Workshop on Public-Private Collaboration in Supporting of Containing Measures During and Beyond Pandemic

Project Final Report

APEC Health Working Group

January 2024

Asia-Pacific Economic Cooperation

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1. Introduction

COVID-19 has emphasized the importance of digital technology. As the response to the pandemic has shown, to deploy digital technologies in contain measures is critical and effective. With technologies like mobile, cloud, analytics, robotics, blockchain, Artificial Intelligence (AI) and 5G, the government is able to prevent the spread of diseases. However, governments often lack the financial and human resource capabilities to use state of the art technology to develop digital equipment quickly and efficiently that can support contain measures during the pandemic. Therefore, building partnerships with private technology companies or academics can represent an effective way for public authorities to make use of existing technologies to meet their needs and mitigate the impact of the crisis.

To cope with these challenges, Chinese Taipei proposed the “Workshop on Public-Private Collaboration in Supporting of Containing Measures During and Beyond Pandemic” to provide a platform where member economies can exchange experiences and learn from each other. The focus is on the three topics: (1) Innovative care or delivery models developed by digital health technologies (2) The principle of health data management and security (3) Healthcare case sharing on public-private collaboration. The workshop comprises of speeches, panel discussions and site visits to smart hospital (Taipei Veterans General Hospital) and private enterprise (Quanta Computer) that have introduced and demonstrated digital healthcare applications.

I. Summary

The “APEC Workshop on Public-Private Collaboration in Supporting of Containing Measures During and Beyond Pandemic” was organized by the Ministry of Health and Welfare, Chinese Taipei. This workshop was held in Chinese Taipei on 12-13 September 2023 (GMT+8) via a Hybrid meeting (events with a mix of both physical and remote access participation). The

event engaged 17 speakers/experts and attracted around 100 participants from 11 APEC economies, including Canada; Indonesia; Japan; Republic of Korea; Malaysia; New Zealand; The Philippines; Singapore; Chinese Taipei; Thailand and Viet Nam.

II. Organizing the APEC workshop

Day 1 consisted of 3 plenary sessions including panel discussions. The topics are as follows,

1. Plenary 1: Innovative care or delivery models developed by digital health technologies

2. Plenary 2: The Principle of Health Data Management: Collection, Utilization, Processing and Data Security

3. Plenary 3: Healthcare case sharing on public-private collaboration

Day 2 consisted of 2 site visits, locations are as follows,

1. Taipei Veterans General Hospital

2. Quanta Computer

2. Presentation Abstracts

I. Plenary 1: Innovative Care or Delivery Models Developed by Digital Health Technologies

(a) Topic 1: Accelerating Digital Health: The Digital Transformation of National Health Insurance

- **Chung-Liang Shih, Director General, Ministry of Health and Welfare**

- The National Health Insurance Program (NHI) has been in place for 28 years since 1995. It has been considered as one of our most popular public programs.

- The COVID-19 pandemic has significantly accelerated the growth of telemedicine services. During the COVID-19 Pandemic, global telemedicine industry's annual growth increases from 15% to 19% in 2020 and global healthcare services market value reached USD34.2 billion in 2022, marking a 22% growth.

- At the beginning of the development of Telemedicine, it was only allowed to be performed in mountainous and remote island areas in 1995. We kept working on extending the application coverage. The telemedicine consultation and treatment guidelines were established on 11 May 2018 and extended to cover five specific situations, including home health care and patients in residential long-term care facilities.

- During the COVID-19 pandemic, telemedicine was significantly expanded to include services like home isolation, home quarantine, and general outpatient care. However, as the pandemic came to an end, telemedicine reverted to being limited to specific areas and cases, as it was in 2018.

- The virtual health insurance card is promoted to initiate the development of subsequent digital healthcare services, including electronic prescriptions and online payments. This aims to make future healthcare models more flexible, resilient, and capable of meeting diverse healthcare service demands.

- Our next step is to develop the “Primary Care Platform”, which will integrate personalized digital records to effectively achieve the goal of patient-centered care service integration, information integration, and financial integration.

- To sum up how we can achieve digital health innovations: Regarding the public, we will adopt a people-centered approach by introducing participatory decision-making and strengthening communications. In terms of the development of the digital health industry, innovation shall be driven by healthcare needs. For health services, high quality will be the core value achieved by linking industry resources. Lastly, the government will improve digital health infrastructure and regulatory systems, increase flexibility, and accelerate the replication of successful models.

(b) Topic 2: Digital Health Technologies Assisting in Pandemic Era in Thailand

- **Akrapon Kurusarttra, Director, Bureau of Medical Hub Industry and Service Promotion, Department of Health Service Support, Ministry of Public Health**

- During the COVID-19 pandemic, Thailand government has created central website for COVID-19 situations, and people could check or cancel their appointment date and time or view their vaccination information via LINE. In addition, Thailand has introduced the “Mor Prom” application as the main platform verificative vaccination.

- There are 3 keys assisting health technologies in Pandemic era in Thailand including “active Omni-Communication Channel”, “digital health platform service” and “single source of data truth”.

- To address the issue of insufficient hospital rooms for isolating COVID-19 patients, the Thai government collaborated with the hotel management department and private hospitals to transform hotels into "hospitels" and provide healthcare services to patients there.

- Thailand utilized one million healthcare volunteers to assess and identify individuals at risk of contracting COVID-19. These volunteers used PDAs or mobile phones to notify the Ministry of Health and collaborated with both public and private institutions to establish a digital platform to manage vaccine appointments. This platform called the "Mor Prom" application, is the main platform for nearly 70 million people in Thailand to combat COVID-19. The application also includes a queue system for vaccination, where the private sector collaborates with the government to provide vaccination services, contributing to the success of Thailand's digital response to COVID-19.

- Thailand's telemedicine sector has been regulated under the Act for two years now, allowing the economy to use telemedicine for assessment, treatment, rehabilitation, and promotion.

(c) Topic 3: Innovative Care Models Using Digital Health Technologies in Malaysia

- **Maheshwara Rao Appannan, Director, Digital Public Health Division (Interim), Ministry of Health**

- To emphasized two critical aspects of Malaysia's progressive steps toward implementing innovative healthcare models through digital technology: the effective utilization of data and the integration of existing digital technology.

- The innovative care models using digital health technologies, including: (1) increased availability of electronic health records, large biobanks, medical imaging, wearables, biosensors, and “omic” data. (2) Sets the stage for the development of predictive models and AI solutions for improving human health and tackling disease risk and burden.

- From a disease control perspective, COVID-19 has highlighted the importance of data and digitalization. The management of the pandemic has been one of the most data and digitally intensive efforts in history.

- During the pandemic, Malaysia created MySejahtera (App), which now has 32 million users and has transformed into a public health application. It has been leveraged to provide personalized healthcare, with a current focus on infectious diseases.

- "MySejahtera is used for dengue fever management. If a user is a confirmed case, risk cards containing relevant disease information and care assistance are provided. Additionally, a chatbot is available for patients to engage in conversations, clarify doubts, and have video calls with doctors if necessary. On the health administrator's side, it can be used for remote symptom monitoring, coordinating emergency services, admission cases handover, and post-release care.

- Director Appannan underscored the importance of robust data security and governance in sharing patient records.

(d) Topic 4: A Bit for Better Health

- **Edmund Zhou, Director (Innovation & Enterprise), Infocomm Technology and Data Group, Ministry of Health**

- Healthier Singapore is a major reform of the healthcare sector, by focusing our efforts upstream on keeping individuals healthy, driving preventive health and early intervention, while continuing to provide appropriate care to those with existing needs.

- Healthcare transformation, enabled by technology will shift from passive to active participation in health, from designated-area care to care anywhere, and from standardized to customized care.

- There are successful digital applications (apps) used in Singapore including "Healthy 365 " and "LumiHealth,". Healthy 365 helped people discover and join healthy lifestyle programmes and activities across a variety of community partners as well as provided nudges & rewards for sustainable healthy behavior. LumiHealth, a first-of-its kind programme designed by Singapore's Health Promotion Board as part of a strategic partnership with Apple, which will encourage healthy lifestyle changes through a personalized gamified programme, with behavioral nudging and rewards upon hitting target milestones.

- The infrastructure policy must adapt to keep pace with the changes in healthcare delivery. The Singapore government is implementing the following policies to support these changes:

    (1) In the regulatory aspect, they are transitioning from the Private Hospitals and Medical Clinics Act (PHMCA) to the Healthcare Services Act (HCSA). This transition will allow healthcare institutions to be licensed based on services rendered rather than the premises where care is delivered.

    (2) Regarding financing, they are adapting to changes in care delivery. For instance, healthcare subsidies for teleconsultations and home palliative care services will be in effect starting from 1 July 2023.

(3) In the realm of Data Access and Tech Enablement, they are streamlining IT systems and data workflows and sharing data with proper safeguards. They are also introducing a Health Information Bill to enable the secure sharing of patient information across providers and care settings for a more holistic and seamless approach to healthcare.

- Director Zhou shared that for an individual to feel empowered and comfortable enough to adopt new technology, the focus should be on three aspects: confidence, convenience, and contingency.

(e) Topic 5: How Does It Work Your Personal Health Record in Japan

- **Maiko Ito, Section Chief, Promoting Data-Based Health Management to the Office of the Counsellor for Information Technology Management, Ministry of Health, Labour and Welfare**

- PHR stands for Personal Health Record, which is the collection of health-related information that is documented and maintained by the individual it pertains to.

- Section Chief Ito emphasized the pivotal role of PHR in empowering individuals to manage their health data and addressed Japan's specific focus considering demographic challenges. While Japan's universal health insurance system and long-term care insurance provide stability, PHR strives to enhance the well-being and longevity of individuals who may not give priority to their health.

- The PHR system operates through a government portal called “Mynaportal”, enabling individuals to access and manage their medical records conveniently. Personal health information which can be viewed in Mynaportal including health insurance certificate, medical treatment, medication information, medical expense notification, vaccinations,

specific health checkups, examination data, medical insurance, school checkups.

- Section Chief Ito introduced the integration of Mynaportal with private apps through API connections, expanding the use of health records in daily life and healthcare facilities. She also highlighted initiatives in Japan to integrate child-rearing support and other health data apps with Mynaportal, aiming to simplify healthcare management.

- PHR implementation in Japan is evolving. Plans include adding more medical and healthcare information to Mynaportal and increasing in the data linkage between Mynaportal and private PHR services.

(f) Panel Discussion

- The panel discussion focused on the digital transformation of healthcare across different economies. The speakers emphasized the improvements and updates made in healthcare measures, with a focus on enhancing healthcare quality, efficiency, and workforce management. They addressed challenges of accessibility, accountability, and affordability in healthcare systems.

- Director General Shih emphasized the importance of IT elements in enhancing accessibility, especially for remote areas and individuals with disabilities. Another crucial element is empowering patients by leveraging apps or advanced technology to access more data, helping them manage their own health.

- Director Kurosarttra emphasized the need for the private sector to take the lead, with government support and regulation. Besides, he stressed the importance of political commitment and the role of technology in overcoming obstacles.

- Director Appannan discussed the importance of value-based healthcare and collective responsibility in addressing the dilemma of accessibility, quality, and affordability. The need for personal responsibility was also highlighted.

- Director Zhou emphasized the importance of value-based care, collective responsibility, and personal responsibility in addressing the challenges. He also mentioned the need for a range of healthcare solutions to cater to different needs.

- Section Chief Maiko Ito discussed the economy's efforts in medical digital transformation, including sharing electronic records and long-term care insurance records between physicians and patients. She highlighted the importance of creating a digital platform and setting up policies, laws, and standard models.

- The panel also discussed challenges related to interoperability and data exchange. Solutions included creating common data platforms, transforming private-based systems to web-based systems, and standardizing data structures.

- Overall, the panel emphasized the need for collaboration between public and private sectors, political commitment, sustainable financing and the importance of technology in overcoming challenges in healthcare accessibility, accountability, and affordability.

Plenary 2: The Principle of Health Data Management: Collection, Utilization, Processing and Data Security

(a) Topic 1: The Path to Connected Health Care

- **Michael Green, President & CEO, Canada Health Infoway**

- Interoperability (connected care) is the ability for information to flow seamlessly between different systems and solutions. It ensures that data follows the patient to the “Right place”, “Right time”, and “Right person”.

- In Canada, 96% of clinicians in hospital settings surveyed say they use EMRs to enter/ retrieve clinical patient notes within their own hospital, and 89% in community-based care. However, roughly 37- 47% of clinicians report receiving patient information from external providers via fax.

- Interoperability is a key focus, with the goal of creating a well-connected healthcare ecosystem that encompasses primary care to address the shortage of healthcare professionals. A systematic approach is being taken through the Pan-Canadian Interoperability Roadmap, recognizing jurisdictional priorities and involving various stakeholders, the roadmaps include (1) common targeted initiatives that help to advance health system interoperability and achieve outcomes (2) core interoperability building blocks that are necessary to advance interoperability (3) the health system, business and clinical benefits and outcomes that will be derived.

- The first steps on the path to connected care are trust and transparency. Privacy is a top priority for Canada Infoway, we make efforts to make sure the data and patient information are well protected during the transferring process, including improving Canadian awareness of the health privacy laws that protect them, safely sharing patient summaries

across different solutions, and secure messaging between solutions to enable safer and more efficient collaboration across the circle of care.

- It is also required to have actions from a legislative perspective. The proposed legislation would try to establish and maintain interoperability and health data standards. This collaborative approach includes engagement with stakeholders from the different types of partners who are involved in the healthcare chain to ensure the success of implementing Interoperability.

(b) Topic 2: The Principles of Managed Access in England

- **Thomas Strong, Technical Adviser, Managed Access, National Institute for Health and Care Excellence (NICE)**

- National Health Service (NHS) spent GBP17.2 billion on medicines and health technology in 2021/22.

- Managed access is a potential route that allows patients access to a medicine that is promising but is currently unclear if it is a good use of NHS resources. Managed access agreements (between NHS England and companies) is the mechanism that facilitates patient access and the data collection activity.

- The primary purpose of the managed assess is to allow earlier patient access when promising new drugs to come out. However, arrangements of managed assess could still be separated into two parts. The first one is to facilitate patient access to medication while further data is gathered to address specific uncertainties recognized by the NICE. The second one is to ensure that the NHS continues to pay a cost-effective price through a negotiated commercial access agreement.

- Managed assess is one of the parts to solve the uncertainty based on the evidence. The ultimate goal is to ensure the comprehensive evaluation of the right factors, all while maintaining confidentiality. There are several guiding principles of managed access to resolve uncertainties to decrease risks and make sure drug prices are cost-effective by negotiating with commercial partners and not to collect excessive data that serves no meaningful purpose.

- The fastest way for a medicine to reach NHS patients is for a company to submit evidence of its clinical-and cost-effectiveness through a NICE health technology evaluation. To prevent companies from discontinuing the collection of clinical data after their drugs have entered the review process for managed access, we strive to shorten the review time as much as possible and require companies that do not pass to pay a fee.

(c) Topic 3: Health Data Management at HIRA in Republic of Korea

- **Seol-hee Chung, Department Director, Review and Assessment Research Department, Health Insurance Review & Assessment Service (HIRA)**

- The National Health Insurance in Korea has been operating single payer system since 2000. It is a mandatory program that all people and healthcare providers (public/private) should be enrolled.

- National Health Insurance Claim Data (NHICD) is stored in a decentralized format in order to efficiently manage and use the database. As of 2022, about 1.5 billion claim statements were submitted.

- NHICD is utilized for policy support and R&D. The data can be made available to the public through an open API, and a remote analysis system has been established, allowing researchers to analyze data from their offices.

- To ensure data security, HIRA has undertaken various protection and security activities on an ad hoc basis. These activities are conducted in accordance with the personal information protection policies and plans of the Personal Information Protection Commission (PPIC) and the Ministry of Health and Welfare.

- For the COVID-19 pandemic, HIRA has utilized its system for a quick response. There are many systems HIRA has conducted to utilize, for example, the DUR-ITS system, patient management information system, negative pressure isolation room information system, etc. Those systems have helped to detect high-risk patients in advance, collect real-time data on patient conditions, transfer and discharge, and allow implementation of real-time monitoring integrated management.

- Korea's healthcare system is currently grappling with various challenges, including finance, the complexity of healthcare, and the emphasis on value-based healthcare. Under those healthcare challenges, HIRA plans to strengthen data-driven decision-making, expand the use of the e-form system, and keep managing data quality to meet the public data assessment standards.

(d) Topic 4: Governance and Regulation of Health Data in a Connected World: Rights, Interests and Public Goods

- **Te-Ying Wang, Project Manager, Science and Technology Law Institute, Institute for Information Industry**

- Data collection and utilization have significantly increased compared with before, with data sourced from various channels, including medical devices, in addition to healthcare providers. To address this, new regulations and frameworks are required to effectively manage this expanding dataset.

- Governance is not just about the public but also about the government's association with the private sector. According to the local poll, people have no confidence in an organization's ability to manage health data, and this lack of confidence results in their unwillingness to share data. Hence, good governance is critical in data management.

- Mr. Wang emphasized the need to progress from electronic medical records (EMR) to personal health records (PHR) and enhance interoperability capabilities to facilitate data exchange among healthcare providers. Also, the important elements in good governance is the trust framework and accountability on difference players.

- In our economy, the constitutional court has ruled that the government needs to amend norms related to health databases, especially concerning their secondary use. Since the NHI is a single-payer system and holds all claim data, the NHI Administration must establish a new regulatory framework for the usage of this health data in secondary applications. This will build upon personal data protection and give people the right to reject the reuse of their data.

(e) **Panel Discussion**

Mr. Simon Lin, Vice President & Managing Director, APAC, HIMSS (Singapore), provided a brief introduction of HIMSS. The main mission of HIMSS is to make the full health potential of humans by reforming global health and ecosystems by using information and technology.

Q1. Mr. Wang mentions we have security and interoperability issues to use secondary data. What are the issues you have faced in your economy?

- Mr. Strong: In England, it is also important to have a security environment and good governance. There are many systems in the UK

so is hard to have data access in different institutions, but we will try to make our efforts to make it possible and benefit patients.

- Mr. Green: There are many uncertainties about the secondary use of data in Canada too. Each institution has its own agreement, so it is hard for them to share information with each other. They are working with the federal government on the new initiative to standardize data availability.

- Dr. Chung: HIRA has utilized the secondary data but there are some concerns about the data being used by the private sector such as pharmaceutical companies and insurance companies.

- Mr. Wang: We only allow public agencies and academics for research use to access the database, but there are demands from the private sector. We believe we will have a breakout of the private sector accessing government databases in recent years.

Q2. What will be your solution or view to enhance the “digital trust”?

- Mr. Lin: A transparent and robust governance structure is a starting point. The data should be used under specific conditions, and access to the data should be granted based on consensus and volunteers' willingness. Also, the investment in the protection of the data should be military-grade to earn public trust in my view.

- Mr. Strong: Actually, patients are happy to share their data, but they don’t know where the data goes, so we demonstrate how we use the data after collecting it to individuals who benefit from it.

- Mr. Green: I agree with them. Giving people the opportunity to choose the data they would like to share, making efforts on data confidential, and letting people be aware of the positive benefits after they share their data are good ways to minimize negative effects.

- Dr. Chung: According to a survey conducted in Korea several years ago, many people advocated that sharing health data with private entities should be done for public purposes and maintained transparently. Therefore, I believe transparency is very important.

- Mr. Wang: I agree with all panelists. Awareness is the key component for people to understand the benefits of utilizing data transparently. In addition, the component “accountability” should be added to provide regulations on different players and systems to let people know who and what can be trusted.

II. Plenary 3: Healthcare Case Sharing on Public-Private Collaboration

(a) Topic 1: Building a Digital Ecosystem of Disease Management Capabilities at Speed

- **Michael Dreyer, Director, Sector Digital Channels, Te Whatu Ora | Health New Zealand**

- Director Dreyer shared that New Zealand healthcare system was fragmented before COVID-19, lacking a solid public health infrastructure. In some ways, this situation worked to our advantage because it allowed us to swiftly transition to a modern system. We were able to integrate numerous services and leverage modern cloud-based technology, resulting in the successful delivery of over 120 health technologies within a two-year span (from 2020 to 2022). Additionally, an integrated cloud based digital ecosystem for disease management was developed at speed with a consortium of commercial partners, then repeatedly iterated during different phases of the response.

- There were 8 core streams proposed that would form the backbone of new data and digital service, including “Contact Tracing,” “Border Management,” “Testing,” “Laboratories,” “Immunization,” “Managed Isolation,” “Care in the Community,” and “Reporting and Analytics.” New Zealand is focused on interoperability and is building APIs to integrate data so that other parts of the sector/market can also develop applications by connecting to APIs for data and services.

- Director Dreyer highlighted "My Health Account," a digital health identity service that connects people to their health information online. Around 3.7 million New Zealanders (about 70% of the population) have created their accounts. This service has been developed to keep their personal health information secure and private. It allows people to access essential online health services and information via a trusted, secure

platform, and to share their health information with the health professionals they choose.

- The Consumer, Population, Identification and Registration (CPIR) platform could help people to identify, communicate and follow up their health information, which also allows them to generate a better understanding of who, when, and how we should engage with someone with a focus on removing barriers for local providers by guiding individuals to these health services and empowering providers to focus on supporting those that need it most.

(b) Topic 2: Healthcare Case Sharing on Public-Private Collaboration in The Philippines

- **Cherrie Dimson Esteban, Division Chief, Knowledge Management and Information Technology Service, Department of Health**

- The Philippines included statistics such as mobile cellular subscriptions per 100 people (137) and the percentage of individuals using the internet (74%) at the beginning.

- Before the pandemic, Division Chief Esteban noted the passage of the UHC (Universal Health Care) law in 2019 as a significant milestone for health financing rationalization. However, challenges were highlighted, such as the absence of a universal identification system for citizens and connectivity issues in some areas. These challenges hindered the implementation policies at the local government level, resulting in slow progress in public policy and program development.

- Increasing internet literacy signals growth in the use of digital technology for health, but poor access to quality internet is a significant deterrent before the pandemic.

- During the COVID-19 pandemic, The Philippines established a central task force with a governance structure known as Taskforce T3, which focused on testing, tracing, and treating. The task force comprised various institutions and private services. Testing was emphasized as a crucial component of the pandemic response, followed by tracing, which involved conducting surveys among Filipinos. Treating COVID-19 patients involved home isolation, with funding coming from both the public and private sectors, particularly in urban areas. Telemedicine gained importance due to shifts in supply and demand for healthcare services.

(c) Topic 3: Building Health Resilience Through Digital Transformation

- **Faris Naufal Rahman, Chief Product Officer, Digital Transformation Office, Ministry of Health**

- CPO Rahman mentioned that Indonesia began its digital transformation before the pandemic, supported by various laws. COVID-19 accelerated the digital transformation in healthcare in Indonesia.

- CPO Rahman also underscored that the digital health transformation strategy 2024 in Indonesia including integration and development of health data and health application system (e.g. single identity record, digitalized and integrated of health care information system), health technology ecosystem (e.g. expansion of telemedicine, biotechnology research).

- One key initiative discussed was the PeduliLindungi app, which served multiple functions in supporting the COVID-19 pandemic containing, including displaying test results, contact tracing through QR codes, electronic health alert record & mobility screening and checking the availability of hospital beds, vaccination and telemedicine. There are more than 105 M user which is around 80% of adult population.

- Beyond the COVID-19 pandemic, the government has transformed PeduliLindungi into a public health application called SATUSEHAT (One Health). The Satusehat platform (a mobile app is one of the interfaces) is a comprehensive health application that serves as a personal health data repository (health profile). It is used to exchange, standardize, and store collected data, including patient data, health facility data, health human resources data, medical device and medicine data, financing data, and service data.

- Health data from various sources is standardized and integrated into the SATUSEHAT platform into one database. Health data exchange is using standards set by the Government Standard HL7 FHIR based on API.

- CPO Rahman emphasized the importance of collaboration, seeking knowledge, expertise, and resources to drive these advancements in healthcare technology. This collaborative approach aims to address the challenges and complexities of healthcare system transformation effectively.

(d) Topic 4: Effective Disease Management Through Digital Therapeutics and Data Analytics

- **Ed Deng, Co-founder and CEO, Health2Sync**

- Health2Sync (H2) is presented as a platform that aspires to reshape disease management by facilitating data-driven collaboration between pharmaceutical companies and digital platforms. The focus begins with building an extensive digital network connecting patients and healthcare providers in Asia. This network forms the foundation for developing a portfolio of digital therapeutics (DTx) aimed at improving the management of various diseases.

- H2 has formed data partnerships with the NHI My Health Bank system through a software development kit (SDK) for diabetes management. My Health Bank is an online health information inquiry system that allows users to view their medical visit records, hospitalizations, medications, vaccination records, and more. With the SDK, H2's diabetes app users can share their health data with H2, enabling the delivery of advanced analytics and digital services to the user.

- CEO Deng emphasized that they intend to continue collaboration with policy makers and payer by generating well-produced data that equips policy makers for further analyses, including health technology assessment.

- Furthermore, CEO Deng shared how Health2Sync's interventions have not only influenced patient behavior but also impacted healthcare providers. Lastly, the importance of individual-generated biometrics, such as self-monitoring for health purposes, was underscored as a fundamental aspect of Health2Sync's approach.

(e) Panel Discussion

Q1. Since the individuals' health will affect their insurance premiums, will they agree to share their data with insurance companies? Meanwhile, what solutions will you suggest the government to react?

CEO Deng: In my opinion, we can share the anonymized population data, like population risk, population health data, and effects of taking medicine. I believe we need to provide incentives for both public and private players to ask individuals to share their personal data with a special agreement.

Q2. CEO Deng, there are concerns about the cost of the therapeutics in Korea. I would like to ask your opinion and on the cost of the therapeutics.

CEO Deng: There should be preconditions and evidence of the digital therapeutics' effects which are collected in the real world and in the end, the therapeutic should pass through the HTA analysis.

Q3. CPO Rahman, regarding the T3 system, after the data is uploaded to the system, who will be the one to collect data, the government, or the app creator?

CPO Rahman: At the beginning of the COVID-19 pandemic, we created a web-based lab system for different labs and medical facilities to enter data artificially, but this couldn't provide real-time results. After the update of the system, the system will show which institutions have not entered the data so we can remind them and connect to the app. For data storage, we have on-premises in Indonesia. The system and data storage are both tackled by our team.

Q4. Director Dreyer, you mentioned consumer self-service, does the consumer mean patient? Could you explain more?

Director Dreyer: Yes, the consumer means patient. Since in New Zealand, we don't have enough medical workers, it is required for us to do many things by ourselves which makes peoples' lives easier and everything effective.

Q5. Division Chief Esteban, you mentioned the population of the Philippines is 1.8 million, it that correct? Also, you mentioned the copay is about 41.5%, is there any possibility to reduce the amount to 20%?

Division Chief Esteban: To clarify the population, it is 108 million. The special health fund was established to provide all the services without patient spending. Therefore, the spending for patients now is definitely less.

Q6. CEO Deng, in your infrastructure, there is no doctor in it so how do you comply with patients?

CEO Deng: We do have doctors involved in the structure with different roles, for example in Chinese Taipei, the doctors are authorized as diabetes educators for intervention. However, in the future, we are trying to build AI, like ChatGPT and Microsoft chatbot for diabetes education to leverage the shortage of diabetes educators.

3. Key Findings and Corporation Recommendations

- During the presentation, speakers introduced and shared their experiences with digital health models and discussed the transformation of their economy from the past to the future. They focused on innovative care or delivery models, principles of health data management, and healthcare cases. Additionally, they addressed the aspects involving public-private collaboration.

- Many speakers noted that the COVID-19 pandemic accelerated the digital transformation in healthcare. This acceleration encompassed expanded access to telemedicine, virtual consultations, wearable devices, and apps, among other innovations. Additionally, speakers emphasized that the digital systems and apps developed during COVID-19 would not only continue to serve their initial purposes but also expand their functions to further enhance the development of an integrated healthcare system. They also stressed the necessity of establishing a public-private partnership for quickly responding to public health emergencies.

- Many speakers emphasized that, beyond system development, various components such as empowering people's knowledge, integrating existing systems, ensuring data security, and enhancing manpower development, are crucial aspects to be addressed in the process of digital transformation for both the public and private sectors.

- In the future, member economy should continue to focus on the development of digitalized healthcare infrastructures, including integrated data platforms, systems, and service delivery. This will enhance our capacity to address future health threats and pave the way for a brighter future for the next generation.

4. Minutes of Site Visits

Visit to Taipei Veteran Hospital and Quanta Computer:

In the morning session, Vice Superintendent Prof. Lee and Medical Artificial Intelligence Development Center Prof. Yang from Taipei Veterans General Hospital introduced the hospital's utilization of digital technologies, including AI, to aid medical professionals in real-time decision-making and offered insights into future development directions. Following the introduction, they led participants on a tour of the on-site Surgical Simulation and Innovation Center, Pathology Laboratory, and Hemodialysis Center. Within the surgical simulation room, participants were given the opportunity to engage in hands-on practice with the simulation machine.

In the afternoon session, Chief Technology Officer Dr. Chang and Director Dr. Huang from Quanta Computer explained how Quanta focuses on developing new products to enhance public health and provides them for use by healthcare institutions. At the venue, related products were also provided for participants to experience hands-on operation.

The foreign guests at the event showed great enthusiasm and raised the following key questions:

1. Question from Maheshwara Rao Appannan (Malaysia)

How do you manage to change and improve the digital literacy among your team members? How do you change your entire team’s behavior and practice?

Answer by speakers

We think it doesn’t need to persuade but need to attract our staffs. The leadership is playing an important role here. One is to make a good tool and the other is top–down and bottom–up solution. By making the staff follow the

regulations and learning the new engineering technique at the beginning, we could start to slightly change the team.

2. Question from Edmund Zhou (Singapore)

How does AI replace humans? How to provide AI and ensure confidence and people can use it safely and effectively? Are there any other 5G use cases in the hospital?

Answer by speakers

We don’t want to use AI to replace our work. We would like AI to become a supporting role during clinical practices so that medical professionals can make quick responses at the moment.

5G provides high-speed information transmission so it can support clinical issues in the hospital to generate high-quality images or videos in a short time to help doctors analyze patients’ situations. Meanwhile, 5G could be applied to telemedicine. When medical professionals are out of the hospital, high-quality images and videos could also be generated to support as well as communication between hospitals for cross-hospital collaboration.