Meeting Report

MEETING OF HEALTH INNOVATION INSTITUTIONS TO IMPLEMENT THE REGIONAL HEALTH INNOVATION STRATEGY FOR THE WESTERN PACIFIC

18–19 April 2024
Bundang, Republic of Korea

World Health Organization
Western Pacific Region

WORLD HEALTH ORGANIZATION

REGIONAL OFFICE FOR THE WESTERN PACIFIC

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Convened by:

WORLD HEALTH ORGANIZATION
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NOTE

The views expressed in this report are those of the participants of the Meeting of Health Innovation Institutions to Implement the Regional Health Innovation Strategy for the Western Pacific and do not necessarily reflect the policies of the conveners.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for Member States in the Region and for those who participated in the Meeting of Health Innovation Institutions to Implement the Regional Health Innovation Strategy for the Western Pacific in Bundang, Republic of Korea from 18 to 19 April 2024.

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SUMMARY

The Regional Health Innovation Strategy for the Western Pacific, endorsed at the seventy-fourth session of the Regional Committee in October 2023, envisions governments leveraging health innovations to address challenges and shape the future of health. The Strategy focuses on three objectives: setting the direction for health innovations, enhancing public sector capacity for health innovation, and fostering ecosystems for health innovation. These objectives are underpinned by four key action areas: governance, capacity-building, financing and measurement.

The Meeting of Health Innovation Institutions to Implement the Regional Health Innovation Strategy for the Western Pacific was held in Bundang, Republic of Korea, from 18 to 19 April 2024. A total of 40 experts consisting of representatives from public sector health innovation institutions attended the meeting and contributed to the discussion on funding, implementing, governing and evaluating health innovations. They were joined by five members of the World Health Organization (WHO) Secretariat from WHO headquarters and the WHO Regional Office for the Western Pacific.

The objectives of the meeting were:

- to establish a consensus among health innovation institutions to align their innovation efforts with the Strategy and facilitate Member States to implement the Strategy;
- to determine priority areas for collaboration between WHO and invited health innovation institutions to support Strategy implementation in Member States; and
- to explore opportunities for joint initiatives and partnerships to support the implementation of the Strategy in priority areas.

To set the scene, an overview of the Regional Health Innovation Strategy for the Western Pacific was provided. The meeting then focused on the four key areas of action outlined in the document: (i) governance, (ii) capacity-building, (iii) financing and (iv) measurement. Within each area, institutional portfolios were presented. Sharing was followed by plenary and small-group discussions to identify collaboration opportunities to synergize and to implement the Strategy in Member States.

Representatives from institutions invited to the meeting shared their innovation portfolios and reflected on their respective paths in health innovation. They reiterated the importance of convening public sector innovation institutions and governments to create a channel of discussion that includes a broad representation of Member States within the Region. Emphasis was placed on establishing a more detailed landscape of innovation priorities to foster unity among member countries, facilitated by coordination and the establishment of a knowledge exchange or repository of key partners and activities. Meeting participants outlined actionable items for collaboration with WHO, including building targeted innovation capacities for countries and providing tailored support to country implementation.

The meeting of health innovation institutions has paved the way for a collaborative network, crucial for shaping the Region's health innovation landscape. To effectively implement the Regional Health Innovation Strategy for the Western Pacific, WHO is recommended to focus on the following key areas:

- Engage lower- and middle-income countries (LMICs) in the Region to identify their priorities and demand for health innovation, so as to tailor the multiple levels of innovation capacity development required to address problems of priority in LMICs.

- Leverage WHO's convening power, bring together multiple stakeholders and facilitate dialogues with multiple stakeholders to foster health innovation initiatives in the Western Pacific Region.
- Develop and promote standardized frameworks and metrics to measure the impact of health innovation initiatives and performance of the ecosystem.

1. INTRODUCTION

1.1 Meeting organization

The Meeting of Health Innovation Institutions to Implement the Regional Health Innovation Strategy for the Western Pacific was organized in Bundang, Republic of Korea, from 18 to 19 April 2024. The meeting brought together 40 experts from 15 institutions representing various roles in health innovation ecosystems, along with five members of the World Health Organization (WHO) Secretariat. The list of participants is available in Annex 1 and the programme of activities is available in Annex 2.

1.2 Meeting objectives

The objectives of the meeting were:

- to establish a consensus among health innovation institutions to align their innovation efforts with the Strategy and facilitate Member States to implement the *Regional Health Innovation Strategy for the Western Pacific*;
- to determine priority areas for collaboration between WHO and invited health innovation institutions to support implementation of the Strategy in Member States; and
- to explore opportunities for joint initiatives and partnerships to support the implementation of the Strategy in priority areas.

2. PROCEEDINGS

2.1 Session 1: Opening and overview

Dr Kidong Park, Director of Data, Strategy and Innovation (DSI) at the WHO Regional Office for the Western Pacific, opened the meeting and introduced the *Regional Health Innovation Strategy for the Western Pacific* (hereafter referred to as the Strategy). He emphasized that collaboration is the key to achieving these objectives, and taking stock of the resources and expertise offered by public health innovation institutions in the Region would be invaluable for WHO in implementing the Strategy.

Dr Saia Ma'u Piukala, WHO Regional Director for the Western Pacific, emphasized the importance of harnessing the power of technology for good and to transform health care, tackle climate change, and achieve things we have yet to imagine. He highlighted the importance of building capacity beyond transferring a technological solution, and that development of such innovation capacity requires collaborations.

Ms Mengji Chen, Team Lead, Innovation and Research, DSI, WHO Regional Office for the Western Pacific, provided an overview of the development of the Strategy, the responses from Member States at the seventy-fourth session of the Regional Committee for the Western Pacific to this agenda item, as well as the key areas where WHO would like to foster partnerships to support technological innovation in less-resourced settings in the Region.

Ms. Louise Agersnap, Head of the Innovation Hub at WHO headquarters, introduced the approach to innovation at WHO headquarters. The Innovation Hub operates with three main objectives: supporting innovation implementation and scale-up, facilitating collaborative learning for public sector innovations, and providing normative guidance for the public sector to scale up innovations. To achieve these objectives, the Hub focuses on capacity-building initiatives, such as Eurêka − a collaborative platform for accelerating health impact − and LEAD, a programme supporting transformative ideas within WHO.

2.2 Session 2: Governance

The Japan Agency for Medical Research and Development (AMED) activities in relation to regional health innovations

- Presenter: Dr Yasushi Ogasaka, Managing Director of International Strategy, AMED

Since its inception in 2015, AMED has been supporting cutting-edge research and global collaborations, positioning Japan as a leader in medical science and innovation. It acts as a conduit between academia, the private sector and public entities, facilitating the translation of basic research into novel medical technologies and solutions to meet health needs and improve health-care outcomes.

Alongside its focus on preventive, diagnostic and treatment innovation, AMED builds research infrastructure for infectious diseases in partnering countries through its own programme, or blends its scientific expertise with the official development assistance's emphasis on capacity-building in developing countries through joint initiatives. The eASIA Joint Research Program (e-ASIA JRP) in East Asia is one example of its own regional initiative to foster research collaborations in East Asia. The Science and Technology Research Partnership for Sustainable Development (SATREPS) programme is an example of joint efforts to strengthen the development of research and innovation capacity in addition to technology transfer in less-resourced settings.

AMED learnt how to strengthen its own capacity to govern health innovation, which yielded a few good practices for managing a project that introduces innovation to a new locality:

- Rigorous proposal review: Proposals are thoroughly evaluated to ensure they align with the health needs of partner countries, have clear plans for social implementation and are sustainable beyond initial funding periods.
- Ethical research practices: AMED adheres to strict protocols for data-sharing and the management of biological resources, emphasizing transparency and responsibility.
- Sustainable development: Projects are designed with a long-term vision, focusing on building local capacities through training and infrastructure development, ensuring lasting impact.
- Collaborative partnerships: AMED fosters strong partnerships with local and international bodies, leveraging collective expertise and resources for more effective and ethical outcomes.

Governance of health innovation in the Republic of Korea

- Presenter: Dr Hyun Chul Kim, Director General of Health R&D and Innovation, Korea Health Industry Development Institute (KHIDI)

Since its inception in 1999, KHIDI has been mandated with a multifaceted mission, including enhancing citizens' quality of life and strengthening global competitiveness through health-care policy development, managing national research and development (R&D) and supporting the commercialization of R&D output. KHIDI currently manages an R&D budget of US$ 626 million and has launched innovation initiatives such as the regulatory sandbox for the biohealth sector and the Global Digital Healthcare project.

Supportive government policies have been instrumental in driving the innovation ecosystem in the Republic of Korea. Nonetheless, in the realm of digital health where technology companies play a crucial role in driving change in health systems, the private sector faces significant hurdles due to a fragmented governance structure and slow, sometimes conflicting regulations that stifle innovation. As

the largest health R&D sponsor in the country, KHIDI's impact hinges on improved coordination of policies throughout the innovation cycle, including policies on funding and grants, infrastructure and resources, talent development, collaboration and networks, regulatory support, intellectual property protection, scale-up and production, commercialization and health system integration, as well as monitoring and feedback on impact.

Governing health innovation requires the establishment of a clear value at the highest level − innovation that balances benefits to population health with economic growth, ensuring that new technologies integrate smoothly with existing health-care systems, and governance that guides the identification and prioritization of niches for resource allocation and risk management. In addition to a clear value, the impact of health innovation hinges on social trust and consensus on a new solution's safety and efficacy, which take time to develop. The implication for governing health innovation is to introduce flexibility in government policies.

Advancing global health innovation: Leadership and collaborative governance

- Presenter: Dr Yangmu Huang, Deputy Director of the Department of Global Health, School of Public Health, Peking University, China

Established in 2012, the Department of Global Health is the first of its kind in China. Since its inception, the Department has provided institutional support for multisectoral collaboration to strengthen governance of health innovation in China. It develops educational initiatives that prepare the next generation of global health innovation leaders, such as the Chinese Consortium of Universities for Global Health and the China-Harvard-Africa Network on Health Research. Another aspect of strengthening governance for the Department is translating research into evidence-based solutions. It partners with Peking University-affiliated hospitals to develop digital health solutions and clinical trials on new therapies.

The value of an academic institution supporting the governance of health innovation includes facilitating adaptive innovation and collaborative platforms linking the industry and policy-makers to enhance regulation and technology transfer.

*Pathways for translation: An A*STAR perspective*

- Presenter: Dr Benjamin Toh, Executive Director, Biomedical Research Council, Agency for Science, Technology and Research (A*STAR), Singapore

As Singapore's lead public sector agency for economic-oriented R&D, and overseen by the National Research Foundation, A*STAR has been pivotal in driving mission-oriented research that advances scientific discovery, bridging academia and industry to foster innovation. A*STAR aligns its 17 research entities' core research areas with the strategic domains and cross-cutting horizons featured in the country's Research Innovation and Enterprise 2025 Plan. The agency provides translational grants and national platforms for R&D outputs to be translated into products with market access. In the realm of health, A*STAR's efforts are aligned with Singapore's health priorities and research priorities including disease management and pandemic preparedness.

During the COVID-19 pandemic, A*STAR worked with public agencies and hospitals as well as small- and medium-sized enterprises (SMEs) to develop innovations, such as the Stronghold Diagnostic Lab, digital health solutions for triaging, automated vaccine inoculation dispenser and diagnostic test kits. Through the Dx Initiative, A*STAR works with other health R&D agencies to build diagnostic capacity

among member countries of the Association of Southeast Asian Nations (ASEAN). At the global level, A*STAR developed tools to use artificial intelligence (AI) to monitor influenza. Collaboration among public institutions, universities, hospitals and the commercial sector is central to the agency's achievements.

For low-resource settings where the R&D ecosystems are yet to mature, it is important to focus governance support on selecting, adapting and scaling up health innovations that can help address specific local health challenges effectively. In that regard, it is crucial for the public sector to develop core capabilities in recognizing technologies that are promising and the flexibility to facilitate the integration of technologies into local use cases. This can greatly help overcome the translation barriers typically faced in such environments.

2.3 Expert presentations and discussion around key action area 2: Capacity-building

Digital health trends and CSIRO's role in digital health transformation

- Presenter: Dr David Hansen, CEO of the Australian e-Health Research Centre (AEHRC), Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia

As Australia's premier national science agency, CSIRO has been at the forefront of multidisciplinary research since 1916, driving innovations that bolster economic growth, enhance health outcomes and improve quality of life. AEHRC is CSIRO's national digital health programme, which opened in 2003. It is a joint venture between CSIRO and the Queensland Government, and houses 150 scientists and engineers and 30 students in Brisbane, Perth, Sydney and Melbourne. The centre provides an evidence base for the digital transformation of health care.

The innovation portfolio of AEHRC includes the development and implementation of an array of digital technologies to empower service providers and individuals to live healthier lifestyles, as well as to support disease surveillance and response. Two examples were AEHRC's Interoperability programme and Sparked, two initiatives that aim to lay the foundation for the development and implementation of more and better digital health applications. These two examples provided another aspect of innovation governance at a low level, where health professionals and technologists must coordinate and collectively adapt workflows.

SingHealth's innovation ecosystem

- Presenter: Ms Chen-Ee Lee, Group Director, Division of Innovation and Transformation, SingHealth Co-Chair, Academic Medicine Innovation Institute, SingHealth Duke-National University of Singapore (NUS) Academic Medical Centre, Singapore

Singapore Health Services (or SingHealth) is one of the three major health service clusters in Singapore. It incorporates a comprehensive network that includes hospitals, specialty centres and educational institutions with expertise in key medical areas such as cardiology and oncology. Working with community partners, it provides the full continuum of care and is responsible for almost half of the country's health-care needs (51% of emergency care, 52% of specialist care, 50% of inpatient care and day surgeries, and 34% of polyclinics).

The Division of Innovation and Transformation (Do-IT) was created and mandated to build the ecosystem and enablers to support impact-oriented innovation within SingHealth and to drive strategic cluster-wide transformation projects. Five offices/units were created within Do-IT, each assigned a

different role to implement the two-pronged approach towards impact-oriented innovation. Through collaboration with Duke-NUS, these innovation offices and innovation programmes were brought together at the Academic Medicine Innovation Institute. Notably, the Impact Assessment Unit under Do-IT sets the priority for acceleration service and evidence generation, using cost-utility and cost-effectiveness analysis as main methodologies.

A recent initiative is to provide physical innovation space and centres of excellence across different campuses in hospitals within SingHealth's network. These centres provide physical access to health-care expertise and assets; facilitate the co-development, test-bedding, piloting and deployment of affordable and sustainable innovation; and provide the physical space for sharing of knowledge and networking. An array of activities and programmes was developed to build the culture and develop human capital within SingHealth, including innovation fellowship programmes, hackathons and different forms of training and mentorship. Its focus on impact, equity and affordability has led to a myriad of solutions using various technologies and social processes. Examples include the more affordable external fixator for open fracture care, an AI tool that can be used to empower primary care with the ability to triage for early detection of chronic diseases using AI and fundus images, and a device to reduce the risks of wrong medication dosage. Through collaboration with universities, SingHealth has also embedded its lessons learnt into certification and graduate diploma programmes to widen its impact.

Centre for Healthcare Innovation

- Presenter: Professor Eugene Fidelis Soh, Executive Director, Centre for Healthcare Innovation (CHI), National Healthcare Group, Singapore

CHI under Singapore's National Healthcare Group is a strategic initiative designed to spearhead the transformation and future-proofing of health-care services within the cluster and the whole country. In CHI's theory of change, the use of digital technologies and AI for automation will reduce the cost of jobs, incurring the need to redesign jobs and upskill the health workforce. The automated process and redesigned jobs will further lead to the redesign of care and processes, which should eventually increase the value in the care provided. Anticipating the cascade of changes associated with digital transformation, CHI launched programmes to adapt processes and systems, and to encourage people to embrace the transformation, including advocating for a culture that values digital savviness and digital workplaces, using generative AI for personalized care and robotics for automation, and developing strategic programmes towards the creation of "hospitals without walls".

CHI's approach in identifying and prioritizing innovation is through open calls for innovation globally and links with start-up enterprises. Funding is provided to winning innovations for test-bed and sandbox. The institution has also developed a holistic framework that brings clinical experts and health technology developers onto the same platform to provide guidance on methodologies for optimal evidence generation. The framework provides a tiered evaluation approach tailored to the development stage and readiness level of the solution; guides stakeholders on best practices in evidence generation, collation and assessment; and enables informed decision-making with good-quality and reliable evidence on resource allocation for investment and implementation.

CHI's efforts in building capabilities for innovation include the CHI Fellowship in Healthcare Innovation & Leadership. Looking into the future, CHI will focus more on sustainable innovation through a circular economy approach.

Digital innovation and capacity-building

- Presenter: Dr Wonjae Lee, International Healthcare Center/Cardiovascular Center, Seoul National University Bundang Hospital (SNUBH), Republic of Korea

Established in 2003, SNUBH is known for its integration of information technology with health-care services, pioneering a fully digitalized system in the Republic of Korea. This hospital leads in providing comprehensive medical care, supported by its commitment to patient-centred services, groundbreaking research and educational excellence.

The new training approach at SNUBH emphasizes interactive learning, utilizing simulation-based medical education that allows health-care professionals to practise procedures in a controlled environment. This method not only enhances understanding but also equips them for real-life medical situations. Additionally, the programme incorporates advanced technologies such as AI, wearables and extended reality (XR), improving diagnostic accuracy and treatment decisions.

Tailored to meet the diverse needs of different departments, the programme offers customized training. For example, nurses learn to utilize digital biomarkers in emergency settings, while surgeons train with augmented reality (AR)-guided tools for procedures. By adopting innovative technologies and fostering an engaging learning environment, SNUBH ensures its staff are well prepared to deliver superior patient care.

2.4 Expert presentations and discussion around key action area 3: Financing

Financing health innovation: RIGHT Foundation's approach

- Presenter: Dr Hani Kim, Executive Director of the Research Investment for Global Health Technology (RIGHT) Foundation, Republic of Korea

Supported by a three-way partnership between the Korean Ministry of Health and Welfare (MOHW), Bill & Melinda Gates Foundation and Korean life science companies, the RIGHT Foundation was established in 2018 with the mission to alleviate the burden of infectious diseases that disproportionately affect people in LMICs. The RIGHT Foundation has three strategic objectives: (1) develop essential health technologies as global public goods, (2) strengthen evidence base for product development with local insights, and (3) train workforce in manufacturing essential health technologies.

To achieve these objectives, the RIGHT Foundation invests in projects across various stages of R&D, from late-stage preclinical development all the way to licensure. It recognizes the crucial role of manufacturing in global health impact and therefore not only funds research but also provides training on core vaccine manufacturing principles, including those behind major platforms such as mRNA vaccines. Additionally, the Right Foundation emphasizes adherence to Good Manufacturing Practice (GMP) regulations and robust quality control measures to ensure vaccine safety and efficacy. The success of the G6PD diagnostic test exemplifies their approach, highlighting the importance of aligning research and development efforts with the ultimate goal of improving global health and efficient funding of programmes.

The RIGHT Foundation uses independent reviewers and a selection committee to avoid industry influence on funding decisions or potential conflicts of interest. On the risk-reward balance in their portfolio, Dr Kim explained their approach of balancing high-risk, long-term investments in potentially groundbreaking innovations with "safer bets" that offer quicker returns. This ensures a diversified

portfolio that can address both immediate needs and future challenges in global health R&D. On identifying ongoing R&D activities in LMICs, collaboration with intergovernmental organizations such as WHO is crucial to create a platform for LMICs in the Region to articulate their priorities and facilitate information exchange.

GHIT's initiatives to address neglected tropical diseases through partnerships

- Presenter: Dr Osamu Kunii, CEO of the Global Health Innovative Technology Fund (GHIT), Japan

GHIT, headquartered in Japan, is an international public–private partnership between the Government of Japan (Ministry of Foreign Affairs and Ministry of Health, Labour and Welfare), 16 pharmaceutical and diagnostics companies, the Bill & Melinda Gates Foundation, the Wellcome Trust and the United Nations Development Programme since 2013. It funds the discovery, preclinical and clinical phases of global public goods such as drugs, vaccines and diagnostics for neglected diseases. These affect the developing world no less than the COVID-19 pandemic or cancer but lack equivalent market appeal. In the last 10 years since its establishment, GHIT has invested in more than 100 projects in various stages and now actively engages in the product development pipeline of about 40 projects.

Partnership is crucial to GHIT's strategy in financing health innovation to maximize the impact and value creation. GHIT promotes open innovation and synergy across health challenges, aiming to bridge the gap between neglected diseases and pandemic preparedness efforts. For example, it advocates for improvements in clinical trial quality and a revolutionary 100-day vaccine development mission. Additionally, GHIT is leveraging the momentum from the global pandemic response to accelerate research in neglected diseases by collaborating with the Coalition for Epidemic Preparedness Innovations (CEPI) and the Foundation for Innovative New Diagnostics (FIND) on vaccine development and diagnostics. GHIT recognizes the importance of regional cooperation and seeks to foster collaboration between research and funding powerhouses in Southeast Asia.

NUHS's health innovations ecosystem

- Presenter: Dr Rina Lim, Head of the Centre for Innovation in Healthcare (CIH), National University Health System (NUHS), Singapore

With a mission to facilitate clinical adoption of practice-changing innovations for public good and global impact, a few strategies are applied by CIH: (1) CIH owns an investment arm for homegrown start-ups and runs a dedicated annual programme to unearth high-potential solutions and translate them into real-world applications; and (2) CIH leverages academic resources and industrial partnerships to create consortiums that aim to transform the future of medicine and health care, and develops various programmes to transform research and early technologies into commercially viable products and ventures. By virtue of being part of NUHS, an academic health system, CIH focuses on its core strengths of doing clinical testing and health technology assessment of innovations such as medical devices, digital and AI applications, therapeutics and guidelines, as well as community practices in administering tests.

NUHS provides comprehensive financial support throughout the entire R&D pipeline. In the discovery phase, early-stage ideas receive crucial financial support through grants from the Ministry of Health and research agencies, empowering researchers to tackle unmet medical needs by developing novel solutions. As innovations mature, CIH collaborates with national programme offices and research agencies to secure funding for crucial proof-of-value studies and clinical trials, validating the

effectiveness of innovations before widespread adoption. Once an innovation demonstrates its potential, NUHS's investment arm provides further financial support to accelerate the commercialization phase. Through collaboration with Enterprise Singapore, a government agency supporting start-up growth and expansion, and NUHS's own Practice Changing Innovations Program alongside Ministry of Health grants, access to the innovation for those who need the most is made available.

2.5 Expert presentations and discussion around key action area 4: Measurement

Health technology assessment (HTA) and innovations: Lessons and reflections

- Presenter: Ms Saudamini Dabak, Head of International Unit, Health Intervention and Technology Assessment (HITAP), Thailand

HITAP is a HTA agency established in 2007 in Thailand that conducts HTAs, health service research and capacity-building activities. HTA can be applied iteratively to inform R&D and the whole innovation process for medical products and devices: In the discovery and development phase, HTA can help identify and prioritize promising innovations for R&D and set goals for innovation development. Early HTA can also pinpoint the most crucial information to maximize the value and usefulness of clinical trials. Applying HTA at an early stage of the innovation process can also build the innovator's capacity to measure its impact on population health and the health system.

With the rapid development of digital innovations, HITAP has started to look into the feasibility of integrating early HTA into the innovation process as suggested above, to inform industry and other stakeholders about the potential value of new medical products still in the technological innovation process, to quantify and manage uncertainty and ultimately improve the efficiency and cost-effectiveness of R&D. As Thailand was selected as one of the pilot countries by WHO for testing the Total Systems Effectiveness (TSE) concept, HITAP was involved in exploring how early HTA can be integrated into the R&D strategy. The agency also looked into how early health economic modelling could be used to inform the development of a soft robotic sock in post-stroke patients in Singapore.

NECA's experience of HTA for innovative health technologies

- Presenter: Dr Ji-eun Choi, Executive Director, Division of New Health Technology Assessment, National Evidence-based Healthcare Collaborating Agency (NECA), Republic of Korea

As a key government stakeholder involved in the registration of new medical devices, NECA is mandated to conduct HTAs and provide evidence on the safety and effectiveness of health services for the health insurance system in Thailand to make coverage-related decisions.

It is recognized that the lengthy linear approval process has become a hurdle for scaling up innovation; yet, at the same time, assessing the value of innovative technologies is even more challenging due to the limited initial data available and their rapid evolution. Facing these two challenges, the Republic of Korea introduced a new pre-entry assessment system that aims to tackle these issues by establishing separate pathways for regular and innovative medical devices. Each pathway incorporates distinct measurement approaches. For innovative devices, a value-based assessment approach offers conditional market entry for devices with high potential value despite limited data. The assessment, coordinated by relevant government agencies including NECA, focuses on three key areas: technical properties (for example, patient customization, use of AI), social properties (for example, disease burden, lack of alternatives, economic burden) and medical properties (for example, potential to reduce additional tests). The integrated review and assessment system facilitates a faster review process by enabling three

agencies involved in the registration of medical devices to conduct assessments simultaneously. For innovative devices that have received a reimbursement decision, price controls are implemented, potentially using a ceiling price measurement approach. To monitor safety and usage during the temporary listing period for innovative technologies, a database system is being developed.

Despite the potential benefits, challenges persist, including the subjective nature of "value" and the inherent difficulty to measure, the iterative nature of digital health technologies that makes an "intervention" hard to stabilize, the necessity for societal consensus on what unmet needs should be prioritized for coverage, the protection of patients from conflicts of interest, and ensuring equity in digital accessibility and health-care infrastructure across different localities.

Health innovation measurement in China

- Presenter: Dr Yue Xiao, Senior Research Fellow, Health Policy Evaluation and Technology Assessment Research Office, China National Health Development Research Center (CNHDRC), China

CNHDRC is a key player in health innovation research supporting health policy and practice in China. It conducts research on health systems, innovation ecosystems and industry development; bridges research and practice through knowledge translation efforts; and actively collaborates with international partners. CNHDRC boasts a strong record in health economics and technology assessments, having established a national HTA centre in 2018 and conducted more than 80 HTAs to date.

Despite the rapid approval process of AI health technologies in China, the approved AI innovations still face slow adoption due to the lack of evidence on clear health benefits, which are hard to assess and establish using the traditional HTA model. The AI 2030 Major Project, introduced by the Ministry of Science and Technology, aims to address such challenges. CNHDRC is leading the initiative on "Guidelines on Evaluating AI in Health" by collaborating with research institutions and top medical centres. An AI-assisted clinical decision support system for prescription review in rural provinces exemplifies AI's potential to improve medication management and patient care, particularly in underserved areas.

Collective learning through shared experiences and multi-level learning initiatives will help countries understand their innovation ecosystems, identify stakeholders and their values, and enhance communication and data-sharing. A recent partnership with the Beijing Municipal Government to support high-quality pharmaceutical innovation exemplifies this approach. Together they are developing an online platform for AI product registration and data-sharing among hospitals. Such platforms foster collaboration among innovators, users, government agencies, patients and academics. This multi-level learning system, built on shared best practices, will be crucial for developing practical methodologies to support regional cooperation and address key issues in health-care innovation.

Service improvement and innovation in New Zealand

- Presenter: Dr Robin Whittaker, Director of Evidence, Research & Clinical Trials at Service Improvement and Innovation, Te Whatu Ora (Health New Zealand), New Zealand

Te Whatu Ora is the primary publicly funded health-care system in New Zealand, established by the Government to replace the country's 20 district health boards in 2022. The Service Improvement and Innovation directorate is responsible for the identification of areas where gaps exist in care and to apply

proven innovations that can drive clinical improvement and subsequently population health outcomes and equity.

Te Whatu Ora's approach to health-care innovation has a strong prioritization and measurement component that considers both the direct effects within the health service and broader economic and social implications. The Innovation Funnel at Health New Zealand is a systematic process designed to develop, screen, select, prioritize, eliminate, refine, test and implement innovative ideas, particularly those utilizing data and digital technologies, from their inception through to full implementation. It is a front door attracting new ideas, and a means to align innovation opportunities with strategic priorities so resources/support can be allocated to those with greatest chance of success.

Deployed innovations have their progress carefully monitored using dashboards with performance metrics. These metrics evaluate the adoption and diffusion of innovations, their effectiveness in enhancing patient outcomes, efficiency in processes and cost reductions. Additionally, the approach includes a focus on equity, analysing how innovations impact marginalized communities, including the Maori and Pacific populations, ensuring that improvements in health-care delivery do not aggravate health disparities.

The approach of measuring health innovation also applies to Medtech-iQ Aotearoa, a national medical technology innovation initiative under Te Whatu Ora that aims to accelerate the development of medical innovation to improve patient outcomes and stimulate economic growth. Success of this initiative is tracked using dedicated dashboards that measure economic indicators such as revenue and job creation, alongside technology transfer, intellectual property development and industry partnerships. Effective partnerships, critical for securing funding, promote collaboration across academia, health services, investors and Maori groups, enhancing project viability through shared resources and knowledge.

2.6 Small-group discussions and plenary Q&As

Over the two-day meeting, following expert presentations, four small-group discussions centred around key priorities for collaboration and actions for the Secretariat in the four key areas. These are listed below.

Priorities for building innovation governance

- Establish the values and priorities for innovation and leadership development at the national level as leadership is essential for fostering health innovation.
- Develop clear governance structures to oversee health innovation initiatives, manage risks and ensure accountability for trust-building and responsible outputs.
- Take an inclusive approach to the determination of direction, priority, target-setting and project management by involving minority and Indigenous populations in decision-making processes.
- Create supportive environments throughout the innovation process, which can greatly aid the governance of health innovation.
- Ensure that target-setting, such as setting service standards and addressing ethical and social values, is part of any organizational innovation strategy.
- When planning for health innovation initiatives, make decisions on whether to build new solutions or purchase existing ones, based on a good understanding of local barriers to innovation in workforce, processes, technology and regulations. Risk mitigation plans should be made as well.

Priorities for innovation capacity-building

- Build and assess governance competency on several dimensions: the ability to define the purpose and align values, goals and road maps for innovation; ability to embrace and fund the entire innovation process; ability to integrate innovation projects into broader systems change; and ability to generate, absorb and diffuse knowledge.
- Align academic curricula with industry needs to ensure a next generation of skilled talents for future innovations towards a common goal.
- Have a forward-looking mindset, which is conducive to regulatory frameworks that encourage experimentation and risk-taking; also ensure consumer safety and protection of intellectual property.
- Make investments to upskill individuals who are engaged in innovation for digital transformation through targeted training programmes and scholarships. Training programmes in skills (for example, data analysis, medical device development or digital health), leadership and entrepreneurship can help professionals better prepare themselves to meet the changing social environment and needs for health care. The capacity to explore and assess how technologies can be adapted for locally sustainable implementation is crucial. Meanwhile, it is important to promote awareness of ethical considerations and responsible conduct.
- Individual-oriented training programmes should take a human-centred design approach and be adapted to local languages and needs. Promote a continuous, iterative engagement process with local stakeholders to ensure ongoing improvement.
- Form cross-functional teams as a way to foster a culture of collaboration and knowledge-sharing. Physical innovation hubs and co-working spaces are useful for accelerating the development of communities of practices.
- Smaller economies can start innovation capacity-building by joining regional research collaborations and knowledge exchange programmes in areas of health priority to learn best practices and standardized protocols.
- Secure and allocate adequate resources for capacity-building, including mentorship and funding for training and knowledge-sharing events. Support the development and adaptation of local financing capabilities and explore institutional changes for sustainable financing. Facilitate seminars or information-sharing on financing capabilities.

Priorities for financing innovation

- For health policy-makers: Establish public−private partnerships to co-fund projects, leveraging government and private sector collaboration as a vital strategy for supporting the innovation ecosystem. Provide financial incentives and benefits for innovation champions and empower them with multi-channel funding sources; promote cost-saving measures, preventative health-care solutions and data-driven operational decision-making.
- For innovation champions: Develop a compelling investment case and secure a diverse mix of funding sources including public funding, private investment and ventures, crowdfunding platforms and nongovernmental organizations. It is crucial to receive training in financial management practices to ensure thoughtful resource allocation and so that the innovation initiative can ultimately be institutionalized.
- For funding agencies: Create synergies between individual portfolios through joint funding initiatives, thus bolstering the impact of health innovation in resource-limited countries.

Priorities for measurement of innovation

- Advocate for the use of a life-cycle approach to innovation evaluation, especially innovative health technologies. This approach, often characterized by the iterative use of HTA, assesses innovations in their initial stages, helping to set priorities, shape target product profiles and design supportive clinical research.
- Update the assessment methodologies for emerging digital technologies, such as AI as medical devices, to synchronize the development and evaluation process. Within the Region, harmonize national guidelines, resources and methodologies for more reliable impact and effectiveness evaluation of digital innovations. This would facilitate technology transfer and broader adoption.
- The responsible, ethical and transparent use of data should be evaluated. However, also keep evaluation frameworks flexible to accommodate new innovations and changing circumstances.
- Establish clear quality standards for health-care delivery and develop measurable shared indicators for evaluating progress of an innovation initiative.
- Encourage collaboration among government agencies in measuring the positive and negative externalities of health innovation. Assess the social impact of innovations through long-term frameworks and shared indicators.

Cross-cutting considerations: equity and access

- Address the variations in accessibility to technology across different regions.
- Ensure the involvement of minority and Indigenous populations as it is crucial for innovation to be inclusive and to benefit those who are often less heard and served. This includes targeted capacity-building and providing them with a voice in all four abovementioned key areas.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

The participants provided comprehensive feedback during the meeting, covering various aspects for advancing collaborative efforts in health innovation initiatives and building innovation ecosystems in the Region. They highlighted the importance of convening institutions and governments to create a channel of discussion that includes a broad representation of Member States within the Western Pacific. Emphasis was placed on establishing a more detailed landscape of innovation priorities to foster unity among member countries, facilitated by coordination and the establishment of a knowledge exchange or repository of key partners and activities.

Meeting participants outlined actionable items for collaboration with WHO. These include supporting WHO's regional efforts in identifying multi-country innovation priorities and country implementation of innovation. More specifically:

- Match expertise with country-specific needs, provide targeted capacity-building efforts, connecting stakeholders with necessary funding.
- Provide project management guidance and support for policy development and analysis to foster innovation, including specific sectors like battery technology.
- Engage in bilateral and multilateral sharing of practices, tailored to their unique contexts.
- Support the implementation and adoption of new technologies, and provide technical assistance for mapping and developing innovation ecosystems.
- Explore and establish accreditation processes to broaden the application and impact of innovations.

3.2 Recommendations for the WHO Secretariat

The meeting of health innovation institutions has paved the way for a collaborative network, crucial for shaping the Region's health innovation landscape. To effectively implement the Regional Health Innovation Strategy for the Western Pacific, WHO is requested to focus on the following key areas:

(1) Engage LMICs in the Region to identify their priorities and demand for health innovation, and therefore the multiple levels of innovation capacity-building required to address the pressing problems in these countries.
(2) Leverage WHO's convening power to bring together multiple stakeholders and facilitate dialogues to foster health innovation initiatives in the Western Pacific Region. Delve into thematic areas such as innovation adoption, pandemic preparedness and digital health standards, and address the question of measuring the value of health innovation.
(3) Develop and promote standardized frameworks and metrics to measure the impact of health innovation initiatives and ecosystems.

ANNEXES

Annex 1. List of Participants

Temporary advisors
Dr David Peter Hansen, CEO and Research Director, Australian eHealth Research Centre, The Commonwealth Scientific and Industrial Research Organisation (CSIRO), **Australia**
Ms Chen Ee Lee, Group Director, Innovation and Transformation, Singapore Health Services, **Singapore**
Dr Guan Chye Eugene Fidelis Soh, Executive Director, Centre for Healthcare Innovation, National Healthcare Group, **Singapore**
Dr Pang Kiat Benjamin Toh, Executive Director, Biomedical Research Council, Agency for Science, Technology and Research, **Singapore**
Dr Pei Zhi Rina Lim, Head, Centre for Innovation in Healthcare, National University Health System, **Singapore**
Dr Yangmu Huang, Deputy Director, Department of Global Health, School of Public Health, Peking University, **China**
Dr Yue Xiao, Division Director, Evaluation and Assessment, National Health Development Research Center, **China**
Dr Osamu Kunii, Chief Executive Officer, Global Health Innovative Technology Fund, **Japan**
Dr Yasushi Ogasaka, Managing Director, Department of International Strategy, Japan Agency for Medical Research and Development, **Japan**
Dr Hani Kim, Executive Director, Research Investment for Global health Technology (RIGHT) Foundation, **Republic of Korea**
Dr Hyunchul Kim, Director General, Bureau of Health R&D and Innovation, Korea Health Industry Development Institute, **Republic of Korea**
Dr Ji Eun Choi, Executive Director, Division of New Health Technology Assessment, National Evidence-based Healthcare Collaboration Agency, **Republic of Korea**
Dr Wonjae Lee, Assistant Professor, Seoul National University Bundang Hospital, **Republic of Korea**
Ms Saudamini Vishwanath Dabak, Head, International Unit, Health Intervention and Technology Assessment Program, **Thailand**
Dr Robyn Whittaker, Director, Evidence, Research and Clinical Trials, Te Whatu Ora (Health New Zealand), **New Zealand**

Observers
Dr Juyoung Park, Deputy Manager, Department of International Strategy, Japan Agency for Medical Research and Development, **Japan**
Dr Hoon Sang Lee, Chief Strategy Officer, Research Investment for Global health Technology (RIGHT) Foundation, **Republic of Korea**
Professor Soonman Kwon, Professor, School of Public Health, Seoul National University, **Republic of Korea**
Dr Jonas Karlstrom, Associate Professor, Global Health Institute, SingHealth Duke-NUS, **Singapore**

Ms Lam Sock Peng, Senior Manager, Office of Innovation, SingHealth, **Singapore**
Ms Michelle Lee, Deputy Director of Partnership, Centre for Healthcare Innovation, National Healthcare Group, **Singapore**
Dr Ng Yih Yng, Director, Digital and Smart Health Office, Centre for Healthcare Innovation, National Healthcare Group, **Singapore**
Ms Renu Chandra, Project Manager, Centre for Innovation Healthcare, National University Health System, **Singapore**

Secretariat
WHO Regional Office for the Western Pacific
Dr Kidong Park, Director, Data, Strategy and Innovation Group
Ms Mengji Chen, Technical Officer, Innovation and Research
Ms Dayoung Song, Consultant, Innovation and Research

WHO Headquarters
Ms Louise Agersnap, Head, WHO Innovation Hub, Department of Digital Health and Innovation, Science Division
Mr Matthew Keks, Technical Officer, Innovation Hub, Department of Digital Health and Innovation, Science Division

Annex 2. Programme of Activities

Time	Activities	Speaker(/Moderator)
Day 1. Thursday, 18 April 2024		
08:30 – 09:00	Registration	
Session 1: Ceremonial opening **MC:** Dr Kidong Park, Director, Data, Strategy and Innovation Group, WHO Regional Office for the Western Pacific (WPRO)		
09:00 – 09:40	Opening remarks	Dr Kidong Park, Director, Data, Strategy and Innovation Group, WHO Regional Office for the Western Pacific (WPRO)
	Welcome remarks (pre-recorded message)	Dr Saia Piukala, Regional Director, WHO WPRO
	Welcome remarks (3-5min)	Dr Soon-do Cha, President Korea Health Industry Development Institute (KHIDI)
	PRSEAH announcement (2min)	Video
	Self-introduction of participants & agenda	All Participants
09:40 – 09:50	WHO's global approach on health innovation	Ms Louise Agersnap, Head, WHO Innovation Hub, WHO headquarters
09:50 – 10:00	Overview of the Regional Health Innovation Strategy of Western Pacific	Ms Mengji Chen, Technical Officer, Innovation and Research, WHO WPRO
10:00 – 10:30	Group photo and morning break	

Session 2: Align innovation efforts, determine priority areas of collaboration and explore opportunities for joint initiatives and partnership (1): Governance **Moderator:** Dr Ng Yih Yng, Director, Digital and Smart Health Office, Centre for Healthcare Innovation		
10:30 – 11:30	**Sharing by health innovation institutions on respective experience and portfolio related to governing health innovation**	Dr Yasushi Ogasaka, Managing Director, International Strategy, Japan Agency for Medical Research and Development (AMED) Dr Hyun Chul Kim, Director General, Health R&D and Innovation, Korea Health Industry Development Institute (KHIDI) Dr Yangmu Huang, Deputy Director, Department of Global Health, School of Public Health, Peking University Dr Benjamin Toh, Director, Biomedical Research Council, Agency for Science, Technology and Research (A*STAR)
11:30 – 12:30	**Plenary discussion** 1) What are the important things to do in building local governance capacity for technology innovation throughout the innovation cycle? 2) What are the early indicators of success in building innovation governance? 3) What support can you provide to the region in developing governance capabilities? 4) How can WHO support your activities in strengthening governance within the region?	All participants
12:30 – 15:00	**Lunch break and site visit** Seoul National University Bundang Hospital Introduction SNUBH Healthcare Innovation Park Tour	
Session 3: Align innovation efforts, determine priority areas of collaboration, and explore opportunities for joint initiatives and partnership (2): Capacity Building **Moderator:** Dr Robyn Whittaker, Director of Evidence Research & Clinical Trials, Te Whatu Ora		
15:00 – 16:00	**Sharing by health innovation institutions on institutional portfolios in innovation capacity building**	Dr David Hansen, CEO, Australian e-Health Research Centre, CSIRO Ms Chen Ee Lee, Group Director. Division of Innovation and Transformation, SingHealth

		Dr Eugene Fidelis Soh, Chairman, Centre for Healthcare Innovation (CHI), National Healthcare Group Dr Wonjae Lee, Assistant Professor, Seoul National University Bundang Hospital
16:00 – 17:00	**Small group discussion** 1) What are the important things to do in building local capacity for technology innovation throughout the innovation cycle? 2) What are the early indicators of success in local capacity building? 3) What support can you provide to the region in capacity building? 4) How can WHO support your activities in capacity building within the region?	**Facilitated by WHO secretariat**
17:00 – 17:30	**Small group report back**	Mr Matthew Keks, Technical Officer, WHO HQ
17:30 – 17:45	**Wrap up**	Mr Matthew Keks, Technical Officer, WHO HQ
18:30	**Welcome Reception**	
Day 2. Friday, 19 April 2024		
08:30 – 08:45	Recap of Day 1 and overview of Day 2	Ms Mengji Chen, Technical Officer, Innovation and Research, WHO WPRO
Session 4: Align innovation efforts, determine priority areas of collaboration and explore opportunities for joint initiatives and partnership (3): Financing **Moderator:** Dr Yangmu Huang, Department of Global Health, School of Public Health, Peking University		
08:45 – 09:30	**Sharing by health innovation institutions on institutional portfolio of financing health innovation**	Dr Hani Kim, Executive Director, Research Investment for Global Health Technology (RIGHT) Foundation Dr Osamu Kunii, CEO, Global Health Innovative Technology Fund (GHIT) Dr Rina Lim, Centre for Innovation in Healthcare (CIH), National University Health System Singapore (NUHS)
09:30 – 10:30	**Small group discussion** 1) What are the important things to do in building local financing capacity for technology innovation throughout the innovation cycle?	**Facilitated by WHO secretariat**

	2) What are the early indicators of success in building sustainable local financing models for innovation? 3) What support can you provide to the region in developing financing capabilities? 4) How can WHO support your activities in financing health innovation within the region?	
10:30 – 11:00	Morning break	
11:00 – 11:30	Small group report back	
11:30 – 13:00	Lunch	
Session 5: Align innovation efforts, determine priority areas of collaboration and explore opportunities for joint initiatives and partnership (4): Measurement **Moderator:** Prof Soonman Kwon, Seoul National University		
13:00 – 14:00	**Sharing by health innovation institutions on institutional portfolio of measuring and evaluating health innovation**	Ms Saudamini Dabak, Head of International Unit, Health Intervention and Technology Assessment (HITAP) Dr Ji-eun Choi, Senior Researcher, National Evidence-based Healthcare Collaborating Agency (NECA) Dr Yue Xiao, Senior Research Fellow, Health Policy Evaluation and Technology Assessment Research Office, China National Health Development Research Centre Dr Dale Bramley, National Director, Improvement and Innovation, Te Whatu Ora
14:00 – 15:00	**Plenary discussion** 1) What are the important things to do in building local capacity to assess technology innovation throughout the innovation cycle? 2) What are the early indicators of success in measuring health innovation? 3) What support can you provide to the region in developing measurement capabilities? 4) How can WHO support your activities in measuring health innovation within the region?	**All participants**
Session 6: Wrapping up, conclusion and recommendation **Moderator:** Mr Matthew Keks, Technical Officer, WHO HQ		
15:00 – 15:30	Feedback and recommendations (Menti)	Ms Mengji Chen, Technical Officer, Innovation and Research, WHO WPRO)

15:30 – 15:40	Closing remarks	Dr Kidong Park, Director, Data, Strategy and Innovation Group, WHO WPRO
		Ms Louise Agersnap, Head, WHO Innovation Hub, WHO HQ
15:40	**Cultural tour**	

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