Win-win cooperation for advancing medical innovation

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Scientific and technological advancements in medicine have always been highly esteemed worldwide. According to statistics published by the Organization for Economic Cooperation and Development (OECD), global health spending accounted for 9.6% of GDP in 2021. Research and development expenses incurred in “health and environmental projects” comprised 30% to 50% of the total R&D funds available in major developed countries such as the United States and the United Kingdom in 2019.¹

Novel scientific and technological advancements in medicine will be key areas for innovation and capital investments globally over the next 30 years. These medical innovations are expected to generate new preventative, diagnostic, and treatment methods, as well as health monitoring techniques, new drugs, and devices for managing diseases. These advancements in medicine will not only accelerate existing medical and commercial processes to address people’s ever-changing health demands but also enhance the ability to respond effectively to future emergencies, such as pandemics. Ultimately, the benefits will extend to the entire global community. Achieving this goal requires global cooperation across all levels: governments, medical companies, hospitals, and scientific research institutes must collaborate to create a favorable ecosystem for medical innovation. Governments and companies must partner to tackle the critical challenge of ensuring that innovative products benefit as many individuals as possible.

Figure 1. Multidiscipline cooperation is the right way for medical innovation.

THREE KEY DIMENSIONS OF A MEDICAL INNOVATION SYSTEM

The construction of a strategic medical innovation system hinges on three key dimensions: body, resources, and ecology.

The body of a medical innovation system comprises core facilities, including hospitals, universities, research institutes, and enterprises where scientific and technological talent can be found. It can be considered the “supply side” of medical innovation. To enhance the capacity for medical innovation in science and technology, it is necessary to expand the scope of the supply side. Talented individuals located in hospitals are at the heart of the body. They identify clinical problems, coordinate and integrate other disciplines into the R&D process, and play crucial roles in clinical transformation and the future application of innovative products.
Joint centers between Peking University Third Hospital and enterprises

In May 2021, the General Office of the State Council of China released “Opinions on Promoting the High Quality Development of Public Hospitals”  2, which outlines the direction for the future development of hospitals. Seizing this opportunity, Peking University Third Hospital has established 18 collaborative centers, integrating its cutting-edge clinical, R&D, and talent resources with the resources of multiple renowned companies in certain fields. The objective is to explore new modes of scientific and technological innovation in medicine by collaborating with commercial resources and others to establish a mutually beneficial “hospital-company-research-marketing” ecological cycle.

These collaborative centers have introduced a new organizational mechanism, cooperative mode, and ecological chain. Accordingly, clinical problems are considered the direction and human demand is the driving force. The centers have made significant contributions to establishing policy guarantees, a positive environment, and continued efforts to strengthen the three key dimensions of medical innovation: body, resources, and a favorable ecology. On one hand, they strengthen enterprises’ R&D and technological advancement capabilities; on the other hand, they enhance the efficiency of the hospital’s new innovation system.

Through proactive efforts and intensive changes in layout, Peking University Third Hospital has established a system designed to sustain innovation and transformation. This includes creating top-level designs and innovative mechanisms, integrating resources, streamlining operational and service processes, and improving internal management. With the collaboration of the medical innovation community, including hospitals, universities, institutes, and companies, our hospital hopes to identify and solve clinical problems, achieving technological advancements in medicine, and fostering win-win successes and mutual development among collaborators that ultimately benefit humanity.

On August 20th, 2019, Peking University Third Hospital signed a contract for the transformation of research achievements related to “Semi-personalized and Fully Personalized Artificial Joints and Minimally Invasive Precision Surgical Instruments for Total Knee Replacement.” The transfer amount was 50 million yuan. A year later, the same research group’s “Peripheral Blood Stem Cells and Related Tissue Engineering Scaffold Technology” was transferred for 30 million yuan. These are just two examples of the many successful innovations developed by the collaborative centers.

An important consideration is that hospital-based collaboration is an end-to-end process. Hospitals are positioned centrally within the collaboration chain and must independently seek support from multiple platforms while analyzing and assessing the strength and development potential of the targets of cooperation. This, to some extent, limits the efficiency of the body’s development. Ensuring the sustainable implementation of policies is the cornerstone of the long-term development of medical innovation.

REFERENCES


DECLARATION OF INTERESTS

The author declares no competing interests.