



Innovation in AI-based Medical Technologies for National Health Improvement¹

Authority: Ministry of Health and Welfare

Promulgation date: September 5, 2024

On September 5, 2024 the Ministry of Health and Welfare (MOHW), led by Deputy Minister Park Min-su, convened the 2024 Health and Medical Data Policy Deliberation Committee meeting at Seoul Square in Jung-gu, Seoul. This committee serves as a platform for discussing and making decisions on significant healthcare information and medical data policies. It was established in 2022 and is composed of 24 members representing various sectors, including healthcare, research, academia, law, patient user groups, health industry and public institutions.

During this meeting, several critical issues were addressed, including the AI-based Medical Technology Research and Development Roadmap (2024–2028), the current status and future plans for major medical data policies and the current progress and improvement measures for the opening and utilization of public data. The Ministry of Health and Welfare has established the AI-based Medical Technology Research and Development Roadmap (2024–2028), with a vision of leveraging artificial intelligence (AI) to drive innovation in medical technologies and to improve national health. The roadmap prioritizes the expansion of AI research and development in areas such as essential healthcare and drug development while focusing on enhancing the data utilization framework for the safe use of medical data.

In addition, the meeting also provided an opportunity to review the ongoing projects under the Ministry's jurisdiction, such as the Health Information Highway and the National Integrated Bio Big Data project. These initiatives aim to enhance the accessibility and effective utilization of public healthcare data, with particular attention to the data managed by key institutions such as the Korea Disease Control and Prevention Agency, the National Health Insurance Service, the Health Insurance Review and Assessment Service and the National Cancer Center. The Deputy Minister emphasized in his opening remarks the Ministry's commitment to advancing healthcare quality and promoting national health by expanding AI-based digital healthcare services. He urged experts to collaborate and share their insights to ensure the safe and effective use of AI technologies and healthcare data, thereby driving the development of digital healthcare and medical innovations.

¹ Translated by Health Law Asia – Pharmaceutical, Medical Device, and Cosmetics Law



HEALTH LAW ASIA

Shanghai - Bologna - Milan - Rome

Copyright © 2025, All rights reserved.

ZUNARELLI GROUP



The AI-based Medical Technology Research and Development Roadmap (2024–2028) is a strategic initiative designed to improve medical services by utilizing AI. The primary objective of this roadmap is to establish an ecosystem for the application of AI in medical research and development, with a particular focus on enhancing the quality of medical services. The roadmap is centered around three main goals: the expansion of AI-based medical technology commercialization, the reduction of technological gaps and the strengthening of research and development investments. It also outlines a series of four key strategies and nine specific tasks aimed at achieving these goals.

One of the main components of the roadmap is the promotion of innovation in AI-based medical services, particularly in essential healthcare sectors such as emergency care, critical illness and cancer treatment. The Ministry plans to expand AI research and development in these areas and to explore the potential of AI-driven technologies that facilitate communication between healthcare providers and patients, such as systems that automatically input consultation data into hospital systems and generate summaries for patients. The roadmap also conceives increased support for the development of AI-based digital therapeutic devices and advanced medical technologies, such as surgical robots that collaborate with physicians. Additionally, AI will be applied throughout the entire process of drug discovery and clinical trials.

In addition to these technological advancements, the Ministry aims to improve the system for utilizing medical data to support AI research. To this end, the Ministry plans to create a linkage platform that will facilitate easy access to healthcare data for AI researchers and businesses, as well as enhance data standardization to support AI development. Moreover, the Ministry intends to expand its efforts to train specialists in the field of AI for the bio-health sector and to conduct practical research on AI implementation in healthcare settings.

The Ministry has already initiated several key medical data policies aimed at improving public health through the use of AI and digital technologies. These initiatives include the standardization of medical data and enhancing interoperability, the promotion of patient-driven health and medical information sharing, the development and opening of medical big data and the establishment of a more robust institutional framework for the utilization of medical data. In line with these objectives, the Ministry has introduced key standards for medical data exchange, such as the Korean Core Data Interchange (KR CDI) and KR Core transmission standards. These standards aim to standardize the data exchanged between hospitals, allowing for more effective communication across healthcare institutions. Moreover, the Ministry has launched the Health Information Highway, a platform that enables patients to access their own medical data from various institutions and share it as needed. This initiative currently includes 860 participating medical institutions and provides a personal health record application through which patients can view and share their health information.

The Ministry also launched the National Integrated Bio Big Data project in 2024. This project aims to create a comprehensive database by integrating clinical, genomic, public health and lifestyle data from over 770,000 individuals. The collected data will be used for research



HEALTH LAW ASIA

Shanghai - Bologna - Milan - Rome

Copyright © 2025, All rights reserved.

ZUNARELLI GROUP



purposes, and the Ministry is also revising its medical data utilization guidelines to strengthen the institutional framework for data sharing.

The opening and utilization of public data is another area of focus. Key institutions such as the Korea Disease Control and Prevention Agency, the National Health Insurance Service, the Health Insurance Review and Assessment Service and the National Cancer Center are all involved in the management and utilization of medical data. These institutions provide access to data for a variety of purposes, including research, statistical analysis, policy development and healthcare services.

The Korea Disease Control and Prevention Agency manages national health and medical research data through the Center for Health and Medical Research Resources plans to provide an analysis environment for researchers using private cloud infrastructure by the second half of 2024. The National Health Insurance Service utilizes big data from the National Health Insurance Database to provide tailored health services to the public and support healthcare policies. Similarly, the Health Insurance Review and Assessment Service operates a big data portal that allows for the sharing of medical treatment data, pharmaceutical data and healthcare resource information, while also offering access to patient records. The National Cancer Center, designated as the National Cancer Data Center in 2021, focuses on cancer management and research by creating and opening cancer-related data. It aims to build a big global and integrated national cancer system.

In his closing remarks, Deputy Minister Park Min-su reiterated the Ministry's commitment to continuing its efforts to improve healthcare quality and enhance national health through the widespread adoption of AI-based digital healthcare services. He called upon all experts to work together to ensure the safe utilization of AI technologies and healthcare data, thereby enabling the successful activation of digital healthcare and driving medical innovation.

