Shih-Chung Chen – Minister of Health & Welfare, Republic of China (Taiwan)

Taiwan will enjoy a very promising future if the government can support the industry by putting the necessary regulations into place

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Shih-Chung Chen, Minister of Health and Welfare of the Republic of China (Taiwan), gives an update on the Ministry's current directives under the Biomedical Industry Innovation Program to bolster Taiwan's biomedical and biotechnology sectors. Minister Chen goes on to explain how new technologies in digitalization and driving Taiwan's standard of care the concludes with his vision for Taiwan to be an active contributor in the conversation of global health and disease control.

Minister Chen, in February 2017 you succeeded Lin Tzou-Yien as Taiwan's MOHW under President Tsai. Since taking the position, what has been your mandate to further enhance the welfare of Taiwan's patients and foster the development of the country's biomedical and biotech sectors in accordance with the Biomedical Industry Innovation Program under the 5+2 Plan?

One of our key priorities under the Biomedical Industry Innovation Program has been to place increased importance on fostering the most innovative merging health fields. Taiwan has a strong R&D environment and now we must ensure that the research being done in our laboratories are able to reach maturation and have a tangible impact on society. It is very important to support academia's integration with the biotechnology industry. Therefore, we must build up regulatory infrastructure to maximize and facilitate efficiency and support the translational research of next-

generation medicines.

Recently, we have established more laws and regulations regarding autologous cell therapies, allowing for the use of these treatments in Taiwan. In September 2018, the Regulations Governing the Application of Specific Medical Examination Techniques and Medical Devices were amended to permit six types of cell therapy for blood cancers, strokes, and degenerative joints, among other ailments. Additionally, we aim to develop precision medicine in Taiwan and reimburse for the use of these diagnostics and treatments under the National Health Insurance (NHI) program is currently being evaluated. We also are focused on implementing guidance of Laboratory Developed Tests and Services (LDTS) to develop quality requirements for the next generation sequences (NGS) and more testing technology in the space.

Next, we are piloting several projects to achieve the optimal use of our health database created by the NHI. Furthermore, we will integrate additional data from other sources such as the Taiwan Center for Disease Control and Prevention (CDC) to expand the database for added research use. By making the De-identified information available to academia, industry, and official sectors, the capacity of exchanging utilized data is expected to be much larger, resulting in greater healthcare outcomes for the public.

Finally, we are building biobanks following the examples of those in Academia Sinica, National Health Research Institute, and in the hospital sectors. Around 30 hospitals in Taiwan have already established individual biobanks. Our expectation is for the National Health Research Institute to build a singular platform at the national level for the integration all the biobanks in Taiwan and we will build the relevant mechanisms to maximize the use of the banks as well.

In order to realize these ambitions, the government must concentrate on accelerating the amendments to Taiwan’s biomedical laws and regulations. In the integration of these efforts, we have encountered obstacles caused by the differences of agendas that exist between, however, step by step, we have overcome many obstacles. It is very challenging for laws and regulations to be passed by the Legislative Yuan, therefore, we are striving to apply all the resources possible across the administration to solve these problems. Looking at the private sector, Taiwan has a very strong R&D capability. Taiwan will enjoy a very promising future if the government can support the industry by putting the necessary regulations into place.

How do immunotherapy treatments fit into Taiwan’s procedure of care and how is the government sustaining a treatment method with such staggering costs?

In the development of biomedical solutions for genetics and autoimmune diseases, precision medicines are in fact expensive and we are facing uncertainties in the efficacy of such technologies. However, we understand that patients need these treatments, therefore, the velocity of technological advances in this area must be increased. We need to strike a balance between cost and time, so we are actively developing a pay-for-use system to provide patients with more timely care at a lower cost to the system. This will allow more resources to be allocated back into the development and utilization of advanced therapeutic methods.

Taiwan's universal healthcare system and National Health Insurance (NHI) program are considered to be world leaders in standard of care – a significant accomplishment. However, growing demand caused by emerging disease trends, an ageing population, and increasing costs of care are putting pressure on the system. How can digital innovations and new health technologies contribute to the sustainability of Taiwan's universal healthcare?

Taiwan's NHI uses electronic medical records and last year the National Health Insurance Administration (NHIA) enhanced its cloud-based medical records management platform, ushering the system into a new era of efficiency and upgraded services. Now, medical images and results can be uploaded to the cloud platform for authorized access. Nearly all medical images such as X-Ray, MRI, and CT can be uploaded to the cloud database, allowing doctors in different hospitals to access these records with the authorization of patients. This will effectively aid in minimizing the duplication of prescriptions and examinations, ultimately reducing resource waste within the healthcare system.

Overall, we have quite a comprehensive system to increase the health and well-being of our people. However, we are still lacking in acute care and rehabilitation, but we are working to develop these two systems. In the future, the government's objective is to integrate all of these systems for more efficient use of the information contained in these platforms. As patient privacy rights are a major concern for digital health records, this January, regulations concerning the anonymity of patients were put into place.

As Taiwan's population continues to age, the MOHW is actively promoting our the 10-year long-term care 2.0 plan which was launched in 2017 and has been quite successful thus far. In the first phase of the initiative, we focused on the services provided to elderly patients in community-based service centres and at home by establishing effective mechanisms to automize care connectivity

and create efficiencies. Currently, we are preparing the second phase of the initiative which is focused on institutional care. The ambition is to increase the overall volume and quality of such care. New services have also been added, ranging from early preventive care to minimize and delay the onset of disabilities, to palliative care later on in life. In fact, Taiwan's palliative care system is ranked sixth worldwide. In regard to the program, preventative care is handled by the National Health Promotion Administration while the NHIA is responsible for direct treatment.

In the past, Taiwan imported much of its medical technologies, causing the government to see the NHI as another expense. However, as our medical technologies have progressed, we have been able to reverse this flow and begin exporting our own technology. Since then, our perception has changed to where we no longer see national healthcare as an expense, but rather as an investment. Through this change of mindset, we want to invest more in these sectors to facilitate the development of biopharmaceuticals and export more innovation to more countries.

Looking outside of Taiwan, how can the country's expertise in diseases control, universal healthcare, and biomedical fields contribute to meeting global health challenges while enhancing the overall well-being of the world?

Speaking on international cooperation, I think that the best way that Taiwan can participate is through the World Health Assembly (WHA), the decision-making body of the World Health Organization that enables countries around the world to share health information. Taiwan is more than willing to share its achievements and its experiences with the rest of the world and participation in the WHA is the most effective way to do so.

Although Taiwan is not currently included, we still contribute our efforts to the global health community in several ways. For example, we invite foreign medical professionals to receive training in Taiwan. We also dispatch our own local professionals to perform operations and teach local surgeons new techniques abroad. In cooperation with our diplomatic allies, Taiwan builds health centres in those countries and dispatches mobile medical missions to them. With countries whom we do not have official ties, we have still launched many collaborative projects to help them prevent diseases and improve wellbeing by sharing our experiences with them.

South East Asian countries, including Taiwan, face the challenge of mosquito-borne diseases. Taiwan established a national research centre on mosquito-borne diseases and we have successfully controlled the spread of mosquitoes with the application of IT drones and big data analysis. Under the Global Cooperation and Training Framework (GCTF), Taiwan has worked with

the US to offer expertise in disease prevention, diagnosis, and control. We have extended this disease prevention network with some Asian countries – an initiative which has been quite successful and important for regional diseases prevention efforts.

Within Taiwan's New South Bound policy, we would like to increase our cooperation in health and medical care with 18 countries in South and Southeast Asia. We launched "One Country, One Center" (1C1C) initiative which commissions 7 medical centres in Taiwan to deepen our collaboration in the areas of public health and medicine with target countries including Vietnam, Thailand, Malaysia, Indonesia, India, Myanmar, and the Philippines. Lastly, we hope to reach a goal of helping patients locally, which could provide more efficient medical service.

What vision do you have for the future of healthcare and biomedical R&D in Taiwan?

I believe that the development of the biomedical and health industries should be based on serving society first, while of course, these two industries can help Taiwan economically. Our government needs to tap into these trends and increase the wellbeing of our people while creating a positive cycle to influence more countries in innovative health.

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