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ASIA EDITION

Tech meets Healthcare in Taiwan

January 7, 2019 | Analysis | By Milind Kokje

Taiwan is exploiting its strengths in IT to be a major global player in healthcare by amalgamating the both.



Taiwan is known as the heart of the world's tech supply chain, offering high-quality products in electronics. Now it is also the key driver of healthcare innovations and training with its leading IT companies accelerating AI, IoT and robotic applications for healthcare and biomedeical sectors. It is exploiting its strengths in IT to be a major global player in healthcare by amalgamating the both.

As a result it is a very common sight in Taiwan health sector of robots & machines, 3D image solutions, virtual reality and minimal invasive surgery methods are being used largely in diagnosis, surgeries, procedures and treatments.

The technological developments in the healthcare and the other factors like high quality medical services along with competitive pricing making the health services comparatively affordable and national health insurance scheme has put Taiwanese healthcare system in the forefront. Just recently it moved up from the 12th position to the ninth one in Bloomberg's annual global healthcare efficiency list.

All these feature of the Taiwanese healthcare system are attracting patients not only from Taiwan, but also from other countries, particularly from South East Asia.

"More than 305,000 foreign patients came to Taiwan to receive medical services, with one third of those from SEA countries," informed Walter Yeh, President & CEO, Taiwan External Trade Development Council (TAITRA), to a visiting 'Media Medical

Delegation for Taiwan Healthcare 2018'.

"TAITRA will continue to promote the highest quality of Taiwanese medical services and technology to see Taiwan as the top choice for international medical service providers in Asia," Yeh told the delegation which is sponsored by the Ministry of Health and Welfare of Taiwan (MOHW) and organized by TAITRA.

Taiwan's techno-healthcare amalgamation resulting in cutting edge innovations, leading medical global technology, speciality training facilities, availability of array of healthcare services, the latest medtech equipment was all on display at the Taiwan Healthcare+ Expo which was centred around 'MedicineXTechnology' as the key driver.

This was the second expo which saw 30% rise in the participation of organisations, from over 1000 to 1358, said Jin Pyng Wang, Chairperson, Taiwan Healthcare Expo Commmittee and Chairman, Research Centre for Biotechnology & Medicine Policy, in his welcome address at the inaugural ceremony of the Expo.

In her inaugural address, President of Taiwan Tsai Ing-Wen hoped, "The expo will generate opportunities to tap into international cooperation networks, and create endless possibilities for Taiwan's next-generation healthcare technology industries." She pointed out that Taiwan's Medical Device Industry is a leader in Asia. Taiwan is the number one exporter of electric wheel chairs in the world, and the second largest exporter of artificial joints in Asia.

Jia-chyuan Su, President, Legislative yuan, said Taiwan, a mecca of R&D, is capable of designing new solutions to meet the unsatisfied demands. "It has already done good progress in high end medical products and will continue to divert its technology towards healthcare development. For the first time, government medical industry, commercial industry and private enterprises have come together on a common platform at the expo. The government will continue to support the med tech industry," he promised.

The expo had a special pavilion for the starts-ups to showcase their innovations. It exhibited among others the snapshot hyperspectral image inspection technology and portable, noninvasive blood flwo meter developed by National Chung Shan Institute of Science & Technology; Industrial Technology Research Institute's (ITRI) portable molecular Diagnostics System; Prolieve as safe and effective treatment option for symptomatic BPH patients; IVD test kit for endometrial cancer.

Yeh informed, TAITRA has a start up division to promote start ups and innovations. "We provide a framework and arrange one to one meetings for start ups," he said.

Along with innovations, conducting trainings for doctors from abroad is a key factor of Taiwan healthcare system. The new types of surgeries caused by the technical innovations are attracting surgeons to Taiwan for the trainings in such surgeries.

IRCAD Taiwan in the Chang Bin Show Chwan hospital conducts training for doctors from all over the world at its state of the art training facility. In a decade it has trained over 7,000 surgeons in various surgical fields. It has also created an environment for incubation of new medical and surgical technology. It is not only a training centre but also a place for scientific research.

Functional direction of IRCAD is two folds. "We wish to continue to working closely with Asian surgical societies and experts to continue providing surgical training. Secondly we hope to continue in the area of surgical innovation and research with an aim to provide the best tools for surgeons to use as we believe in Chinese saying 'sharp tool make good work,'" said Dr Wayne Huang, Director, IRCAD Taiwan.

Its incubation centre has developed the world's first and only endoscope visualization system, MonoStereo® 3D, with easy-set, easy-alter adjustable 3D effects which overcomes the limitations of conventional 3D systems, providing a new perspective on surgical imaging. "It is the first 3D image system which provides depth perception and spatial view of anatomy, however the 2D function like zooming and rotating are reserved at the same time." Said Dr. Kai-Che Liu, Director, IRCAD Taiwan's R&D and Incubation and CEO, MeidcalTek. "It is both Mono and Stereo. You may keep 2D, see 3D." Dr. Liu explained further.

Brain Navi biotech co. which is known for its autopilot for neurosurgery recently released its first medical device NaoTrac, a surgical navigation robot that provides precise GPS like imagery. It uses camera-based computer vision algorithms to estimate 3D geometry and motion during surgeries. With this system surgeons can develop surgery plan with the help of pre-operative imagery and MRI scans of internal body structures.

"It makes surgery safer, faster and more accurate. Thanks to this 'first in human' robotic surgery Brain Navi reached a significan milestone," said Dr Chen, CEO, Brain Navi Biotech, when a patient underwent brain surgery with assistance from robot NaoTrac at Tzu Chi hospital in November. A deep brain procedure that takes eight hours would require only eight minutes with new technology, said Dr Chen.

Besides innovation and developing health and medical technologies, Taiwan's healthcare system also gives stress on advanced medical training. 'Train the trainers', the slogan of Ministry of Health and Welfare's booth at the healthcare expo, underlines the importance it attaches to training the doctors in the Taiwan healthcare system. Taiwan International Healthcare Training Center (TIHTC) is a platform that shares Taiwan's medical advancements to the world and nurtures international healthcare professionals.

This can be seen from the fact that there had been nearly 2800 international trainees in Taiwanese hospitals from 2014 to 2018 (till October). About 200 of them were from India. TIHTC not only provides professional training programme but also helps foreign medical professionals to find the most suitable training programme under the TIHTC partner hospitals network, which has 30 partner hospitals.

Showcasing the highlights of the Taiwan healthcare system various doctors from different hospitals presented the specialities of their hospitals. "500 cases of heart transplant, highest in Asia, since 1988 and 450 valve replacement implants, largest in South east Asia, have been done in Taiwan," said Dr Jeng Wai, Director, heart centre, Cheng Hsin hospital. Dr Chee-Chein Yong, Kahosiung Chang Gung Hospital, presented a case of liver transplant and claimed that Gung hospital was the best liver transplant hospital in the world. Lee women's hospital has gone into the Guinness record book in 2011 for the largest test tube baby gathering as it gathered at one place 1232 test tube babies born in the hospital. One third of IVF babies in Taiwan were made by Lee hospital, claimed Dr Lee Chun-I, CEO.

"Video Consultation, trauma centres, DaVinci robotic surgery, hybrid operation rooms are the specialities of the Taiwan hospitals," said Dr Yen-Chuan, vice superintendent, Tungs' Taichung Metro Harbor hospital. Dr Ming-Chi Yung, Deputy Director of International Healthcare Centre, Taipei Medical University Hospital, said Taiwan healthcare works on r 'P's, (Priority, Painless, Paperless and payless." Payless is possible due to Taiwan's effective healthcare insurance system.

The health insurance Taiwan provides is comprehensive. Both inpatient and outpatient care are covered, as well as dental care, over-the-counter drugs and traditional Chinese medicine. However, the experts feel Taiwan has an aging population and a low birthrate that will push upward the total cost of care.

Taiwan has got a number of hospitals. "It has 600 private hospitals, about 85% of the total, and they provide 70% of healthcare services,' said Dr Yi-Hong Chu, President, Taiwan Nongovernmental Hospitals and Clinical Association. Taiwan faces problem of growing shortage of doctors and other medical staff. In one hospital the entire section could not be started due shortage of nursing staff.

Despite such issues and problems, Taiwan healthcare has many achievements. Its leadership in reconstructive microsurgery and cultivating renowned reconstructive surgeons globally is an asset. "This consolidates Taiwan's leadership in medical sciences," concludes Prof Fu-Chan Wei, Researcher, National research centre.

(Milind Kokje was in Taiwan on invitation from Taiwan External Trade Development Council –TAITRA- as a part of Medical Media Delegation for Taiwan healthcare 2018)