



The Patient-Centered Doctor's Competency Framework in Korea

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With increasing demands for medical care by society, the medical system, and general citizens and rapid changes in doctor's awareness, the competencies required of doctors are also changing. The goal of this study was to develop a doctor's competency framework from the patient's perspective, and to make it the basis for the development of milestones and entrustable professional activities for each period of medical student education and resident training. To this end, a big data analysis using topic modeling was performed on domestic and international research papers (2011–2020), domestic newspaper articles (2016–2020), and domestic social networking service data (2016–2020) related to doctor's competencies. Delphi surveys were conducted twice with 28 medical education experts. In addition, a survey was conducted on doctor's competencies among 1,000 citizens, 407 nurses, 237 medical students, 361 majors, and 200 specialists. Through the above process, six core competencies, 16 sub-competencies, and 47 competencies were derived as subject-oriented doctor's competencies. The core competencies were: (1) competency related to disease and health as an expert; (2) competency related to patients as a communicator; (3) competency related to colleagues as a collaborator; (4) competency related to society as a health care leader (5) competency related to oneself as a professional, and (6) competency related to academics as a scholar who contributes to the development of medicine.

Keywords: Competency framework; Doctor's competency; Patient-centered competency; Physician competency

Introduction

Doctors must possess the professional ability, often referred to as “competence as a physician,” to perform their duties effectively. In Korea, this competence is recognized through a medical licensing system that grants exclusive authority for medical treatment to doctors who

meet specific qualifications and competencies. The strict qualification requirements for medical practitioners stem from the critical need for doctors to treat patients safely and appropriately. Therefore, modern medical education has evolved from a lecture-based approach to one that emphasizes competency-based and performance-based education [1]. The concept of “entrustable professional activities” (EPA) has recently been introduced in medical education to reflect the need for physicians to be able to perform their professional duties independently without supervision [2,3]. In response, the medical education and training system has restructured its curriculum to provide medical students and specialists with the necessary competencies at various stages of their careers, including ongoing education for specialists. Within this framework, defining doctors' competencies has become the cornerstone of medical education and training. Competencies are also important insofar as they enable physicians to understand and shape their self-identity based on their professional actions.

The Oxford Dictionary defines competence as “the ability to do

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something successfully and efficiently" [4]. The U.S. Office of Personnel Management defines competency as "a measurable pattern of knowledge, skills, abilities, behaviors, and other characteristics that an individual needs to perform work roles or occupational functions successfully." These competencies "specify the 'how' of performing job tasks, or what the person needs to do the job successfully" [5]. Carraccio et al. [6] defined a physician's competency as "a complex set of behaviors built on the components of knowledge, skills, and attitudes" and distinguished competence as a physician's "personal ability" [6]. These two words—"competence" and "competency"—are generally used without a clear distinction in meaning, so in this paper, we will use "competency" uniformly according to the usage in Canadian Medical Education Directions for Specialists (CanMEDS). Whitcomb [7] stated that for a physician "to be competent" means that "they are able to provide medical care and/or other professional services in accord with practice standards established by members of the profession and in ways that conform to the expectations of society." Frank [8] defined competencies as "important observable knowledge, skills and attitudes" and "The Council on Linkages between Academia and Public Health Practice" defined core competencies for physicians as "a consensus set of knowledge and skills for the broad practice of public health" [9].

Since the 1990s, several countries have begun to define doctors' competencies within their borders and to specify their components [10]. After the World Federation for Medical Education (WFME) recommended that countries identify and enact a future role for doctors as part of the project on the future global role of the doctor in healthcare in 2012 [11] (Appendix 1), this initiative gained momentum in many countries. Comparing the competencies developed in various countries reveals that they are largely similar. However, the way these details are organized into categories, or core competencies, differs from country to country. The most commonly referenced doctors' competency frameworks around the world are as follows. CanMEDS 2015, a Canadian doctors' competency framework, organizes physician competencies into seven roles centered on the physician's function [12]: medical expert, communicator, collaborator, leader, health advocate, scholar, and professional. The United Kingdom's "Good Medical Practice" from 2020 organizes physician competencies into four core areas: knowledge, skill, and performance; safety and quality; communication, partnership and teamwork; and maintaining trust [13]. The Accreditation Council for Graduate Medical Education (ACGME) in the United States (U.S.) categorizes physician competencies into six domains [14]: patient care, professionalism, interpersonal and communication skills, medical knowledge, systems-based practice, and practice-based learning and improvement. Notably, the U.S. framework includes "sys-

tems-based practice" as a core competency for doctors, which is not explicitly found in the Canadian and U.K. frameworks. This competency involves understanding how a physician's practice impacts and is influenced by the broader health and social systems, including working within various healthcare delivery systems and public health settings; coordinating patient care; recognizing healthcare costs and conducting risk-benefit analyses; improving patient care quality and optimizing healthcare systems; collaborating in interprofessional teams to enhance care quality and safety; and participating in the identification of system failures. While elements of "systems-based practice" can be found in other countries' doctors' competency frameworks, its explicit inclusion and emphasis as a core competency reflects the priorities in American medical education and residency training in the context of the U.S. healthcare system.

In Korea, the first study on doctors' competencies was conducted in 2007 as part of "Development of a Common Curriculum for Post-Graduation Education for Residents," which was a policy task of the Korean Institute of Medical Education and Evaluation [15]. In 2010, in honor of the 100th anniversary of the graduation of licensed physicians, the Research Institute for Healthcare Policy and the Korean Medical Association published the "Report on the Development of a Common Curriculum for Residency in Korea" to establish the identity for residency education in Korea [16]. Subsequently, the Korean Academy of Medical Sciences conducted a policy study in 2013 for the Ministry of Health and Welfare titled "Study on Reorganization of Training Curriculum by Specialty Subject for Efficient Training of Residents." This study proposed a set of general educational competencies for residents in Korea, drawing from the Korean RESPECT 100 competencies, the ACGME's six core competencies, the seven roles of CanMEDS in Canada, and the four competencies of the General Medical Council's Good Medical Practice in the United Kingdom [17]. Accordingly, most of these competencies were subsequently incorporated into the Ministry of Health and Welfare's annual training curriculum for residents, announced in February 2019 [18]. In 2014, the "Korean Doctor's Role" was created and published [19]; it was endorsed by the Korean Council on Medical Education and served as a guideline for medical education and residency training, continuing education, and competency development research. This framework was subsequently revised and updated in 2021 to become the "Korean Doctor's Role 2022" [20]. As the title implies, it outlines the qualities of an ideal doctor within the Korean context, with an emphasis on the competencies required for medical practitioners. Both the 2014 and 2022 editions of the "Korean Doctor's Role" were organized into five main categories: patient care, communicator & collaborator, social accountability, professional-

ism, and education and research. Compared to other countries, the “Korean Doctor’s Role” is distinctive in its focus on the attributes of medical practice. Subsequent studies have aimed to establish milestones EPAs based on the “Korean Doctor’s Role (2014)” [21,22]. However, there have been several suggestions for improving the “Korean Doctor’s Role” for use as a competency framework, including concerns that some competencies resemble milestones associated with specialty acquisition rather than ongoing competencies, that there is redundancy among the competencies, and that the framework includes physician attitudes and behaviors that are challenging to define clearly.

Doctors’ competencies are not set in stone once and for all. Even in international contexts, we can observe that the competencies required of doctors have evolved over time. For instance, in the United States, the ACGME initially referred to the six competencies as the “general competencies” at the outset of the ACGME Outcome Project in 1999. However, following the first revision in 2002, the term “core competencies” began to be used interchangeably, and the underlying concept was modified [23]. In 2005, the organization considered introducing the next accreditation system, and in 2013, it launched the so-called milestone competency-based curriculum, which further subdivides the competency-based curriculum and defines each competency level [24]. Similarly, the Canadian CanMEDS framework has undergone regular revisions since the release of CanMEDS 2000, including updates in CanMEDS 2005 and CanMEDS 2015. In the CanMEDS 2015 iteration, the role of the physician, previously termed “manager,” was redefined as “leader,” among other changes, culminating in the “Draft CanMEDS 2015 Milestones Guide (CanMEDS milestones)” [25]. The CanMEDS milestones systematically define competencies from the point of medical licensure to the most advanced mastery stage post-specialization. They delineate graduation competencies for each level, including competencies at the time of obtaining a medical license, competencies at the time of graduating from the Royal College examination, competencies at the time of obtaining a specialty license, and competencies at the stage of lifelong professional development, which is considered the most advanced in terms of a continuous competency development system. Thus, it is clear that the competency framework for doctors is continually being researched and updated to align with the evolving demands and needs of the times.

This study was conducted as an in-depth research topic within the scope of the “Research on Improving Resident Education System for Patient-Centered Performance,” which is part of the “Patient-Centered Medical Technology Optimization Research Project” sponsored by the National Evidence-based Healthcare Collaborating Agency in 2020. The goal was to overhaul the resident training system for specialty doc-

tors, transitioning to a new competency-based, performance-oriented framework. To effectively evaluate this revamped training system, it is essential to first define the competencies required of Korean doctors, including residents. This will enable the establishment of specific milestones and EPAs for each stage of training. Therefore, this study aimed to fulfill the following objectives, while also enhancing the “Korean Doctor’s Role” as a foundational competency framework for physicians.

First, we aimed to develop a competency framework tailored to the Korean context, which would facilitate the identification of educational and training milestones at each stage. We approached the development of doctors’ continuing education as a continuous progression. The concept of milestones is predicated on the understanding that the competencies required of doctors evolve over different times and stages, akin to a child’s development. It is therefore crucial to delineate the acquisition of skills and knowledge at each level and to devise a system that enables incremental observation and feedback on the competencies acquired by medical residents through milestone evaluations. Our study aimed to establish a foundational competency structure for physicians and to introduce a competency framework for doctors, upon which milestones can be set for each phase, including graduation from medical school, residency, specialty training, and ongoing professional development. This will facilitate the creation of a competency framework for doctors that is teachable, measurable, and more effectively aligned with their successive stages of development.

Second, we aimed to develop physicians’ competencies from a patient-centered perspective. Existing competency frameworks have predominantly been crafted by medical educators and physicians with considerable expertise in this domain. While this approach was necessary to ensure that the frameworks accurately represented the medical context and educational methodologies, it inadvertently introduced limitations by not adequately incorporating the perspectives and opinions of patients or the broader medical community. To address this gap, our study gathered insights on physicians’ competencies from a diverse group of stakeholders, including the general public and nurses. Additionally, we sought input from a range of medical professionals, including medical educators, medical school professors, salaried and self-employed physicians, residents, and medical students.

This study was approved by the Institutional Review Board of Chungnam National University Hospital (CNUH 2021-02-025).

Methods

1. Research procedure

Competencies were developed through the following steps.

Step 1: A research team of seven medical education experts was organized into a working group. Through discussions, they finalized the purpose of the competency development study and established considerations for conducting the research.

Step 2: We reviewed both domestic and international literature and data pertaining to physician competency. We also performed a big data analysis using topic modeling methods on domestic research articles from 2011 to 2020, domestic newspaper articles from 2016 to 2020, and domestic social networking service (SNS) data from the same period. This analysis aimed to determine the coverage of physician competency-related content in research articles, newspapers, and on SNS [26-28]. From this analysis, we developed the initial draft of a framework outlining the core competencies and sub-competencies for a patient-centered physician competency system, which will be the outcome of this study.

Step 3: We assessed the validity of the competency content created in step 2. First, we conducted a two-round Delphi survey of 28 medical education experts [29]. Second, we surveyed 1,000 citizens, 407 nurses, 237 medical students, 361 residents, and 200 specialists about their perceptions of doctors' competencies [30].

We conducted a public hearing on the second draft, which was developed through the above process. We then incorporated the feedback received and, under the guidance of a Korean linguist, composed the final version of the "Korean patient-centered doctor's competencies."

2. Process of competency development

In this study, we analyzed the existing competency framework, reviewed the literature, and examined the needs within the Korean context. Subsequently, by employing topic modeling of social media and newspaper articles, we categorized the competencies desired by citizens for doctors into five topics: (1) researcher, (2) collaborator, (3) kind and ethical, (4) communicator, and (5) active in social activities. From this categorization, we identified a total of six key competencies for doctors, including the fundamental competency of a physician to be an expert in disease treatment. Based on these six competencies, we determined that the most effective approach to structuring educational milestones and EPAs for medical students and residents is to adopt a new classification criterion called "subject-oriented" competencies. This approach involves dividing the subjects of physicians' activities into six categories: (1) disease, (2) patients and caregivers, (3) fellow medical professionals, (4) society, (5) self, and (6) discipline. Competencies for each subject are then delineated into six core competencies. The implications of this subject-oriented framework for organizing competencies will be discussed in the subsequent session. The study continued with

two rounds of a Delphi survey involving 28 medical educators and physicians. Drawing on the Delphi survey results, we conducted a broader survey on doctor competencies targeting citizens, nurses, medical students, residents, and physicians. We collected a total of 2,710 responses, of which 1,647 were analyzed after removing duplicates. After excluding responses that were singular or contained meaningless words, 776 words were ultimately selected for word cloud visualization. The insights on doctor competencies gleaned from this process were integrated into the descriptions of specific competencies. However, they did not significantly impact the creation of new core competencies beyond the six already proposed in this study. The process culminated in a public hearing on November 23, 2021, which included six panelists and 80 participants. The panelists comprised representatives from the Korean Association of Medical Colleges, the Korean Institute of Medical Education and Evaluation, the Korean Intern Resident Association, the Korean Medical Student Association, and two experts in medical education. The purpose of the hearing was to discuss the study's findings. Subsequently, a final draft was completed with the guidance of a Korean linguist.

Results

The core "Korean patient-centered doctor's competencies," as derived from this study, consist of six subject-oriented competencies for physicians. First, as experts, doctors possess competencies related to disease and health. Second, in their role as communicators, doctors have competencies that facilitate interactions with patients. Third, as collaborators, doctors exhibit competencies in working with their colleagues. Fourth, doctors acting as healthcare leaders demonstrate competencies that serve society. Fifth, as professionals, doctors maintain competencies that pertain to their own conduct. Sixth, as scholars contributing to the advancement of medicine, doctors are expected to possess competencies related to scholarly activities.

The competency framework is structured hierarchically, comprising core competencies, sub-competencies, and practical competencies, as detailed in [Appendix 2](#). The core competencies are described below.

1. Competencies related to disease and health as an expert

The most basic competencies required for doctors relate to their roles as experts in disease and health. These competencies have traditionally been the most strongly emphasized in physician training programs and refer to the ability to perform in the diagnostic and therapeutic process. In this study, this concept is defined in a way that goes be-

yond simple clinical competencies and includes the ability to make scientific judgments and take a patient-centered approach in various clinical decision-making processes. The specific sub-competencies include professional care, patient-centered and evidence-based medical practice, and improving patient safety and quality of life.

1) Professional care

To provide the best care for their patients, doctors must have specialized skills and be able to apply them practically. In addition to the basic knowledge needed to practice medicine, they must have the most up-to-date knowledge in their field and be proficient in the relevant hands-on skills. They should treat patients within their scope of competency and refer patients outside that scope to other healthcare workers to provide the best medical care. Records and medical forms must be accurate, based on facts, and complete throughout the course of care. This sub-competency contains four practical competencies: medical practice with specialized medical knowledge, skilled medical practice, setting a scope of medical practice appropriate to one's abilities and practicing within that scope, and accurately filling out medical records and medical forms.

2) Patient-centered and evidence-based medical care

A patient-centered approach is essential in all aspects of patient care. This includes patient-centered interviews and physical examinations. In addition, treatment decisions should be grounded in factual, objectively verified evidence rather than personal experience. Decisions must prioritize the patient's best interests, respecting each individual's unique characteristics instead of resorting to a one-size-fits-all approach. Furthermore, when evidence is lacking for an objective judgment, healthcare providers should employ their understanding of uncertainty to anticipate potential issues for the patient and decide with the patient's well-being in mind. These principles can be distilled into three core competencies: three practical competencies: patient-centered history taking and physical examination, patient-centered decision-making that respects the patient's individuality, and evidence-based scientific judgment.

3) Improving patient safety and quality of life

During the course of medical practice, a clinician may encounter a variety of situations that threaten patient safety. Doctors must be able to react quickly and accurately to these incidents and, in all cases, prioritize patient safety. On a day-to-day basis, they should be alert to factors that threaten patient safety and actively participate in team activities and efforts to establish a culture of patient safety to address threatening situa-

tions. As the ultimate goal of high-quality care is to improve patients' quality of life, physicians must attentively listen to their patients' descriptions of their pain and suffering and strive to alleviate those problems, irrespective of the underlying illness or disease progression. Furthermore, it is essential to acknowledge that patients with terminal illnesses have the right to a dignified death. This principle should be respected and incorporated into clinical practice. This sub-competency can be organized into five practical competencies: addressing situations that threaten patient safety, creating a medical environment that promotes patient safety, reflecting patients' needs for quality of life, actively addressing patients' pain and suffering, and respecting patients' right to a dignified and respectful death.

2. Competencies related to patients as a communicator

Effective communication between patients and doctors is essential for building mutual trust. Patients articulate their symptoms and concerns, allowing doctors to diagnose their conditions accordingly. The resulting human connection benefits both parties [31], and the trust and understanding that emerge from this relationship enhance the quality and satisfaction of the healthcare experience, which is therapeutic in its own right [32]. The Korean patient-centered doctor's competencies emphasize communication with patients and their guardians. This is reflected in its emphasis on communicating with patients and their guardians among the many audiences with which doctors must communicate in the core competency of the doctor as a communicator. The competencies of interprofessional communication and societal communication are categorized under the roles of collaborator and healthcare leader, respectively. This delineation signifies a shift from the previous Korean Doctor's Role, which combined "communication and collaboration" into a single competency concept. Now, "communication" with patients and guardians is distinctly separated from "collaboration" with healthcare team members. This separation aligns with the communication competencies outlined in CanMEDS, although the ACGME and Australia's communication competencies encompass a broader scope of communication. The specific sub-competencies are detailed as follows.

1) A collaborative patient-physician relationship

A collaborative patient-physician relationship involves respecting the position and circumstances of patients and their families. Such a relationship is based on trust, which requires treating patients with respect and without discrimination. A trusting patient-physician relationship facilitates patient participation in the therapeutic relationship and the collaborative development of a treatment plan that respects the pa-

tient's dignity and privacy. A collaborative patient-physician relationship is based on four practical competencies: establishing a trusting therapeutic relationship; participating in planning treatment; respecting the values, preferences, and needs of patients and their families; and treating patients fairly and without discrimination.

2) Empathetic communication

Empathetic communication is a skill based on understanding and respect for the patient and their family. It means putting oneself in the patient's or family member's shoes, accepting and understanding their feelings, thoughts, and expressions in an accurate and unbiased way, and then communicating them back to them. Empathetic communication makes the other person feel respected and understood, which enables a positive relationship to develop. It consists of two practical competencies: listening to the patient and their family, and expressing empathy verbally and non-verbally.

3) Explaining and obtaining consent for treatment

It is important for doctors to provide sufficient information to the patient and make decisions together with the patient through the informed consent process. Informed consent means that a patient decides whether or not to consent to a treatment for his or her disease, whether or not to be a subject of medical research, and whether or not to undergo an organ transplant after receiving sufficient explanation (Article 12 of the Framework Act on Health and Medical Services). The principle of self-determination means that a patient can decide on the treatment performed on himself or herself. This is a patient's right and a doctor's duty. Therefore, the purpose of the treatment provided; the risks, procedures, and costs associated with the treatment; the various alternatives to treatment; the patient's right to refuse or withdraw consent; the timeframe involved in giving consent; and the limitations of the treatment must be fully explained. Patient-centered care emphasizes the patient's right to self-determination, which can improve the patient-physician relationship by building therapeutic trust. This sub-competency consists of three practical competencies: providing full explanations to patients and guardians before seeking consent, responding appropriately to questions or complaints, and seeking understanding and cooperation.

3. Competencies related to colleagues as a collaborator

A doctor's role as a collaborator is a central competency for achieving patient-centered care and patient safety. This refers to a physician's ability to collaborate with colleagues through effective consultation and referral, and to work together within a healthcare team with the goal of

achieving the best possible outcome of treatment. In the "Korean Doctor's Role," these competencies are included under "Communication and Collaboration," but in this framework of patient-centered doctor's competencies, communication and collaboration are recognized as distinct core competencies. Communication is defined as the ability to interact with patients and their guardians, while collaboration refers to the capacity to work with fellow healthcare professionals. This distinction clarifies the target audience for each competency. By differentiating between these competencies, the framework facilitates the creation of more focused milestones and EPAs. The sub-competencies are detailed further below.

1) Effective consultation and referral

When collaborating with colleagues, it is important for physicians to have a clear sense of the scope of medical practice (or specialty) within their capabilities and the ability to make accurate consultations and referrals when necessary to achieve the best outcome for the patient. In situations involving consultation and referral, obtaining patient consent is mandatory, and adequate information pertaining to the patient should be provided. Additionally, doctors should demonstrate respect toward their fellow physicians throughout this process. Together, these requirements form the two core practical competencies in such scenarios.

2) Teamwork and commitment to improvement

Teamwork refers to the ability to work collaboratively within a healthcare team with the goal of achieving the best possible outcomes. Doctors should be able to understand and fulfill their roles, abilities, and responsibilities within the healthcare team, and respect the expertise of other team members to help them carry out their roles. This involves the ability to recognize differences and work together to resolve them, even in the face of disagreements and conflicts of interest that may arise within the team, and the ability to continuously evaluate and improve the quality of care with the ultimate goal of achieving the best patient outcomes. It is especially important that physicians have the ability to go beyond performing dutifully in their assigned practice setting and engage in personal, team, and institutional improvement efforts to create a better healthcare setting for patients. These make up the four associated practical competencies.

4. Competencies related to society as a healthcare leader

Competencies related to society as a healthcare leader were the area with the most diverse opinions regarding its development. Through our discussions, we concluded that a doctor, serving as a healthcare

leader, should possess certain competencies in relation to society. “Healthcare” in this context encompasses all activities undertaken by the state, local governments, healthcare organizations, or healthcare professionals to protect and promote the health of the population, as defined in Article 3 (Definition 1) of the Framework Act on Health and Medical Services. This definition implies that healthcare includes both public health activities, which focus more on prevention and environmental improvement within the community, and medical activities that cover diagnosis, treatment, and prevention for individual patients. A leader within a healthcare organization is someone who occupies a central role, setting goals, guiding direction, and serving as a liaison between the group and external entities. The role of a healthcare leader involves working in a position of responsibility within a formal healthcare organization, wielding specific authority and responsibility. In an informal group setting, this individual performs the role of a physician to others, exercising approved authority as an expert with relevant medical expertise.

1) Social activities to improve health

Public health activities aimed at health promotion are predicated on community-based initiatives. The goal of health promotion is to enhance overall health, bolster resistance to infections and stress, and increase daily activity levels. This encompasses improving nutrition, ensuring adequate exercise and rest, and managing mental activity. Key components of public health activities include infection prevention, environmental sanitation, nutrition, and physical fitness. Health promotion targets can be categorized by individuals: patients, community members, and the broader population. When focusing on patients, it is crucial to extend care beyond the doctor’s office, connecting them with a variety of community resources and services to support their health. At the community or national level, healthcare services for patients with specific conditions are provided through policies or funding from relevant organizations. These services include maternal and child health, youth counseling centers, smoking cessation programs, sunflower centers, hospices, palliative care services for patients with incurable or rare diseases, and the Benefit Extension Policy. Physicians should be knowledgeable about the healthcare resources and services available to assist patients in their practice and should use them effectively to promote health. An example would be referring patients with asthma to a health center’s smoking cessation program and encouraging them to complete it. They also engage as healthcare professionals in public health activities (such as prevention and improvement) based on the healthcare needs of the community. Physicians, as healthcare professionals, have a duty to meet societal needs. They are tasked with re-

sponding to public health emergencies that threaten society at large and with producing and disseminating accurate medical information to enhance the quality of medical care. At the national level, they should leverage their expertise to protect and promote public health with reliable medical information. This can be achieved by advocating for legislation to protect patients with specific conditions, providing expert opinions through newspaper articles and community outreach as necessary, serving as community healthcare advisors in rural and remote areas, and participating in public health organizations. These responsibilities constitute the three practical competencies.

2) Increasing equity in healthcare

Equity means treating those who are equal equally and those who are not equal unequally. As healthcare leaders, doctors have a responsibility to promote health equity, ensuring that social and economic disparities do not translate into health inequities. Vulnerable populations are those who are marginalized economically and socially. In the healthcare context, these populations are characterized by limited access to healthcare resources or a heightened risk for disease. Groups such as children, the elderly, and pregnant women are considered health-vulnerable because they are at an increased risk of contracting infectious diseases and are more likely to experience disability and its consequences. Other vulnerable groups include the biologically disadvantaged, who face a higher susceptibility to environmental hazards, and the socio-economically disadvantaged, who have low incomes. The Framework Act on Health and Medical Services mandates that all citizens are entitled to state protection for their health and that of their families, as defined by law. This right must not be infringed upon based on gender, age, religion, social status, or economic conditions. Furthermore, the state is obligated to create and implement a healthcare development plan and to safeguard the right to health by promoting the well-being of women, children, the elderly, and the disabled through comprehensive national healthcare initiatives. In upholding the right to health, doctors should strive to address health inequalities and enhance equity in healthcare as part of their societal leadership role. Specifically, they should lead organizations and groups dedicated to identifying and improving the health of vulnerable populations whose right to health is at risk. Healthcare resources encompass the collective human and material assets available to professionals or healthcare organizations for maintaining or restoring health. These resources include healthcare personnel, facilities, equipment, supplies, and knowledge. Resource allocation involves prioritizing limited resources, which inherently requires value-based judgments. In healthcare decision-making, considerations of efficiency—such as clinical and cost-effectiveness, as well as

financial implications—are weighed alongside equity concerns, which include the right to care, protection of vulnerable groups, and attention to rare diseases. The sub-competency of strengthening equity in healthcare involves ensuring fair access and utilization in the distribution of all healthcare resources to address disparities. These constitute the two practical competencies.

3) Preparing for future changes

The healthcare landscape in society is changing rapidly. Factors contributing to this transformation include a persistently low birth rate, an aging population, shifts in disease patterns due to environmental changes, a paradigm shift toward prevention and patient-centered care, and advancements in medical technology, such as precision and regenerative medicine, spurred by the fourth industrial revolution. These shifts in the healthcare environment inevitably necessitate a redefinition of the roles expected of physicians. Consequently, doctors must be equipped to lead and adapt to these future changes. This entails not only recognizing and preparing for upcoming shifts to maintain their competence as physicians through continuous self-improvement but also engaging, whether directly or indirectly, as healthcare professionals. They must anticipate how societal and scientific developments will reshape the healthcare sector and be ready to address these changes. This constitutes one practical competency.

5. Competencies related to oneself as a professional

Physicians are not only responsible for applying their medical knowledge and skills to cure diseases in their patients, but they also have a duty to uphold medical professionalism. This is because their role requires direct interaction with patients who are ill. Medical professionalism encompasses a set of values, behaviors, and relationships that underpin the trust the public places in physicians and the healthcare system [33]. In other words, medical professionalism involves attitudes that demonstrate that physicians deserve the trust of the public [34]. Based on this definition, medical professionalism can also be described as beliefs and philosophies that physicians should have; thus, it is sometimes considered an ideological concept [35]. However, medical professionalism needs to be addressed based on what physicians should actually do and how they should act individually and collectively—in other words, it needs to be defined according to practical concepts. Therefore, in these patient-centered doctor's competencies in Korea, the scope is clearly set by defining the competencies for physicians to practice medical professionalism as “competencies related to oneself as a professional.” The areas of activity for practicing medical professionalism are categorized into activities that can be performed by individual

doctors and those that require collective action by groups of doctors or organizations. Furthermore, we have identified the personal beliefs, values, norms, and behaviors that individual doctors should embody in their professional healthcare activities. These are specified as ethics, autonomy, and self-management. The competency related to ethics is termed “compliance with medical ethics,” the competency related to autonomy is called “participation in physician-led self-regulation,” and the competency related to self-management is defined as “self-management and peer protection.” The professional competencies proposed in the 2022 Korean patient-centered doctor's competencies study correspond to the “Korean Doctor's Role” (2014) and the “Professional” domain of CanMEDS (2015). When comparing these competency frameworks, both the “Korean Doctor's Role” and CanMEDS include four categories. In contrast, the “Korean Patient-Centered Physician Competency” framework consists of three sub-competencies as follows.

1) Compliance with medical ethics

Among the various elements that constitute medical professionalism, the foremost is a physician's ethics. Accordingly, we have proposed “compliance with medical ethics” as a sub-competency within the professional competency framework. This concept pertains to adherence to the diverse ethical standards mandated by the profession and encompasses five practical competencies: recognizing and addressing ethical issues that may emerge during medical practice, understanding and adhering to the regulations and guidelines that uphold medical ethics, identifying and navigating conflicts of interest, safeguarding privacy, and maintaining patient confidentiality.

2) Participation in physician-led self-regulation

Self-regulation is a fundamental principle of medical professionalism. Only a physician with medical expertise is qualified to accurately assess the appropriateness of medical practices, making external intervention potentially flawed. Furthermore, the nature of a doctor's office as a space for medical practice implies a degree of autonomy from external oversight. Therefore, physicians must hold themselves to rigorous standards in their clinical work. Given these considerations, physicians' involvement in self-regulation led by their peers is essential. Such self-regulation can significantly improve patient safety and welfare. This sub-competency involves commitment to the principles of physician-led self-regulation and active engagement in its associated activities. It encompasses three practical competencies: understanding the concept of self-regulation and its related activities, reflecting on one's own medical practice, and responding to unethical behavior of colleagues.

3) Self-management and peer protection

It is crucial for physicians to prioritize their own well-being, both physically and mentally, to provide the highest quality of care to their patients and to foster a culture of safety and support among their colleagues. To this end, we propose the addition of a third sub-competency under professionalism, titled “self-management and peer protection.” This competency is essential for physicians to effectively demonstrate their medical expertise. It encompasses the ability to manage personal health and cultivate a healthcare environment that enables peak professional performance. Specifically, this sub-competency includes two practical competencies: the maintenance of one’s physical and mental health, and the creation of a safe and conducive environment for the practice of medicine.

6. Competencies related to academics as scholars who contribute to the development of medicine

“Contributor to the development of medicine” is a competency within the medical discipline that encompasses a physician’s ability to continually enhance their academic expertise, support the education of colleagues and medical students, and engage in scholarly inquiry to advance medical practice. This competency extends beyond university-affiliated physicians to include essential elements for both salaried and self-employed doctors [36]. In particular, the use of the term “inquiry” instead of “research” emphasizes the competency of salaried and self-employed doctors as physicians who contribute to the development of medicine through critical and scientific approaches in the medical field. Similarly, the “Korean Doctor’s Role” (2014) describes this type of competency as two elements, including education and research, with education being similar to “promoting physician learning” and research being similar to “medical inquiry” in the proposed competency framework. However, with the increasing importance of keeping pace with rapidly evolving medical technologies and environments, “continuing professional development” has been separately specified [37]. Continuing professional development is also explicitly recognized in international competencies. The Canadian framework (CanMEDS, 2015) includes it within the scholar role, alongside promoting physician learning and medical inquiry. The US framework (ACGME, 1999) underscores its significance by listing practice-based learning and improvement as an independent competency. In Australia (GMP, 2020), competencies are categorized into maintaining professional performance, teaching, supervising, assessing, and conducting research. The UK model (GMC, 2013) integrates continuing professional development and promoting physician learning within the broader domains

of safety, quality, communication, partnership, and teamwork, rather than as standalone categories. The competencies proposed in our study bear a resemblance to those of CanMEDS (2015) in Canada and GMP (2020) in Australia.

1) Continuing professional development

While practicing medicine, physicians need to be sensitive to current and future changes in the environment and be able to identify new learning needs through reflection on their academic expertise. They should develop a plan to seek out and learn about the latest medical knowledge and technologies. They must be able to select and evaluate information and resources required for professional development, and to integrate what they have learned into medical practice. This sub-competency comprises one practical competency, “learning and applying up-to-date knowledge and skills.”

2) Promoting physician learning

Physicians must have the ability to create a safe environment that promotes learning for their colleagues and pre-service doctors. They should be able to use effective teaching and learning methods to mentor both groups. Additionally, they are required to objectively evaluate their colleagues and pre-service doctors using reliable assessment techniques and offer constructive feedback to enhance both learning and performance. This sub-competency consists of one practical competency, “supporting the learning of colleagues and pre-service doctors through effective education, objective assessment and constructive feedback.”

3) Medical inquiry

Physicians should be capable of posing academic questions that have the potential to propel medicine forward within the context of genuine medical practice. To effectively address these questions, they must grasp the scientific principles of research and scholarly inquiry, as well as be adept at applying a scientific approach. Adherence to the principles of research ethics and guidelines is essential when conducting or participating in research. This sub-competency involves two practical competencies: “raising academic questions in the context of medical practice and applying a scientific approach through critical review of evidence” and “complying with principles of research ethics and guidelines when conducting or participating in research.”

Discussion

The development process of the Korean patient-centered doctor’s

competencies and the resulting competency framework can be summarized as follows.

First, the core competencies were categorized as subject-oriented. In the past, competency structures for doctors created internationally have centered on the roles of doctors, such as CanMEDS in Canada, on the areas of doctors' activities, such as ACGME 6 Competencies in the United States, or on the features of their activities, such as Good Medical Practice in the United Kingdom. Each of these has its own merits. However, the competency structure of this study organizes the competencies into a "subject-oriented" competency framework. It aims at ensuring clarity and convenience in medical education and training, and is intended to create patient-centered medical competencies. For example, a physician's competency of "communication" appears in all domestic and international physician competency contents. CanMEDS in Canada also includes the role of a communicator as one of the seven role competencies. The term "communication" encompasses a wide range of interactions, not only with patients but also with colleagues and society at large. This breadth can make it challenging for medical students and trainees to grasp the specifics of their communication responsibilities, leading to potential confusion in both teaching and assessing these competencies at various stages of development. To address this, the patient-centered physician competency framework developed in this study emphasizes the importance of the physician's communicative role, particularly with patients. This focus helps medical students, residents, and specialists understand that their primary communication responsibility is toward patients and their advocates. To maintain this clarity, competencies related to interactions with colleagues and society are integrated into the core competencies of collaboration and societal leadership, which are ultimately realized through effective communication. The research team is confident that the benefits of structuring core competencies in this "subject-oriented" manner surpass any potential drawbacks.

Second, the Korean patient-centered doctor's competency framework is specifically comprised of competencies that are teachable and assessable, which is advantageous for residency training. It includes only those competencies deemed essential for medical students, residents, and specialists. This specificity facilitates the establishment of clear milestones and EPAs, enabling the monitoring of competency development. Competencies that are abstract or conceptual, and thus challenging to evaluate, are intentionally omitted. As a result, the framework is tailored for practical application within the residency training of various clinical specialties.

Third, multiple development methods were used to construct the patient-centered competencies. In order to ensure that these competencies are truly patient-centered, we systematically conducted a survey to

gather the competencies of doctors as mentioned by citizens on social media, in newspaper articles, and in domestic and international research articles pertaining to medical education. This was complemented by discussions within a research team of medical education experts and Delphi surveys. A distinctive feature of our approach was the incorporation of perspectives from a broad range of stakeholders, including citizens, nurses, medical students, residents, and specialists. This group of specialists encompassed salaried doctors, self-employed practitioners, and university professors, all of whom contributed their views on the competencies required of doctors through surveys. This method of creating a competency framework for doctors is internationally novel and may serve as a template for other nations looking to develop their own frameworks for doctor competencies in the future.

In conclusion, this study has proposed a patient-centered doctor's competency framework, delineating "subject-oriented" core competencies, sub-competencies, and practical competencies. The anticipated next steps are as follows:

First, milestones should be established for each stage of physician education based on the proposed competencies. Specifically, milestones for each competency need to be set at four critical junctures: upon graduation from medical school (entry into residency training), completion of residency training (entry into specialty practice), completion of specialty training (acquisition of specialty certification), and throughout lifelong professional development. Additionally, EPAs should be defined for each stage in alignment with these milestones.

Second, based on the established milestones and EPAs, it will be necessary to establish standards for designing, implementing, and evaluating key curricula for each educational and training period. It is anticipated that this approach will lead to the creation of a seamless educational system, facilitating the delivery of education and training from the basic medical curriculum through to residency, specialty training, and lifelong professional development.

The expectations and awareness of healthcare from the public and patients are changing, as are the needs of the state and society regarding the healthcare system. Concurrently, advancements in science and medical technology occur daily. The perspectives of residents, specialists, and medical students on the role of medicine and physicians are rapidly shifting. Consequently, the competencies required of doctors must also be adapted. In this context, the development of the Korean patient-centered doctor's competencies represents the Korean medical community's effort to address these changes. As discussions and evaluations of various opinions and ideas persist, it becomes a crucial social responsibility for those currently overseeing medical education and training to enhance its effectiveness, efficiency, and balance. This is par-

ticularly important for medical students and residents who are on the path to becoming future medical professionals. Therefore, it is anticipated that the organization of doctors' competencies will continue to be refined in the future.

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Conflict of interest

Woo Taek Jeon, Hanna Jung, and Youngjon Kim are Editorial Board members of KMER, but was not involved in the peer reviewer selection, evaluation, or decision process of this article. Except for that, no other potential conflict of interest relevant to this article was reported.

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Authors' contribution

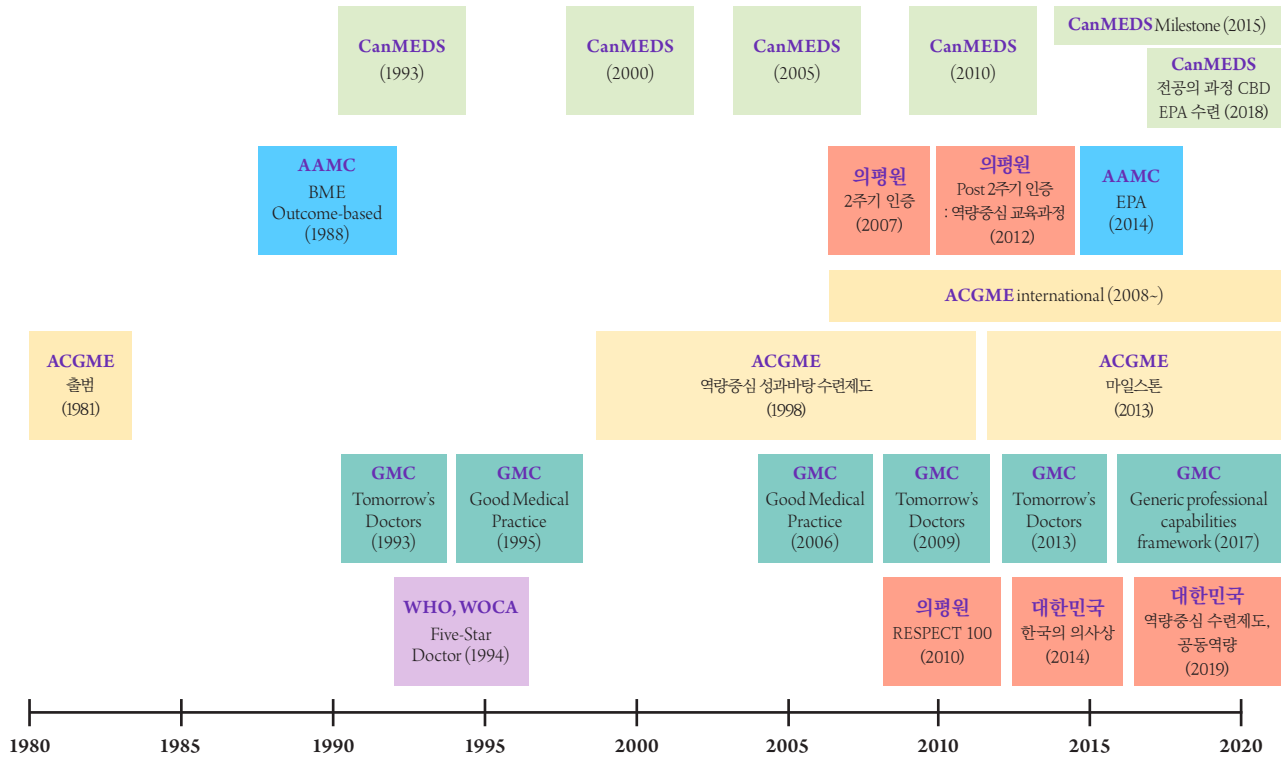
Woo Taek Jeon acquired data and drafted the article; Hanna Jung, Youngjon Kim, Chanwoong Kim, So Jung Yune, Geon Ho Lee, and Sunju Im acquired data and wrote the manuscript; Sun-Woo Lee reviewed and revised the article.

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APPENDICES



Appendix 1. The timing of the introduction of doctor's competency and competency-based education. AAMC, Association of American Medical Colleges; ACGME, Accreditation Council for Graduate Medical Education; BME, basic medical education; GMC, General Medical Council; CBD, competence by design; EPA, entrustable professional activities; WHO, World Health Organization; WONCA, World Organization of Family Doctors.

Appendix 2. The patient-centered doctor's competency in Korea

핵심 역량(core competency)	세부 역량(sub-competency)	실행 역량(enabling competency)
1. 의사는 전문가(expert)로서 질병 및 건강에 대하여 다음과 같은 역량을 가진다.	1.1. 전문적인 진료(expertise in patient care): 전문적인 진료에 필요한 역량을 갖추고 이를 실무에 적용한다.	1.1.1. 전문적 의학 지식을 갖추어 진료한다. 1.1.2. 숙련된 술기를 바탕으로 진료한다. 1.1.3. 자신의 능력에 적절한 진료범위를 설정하고 그 범위 내에서 진료한다. 1.1.4. 의무기록 및 의료서식(진단서 등)을 정확하게 작성한다.
	1.2. 환자 중심 및 근거 중심 진료(patient centered and evidence based care): 의료에 내재된 불확실성과 환자 개인의 고유성을 인식하며, 환자 중심의 의사결정과 근거 중심의 과학적 판단을 한다.	1.2.1. 환자 중심으로 병력을 청취하고 신체를 진찰한다. 1.2.2. 환자의 개별성을 존중하여 환자 중심의 의사결정을 한다. 1.2.3. 근거 중심의 과학적 판단을 한다.
	1.3. 환자 안전 및 삶의 질 향상(promoting patient safety and quality of life): 환자의 안전과 삶의 질 향상을 궁극적인 목표로 삼고 진료에서 이를 실현하기 위하여 노력한다.	1.3.1. 환자안전을 위협하는 상황에 대처한다. 1.3.2. 환자 안전을 위한 진료환경의 조성에 노력한다. 1.3.3. 삶의 질에 대한 환자의 요구를 진료에 반영한다. 1.3.4. 환자의 고통과 통증에 적극적으로 대처한다. 1.3.5. 환자의 위엄 있고 품위 있는 죽음을 존중한다.
2. 의사는 소통가(communicator)로서 환자에 대하여 다음과 같은 역량을 가진다.	2.1. 상호협력적 환자-의사 관계 형성(patient-doctor's partnership) 환자와 그 가족의 의견과 처치를 존중하여 상호협력적 환자-의사 관계를 형성한다.	2.1.1. 환자 및 그 가족과의 신뢰를 바탕으로 한 전문적 치료관계를 형성한다. 2.1.2. 치료계획을 세울 때에 환자와 그 가족을 참여시킨다. 2.1.3. 환자와 그 가족의 가치, 선호, 필요를 존중한다. 2.1.4. 환자와 그 가족을 대할 때에 그들의 사회경제적 상태, 연령, 성별, 종교, 인종 등 조건에 따른 차별 없이 대한다.
	2.2. 공감적 의사소통(empathic communication): 환자와 그 가족의 말을 경청하고 공감적으로 의사소통한다.	2.2.1. 환자와 그 가족의 입장에서 그들의 감정, 생각, 표현을 편견 없이 경청한다. 2.2.2. 환자와 그 가족의 고통을 공감하고 이를 언어적 또는 비언어적으로 적절히 표현한다.
	2.3. 진료에 대한 설명과 동의받기(providing explanations and obtaining informed consent to medical treatment): 환자와 그 가족에게 충분한 정보를 제공하고, 동의 과정을 통하여 그들과 함께 의사결정을 한다.	2.3.1. 환자와 그 가족의 동의가 필요할 때에는, 그들이 정보에 입각한 결정을 할 수 있도록 사전에 진단, 경과, 위험에 대하여 설명한다. 2.3.2. 환자와 그 가족에게 질문이나 발언할 시간을 충분히 주고, 질문이나 요구에는 적절한 응대를 한다. 2.3.3. 진료 종결, 대진, 의뢰, 전원 등을 할 때에는 사전에 환자와 그 가족에게 충분히 설명하여 이해와 협조를 구한다.

(Continued on next page)

Appendix 2. Continued

핵심 역량(core competency)	세부 역량(sub-competency)	실행 역량(enabling competency)
3. 의사는 협력자(collaborator)로서 동료에 대하여 다음과 같은 역량을 가진다.	3.1. 효과적인 협진과 의뢰(effective consultation and transfer): 최선의 진료를 위하여 협진과 의뢰를 효과적으로 수행한다.	3.1.1. 최선의 진료를 위하여 필요하면 다른 의사에게 협진을 요청하거나 진료를 의뢰한다. 3.1.2. 협진 의사와 의뢰 의사를 존중하며 환자와 그 가족의 동의를 받은 환자 관련 정보를 충분히 제공한다.
	3.2. 팀워크와 개선을 위한 노력(teamwork and continuous quality improvement): 의료의 질을 향상하고 개선하기 위하여 팀원으로서 역할과 책임에 대한 이해를 바탕으로 협력한다.	3.2.1. 진료팀의 구성원으로서 맡은 역할과 책임을 충실히 수행한다. 3.2.2. 진료팀의 구성원으로서 팀원들의 직무전문성을 존중하며, 그들이 역할을 잘 수행할 수 있도록 협력한다. 3.2.3. 팀원들 사이에 있을 수 있는 갈등과 이해상충 상황 등을 인지하며 그 해결을 위하여 노력한다. 3.2.4. 환자돌봄의 질을 향상하기 위하여 지속적으로 팀을 평가하고 개선한다.
4. 의사는 보건의료 리더(healthcare leader)로서 사회에 대하여 다음과 같은 역량을 가진다.	4.1. 건강 증진을 위한 사회적 활동(social activities for health promotion): 건강증진을 위하여 다양한 공중보건활동과 사회적 의사결정에 참여한다.	4.1.1. 환자의 건강증진을 위하여 진료실 밖의 보건의료 자원과 서비스를 활용한다. 4.1.2. 주민의 보건의료 필요에 응하여 지역사회의 공중보건활동에 참여한다. 4.1.3. 국민의 건강을 보호하고 증진하기 위한 정책수립이나 입법과정에 참여하여 의료의 전문성을 발휘한다.
	4.2. 보건의료의 형평성 강화(improving equity in healthcare): 의료자원의 효율적 배분을 통하여 건강불평등을 개선한다.	4.2.1. 보건의료 취약계층의 건강문제를 파악하고 개선한다. 4.2.2. 보건의료자원의 공정한 활용을 통하여 건강불평등 해소에 기여한다.
	4.3. 미래변화에 대응하는 준비(preparing for future changes): 미래의 보건의료 변화에 대응할 수 있는 준비를 한다.	4.3.1. 사회변동과 과학기술 발전으로 인한 미래 보건의료 변화에 대응할 수 있도록 준비한다.
5. 의사는 전문직업인(professional)으로서 자신에 대하여 다음과 같은 역량을 가진다.	5.1. 의료윤리 준수(adhering to medical ethics): 직무에서 요구되는 다양한 윤리적 기준을 준수한다.	5.1.1. 진료 과정 속의 윤리적 측면을 인식하고, 윤리적 문제가 발생하였을 경우 적절한 대응을 한다. 5.1.2. 의사윤리강령 및 의사윤리지침을 숙지하고 이를 바탕으로 진료한다. 5.1.3. 진료과정에서 발생할 수 있는 이해상충을 인식하고 이를 적절하게 관리한다. 5.1.4. 전자정보화 된 환자의 정보는 개인정보 보호원칙 및 공익 목적에 맞게 다룬다. 5.1.5. 환자 비밀보호의 원칙을 알고 이를 준수한다.
	5.2. 의사 주도의 자율규제 참여(participating in doctors-led self-regulation): 의사 주도의 자율규제 원칙을 준수하고 관련 활동에 적극적으로 참여한다.	5.2.1. 책임 있는 보건의료활동을 위한 의사들의 자율규제 원칙을 이해하고 관련 기구 활동에 참여한다. 5.2.2. 자신의 의료행위에 대하여 사회의 객관적이고 합리적인 비판이 있으면 이를 성찰하고 조정한다. 5.2.3. 동료 의사의 비윤리적인 행위(unprofessional behavior)에 대하여 의사윤리지침에 따라 대응한다.
	5.3. 자기 관리 및 동료 보호(managing doctor's health and well-being): 의사 자신과 주변의 진료환경이 최상의 상태로 유지되도록 관리한다.	5.3.1. 최적의 전문직 수행을 위한 신체적, 정신적 건강상태를 스스로 유지한다. 5.3.2. 자신과 동료 의료인들의 안전한 진료환경을 조성하기 위하여 노력한다.

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Appendix 2. Continued

핵심 역량(core competency)	세부 역량(sub-competency)	실행 역량(enabling competency)
6. 의사는 의학 발전에 기여하는 사람 (scholar)으로서 학문에 대하여 다음과 같은 역량을 가진다.	6.1. 지속적 전문성 개발(developing medical expertise): 학술활동을 통하여 지속적으로 전문성을 개발한다.	6.1.1. 최신의 지식과 술기를 학습하고 활용한다.
	6.2. 의사 학습의 촉진(facilitating doctor's learning): 안전하고 효과적인 교육여건을 조성함으로써 보건의료인의 학습을 촉진한다.	6.2.1. 효과적인 교육, 객관적 평가, 건설적 피드백 등을 통하여 동료 및 예비 의사의 학습을 돕는다.
	6.3. 의학적 탐구(medical inquiry)	6.3.1. 의료현장 속에서 학문적 의문을 제기하고, 근거의 비판적 검토를 통하여 과학적 해결을 시도한다. 6.3.2. 학술연구활동을 할 때에 연구윤리 원칙 및 지침을 준수한다.