35th CMAAO and 18th Taro Takemi Memorial Oration

Post-SARS Taiwan Medical Care System Reform for the Control of COVID-19

Dr. Tai-Yuan Chiu
Professor, College of Medicine, National Taiwan University
President of Taiwan Medical Association

Section I: The Past, Present and Future of Medical Care System in Taiwan

Introduction

Taiwan has learned the lesson from SARS and initiated a reform of health care system to prepare ourselves to meet the future challenges of epidemic infections as well as emerging health issues in order to safeguard the health of people in Taiwan. My talk today will focus on the health care reform and our response to COVID-19.

One hundred years of caring tradition: love for the people and motherland

In the past one hundred years, including a period of colonization, many elites on this island have devoted themselves to the medical profession, to the care of people, and to the development of the society. The National Taiwan University Hospital which leads the medical advancements in Taiwan and won recognition around the world. Doctoring the spirit among young medical doctors has been the centerpiece of medical education at NTUH.

All physicians in Taiwan are members of Taiwan Medical Association. At present we have 52,596 physicians, among whom 35.4% practices in primary care clinics after being trained at teaching hospitals while the rest works in medical centers.

The reform of health care system in Taiwan

In 1980s, the expansion of large hospitals was all over Taiwan, and formed an inverted triangle with resources being concentrated in medical centers on the top leaving community-based healthcare with a great challenge. The medical association was aware of the situation and endeavored to make the health care system an upright triangle, with primary care providing at least 50% of general medical care since 2000.

The evolution of community healthcare system

Taiwan underwent a 3-stage reform to improve the quality of community healthcare. In the first stage from 1983 to 1991, 170 group practice centers were established in places suffering from scarce medical resources. These centers, staffed

with well-trained physicians and equipped with modern facilities, provided quality care for those living in remote areas. At the same time, hospitals in Taiwan began to set up departments of family medicine while providing residents with whole person and family medical care training. Three national community medicine training centers were responsible for the training of physicians and nurses.

The second stage took place when the 921 Jiji earthquake struck Taiwan in 1999. The need of community care network for fast response to natural disasters and emerging transmitted disease is imminent. So when the 2003 SARS epidemic arrived, the program of community healthcare groups and community epidemic prevention groups were implemented in no time. This program has a profound impact on Taiwan's community healthcare system, including a medical education reform and the launch of PGY training. This period is characterized by the strengthening of people centered and family based care.

The third stage began after 2010 when we were about to introduce the family physician system. The model of people centered, family based, community oriented care aims to train all the medical students and physicians to be able to provide holistic care. These efforts formed a strong base for the country to cope with all sorts of emerging diseases and medical conditions.

This picture was taken in Gongliao township, one of the 170 group practice centers in the 1980s located in villages or towns previously suffering from no health care facilities. Three national community medicine training centers were soon built to support on-site training. One of them is located in Jinshan. Sitting in front of the building were Director Chiu discussing community health with medical students.

The practice of community medicine after the big earthquake in 1999

In 1999 Taiwan was hit by a deadliest earthquake in a hundred years. Since roads were badly damaged and transportation interrupted, frontline emergency care almost relied on local health workers. It paved the way for the birth of community health system. In reorganizing health services, faculty and students of NTU medical school shifted part of the training to the community. During the post-quake period, teams from NTU medical school dedicated 3 years to the rehabilitation in the affected areas, Lugu and Chushan in Nantou County. The NTU teams held meetings with primary care physicians and local hospitals every evening with regards to strategies to provide integrated health care. These efforts marked the beginning of community healthcare groups.

During the 2003 SARS epidemic, frontline doctors had great risk when handling suspected cases with fever. To support frontline health professionals, NTU medical school collaborated with the government to set up community fever screening

stations, establish a tiered primary care model incorporating clinics and community-based hospitals, and encourage the clinics to set a role model against SARS.

The government realized the importance of a robust community health care network after we survived the 921 earthquake and SARS. In addition to the implementation of family physician system and relevant bylaws amendments, the idea of hierarchical healthcare system was also introduced. It includes three level of healthcare system. The primary health care is provided by the community healthcare groups and public health centers. The secondary health care is provided by local and regional hospitals. And the tertiary health care is provided by medical centers, which are in charge of cross-district medical services, critical care, research, and teaching. For the past 20 years, patient-centered healthcare is at the cornerstone of our national health network, and was supported by two-way referral system as well as the management of health information.

Community healthcare groups are the cornerstone of Taiwan's community healthcare network

The success of a hierarchical healthcare system is dependent on community health care groups established after SARS. At present, there are more than 600 community healthcare groups (CHCG) in Taiwan and they become the backbone of our healthcare system. They also play an essential role in the quality improvement of community health care. Each CHCG consists of 5 to 10 GPs or specialists who are familiar with family medicine, and can provide continuous and comprehensive care including 24-hour consultation, health promotion, preventive medicine, disease management, home care as well as 2-way referral with the collaborative hospitals.

Section II: The first case of COVID-19 in Taiwan was found in January 2020

TMA dedicates to building a health security network, ensuring smooth functioning of community medicine, and a partnership with the government to safeguard people's health

The first case of COVID-19 in Taiwan was found in January 2020.Until 13 April 2021, 1,062 confirmed cases and 11 deaths were reported. Border control, quarantine, contact tracing, isolation, self-health management, merging the health card database with information on patient visits, as well as daily press conference. These measures have efficiently resulted in a daily increase of single-digit case numbers, making Taiwan one of the strongest performers in the fight against the pandemic. The containment strategy has kept new case numbers low, preserves the capacity of the healthcare system, and delayed the duration when the peak number of cases arrives.

Meanwhile, several cases of community transmission took place. Fortunately, they were identified in primary care clinics and reported in time to prevent an outbreak. Nevertheless, TMA found it necessary to prepare for possible future community transmission. The experience from SARS formed a strong base for the primary healthcare network. We proposed a tiered primary healthcare model to combine robust CHCG and community hospitals and screening station. With this measure, the mild cases of COVID-19 can be treated at the community while severe cases will be referred to designated medical centers. Close coordination and collaboration between hospitals and clinics can preserve medical capacity and fight against the unknown pathogen in the future.

During the COVID-19 pandemic, TMA mobilized 52,000 physicians and frontline health workers to consolidate community healthcare network and safeguarded the lives of population in Taiwan. Our endeavors have been acknowledged by Taiwanese people as well as the international society. In the past year, TMA and regional medical associations responded early to the epidemic because our SARS experience has taught us how to minimize fatalities and damages in a proactive manner.

TMA had advance deployment to the control of COVID-19 pandemic

At the first emergency meeting on the 4th day of January 2020, TMA developed SOP when primary care clinic had encountered suspected COVID-19 patients. TMA then held contingency meetings regularly to discuss matters regarding logistics operation, standard operational procedures for primary care clinics to manage suspected cases, and the guidelines of referral if necessary.

Aside from the contingency meetings hold by 24 regional medical associations, the medial experts from all of the associations attended the national contingency meetings held by TMA every week. Participants in the meetings discussed ways to reinforce existing antivirus policies, and how to collaborate the resources. TMA's meetings served as a platform where expert opinions and awareness messages can be widely disseminated to the public. The conclusions and statements of these meetings served as a very important backup for the first line physicians.

Primary care kept a possible first outbreak at bay

Back in January 2020 at the onset of the first wave, 75% of those returning from Wuhan, Hong Kong and Macau sought medical attention at the clinics, highlighting the importance of a vigilant primary care network. The epidemic was well controlled at this stage, allowing Taiwan enough space to come up with an innovative model of tiered primary health care to fight against COVID-19.

Tier-1: Walk-in clinics are equipped with standard protection equipment and provide general diagnostic and treatment services including chronic diseases, long-term care, preventive care, mental health care, wound care, and management of unknown symptoms.

Tier-2: Community Healthcare Groups Prepared Clinics (CHGPC) accept patients with fever, cough, upper respiratory symptoms, or possible COVID-19 cases. CHGPCs provide the same services as walk-in clinics and can also monitor isolated cases with video conference calls. CHGPCs have reinforced protection.

Tier-3: Community Screening Stations (CSS) consist of community health centres, regional hospitals, and other volunteering clinics that satisfy the programme requirements. CSSs are equipped with x-ray devices and can test and quarantine possible cases referred from CHGPCs. Confirmed cases could be treated locally (mild cases) or referred to the next tier.

Tier-4: Medical Centres are hubs of the network and treat referred confirmed cases with serious symptoms. They also test suspected cases and deliver routine services that are not available to regional hospitals and clinics

The proposed model has demonstrated its usefulness when a large scale outbreak happened in Taiwan later. This innovative model was published in the British Journal of General Practice and shared with fellow members of WMA and CMAAO in other occasions.

For more than 100 years, physicians in Taiwan remain wholeheartedly dedicated to the care for our society. As health professionals we now face many challenges. With changes in our national health insurance strategies, restructuring of our healthcare system, difficulties with our international relations, and the emergence of artificial intelligence in medicine, we need a serious discourse on how to keep our core values intact as healthcare providers. The Group Practice Centers, first set up in rural areas in 1983, ignited the first revolution in community medical care. The second revolution took place as community healthcare groups emerged in response to the 921 Jiji earthquake in 1999 and the SARS epidemic in 2003. These innovations provided a strong foundation enabling Taiwan's extraordinary response to the COVID-19 outbreak in 2020. The national project of sixth stage medical care network provided the backbone of a hierarchical medical system. Community Healthcare Groups deliver preventive care and lower medical expenses. Furthermore, physicians are more willing to participate in the control of COVID pandemic if they are part of a community healthcare group. The Taiwan Medical Association (TMA) holds virtual meetings with regional associations regularly to gather information about COVID 19 nationwide and refine our response strategies. The leadership of TMA is determined to construct safety networks for national health, a key objective charged by President

Tsai. This will continue to be a high-priority mission in the near future for TMA.

Building a comprehensive healthy and safety network

When President Tsai inaugurated for the second term last May, she requested the organizations of medical and healthcare professionals to assist in construction of a comprehensive social and healthy and safety network. With this noble mission entrusted upon us, we organized a conference on health policy in Kaohsiung inviting physicians from all over Taiwan to participate in the building of the nation's healthy and safety network. More than fifty thousand physicians and health professionals' organizations vowed to contribute their expertise and render their full support towards this end.

Section III: Taiwan saw the first major COVID-19 surge in Mid-May, 2021

Epidemic warning upgraded and the TMA mobilized primary care physicians in 4 pillars to collaboratively fighting against the pandemic and preserve the medical capacity

After more than five hundred days keeping threats of virus at bay, Taiwan saw the first major COVID-19 surge in May this year. With the contingency plan ready at hand, TMA was quick to respond.

As soon as the nationwide Level-3 epidemic alert was announced, every citizen was subject to strict restrictions and the healthcare system was overwhelmed with complicated tasks from large scale screening to treating patients with severe COVID-19. TMA then proposed a re-distribution of manpower to cope with the pressure created by the outbreak. For example, hospitals should provide 65% of essential medical care while primary care clinics deliver the remaining 35% of medical services. The share of community screening should be 60/40 for hospitals and clinics. Such arrangement makes sure that both epidemic response and essential care are available.

To address the health care capacity constrains caused by the outbreak, TMA mobilized more than ten thousand primary care physicians to join the work of controlling the epidemic in four pillars.

The first pillar involved The Society of Otorhinolaryngology Head and Neck Surgery, with their expertise in nasopharyngeal examinations, will coordinate with primary physicians to participate in community screening stations.

The second pillar concerns the mental health for people. Many people are suffering from physical and mental stress and are in urgent need of mental health care. The Society of Psychiatry will convene a team of experts in psychiatric medicine and

holistic medical training to provide psychiatric counseling

The third pillar involves provision of preventive health care, acute and chronic medical care, home and hospice care, and other essential medical care needs.The Association of Family Medicine will lead this part by coordinating with local medical associations and enlisting their help.

The fourth pillar is about vaccination which is very important in COVID control. Rapid vaccination to the public will rely on community health providers, as most immunizations have been carried out with their help. The Pediatric Association will lead this part and coordinate vaccination clinics in COVID-19 vaccination at community level.

It is worthy to note that the community healthcare groups and PGY training program established after the 2003 SARS epidemic have considerably improved the quality of primary care. The innovative reforms have satisfactory outcomes, as in a nationwide survey showed a significantly positive association between participation in community healthcare groups and willingness to provide care during COVID-19 pandemic. In other words, the implementation of the family physician system through community healthcare groups have encouraged more primary care physicians to the fight against the pandemic.

During the outbreak, Vice President of Taiwan along with TMA, Taiwan Primary Care Association and Taiwan Union of Nurses Association appealed to the public to 1) follow the COVID-19 restrictions, 2) temporarily put up with the inconvenience of daily living caused by the pandemic, and 3) have vaccination as the recommended schedule.

Primary care is the key to a successful vaccination

The dedication of primary care physicians to pandemic control is shown in these photos. First of all, they wear PPE and endure extremely hot and humid weather when perform screening test to the suspected patients. Next photo shows the primary care teams gave vaccine shots in various locations- in the clinics, long term care facilities and even at individual homes. They are a reason for the rapid increase in Taiwan's vaccination coverage TMA published an article "This could be Taiwan's finest hour yet" in the media to boost the spirit of our people, medical professions and the government in Taiwan.

President Tsai acknowledged contribution of healthcare providers

At TMA's 28th epidemic response virtual meeting on 13 July 2021, President Tsai Ing-Wen discussed issues of COVID-19 with the organizations of medical professionals and listened to the challenges TMA encountered. High-level dialogues

such as this greatly facilitated effective strategies toward disease control.

Working together with CMAAO

Although new cases in Taiwan have been under control again, this is not the time to relax. In many other countries we see new waves of surge in cases due to the highly infectious Delta variant. TMA will continue to follow the latest developments and devise new response strategies accordingly. We are willing to share our experience and exchange lessons learned with the rest of the world. I hope, together with fellows in CMAAO countries, we can achieve a desirable outcome in the Asia and Oceania region.