐Pulmonary tuberculosis, ☐Lung cancer, ☐Interstitial lung disease, ☐Gastroesophageal reflux disease (GERD), ☐Drug-induced cough
Blood in sputum and hemoptysis	☐Bronchiectasis, ☐Pulmonary tuberculosis, ☐Lung cancer
Dyspnea	☐Acute epiglottitis, ☐Asphyxia, ☐Bronchial asthma, ☐Pulmonary embolism, ☐Acute respiratory distress syndrome (ARDS), ☐Chronic obstructive pulmonary disease (COPD), ☐Pneumonia, ☐Interstitial lung disease, ☐Pulmonary tuberculosis, ☐Tension pneumothorax, ☐Spontaneous pneumothorax, ☐Heart failure, ☐Anaphylaxis
Chest pain	☐Pulmonary embolism, ☐Pneumothorax, ☐Pleurisy, ☐Acute coronary syndrome, ☐Acute pericarditis, ☐Acute aortic dissection, ☐Aortic aneurysm rupture, ☐Shingles, ☐Panic disorder
Palpitations	☐Hyperthyroidism, ☐Arrhythmia, ☐Iron deficiency anemia, ☐Secondary anemia, ☐Panic disorder, ☐Anxiety disorder
Dysphagia	☐Cerebral hemorrhage, ☐Cerebral infarction, ☐Tonsillitis, ☐Esophageal cancer
Abdominal pain	☐Peptic ulcers, ☐Functional dyspepsia (FD), ☐Acute gastroenteritis, ☐Acute appendicitis, ☐Diverticulitis, ☐Ischemic colitis, ☐Mesenteric artery embolism, ☐Constipation, ☐Irritable bowel syndrome, ☐Intestinal obstruction, ☐Intussusception, ☐Generalized peritonitis, ☐Inguinal hernia, ☐Cholecystitis, ☐Cholelithiasis, ☐Acute pancreatitis, ☐Acute coronary syndrome, ☐Acute aortic dissection, ☐Endometriosis, ☐Ectopic pregnancy, ☐Miscarriage/premature birth, ☐Ovarian cyst (torsion), ☐Ovarian cancer (torsion), ☐Urinary stone disease ☐Diabetic ketoacidosis

Nausea and vomiting	<input type="checkbox"/> Cerebral hemorrhage, <input type="checkbox"/> Subarachnoid hemorrhage, <input type="checkbox"/> Intracranial hematoma, <input type="checkbox"/> Meningitis, <input type="checkbox"/> Migraine, <input type="checkbox"/> Acute gastroenteritis, <input type="checkbox"/> Acute appendicitis, <input type="checkbox"/> Intestinal obstruction, <input type="checkbox"/> Food poisoning, <input type="checkbox"/> Acute myocardial infarction, <input type="checkbox"/> Pregnancy, <input type="checkbox"/> Diabetic ketoacidosis, <input type="checkbox"/> Abnormal calcium metabolism
Hematemesis	<input type="checkbox"/> Esophageal varices, <input type="checkbox"/> Mallory-Weiss syndrome, <input type="checkbox"/> Gastric cancer, <input type="checkbox"/> Peptic ulcers
Melena	<input type="checkbox"/> Peptic ulcer, <input type="checkbox"/> Inflammatory bowel disease, <input type="checkbox"/> Ischemic colitis, <input type="checkbox"/> Diverticular hemorrhage, <input type="checkbox"/> Colorectal cancer, <input type="checkbox"/> Hemorrhoids, <input type="checkbox"/> Anal fissures
Constipation	<input type="checkbox"/> Parkinson's disease, <input type="checkbox"/> Hypothyroidism, <input type="checkbox"/> Constipation, <input type="checkbox"/> Irritable bowel syndrome, <input type="checkbox"/> Intestinal obstruction, <input type="checkbox"/> Colorectal cancer, <input type="checkbox"/> Drug-induced constipation
Diarrhea	<input type="checkbox"/> Hyperthyroidism, <input type="checkbox"/> Acute gastroenteritis, <input type="checkbox"/> Inflammatory bowel disease, <input type="checkbox"/> Irritable bowel syndrome, <input type="checkbox"/> Drug-induced diarrhea
Jaundice	<input type="checkbox"/> Acute hepatitis, <input type="checkbox"/> Chronic hepatitis, <input type="checkbox"/> Cirrhosis of liver, <input type="checkbox"/> Liver cancer, <input type="checkbox"/> Physiologic jaundice, <input type="checkbox"/> Cholangitis, <input type="checkbox"/> Bile duct cancer, <input type="checkbox"/> Pancreatic cancer, <input type="checkbox"/> Hemolytic anemia, <input type="checkbox"/> Drug-induced jaundice
Abdominal distention and abdominal mass	<input type="checkbox"/> Cirrhosis of liver, <input type="checkbox"/> Intestinal obstruction, <input type="checkbox"/> Inguinal hernia, <input type="checkbox"/> Pregnancy
Lymphadenopathy	<input type="checkbox"/> Tonsillitis, <input type="checkbox"/> Viral rash (rubella), <input type="checkbox"/> Tuberculosis, <input type="checkbox"/> Infectious mononucleosis, <input type="checkbox"/> Malignant lymphoma, <input type="checkbox"/> Other malignant tumors
Abnormal urine output/urination	<input type="checkbox"/> Urinary tract infections, <input type="checkbox"/> Prostatic hyperplasia, <input type="checkbox"/> Overactive bladder, <input type="checkbox"/> Neurogenic bladder, <input type="checkbox"/> Drug- induced, <input type="checkbox"/> Diabetes mellitus
Hematuria	<input type="checkbox"/> Glomerulonephritis syndrome, <input type="checkbox"/> Renal cell carcinoma, <input type="checkbox"/> Urinary stone disease, <input type="checkbox"/> Urinary tract infections, <input type="checkbox"/> Bladder cancer
Menstrual abnormality	<input type="checkbox"/> Dysmenorrhea, <input type="checkbox"/> Endometriosis, <input type="checkbox"/> Uterine cancer, <input type="checkbox"/> Pregnancy, <input type="checkbox"/> Drug-induced menstrual irregularities, <input type="checkbox"/> Menopausal and female climacteric states
Anxiety/Depression	<input type="checkbox"/> Dementia, <input type="checkbox"/> Parkinson disease, <input type="checkbox"/> Hyperthyroidism, <input type="checkbox"/> Hypothyroidism, <input type="checkbox"/> Malignancy, <input type="checkbox"/> Drug-induced, <input type="checkbox"/> Depression, <input type="checkbox"/> Bipolar disorder, <input type="checkbox"/> Anxiety disorders, <input type="checkbox"/> Adjustment disorders
Cognitive dysfunction	<input type="checkbox"/> Dementia, <input type="checkbox"/> Parkinson's disease, <input type="checkbox"/> Cerebral infarction, <input type="checkbox"/> Normal pressure hydrocephalus, <input type="checkbox"/> Chronic subdural hematoma, <input type="checkbox"/> Hypothyroidism, <input type="checkbox"/> Drug-induced, <input type="checkbox"/> Depression
Headache	<input type="checkbox"/> Migraine, <input type="checkbox"/> Tension headache, <input type="checkbox"/> Cluster headache, <input type="checkbox"/> Cerebral hemorrhage, <input type="checkbox"/> Subarachnoid hemorrhage, <input type="checkbox"/> Meningitis, <input type="checkbox"/> Glaucoma, <input type="checkbox"/> Acute sinusitis, <input type="checkbox"/> Giant cell arteritis (temporal arteritis), <input type="checkbox"/> Drug-induced headache
Skeletal muscle paralysis/muscle weakness	<input type="checkbox"/> Cerebral infarction, <input type="checkbox"/> Transient ischemic attack, <input type="checkbox"/> Cerebral hemorrhage, <input type="checkbox"/> Intracranial hematoma, <input type="checkbox"/> Epilepsy, <input type="checkbox"/> Spinal cord injury, <input type="checkbox"/> Herniated intervertebral disc, <input type="checkbox"/> Amyotrophic lateral sclerosis, <input type="checkbox"/> Guillain-Barre syndrome, <input type="checkbox"/> Polymyositis, <input type="checkbox"/> Dermatomyositis, <input type="checkbox"/> Abnormal potassium metabolism
Gait disturbance	<input type="checkbox"/> Cerebral hemorrhage, <input type="checkbox"/> Intracranial hematoma, <input type="checkbox"/> Cerebral infarction, <input type="checkbox"/> Parkinson's disease, <input type="checkbox"/> Osteoarthritis, <input type="checkbox"/> Spinal stenosis, <input type="checkbox"/> Herniated intervertebral disc, <input type="checkbox"/> Osteoarthritis, <input type="checkbox"/> Bone fracture
Sensory disturbance	<input type="checkbox"/> Spinal stenosis, <input type="checkbox"/> Herniated intervertebral disc, <input type="checkbox"/> Polyneuritis, <input type="checkbox"/> Diabetes mellitus
Back pain	<input type="checkbox"/> Acute aortic dissection, <input type="checkbox"/> Acute pancreatitis, <input type="checkbox"/> Pancreatic cancer, <input type="checkbox"/> Urinary stone disease, <input type="checkbox"/> Herniated intervertebral disc, <input type="checkbox"/> Osteoarthritis, <input type="checkbox"/> Spinal stenosis, <input type="checkbox"/> Vertebral fracture, <input type="checkbox"/> Acute low back pain, <input type="checkbox"/> Pyogenic spondylitis
Arthralgia/joint swelling	<input type="checkbox"/> Pyogenic spondylitis, <input type="checkbox"/> Osteoarthritis, <input type="checkbox"/> Rheumatoid arthritis, <input type="checkbox"/> Systemic lupus erythematosus (SLE), <input type="checkbox"/> Reactive arthritis, <input type="checkbox"/> Gout, <input type="checkbox"/> Pseudogout, <input type="checkbox"/> Trauma

III-4. Basic clinical procedures (Model Core Curriculum Table 7, CS-03-03-02)

Achievement level

1: No experience. 2: Observe. 3: Can demonstrate (on a simulator). 4: Can do under direct supervision of a teacher or other instructor. 5: Can do under circumstances in which a teacher or other instructor can intervene immediately.

*To be performed with due consideration for patient safety, including as part of simulation education. Other basic clinical procedures may also be performed with appropriate preparation and supervision.

Category	Basic Clinical Procedures and Emergencies	Self-assessment					N/A	Instructor assessment					N/A
		1	2	3	4	5		1	2	3	4	5	
General procedure	Position change, transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Skin antisepsis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Application of topical medications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Airway suction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Nebulizer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Venous blood sampling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Peripheral venous catheterization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Insertion and extraction of nasogastric tube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Insertion and extraction of urinary catheter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Intradermal injection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Subcutaneous injection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Intramuscular injection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Intravenous injection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examination technique	Urinalysis (including pregnancy test)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Microbiology (including Gram staining)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Recording of 12-lead ECG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Rapid bedside ultrasound (including FAST) for clinical decision-making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Rapid antigen/pathogen testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Blood glucose test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surgical procedure	Aseptic technique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Surgical hand washing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gowning techniques in the operating room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Basic sutures and suture removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency	Basic life support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Airway management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Chest compression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ventilation with bag valve mask	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Automated External Defibrillator device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. Strategy

IV-1. Format of clinical clerkship

The clinical clerkship is fundamentally participatory in format. Participatory clinical clerkship is defined as “undergraduate clinical training in which medical students take on certain roles and responsibilities as a member of a medical team comprising supervising physicians and residents, as well as nurses, pharmacists, and other professionals.” In addition to performing basic clinical procedures, medical students may also play a role that includes undertaking preliminary examinations in the outpatient clinic, confirming knowledge (evidence) of diseases in inpatients, and accompanying patients during examinations to allay their concerns. In the clinical setting, it is often the case that the role that medical students can play is underestimated by their supervising physician. Following legitimate peripheral participation theory³¹, the clinical clerkship program should motivate medical students through “the satisfaction that comes from actually playing a role in a clinical setting, even if the role is a small one.” If circumstances require that the clinical clerkship must be observational rather than participatory, the training should be planned so that students can actively learn by recording their observations in the clinical setting and discussing them with their supervisors in a review session.

IV-2. Departments where clinical clerkship is conducted

In the clinical clerkship, regardless of the department to which they are assigned, medical students should take charge of patients and participate as much as possible in the care of those patients, enabling them to achieve the following learning objectives: “perform necessary medical examinations,” “demonstrate clinical reasoning and make diagnostic inferences on the basis of the presenting complaint,” “understand the basic pathogenesis and epidemiology of diseases,” “develop a basic treatment plan,” and “understand how to consult with other departments.”

In order for medical students to fully participate in medical practice as part of the clinical clerkship, taking on roles and responsibilities as a member of the clinical team, it is essential that they receive continuous assessment from a supervising physician over a period of at least three consecutive weeks per department (in principle), particularly in internal medicine (including each subspecialty), surgery (including each subspecialty), pediatrics, obstetrics and gynecology, psychiatry, and general medicine. In order to cultivate holistic medical skills and attitudes, it is important to ensure that students are assigned to at least one of these departments for at least four consecutive weeks. In view of the increasing risks relating to disasters and the global situation, the period of assignment in emergency medicine must also be at least three weeks in total (in principle).

Furthermore, in addition to the basic departments, clinical clerkship may also be conducted in the department of dental surgery, the central medical department, or other departments. Research activities may also be conducted during the clinical clerkship period to enable students to cultivate investigative skills and a research mindset.

For reasons such as the importance of allowing students to gain experience of injuries and diseases that are frequently encountered in general medical care, it is recommended that clinical clerkship be conducted not only at university hospitals but also at external partner medical institutions, provided that the quality and quantity of supervising physicians can be sufficiently guaranteed. Furthermore, in addition to inpatient wards, outpatient clinics should also be actively used for clinical clerkship. For medical practices and content that are difficult to gain sufficient experience of in the clinical setting, simulation education may also be used. In general, it is desirable to promote clinical education that makes use of clinical training sites throughout the entire academic year. Each university should ensure that sufficient time is provided for practical training to cover the necessary content, and support students so that they can continue to make progress toward acquiring the basic qualities and abilities required of physicians.

³¹ Saiki T. Legitimate peripheral participation, Cognitive apprenticeship, Learning theory [in Japanese]. *Medical Education (Japan)*. 2012;43(4):292–3. <https://doi.org/10.11307/mededjapan.44.133>

IV-3. Establishment of learning objectives in departments where clinical clerkship is conducted

In order for students to achieve overarching learning objectives such as “perform necessary medical examinations,” “demonstrate clinical reasoning and make diagnostic inferences on the basis of the presenting complaint,” “understand the basic pathogenesis and epidemiology of diseases,” “develop a basic treatment plan,” and “understand how to consult with other departments,” it is also necessary to establish specific learning objectives for each department where clinical clerkship is being conducted. At this point, such department-specific learning objectives should be set to reflect the clinical skills and knowledge relevant to that department that are also necessary to possess even if the student does not enter that particular specialty in the future.

To enable students to learn more independently during clinical clerkship, the learning objectives should be shared between students and faculty members during the orientation on the first day of training (“Learning Contract”). Using the learning objectives already set by the university (e.g., in the syllabus) as a basis, students and faculty members should collaboratively discuss and set individual learning objectives. This allows students with a particular interest in the department to take a more proactive approach to their training, and students who are not so interested in the department to learn at least the minimum required content. As a result, it is possible to provide a clinical clerkship program that is tailored to the individual student.

In setting the learning objectives for each department, it is possible to organize the departments of practice by using a matrix.

IV-4. Practical implementation of participatory clinical clerkship

IV-4-1. Basic flow of participatory clinical clerkship

Example: inpatients

1. Students examine their patient(s) every morning, making sure to check the latest medical record entries and progress reports, such as those by physicians and nurses, to understand what happened the previous day and night.
2. Each day, students verbally present the patient's condition, test results, and testing and treatment plan to the supervising physician.
3. Students write the above information in their daily student records, in the style of a medical record. The daily records must be read, reviewed, and signed by the supervising physician.
4. During ward rounds and clinical conferences, students verbally present their patient(s).
5. Students perform basic bedside procedures, such as blood sampling and intravenous injections, under the guidance and supervision of the supervising physician. Otherwise, students observe such procedures and receive instruction and training from the supervising physician.
6. Students participate in activities such as meetings held between the clinical team, patient, and patient's family members to explain the patient's medical condition, and in the development of testing and treatment plans.
7. Students draft actual instructions, prescriptions, and requests for consultations with other departments under the guidance and supervision of the supervising physician. The supervising physician then signs the documents when they are issued.

Example: outpatients

1. Students perform medical interviews for new patients who are assigned to them, perform a comprehensive physical examination based on the diagnostic hypothesis (if possible), and make appropriate clinical inferences from the findings obtained.
2. Students develop an initial plan (testing plan) based on the problem.
3. Students verbally present the plan to the supervising physician for guidance.
4. Students write the above information in their daily student records, in the style of a medical record, for each patient assigned to them.

IV-4-2. Advantages of participatory clinical clerkship

(1) From the student's perspective

1. Knowledge and its application (e.g., clinical reasoning, clinical decision-making, and planning medical care)
It requires considerable effort to acquire clinical reasoning skills through lectures and self-study alone, even with methods such as interactive lectures and prepared simulated cases. However, in clinical clerkship, students naturally acquire these skills through conducting their own research (by consulting textbooks and academic literature) and engaging in discussions with their supervisors about findings, treatment plans, and evidence to support decisions relating to patients in their charge.

2. Skills

Students are able to learn clinical skills, including communication, physical examination, and basic clinical procedures, by experiencing them and actually putting them into practice during the participatory clinical clerkship.

3. Attitude

Students can acquire the professionalism required of physicians (including one's approach to patients, their families, and other medical professionals; behaviors that are consistent with one's own professional abilities and limitations; acceptance of help and advice from others; motivation for self-development and lifelong learning; ethical attitudes and behaviors in medical care; and acting responsibly as a member of society) by being given responsibilities, engaging in medical practice together with supervising physicians and nurses, and gaining hands-on experiences such as being involved in the explanation of medical conditions to patients.

(2) From the supervising physician's perspective

The supervising physician asks students about findings, treatment plans, and evidence to support decisions relating to patients in their charge (or other patients), then encourages self-study if there are any knowledge gaps (One Minute Preceptor Model*). Small group lectures are not necessarily required. It is said that "to teach is to learn twice": by asking students questions, and by being asked questions by students in return, supervising physicians also have the opportunity to learn and develop themselves during the clinical clerkship.

*One Minute Preceptor Model³²

The "One Minute Preceptor Model" is a teaching procedure used in the clinical setting. It consists of the following six micro-skills.

1. Get a commitment.
2. Probe for supporting evidence.
3. Teach general rules.
4. Reinforce what was done right.
5. Correct mistakes.
6. Recommend further study.

(3) From the patient's perspective

Students who take the time to come to the bedside are not only welcomed by patients as someone to talk to, but also serve as a conduit for information between the patient and medical staff. By cooperating in the education of medical students, patients can also gain a greater sense of self-efficacy, which can be expected to promote improved patient engagement in medical care.

1. Considerations when students are in contact with patients

- 1) The medical interview and physical examination should not take too much time, and should show consideration for the patient's physical and mental state. If these are expected to take a long time, they should be divided into several sessions.
- 2) For patients in wards with multiple beds, a private room should be used for medical interviews if there is any possibility that others might overhear the conversation.

³² Neher JO, et al. A five-step "microskills" model of clinical teaching. *The Journal of the American Board of Family Practice.* 1992;5(4):419-24. <https://doi.org/10.3122/jabfm.5.4.419>

- 3) While the patient's physical and mental condition should be taken into consideration, it is important not to be overly reserved when conducting medical interviews or examinations. Students should perform these tasks as if they were the primary physician.
- 4) Visits should be discussed and scheduled with the patient in advance, and the set time should be adhered to. It is preferable to visit patients in the morning in order to better understand and monitor their daily progress.
- 5) Students should be courteous to patient and family at all times, such as by greeting them at the beginning and end of the rotation and when meeting them in the hallway.
- 6) Students should allow plenty of time to communicate with the patient at the bedside, and do so at least once a day, trying to be a good listener.
- 7) Students should know the patient's schedule for visits to other departments, rehabilitation, or tests, and proactively accompany patients to those appointments.
- 8) Students should explain their role and give patients reassurance on their first visit. For example, "Please feel free to ask me anything. Because I am a student, I may not be able to answer right away, but I will let your attending doctor or another doctor know, and will try to answer as best I can."
- 9) Students should never tell patients about a diagnosis or treatment plan that has not yet been determined. For example, when asked, "Do you think I have cancer?" a suitable response would be, "I understand that you are concerned that you may have cancer. However, I am not sure, so I will let your doctor know your concerns."

2. Considerations for supervising physicians when conducting educational programs away from patient care

- 1) Although a minimal number of lectures may be necessary to learn the knowledge required for clinical practice, in terms of the best timing for learning, it is considered to be more effective to first ask students for the necessary knowledge in the clinical setting, and only after they realize that they do not know it (and therefore cannot perform the required medical practice), to then encourage self-study.
- 2) When assigning case studies as a means of clinical training outside of patient care responsibilities, problem-based learning (PBL) in the form of realistic clinical simulations should be considered.
- 3) When a student is to perform an invasive or embarrassing medical procedure on a patient, it is first necessary to ensure that it is within the scope of medical practice that is permitted for medical students during clinical clerkship, as prescribed by the individual university, and that the student has practiced the procedure with a simulator to ensure that the required level of proficiency in the relevant skills has been met (e.g., sterilization techniques, blood collection, suturing, urinary catheterization, and genitourinary examination).

3. Legal aspects that supervising physicians and students must be aware of regarding student participation in medical practice

- 1) The student must have passed the assessment criteria set by the university (including CAT).
- 2) The same safety and hospital-acquired infection control measures, including appropriate training, antibody testing, and vaccinations, in place for staff at the hospital where the clinical clerkship is being conducted must also be implemented for students participating in medical practice.
- 3) Medical records and drafts of medical documents written by students must be checked and signed by the supervising physician before being issued.
- 4) Medical practice by students must be performed under the guidance and supervision of the supervising physician.
- 5) The scope of medical practice that it is acceptable for students to perform is defined by the training supervision department of the individual university, and is stated in the relevant clinical training guidelines.
- 6) The purpose of the clerkship must be explained to the patient or patient's family, the student must be clearly introduced to the patient as a "student" who has passed the CAT, and patient consent must be obtained for the student to take charge of and perform medical procedures. The method of obtaining consent is also described in the relevant clinical training guidelines.

IV-5. Common learning objectives and strategies across departments

The following are examples of strategies, including teaching methods, rotation designs, and assessment methods, that should be devised to enable students to continuously learn and gain exposure to the learning objectives that are common across departments.

- (1) Learning objectives common to (almost) all departments, such as case presentation and writing medical records, should be defined as “overarching learning objectives for clinical clerkship,” and the teaching methods, teaching materials, learner assessment methods, and training system evaluation methods for supervising physicians should be made consistent. In departments where common learning objectives cannot be applied due to specific clinical circumstances, the differences should be clearly indicated to students.
- (2) To fully realize the benefits of participatory clinical clerkship, it is generally necessary for students to be assigned to a department where they can achieve the required overarching learning objectives for at least a minimum period of time. This enables them to establish good communications with medical staff and patients in their charge, and to learn medical professionalism, including forming of a sense of responsibility and developing an attitude to medical care based on good communication. In order to achieve this, it is desirable to schedule rotations in a way that allows students to learn and be assessed for as long as possible in a single setting. In addition, it is desirable to maintain the same overall learning environment as far as possible; for example, by allowing students to rotate continuously through departments on the same floor of the hospital.
- (3) In addition, if there are common learning objectives that can be set for multiple (but not all) departments, the teaching methods, teaching materials, and learner assessment methods, and training system evaluation methods for supervising physicians should be made consistent where possible (e.g., internal medicine, surgery, pediatrics/pediatric surgery, and community medicine).
- (4) As an opportunity to learn about patient safety management and infection control, students can also be made to attend relevant lectures and workshops conducted for other hospital staff.

IV-6. Community-based medicine

The following are possible strategies for acquiring the ability to understand the current status of and issues relating to medical care in the community (including health, welfare, and long-term care), and to contribute to the practice of primary care and to the quality improvement of the overall healthcare system.

- Cooperate with community hospitals and clinics, including non-university clinical training hospitals, as well as public health centers and social welfare facilities.
- Expand the early clinical exposure program to provide students opportunities for continuous exposure to community medicine from the early grades of medical school.
- Collaborate with training programs for students in fields such as hygiene and public health to create opportunities to examine the community from a social medicine (mainly quantitative) perspective.
- Collaborate with training programs for students in fields such as anthropology, sociology, psychology, philosophy, and pedagogy to create opportunities to learn about and experience health care in the context of life in the community from a behavioral and social science (mainly qualitative) perspective.
- It is desirable to create opportunities to repeatedly accumulate and integrate grade-appropriate knowledge, based on real experiences, and to practice specific applications of that knowledge in clinical clerkship. For this purpose, a “spiral curriculum,” in which content is revisited throughout multiple years of the course, can be considered.

IV-7. Simulation education

Simulation training in an environment that simulates the clinical setting can help students to cope in real clinical situations. To protect patients, when students are expected to perform invasive or embarrassing medical procedures as part of participatory clinical clerkship, it is important to fully educate students in such procedures in advance by making use of appropriate simulation facilities.

- Refine clinical skills through repetitive exercises and training using simulators.
- Develop clinical skills (including communication skills) and attitudes required of medical professionals with the cooperation of simulated patients.
- Acquire situational judgment and decision-making skills through scenario-based training.
- Enhance the ability to practice team medicine through team training.
- Develop self-reflection skills through introspection.
- The application of virtual, augmented, and mixed reality technologies can also be effective in simulation education.

In addition to conventional simulation education for cardiopulmonary resuscitation and basic clinical procedures, it is also desirable to develop and promote simulation education programs as an educational strategy for medical situations that are difficult to learn about through actual experience, such as disasters, patient safety incidents, multitasking, and difficult conversation. In particular, initial response and clinical reasoning for urgent conditions and diseases that require transfer to a specialist are essential skills for physicians in all departments, and should therefore be learned and evaluated through simulation education during clinical clerkship.

IV-8. Documentation of clinical training activities and self-reflection

Because students are required to document and accumulate records relating to their clinical training activities and practical experience throughout the clinical clerkship program, it is recommended that the recording method be small, portable, and in electronic form. It is also possible to make use of the Clinical Clerkship E-Portfolio of Clinical Training (CC-EPOC), an online clinical education evaluation system for undergraduate students that is available from the National University Hospital Council of Japan.

V. Assessment

V-1. Assessment in the clinical practice setting

The learning objectives of clinical clerkship include not only knowledge, clinical reasoning, and clinical decision-making, but also skills such as medical interviewing, examinations, basic clinical procedures, and attitudes such as professionalism. Therefore, during the clinical clerkship, it is insufficient to assess students through oral examinations, reports, and paper tests on medical knowledge alone. Moreover, doing so risks students becoming less motivated to learn skills that cannot be assessed using these methods, causing their awareness of the attitudinal domain to fall even lower than that prior to clinical clerkship.

There are several assessment methods designed to enhance participatory clinical clerkship, including the Mini-Clinical Evaluation Exercise (mini-CEX), Direct Observation of Procedural Skills (DOPS), case-based discussion (CbD), and assessment by medical professionals other than the supervising physician (360-degree assessment), as well as assessment based on records of clinical training activities. In addition, students need to be aware that these learning and assessment methods begin before the start of clinical clerkship, and it is therefore essential to provide appropriate orientation to students as part of preparation for the program.

There are two types of assessment: summative assessment, which is used to determine student grades, credits, and completion of the scheme, and formative assessment, which is used to provide guidance and feedback to students. When supervising students in clinical clerkship, instructors need to assess the students' level of learning in the clinical practice setting, and provide instruction appropriate to that level, which constitutes formative assessment. The assessment methods and activity records described above are also used in formative assessment to guide and provide feedback to students during the clinical clerkship, but may also be used as the basis for summative assessment.

A possible assessment scale is as follows: level 4 (level expected at the end of clinical clerkship/at graduation) if the candidate meets the required competencies for a medical student; level 5 (level expected at the midpoint of clinical residency) or level 6 (level expected at the end of clinical residency) if the candidate clearly exceeds these competencies; a borderline level 3 (level expected at the midpoint of clinical clerkship) if the candidate is less competent; and a level 2 (level at the start of clinical clerkship) or level 1 (level before the start of clinical clerkship) if the candidate clearly does not meet the required competencies. However, rather than simply assigning grades, the most important element of the assessment is to provide appropriate feedback.

V-1-1. Mini-Clinical Evaluation Exercise (mini-CEX) (see also Annex)

The supervising physician directly observes the student performing the medical interview (history taking) and physical examination, assesses the student's clinical skills from the perspectives listed below, and provides feedback.

- (1) Medical interview (history taking)
- (2) Physical examination
- (3) Communication skills
- (4) Clinical judgment
- (5) Professionalism
- (6) Organization/efficiency
- (7) Overall assessment

V-1-2. Direct Observation of Procedural Skills (DOPS) (see also Annex)

The supervising physician directly observes the student performing a clinical procedure, assesses the student's clinical skills from the perspectives listed below, and provides feedback.

- (1) Demonstrates understanding of indications, relevant anatomy, and procedural techniques
- (2) Obtains informed consent

- (3) Demonstrates appropriate pre-procedure preparation
- (4) Technical skills
- (5) Aseptic technique
- (6) Seeks help where appropriate/Awareness of potential complications and how to avoid them
- (7) Post-procedure management
- (8) Communication skills
- (9) Professionalism
- (10) Overall assessment

Note: It is not mandatory to assess all items.

V-1-3. Case-based discussion (CbD) (see also Annex)

The supervising physician discusses the case with the student, based on their medical record entries and case summary (as part of case conferences, ward rounds, medical record rounds, etc.), assesses the student's clinical skills in relation to their involvement with the patient from the perspectives listed below, and provides feedback.

- (1) Medical record entry
- (2) Clinical diagnosis (assessment)
- (3) Treatment plan
- (4) Professionalism
- (5) Overall assessment

Note: It is not mandatory to assess all items.

V-1-4. 360-degree assessment (see also Annex)

During their clinical rotations, it is important that medical students are assessed not only by faculty members and supervising physicians. Residents working together with students in the same clinical team, and for assessments of attitude in particular, non-physicians, such as other medical professionals and patients in the student's charge, should also be considered as assessors as part of 360-degree assessment. In addition, reviewing "the record of learning and assessment" with the supervising physician, which contains the assessment forms collected and other items created and obtained by medical students during the learning process, plays an important role as a formative assessment that encourages learning. Providing regular opportunities for medical students to reflect on their clinical clerkship, and to share and assess their specific experiences and the degree of achievement of their learning goals with peers, may help to maintain and improve their motivation in the skill domain and their awareness of the attitudinal domain.

V-1-5. Unprofessional behavior in clinical clerkship^{33,34,35,36,37}

Professionalism is listed as one of the qualities and abilities that physicians are expected to develop throughout their careers; however, unprofessional behaviors exhibited during clinical clerkship can become a particular problem. Unprofessional behaviors are not only contrary to the conduct expected of physicians, but have also been shown to affect patient safety outcomes, and may cause similar problems in later clinical training and during the rest of one's career.

³³ Kimura T, et al. Unprofessional behavior -assessment and management- [in Japanese]. *Medical Education (Japan)*. 2022;53(2):163–9. https://doi.org/10.11307/mededjapan.53.2_163.

³⁴ Papadakis MA, et al. Disciplinary action by medical boards and prior behavior in medical school. *The New England Journal of Medicine*. 2005;353(25):2673–82. <https://www.nejm.org/doi/full/10.1056/NEJMsa052596>

³⁵ Nishigori H, et al. Bushido and medical professionalism in Japan. *Academic Medicine*. 2014; 89(4):560–63. <https://doi.org/10.1097/ACM.0000000000000176>

³⁶ Martinez W, et al. Speaking up about traditional and professionalism-related patient safety threats: A national survey of interns and residents. *BMJ Quality & Safety*. 2017;26(11):869–80. <https://doi.org/10.1136/bmjqs-2016-006284>

³⁷ Braatvedt C, et al. Fitness to practice of medical graduates: One programme's approach. *The New Zealand Medical Journal*. 2014;127(1405):70–7.

Professionalism needs to be learned and instilled from the early academic years, but in clinical clerkship in particular, it should be assessed in terms of observable statements and behaviors, not only toward patients and staff of all disciplines, but also with faculty and other students. The following is an example of how professionalism can be approached.

Phase 1

Define and share specific examples of statements and behaviors recognized as unprofessional among faculty and students. Note that these are statements and behaviors that can be observed and assessed, and do not relate to values or personalities.

While the borderline between significant and non-significant unprofessional behaviors should be decided by the individual university, it is necessary to consider the direct impact on patient safety and medical staff when making this distinction.

Phase 2

The faculty and other members of staff responsible for clinical clerkship will observe and assess the students based on the definitions shared in Phase 1. Appropriate feedback should be provided for any behavior that is considered unprofessional. At that time, it is necessary to confirm the context with the student, rather than providing one-sided feedback. In addition, the assessment should be conducted through interviews or other means to determine whether there are any mitigating circumstances or underlying factors for the behavior, including mental illness, developmental disabilities, and mental health problems, or other background issues such as interpersonal relationships or family problems. Information-sharing with parents is also necessary, especially in cases of repeated reports or serious cases of unprofessional behavior.

Phase 3

1. Continue to observe and assess whether the student's unprofessional behavior improves after the feedback. If the student is about to move to the next rotation, share the information with the next department and ask them to continue observing the student's behavior.
2. If the unprofessional behavior is repeated or significant unprofessional behavior is observed, share the information with the entire department and consider reeducation and further guidance. At some universities, definitions of unprofessional behavior and discussions about students who have exhibited unprofessional behavior are conducted at the relevant committee or faculty meeting. In this case, a more individualized response and appropriate guidance are also needed.

When carrying out reeducation and further guidance to the student in question, give consideration as to whether the student has any mental illness, developmental disabilities, mental health problems, or other background issues such as interpersonal relationships or family problems, so that appropriate professional support can be obtained.

Phase 4

Consider whether clinical clerkship should be continued or retaken. It is necessary to conduct assessment of the degree of improvement through reeducation and further guidance, mentoring and counseling, and additional training, but such assessment should be transparent in nature.

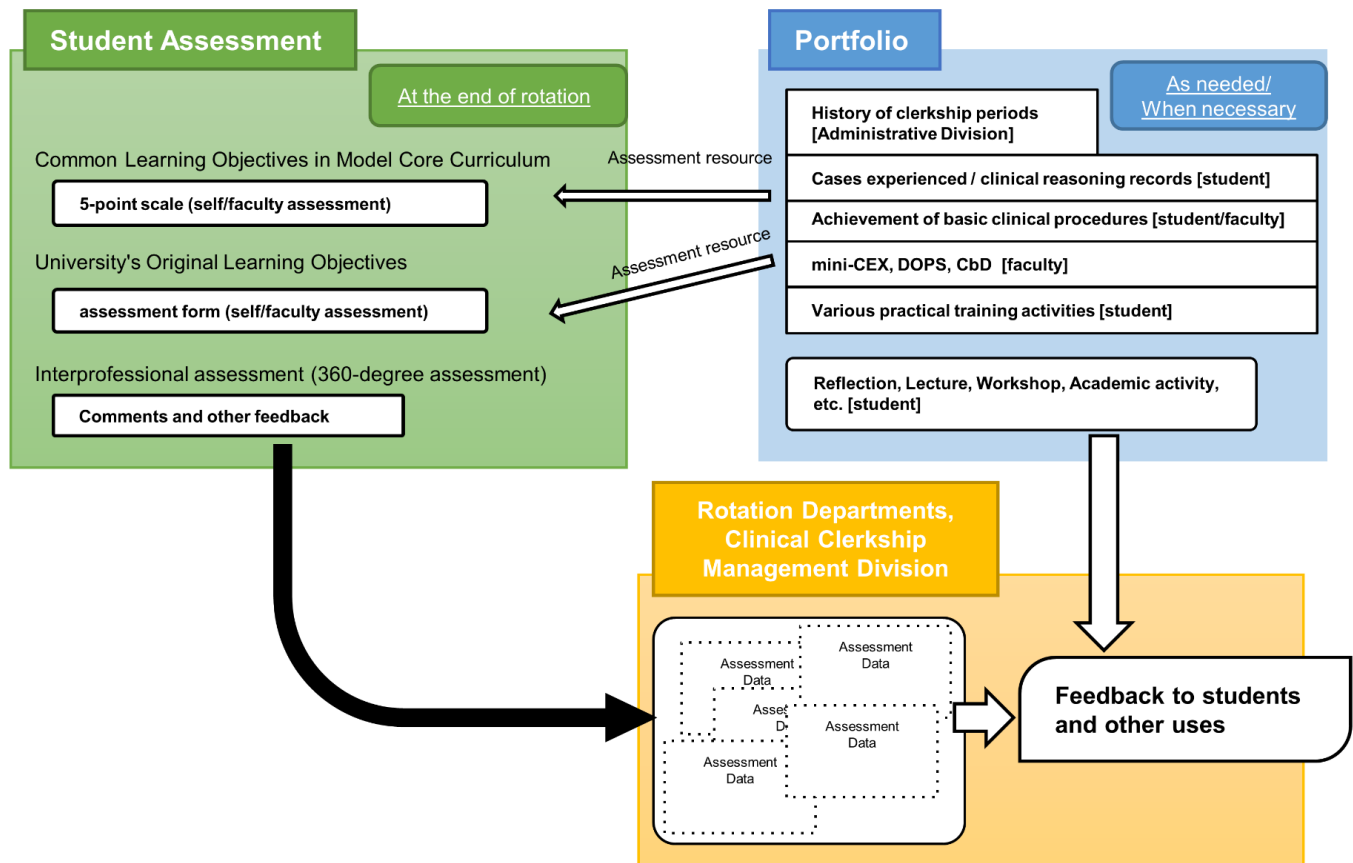
V-2. Clinical Clerkship E-Portfolio of Clinical Training (CC-EPOC)

The results of the assessments described above, along with learning materials used by the students used during the clinical clerkship, are stored as a record of their training activities (learning portfolio), as described in the *Learning Strategy* section of Chapter 3 (I-4-10). By restructuring this portfolio into an assessment tool, it is expected to improve the authenticity of

assessment in the clinical clerkship and, in addition to promoting the required learning for students, enable longitudinal assessment from clinical clerkship to postgraduate clinical residency.

The use of CC-EPOC as an electronic tool for assessment and recording of clinical clerkship activities may also be useful.

Figure 2. CC-EPOC system configuration diagram



VI. Entrustable professional activities

VI-1. What are Entrustable professional activities?

Qualities and abilities (outcomes/competencies*) and learning goals are sometimes abstract and can be difficult to visualize when assessing students and residents in a clinical practice setting. Therefore, the concept of “entrustable professional activities (EPAs)” has been developed to assess the qualities and abilities of learners engaging in clinical practice through the degree to which they can be entrusted with tasks. This concept has been introduced in many countries as a means of linking practical training in the clinical setting with learning objectives. The following section introduces the concept of assessing the achievement of learning objectives (Chapter 2) through EPAs in clinical clerkship.

*: see the note on page 6

VI-2. Correspondence between EPAs and competencies

Multiple competencies are often required for a single EPA. The follow table shows several examples of how EPAs can correspond to the ten qualities and abilities defined in the Model Core Curriculum.

Qualities and abilities (competencies)	PR	GE	LL	RE	PS	IT	CS	CM	IP	SO
	Professionalism	Generalism	Lifelong Learning	Research	Problem-Solving	Information Technology	Clinical Skills	Communication	Interprofessional Collaboration	Medicine in Society
Example EPAs										
Prepare a draft written opinion of the attending physician for the purpose of long-term care insurance.		•			•				•	•
Triage patients in the emergency room.	•						•	•		
Give an oral presentation of the patient's condition at the preoperative conference.					•			•		
Check for the presence of bedsores.	•						•	•	•	

VI-3. Grading of EPAs

EPAs are assessed and graded using the following five levels.³⁸ A learner considered to be sufficiently prepared (in terms of knowledge, skill, and attitude) to be entrusted with a task is observed performing that task. An assessment is then conducted about whether the learner can be considered capable of being entrusted with that task in the future.

- (1) Observing the activity
- (2) Acting with direct supervision present in the room
- (3) Acting with supervision available within minutes
- (4) Acting unsupervised
- (5) Providing supervision to junior

VI-4. Example of EPA format

EPA	Triage patients in the emergency room.
Explanation	After conducting a brief information-gathering interview with the patient presenting to the emergency room, use the findings to determine the level of urgency, and record and report the findings.
Main competencies	PR: Professionalism, CS: Clinical Skills, CM: Communication Key learning objectives for the above competencies: PR: <input type="checkbox"/> Treat others, including patients, with compassion.

³⁸ Ten Cate O. AM last page: What entrustable professional activities add to a competency-based curriculum. Academic Medicine 2014;89(4):691. <https://doi.org/10.1097/ACM.0000000000000161>

EPA	Triage patients in the emergency room.
	<input type="checkbox"/> Behave with courtesy. CS: <input type="checkbox"/> Assess general appearance (body shape, nutrition, posture, gait, facial features, skin, and speech). <input type="checkbox"/> Check vital signs (temperature, pulse, blood pressure, respiratory rate, and oxygen saturation). <input type="checkbox"/> Recognize patients who are in a critical condition on the basis of vital and physical signs. <input type="checkbox"/> Explain the need for and practice standard precautions. CM: <input type="checkbox"/> Demonstrate verbal communication skills to build good relationships. <input type="checkbox"/> Demonstrate awareness of nonverbal communication (professional appearance, eye contact, facial expressions, gestures, etc.). <input type="checkbox"/> Be respectful with language and in attitude when interacting with patients and family members. <input type="checkbox"/> Communicate with awareness of the psychological factors (positive and negative emotions, etc.) involved in interpersonal relationships.
Departments	Emergency room (University Hospital), Emergency room (Hospital A)
Assessment tools	Instructor assessment form, Nurse assessment form, Patient assessment form, Student portfolio
Requirements for acting unsupervised	The student can communicate appropriately with patients, make reasonable decisions on the level of urgency, and call for help immediately in case of an emergency.
Training before acting unsupervised	<ul style="list-style-type: none"> • Video study and pre-test on triage • Observe and record triage by an instructor • Triage under supervision and receive feedback

VI-5. Objectives not covered by EPAs

While EPAs are useful, it is difficult to assess all learning objectives in clinical training and clerkship solely on the basis of EPAs.³⁹ Objectives that are not covered by EPAs include those that are not intended to be delegated and entrusted to students as tasks, but should be achieved by the time of graduation. One such example is objectives that are intended to be demonstrated and assessed using simulation, such as breast examinations or rectal examinations. It is desirable to define and use EPAs that are appropriate to the facility and department.

³⁹ Tanaka A, et al. Development of entrustable professional activities for residents rotating nephrology department in a Japanese university hospital: a Delphi study. *BMJ Open*. 2021;11(8):e047923. <https://doi.org/10.1136/bmjopen-2020-047923>

Annex 1. Assessment Tools

mini-CEX (Mini-Clinical Evaluation Exercise)

Student ID		Student name	
Department		Clinical setting:	
Major symptom or disease:			
Date		Time	: ~ :
Complexity of the case	Minimal • Moderate • High Reasons :	Number of previous mini-CEXs	

	1	2	3	4	5	6	N/A
1. Medical interview (history taking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Physical examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Clinical judgment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Organization/efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Overall assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Level 4 (level expected at the end of clinical clerkship/at graduation) if the candidate meets the required competencies for a medical student; level 5 (level expected at the midpoint of clinical residency) or level 6 (level expected at the end of clinical residency) if the candidate clearly exceeds these competencies; a borderline level 3 (level expected at the midpoint of clinical clerkship) if the candidate is less competent; and a level 2 (level at the start of clinical clerkship) or level 1 (level before the start of clinical clerkship) if the candidate clearly does not meet the required competencies.

N/A: Please mark this if you have not observed the behaviors and therefore feel unable to assess

Especially good points (written by assessors)

Suggestions for development (written by assessors)

Agreed action (written by students)

Time taken for observation : _____ minutes

Time taken for feedback : _____ minutes

Assessor's signature : _____

Student's signature : _____

DOPS (Direct Observation of Procedural Skills)

This is an assessment form for the supervising physician to directly observe and assess your clinical procedure while it is being performed. Ask the supervising physician in each department to fill this form. ※For the supervising physician who is in charge of the patient who had been taken care of by the student: please assess the student's clinical skills performed under your supervision from the perspectives listed below, and provide feedback.

Clinical environment: Emergency room • Ward • Outpatient clinic • On-call • Home-visit • Other ()

Department :

Date :

Procedure :

Case difficulty: Minimal • Moderate • High	1	2	3	4	5	6	N/A
1. Demonstrates understanding of indications, relevant anatomy, and procedural techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Obtains informed consent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Demonstrates appropriate pre-procedure preparation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Technical skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Aseptic technique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Seeks help where appropriate/Awareness of potential complications and how to avoid them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Post-procedure management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Overall assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Level 4 (level expected at the end of clinical clerkship/at graduation) if the candidate meets the required competencies for a medical student; a borderline level 3 (level expected at the midpoint of clinical clerkship) if the candidate is less competent; a level 2 (level at the start of clinical clerkship) or level 1 (level before the start of clinical clerkship) if the candidate clearly does not meet the required competencies; and a level 5 (level expected at the midpoint of clinical residency) or level 6 (level expected at the end of clinical residency) if the candidate clearly exceeds these competencies. N/A: Please mark this if you have not observed the behaviors and therefore feel unable to assess

Good points

Suggestions for development

Agreed action

--

Affiliation : _____

Assessor's name : _____

Student's signature : _____

CbD (Case-based discussion)

This is an assessment form for the supervising physician to assess your involvement with the patients in your charge based on the medical record entries and case summary. Ask the supervising physician in each department to fill this form. ※For the supervising physician who is in charge of the patient who had been taken care of by the student: please discuss the case with the student, based on their medical record entries and case summary, and assesses the student’s clinical skills in relation to their involvement with the patient from the perspectives listed below, and provides feedback.

Clinical environment: Emergency room • Ward • Outpatient clinic • On-call • Home-visit • Other ()

Department :

Date :

Case difficulty: Minimal • Moderate • High	1	2	3	4	5	6	N/A
1. Medical record entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Clinical diagnosis (assessment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Treatment plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Overall assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Level 4 (level expected at the end of clinical clerkship/at graduation) if the candidate meets the required competencies for a medical student; a borderline level 3 (level expected at the midpoint of clinical clerkship) if the candidate is less competent; a level 2 (level at the start of clinical clerkship) or level 1 (level before the start of clinical clerkship) if the candidate clearly does not meet the required competencies; and a level 5 (level expected at the midpoint of clinical residency) or level 6 (level expected at the end of clinical residency) if the candidate clearly exceeds these competencies. N/A: Please mark this if you have not observed the behaviors and therefore feel unable to assess

Good points

Suggestions for development

Agreed action

Affiliation : _____

Assessor’s name : _____

Student’s signature : _____

360-degree assessment by other medical professionals

Ask the healthcare professions other than physicians to assess your performance. ※For the assessors : in recent years, clinical clerkship for medical students has taken the form of participation in medical practice. We would like to ask for your assessment of the students from your perspective. Thank you for your cooperation.

Department_____

- 1) Please list the good points about this student's behavior that you have observed during the clinical clerkship.

- 2) Please list any suggestions that the student can use for further development of their professional behavior.

- 3) Please describe any other things you have noticed.

Student name_____

Affiliation_____ Profession_____ Assessor's name_____

Annex 2. Abbreviations

Abbreviation	Explanation
A-aDO ₂	Alveolar-arterial oxygen difference
ABPA	Allergic bronchopulmonary aspergillosis
ACP	Advance care planning
ADHD	Attention deficit hyperactivity disorder
ADL	Activities of daily living
AFP	Alpha-fetoprotein
AI	Artificial intelligence
AIDS	Acquired immunodeficiency syndrome
AKI	Acute kidney injury
AR	Augmented reality
ARDS	Acute respiratory distress syndrome
ASD	Autism spectrum disorder
AYA	Adolescent and young adult
BPRS	Brief psychiatric rating scale
BYOD	Bring your own device
CA19-9	Carbohydrate antigen 19-9
CABG	Coronary artery bypass graft
CATO	Common Achievement Tests Organization
CbD	Case-based discussion
CBT	Computer based testing
CC	Clinical Clerkship
CEA	Carcinoembryonic antigen
CGA	Comprehensive geriatric assessment
CKD	Chronic kidney disease
CMS	Course management system
COPD	Chronic obstructive pulmonary disease
CPC	Clinico-pathological conference
CT	Computed tomography

DIC	Disseminated intravascular coagulation
DIHS	Drug-induced hypersensitivity syndrome
DNA	Deoxyribonucleic acid
DOPS	Direct observation of procedural skills
EBM	Evidence-based medicine
ECG	Electrocardiogram
EPAs	Entrustable professional activities
EPOC	E-Portfolio of Clinical Training
FAST	Focused assessment with sonography for trauma
FD	Faculty development
FD	Functional dyspepsia
FSH	Follicle-stimulating hormone
GBM	Glomerular basement membrane
GBS	Group B <i>streptococcus</i>
G-CSF	Granulocyte colony stimulating factor
GERD	Gastroesophageal reflux disease
GVHD	Graft-versus-host disease
hCG	Human chorionic gonadotropin
HDS-R	Hasegawa's dementia scale, revised
HIV	Human immunodeficiency virus
HSG	Hysterosalpingography
HTLV-1	Human T-lymphotropic virus type 1
HUS	Hemolytic-uremic syndrome
ICD	Implantable cardioverter-defibrillator
ICD	International Statistical Classification of Diseases and Related Health Problems
ICF	International classification of functioning, disability and health
ICT	Information and communication technology
IoT	Internet of things
IRDS	Infantile respiratory distress syndrome

ITP	Immune thrombocytopenic purpura
IVF-ET	In vitro fertilization-embryo transfer
JIA	Juvenile idiopathic arthritis
LAM	Lymphangioliomyomatosis
LGBTQ	Lesbian, gay, bisexual, transgender, questioning
LH	Luteinizing hormone
LMS	Learning management system
M&M	Morbidity and mortality
MCQ	Multiple choice question
mini-CEX	Mini-Clinical Evaluation Exercise
MMSE	Mini-mental state examination
MR	Mixed reality
MRI	Magnetic resonance imaging
Off-JT	Off-the-job training
OJT	On-the-job training
OSCE	Objective Structured Clinical Examination
PAL	Peer-assisted learning
PARDS	Pediatric acute respiratory distress syndrome
PBC	Primary biliary cholangitis
PBL	Problem-based learning
PCCM	Patient centered clinical method
PECO	Patient, population, problem, exposure, comparison, outcome
PET	Positron emission tomography
PI	Principal investigator
PICO	Patient, population, problem, intervention, comparison, outcome
PIVKA-II	Protein induced by vitamin K absence or antagonist II
PSC	Primary sclerosing cholangitis
PUVA	Psoralen with ultraviolet A therapy
QOL	Quality of life
RNA	Ribonucleic acid

ROC	Receiver operating characteristic
SD	Staff development
SDH	Social determinants of health
SEA	Significant event analysis
SIADH	Syndrome of inappropriate antidiuretic hormone secretion
SIDS	Sudden infant death syndrome
SLE	Systemic lupus erythematosus
SNS	Social networking service
SOAP	Subjective, objective, assessment, plan
SPECT	Single photon emission computed tomography
SSSS	Staphylococcal scalded skin syndrome
STAI	State-trait anxiety inventory
TBL	Team-based learning
TEN	Toxic epidermal necrolysis
Th cell	Helper T cell
TLRs	Toll-like receptors
TNM	Tumor, node, metastasis
TORCH	<i>Toxoplasma gondii</i> , others (<i>treponema pallidum</i>), rubella virus, cytomegalovirus, and herpes simplex virus
TTP	Thrombotic thrombocytopenic purpura
UHC	Universal health coverage
VLE	Virtual learning environment
VR	Virtual reality
WPW	Wolff-Parkinson-White

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◎: Leader

○: Vice-leader

As of March 10, 2023