

Medical Education Course

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The Medical Education Course is a graduate program established within the Nagoya University Graduate School of Medicine in April 2026 with the goal of cultivating human resources who can contribute to improvements and advances in the quality of medical education since increasingly diverse skills and abilities are required of physicians in response to more advanced, complex medicine and the rapid changes in society.

In recent years, the environment surrounding medical care has changed substantially. Because of changes in the disease structure accompanying the rise of a super-aging society, more comprehensive medical care is required in dealing with individual diseases as well as the long-term management of multimorbidity and chronic diseases in support of the decision-making needed in the final stage of life. The way medical care is provided has also transformed, driven by advances in artificial intelligence (AI) and digital technologies, rising interest in medical safety, promotion of patient-centered care, development of regional comprehensive care, reforms to the working conditions of physicians, and other related trends. Amidst these changes, physicians are expected to possess not only high-level expertise and skills but also a diverse range of other attributes, including the ability to communicate, collaborate, engage in reflective practice, and pursue continuous learning.

In this era, the question of how to educate and train physicians has become the central theme of medical education. In the past, medical education was provided on the assumption that skilled clinicians were qualified to teach based on their clinical experience. Today, however, education is recognized as a specialized practice requiring dedicated knowledge and skills that should be designed, implemented, evaluated, and improved based on scientific evidence. Effective, successful teaching practices depend on expertise in a wide range of areas, including an understanding of educational theory, appropriate learner evaluations, effective curriculum design, establishment of a supportive learning environment, and development of faculty skills.

Recently, major reforms have taken place in medical education in Japan. There is a need to educate and train higher-quality physicians through the introduction of competency-based education, assurance of the quality of that education, upgrading of learner evaluations, and better connections between undergraduate, postgraduate, and lifetime education, as well as other means. In the meantime, there are still inadequacies in the development of specialists capable of implementing such reforms in practice and sustaining them over time. Educational reform cannot be achieved through system design alone; it requires educators who can understand, operate, and improve the system in practice.

Medical education is an academic field that addresses these challenges. By linking medicine as a natural science to the fields of education, psychology, sociology, evaluation science, organization theory, and the humanities and social sciences, we can examine the essential questions of how physicians should learn, what forms of education facilitate development, and what kinds of evaluations genuinely support learning. Medical education is an interdisciplinary field characterized by the close interplay between theory and practice with a scope spanning a diverse range of areas that include curriculum development, learner evaluations, faculty development, simulated education, professionalism, well-being, AI-assisted education, and multidisciplinary education, among others.

Globally, a variety of graduate programs are available that specialize in medical education and play an important role in

cultivating medical educational leaders and researchers. In Japan, however, the number of graduate programs offering a systematic path to a medical education degree is limited. This has resulted in an insufficient number of opportunities for physicians keenly interested in education to study in a systematic and academic way in Japan, underscoring the need for the further development of training and research infrastructure for medical education. Under these circumstances, our course was established as one of the few graduate programs in Japan offering systematic training in medical education.

The Nagoya University Graduate School of Medicine has implemented advanced initiatives in the field of medical education. With the Center for Medical Education at the core, our multifaceted activities include undergraduate studies, postgraduate programs, faculty development, simulated education, and medical education research. The university has worked continuously to train practical medical education specialists through the Foundation Course for Medical Education (FCME), a certification program for teachers and supervisory physicians. FCME is highly rated as an educational program where participants share workplace issues and learn through the interplay between theory and practice. Our course is rooted in the experiences and accomplishments of FCME for further evolution into a systematic and academic graduate education program.

The program is designed as a graduate course for working professionals, mainly physicians. With the assumption that students will continue working, the course enables the ongoing interplay between theory and practice by incorporating the students' educational practice and workplace issues into the scope of learning. In addition to acquiring educational techniques, the course aims to develop the ability to examine workplace issues as research questions, analyze them scientifically, and use that analysis to initiate improvements. One of the major features of this course is that practical experience from the education site becomes the direct starting point for academic exploration.

Designed as a domestic educational program, the program also aims to develop educators and researchers with an international perspective. The field of medical education has grown through the international sharing of knowledge. Therefore, we consider it important to disseminate educational practices and research achievements in Japan to the international community. The Nagoya University Graduate School of Medicine has actively promoted collaboration with an international medical education network. This program is positioned as part of this international foundation.

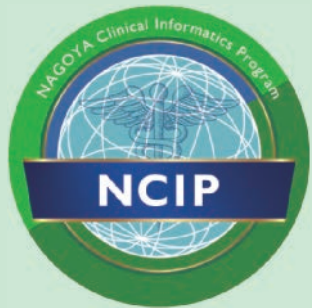
Graduates of the program are expected to play central roles in educational practice at schools of medicine, university hospitals, and training hospitals and to take leadership roles in the diverse fields of curriculum development, learner evaluations, faculty development, management of educational organizations, and medical education research. Needs will continue to grow for professionals with the ability to theoretically and empirically analyze institutional issues and promote meaningful improvement.

This graduate education program is designed to train physicians. The aim is to develop professionals who will play a central role in the practice and research of medical education, thereby contributing to improvements in the quality of medical education in Japan, as well as helping to develop international medical education sciences.

Medical IT Center, Nagoya University Hospital

Nagoya Clinical Informatics Program (NCIP)

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Nagoya Clinical Informatics Program:
An on-demand certificate program for the development of human resources to facilitate medical DX where specialists from different professions and fields provide practical knowledge so that working professionals can learn anytime, anywhere.

Digital transformation (DX) in the medical field is not simply limited to the introduction of electronic medical records and departmental systems but has extended to the use of care data, AI-assisted diagnosis and treatment, cybersecurity, medical device development, drug discovery, and healthcare policies. Medical information is no longer special knowledge handled by a limited number of experts; it has become the infrastructure that supports the quality and safety of medical care, drives research and development, and connects medical settings with society. However, because the scope of medical information is extremely broad and progressing rapidly, there are few opportunities for systematic study. Healthcare professionals often face demands related to electronic medical records, clinical information management, data standardization, information security, AI, and other requirements in their daily practice and hospital management, but they have only limited opportunities to learn these areas in an integrated, cross-sectional manner. Likewise, IT engineers and corporate R&D staff find it difficult to understand the operations, systems, and ethics unique to medical settings. Under these circumstances, in academic year 2024, the Medical IT Center, Nagoya University Hospital, opened the Nagoya Clinical Informatics Program (NCIP) as a certificate program. NCIP is a recurrent educational program for working adults under the School Education Act, through which Nagoya University issues a certificate to graduates of the program. NCIP is also certified as a Brush-Up Program for professionals (BP) by the Minister of Education, Culture, Sports, Science and Technology that provides an opportunity to systematically acquire knowledge and gain experience in medical information and the relevant system development. A characteristic feature of NCIP is that participants acquire knowledge of medical informatics that is usable in the workplace. All lectures are available on demand so that participants can study anytime, anywhere on smartphones and PCs. Another major feature is that the

course is specifically designed for working adults to take the course while continuing to work. The course has also been designated as eligible for the General Education and Training Benefit provided by the Ministry of Health, Labour and Welfare. Participants satisfying the specified requirements can receive partial reimbursement of course expenses after completion. Graduates of the course receive a certificate from Nagoya University, along with a digital certificate (open badge credential) that recognizes their accomplishments. The curriculum comprises two classes for each theme: introduction and practice (Figure 1). In the introduction class, participants are provided with an overview of the course and the institutional background and then study basic concepts. The practicum provides actual cases of use in medical settings and industry, along with the

Curriculum structure

- Systematic study of medical informatics
- Cooperation from more than 40 specialists nationwide
- Introduction and practice for each subject
- Advanced seminars and interactive classes are also available
- More than 40 lectures

Major subject categories

- Knowledge of safe handling
- Knowledge of data content
- Knowledge of systems
- Knowledge and methods of use
- Basic knowledge of operation
- Future medical information

Figure 1: Curriculum structure and major subject categories

Qualification (multiple answers)	Participants
Healthcare information technologists	20
Physicians	10
Health information managers	10
Pharmacists	8
Radiological technologists	7
Nurses	6
Clinical engineers	4
Physical therapists	3
Occupational therapists	1
Speech therapists	1
Registered dietitians	1
Others	34
No answer	36

mindset required for implementation. By studying the same subject in both theory and practice, participants acquire specific knowledge relevant to their actual work. In academic year 2025, the program comprised 44 lectures for about 66 hours, incorporating the broad themes of modern medical informatics, including medical ethics and personal information protection, information security, medical fee systems and medical business management, medical information systems, data standardization, use of care data, AI and future medicine, drug discovery and IT, and project management. Course subjects are organized into six categories: knowledge of safe handling, knowledge of data content, knowledge of systems, knowledge and methods of use, basic knowledge of operation, and future medical information so that participants can study systematically while gaining an overview of medical informatics. Lecturers are leading specialists from the forefront of the fields of medical informatics, healthcare policy, medical safety, information systems, industry, and project management. The combination of practice-based knowledge at the university hospital with broad perspectives drawn from the industry and academia helps participants gain a multifaceted understanding of medical DX. In academic year 2025, the program also included face-to-face lectures and exchange sessions in order to provide opportunities for interaction among participants and learners that are difficult through on-demand learning. Many of the participants in the program are from a variety of different professions and backgrounds both inside and outside medical institutions, including physicians, nurses, pharmacists, health information managers, healthcare information technologists, radiology technologists, clinical engineers, physical therapists, and other healthcare specialists, as well as medical IT engineers, corporate R&D researchers, sales and marketing staff, and educators (Figure 2). Although we expected a small start, the program had 58 applicants in the first year, increasing in stages to 100 the following year. Applications from companies and organizations for the reskilling course have also increased, giving rise to

Area of practice	Participants
Medical administration	22
Medical information/systems	12
Physicians	10
Sales/marketing	3
R&D	2
Education	1
Nurses	1
Others	36
No answer	13

"Others" in the areas of practice include health, medical, and welfare-related services, other medical technicians, and consulting services.

Figure 2: Participants' qualifications and areas of practice in AY 2025 (n = 100, including participants with multiple qualifications)

the use of NCIP as part of organizational human resource development. The program is supported by key industrial and academic organizations in the medical information field. Our aim is to enhance the program through collaboration with these organizations. NCIP is not simply intended to directly train medical informatics specialists. It aims to serve as the gateway for all persons involved in medical DX to start learning about medical informatics. Promoting medical DX requires more than the introduction of new technologies; it requires the ability to understand the issues in medical settings, interpret the meaning of data, and implement solutions in a safe, sustainable manner in consideration of systems and ethics. The NCIP forms the foundation for a shared language among healthcare professionals and IT/industry specialists and cultivates their implementation skills. Moving forward, we will continuously incorporate rapidly changing areas, such as data-driven healthcare, cybersecurity, and care data standardization, and update the curriculum in line with the needs. We are also considering the formation of a community for continuous learning by alumni of the program and a forum for sharing issues from the field. Through NCIP, Medical IT Center, Nagoya University Hospital hopes to build a foundation for human resource development that connects medical settings, industry, research institutions, and administrative organs and to develop a forum for practical learning that facilitates medical DX.



Figure 3: Certification ceremony for the completion of certificate program; second term participants AY 2025 (March 15, 2026)