



Cover Story

# At the Frontline of *Saving* Critically Ill COVID-19 Patients

As the COVID-19 epidemic engulfs the whole country, Taichung Tzu Chi Hospital mobilizes its entire staff for epidemic prevention.

The physicians of the Division of Thoracic Medicine boldly fulfill their duties at the frontline and dedicate their lives to accompanying their patients.

All medical teams are deeply committed to combating the epidemic and protecting Taiwan in a spirit of solidarity, harmony, and valor.





# Taichung Tzu Chi Hospital Thoracic Medicine Division and Critical Care Center

**By Tseng Hsiu-Ying and Hsieh Ming-Jin**

Reviewed and approved by Chiu Kuo-Liang, Medical Secretary of the Superintendent Office and Director of the Critical Care Center of Taichung Tzu Chi Hospital

Sunday, May 23 (2021) was the fourth day and first Sunday after the COVID-19 alert was raised to Level 3 by the Central Epidemic Command Center.

The Thoracic Medicine Dr. Ni Yung-Lun was the physician on duty in the ICU of Taichung Tzu Chi Hospital that day. He was busy providing care for every patient in the ward as usual. The clock on the wall had just passed 3pm when the message was delivered to the ICU that the hospital would have to admit its first confirmed COVID-19 patient with serious symptoms who had been transferred from northern to central Taiwan under the coordination of the Emergency Medical Operations Center Taichung Branch.

### **Division of Thoracic Medicine at the Frontline of Treating the Critically Ill COVID Patient Transferred from Northern Taiwan**

Mr. Yang, aged 57, dined together with friends in early May. He developed a fever four days later. In mid-May, he sought medical help and tested positive for COVID-19 two days later. He had to proceed to the Government Quarantine Facility. His symptoms worsened on the 23rd and he had to be transferred to a hospital in the Miaoli area. As severe symptoms such as difficulty breathing appeared, he was again transferred to Taichung Tzu Chi Hospital. The

Emergency Medicine Dept. director Dr. Li Kuan-I had negotiated with the hospital in Miaoli to perform the intubation in Miaoli to buy time. However, this task could not be carried out by the local healthcare personnel, so the patient had to be transferred to Taichung. Despite the fact that the ICU unit was almost at maximum capacity, Dr. Ni still took the time to carefully assess the information for the transferred patient to determine whether it was necessary to prepare for ECMO to facilitate emergency treatment.

Dr. Ni clearly recalls that Mr. Yang was still fully conscious when he arrived at the ICU. He was wearing an oxygen mask and was a little short of breath during the initial inquiry. As Dr. Ni viewed the chest X-ray image taken in ER, he noticed significant lung infiltration and extremely low blood oxygen levels. He knew from experience that this was very concerning. As the ICU nurse administered the drip, he notified the Infection Control Center to submit an urgent application for Remdesivir, the special drug approved for treatment of COVID-19 with the goal of treating and controlling symptoms in a timely manner and lowering the incidence of severe complications before his pneumonia got any worse. He also informed Mr. Yang that he would need intubation to prevent the emergence of critical conditions late at night.

Dr. Ni asked Mr. Yang to call his

wife so he could explain his condition to the family members. Dr. Ni saw how distraught Mr. Yang was when he heard that he had to be intubated. Although he was in extreme physical discomfort, he still showed mental strength by comforting his wife that he was fine. Dr. Ni felt his heart wrenched when he heard Yang's wife who was also under quarantine and couldn't rush to the hospital repeatedly urge him to "Get well soon! We can take care of ourselves!"

Dr. Ni confided that he had never encountered a situation like this where a seriously ill patient was not accompanied by his friends or loved ones. As the doctor and his team were busy preparing for the intubation procedures, they also realized how severe this epidemic was. Mr. Yang's

family members were all under quarantine, no one came to visit him, and no family members could sign the consent form for intubation for him who's under huge pain, not mention to prepare diapers and toilet paper for him. Under these circumstances, the team members had mixed feelings and felt a heavy responsibility weighing on their shoulders.

After the anesthesiologist arrived in a hurry, the intubation could finally be quickly carried out after administration of sedatives. Meanwhile, Ms. Chang Yin-Cheng, RN of infection Control, was still trying to obtain Remdesivir.

On weekends and holidays, Infection Control RN Chang Yin-Cheng was constantly on call at home while having her hands full taking care of her two naughty, kindergarten-aged kids. Upon confirmation of the patient transfer, RN Chang submitted an urgent application for the required medication to the Central Regional Center for Disease Control in accordance with the physician's instructions. After successful transmission of all medical record data and documents, she realized that a designated person had to pick up the drugs. The urgent dispatch of a vehicle and personnel on a non-working day involves a complicated process of duty delegation. Since RN Chang didn't want to jeopardize the patient Yang's chance of survival through the delayed administration of life-saving



**The medical team dons full protective gear while assessing the intubation treatment upon admission of the critical COVID-19 patient who had been transferred to the hospital from northern Taiwan.**



meds, she made up her mind to get in the taxi dispatched by the hospital and personally take charge of the drug delivery after asking her Mom to take care of her children.

After the drugs arrived at the hospital, everything was in place for the treatment to begin. RN Chang breathed a sigh of relief. When she took a glance at the clock, it was almost 8:00 pm and she thought to herself that the first hurdle had finally been overcome.

## Deployment for Treatment, Help the Patient Overcome Suffering

After overcoming the first hurdle, Dr. Shen Huan-Ting, Director of the

Division of Thoracic Medicine had a deep realization. He suddenly recalled a quote by Chiang Hsun, the famous author, who made the following statement after the review of the movie *Walking Dharma*: “The Heart Sutra points out, “crossed beyond all suffering and difficulty”. It says “crossed beyond” suffering and difficulty, not “free from” them. When a disaster or an incident happens, we have to find ways to overcome and resolve it.”

Director Shen interprets this quote as follows: “The patient has to overcome his pain and suffering on his own. For us the medical practitioners ‘overcome’ has a different meaning. It refers to dedicated attention and care to help the patient make it through the crisis. Preparations



**Group photo of the professional care team of the Division of Thoracic Medicine at Taichung Tzu Chi Hospital.**



**Establishment of a dedicated COVID-19 ward at Taichung Tzu Chi Hospital to provide protective care for confirmed or suspected cases of COVID-19 and optimal protection for the medical staff in conformity to the most rigorous standards.**

and execution of measures are therefore of critical importance in the course of the disease.”

After the painful lesson of the SARS (Severe Acute Respiratory Syndrome) crisis in 2003, the healthcare industry promoted the establishment of standardized procedures for infection control and centralized management. Director Shen points out that the medical teams of the Division of Thoracic Medicine of Taichung Tzu Chi Hospital are deeply aware of the fact that they can't afford to be negligent and that they must do their

utmost to take the required precautions in the face of the globally raging pandemic. Deployment was initiated last year, encompassing the preparation of medical equipment such as video endoscopic laryngeal tubes and sandbox practices for care operations. Courses on emergency intubation, care for critical patients, and personal protection have been organized for professional care teams composed of RNs and respiratory therapists. In addition, training courses and practice drills have been scheduled to ensure the gradual implementation of epidemic prevention in the daily operations of the hospital.

Past experiences of the Division of Thoracic Medicine indicate that intubation and extubation processes represent an extremely dangerous link of healthcare operations, which can result in infections of healthcare workers transmitted by respiratory droplets of patients. In the process of drills and exercises, a consensus has therefore been reached by the Clinical Department that the Division of Anesthesiology which is most experienced in the operation of instruments should assist in the intubation process. Before extubation is carried out, a physician of the ICU unit covers the whole face and head of the patient with a transparent plastic sheet. The oral cavity of the patient is covered with a surgical mask immediately after extubation. The goal is to minimize droplet spatter during

extubation and reduce risk exposure for medical personnel.

Director Shen states that Mr. Yang was the first confirmed COVID-19 patient with serious symptoms treated by Taichung Tzu Chi Hospital. Intubation was completed successfully in a safe and rapid manner through mobilization of anesthesiologists, physicians on duty, nursing personnel, and respiratory therapists. This whole process is a perfect demonstration of the excellent results of practical drills. It also bears testimony to the success of the critical care team in harnessing its perfect preparations based on meticulous drills to assist the patient in overcoming the pain and suffering of this life crisis.

Dr. Lee Yen-Hsien, Deputy Director of the Critical Care Center of Taichung Tzu Chi Hospital, describes the duties of the medical teams in a determined tone like a warrior: "Care for critical COVID-19 patients in major medical institutions is mostly provided by professional physicians of thoracic medicine and infectious disease divisions. The physicians of our Thoracic Medicine Division have received intensive care training. They were placed at the frontline of the battle against the

**Before extubation is carried out, a physician of the ICU unit covers the whole face and head of the patient with a transparent plastic sheet. The oral cavity of the patient is covered with a surgical mask immediately after extubation. The goal is to minimize droplet spatter during extubation.**





deadly virus and have taken on the role of bellwethers by carrying out numerous tasks at the first line of defense.”

In the initial stages of the local outbreak, Taichung Tzu Chi Hospital set up dedicated wards for admitted confirmed and suspected cases of COVID-19 in Area C of the 11th floor. As the COVID-19 alert was raised to Level 3, a ward in Area C of the 11th floor which had been separated in line with safety-oriented spatial planning concepts was included in the scope of dedicated care for COVID-19 patients. In the face of the unpredictable trajectory of the pandemic, healthcare manpower had to be allocated in advance. Not only physicians of the Divisions of Thoracic Medicine and Infectious Diseases on rotational duty but also physicians of the Division of Internal Medicine and the whole hospital had to join the ranks of dedicated personnel responsible for COVID-19 care.

As almost all physicians of the hospital were mobilized for the fight against COVID-19, some inexperienced doctors had doubts in their minds. Dr. Song Yuh-Min, Director of the Internal Medicine Dept., took on the role of a coordinator and established a mechanism. Superintendent Chien Sou-Hsin and Medical Secretary Dr. Chiu Kuo-Liang led by example by taking charge of the first shift for the dedicated COVID-19 ward on the 10th floor. The first list of physicians on rotational duty was finally unveiled!

### **All Physicians of the Hospital Volunteered to Back Up the Division of Thoracic Medicine**

Dr. Wong Tuck-Siu of the Division of Gastroenterology, who was among the first batch of physicians who volunteered for rotational duty in the dedicated COVID-19 ward, shared the following insights in the online group for physicians: “Don’t be too worried and make sure you are properly protected. Although the protective gear is stuffy and uncomfortable, the work is not difficult. I am really grateful to Dr. Chen Li-Hsiou of the Division of Thoracic Medicine who provided a clear orientation for COVID-19 clinical care and protection. All physicians on duty had a firm grasp of the SOP governing practical specimen collection and testing in the red zone. If you really can’t remember the procedures, you can refer to the clear illustrations available in the hospital.”

“Required adjustments of the nursing station can be discussed and coordinated with Head Nurse Ms. Wu Mei-Hua, who is an excellent, rational communicator. Clinical care directly involves the Division of Thoracic Medicine, the senior big brother Dr. Liu Chien-Ming serving as our backup. If you are well protected, you really don’t have to worry too much. Everyone is welcome to sign up to become one of the Taichung Tzu Chi epidemic prevention



vanguards,” exclaims Dr. Wong brimming with confidence since the team has the full support of the Division of Thoracic Medicine. “In the face of COVID-19, a new infectious disease that doesn’t appear in any textbook, fear is a natural reaction, which underscores even more how valuable a sense of vocation is.” In addition to Dr. Wong, the first batch also included Mr. Liao Kuan-Fu, Director of the Division of Gastroenterology, Dr. Yu Tzu-Yun of the Division of Metabolism and Endocrinology, and Dr. Lin Chi-Wei of the Division of Neurology.

Deputy Director Lee Yen-Hsien points out that personal protection is of paramount importance for safety considerations. The Division of Thoracic Medicine has been well-prepared from an early date. The comprehensive preparatory training package includes an operation manual which explains how to don and doff protective gear and carry out required work procedures. As for shortcomings in the fields of professionalism and familiarity, the physicians of the Thoracic Medicine Divisions assume personal responsibility for the provision of consultation services. Some employees are concerned about their lack of familiarity with protection tasks. However, these tasks can be compared to Advanced Cardiac Life Support (ACLS), which can be mastered by all healthcare workers after they have completed the required training and



**Superintendent Chien Sou-Hsin and Medical Secretary Chiu Kuo-Liang lead by example by taking charge of the first shift for the dedicated ward on the 10th floor.**

passed the scheduled exam.

Basic care for COVID-19 patients is not very different from the care provided in general wards, but relevant experience can only be accumulated through intensified learning. Dr. Lee Yen-Hsien shares the story of a female patient in her thirties who had tested positive for COVID-19. Ten days after her admission to the dedicated ward, it was generally believed that she was out of woods since symptoms such as shortness of breath

and fever had disappeared. It came as a shock to everyone when her cough suddenly worsened, and pneumonia symptoms started to appear on the tenth day. The medical team immediately transferred her to the ICU ward for close observation. An application for medication was submitted, which finally resulted in a slow improvement of the patient's condition after several days.

A comparison of the blood oxygen content and X-ray images when the patient was admitted to the hospital and ten days later did not reveal any unusual conditions. It was therefore determined that the patient suffered from silent hypoxia which is almost imperceptible.

Dr. Lee Yen-Hsien's analysis of this case indicates that the progress of the disease varies significantly from patient to patient which includes seniors and people with comorbidities. One of the key criteria is oxygen saturation.

The term "blood oxygen" refers to the oxygen saturation in the arterial blood which is a key indicator reflecting the operations of the respiratory and circulatory systems. Insufficient blood oxygen content may signal heart or lung issues. Oxygen saturation values of around 95~100% are considered normal. If these values fall below 94%, oxygen supply may be inadequate. The saturation levels of life-long smokers usually hover



**Dr. Wong Tuck-Siu (center) of the Division of Gastroenterology, who was among the first batch of physicians who volunteered for rotational duty in the dedicated COVID-19 ward.**

around 92%. Despite the fact that oxygen saturation is not an absolute indicator, values below 90% are a cause for concern and require professional medical advice.

Dr. Lee points out that the hospital does not resort to frequent X-ray examinations to meet the demands of the dedicated epidemic prevention ward. Oxygen saturation measurement is the safest, non-invasive method which serves as a key reference together with other observed symptoms such as fever and shortness of breath. If blood oxygen levels of asymptomatic patients start to drop, an X-ray examination should be

scheduled. Once the patient's condition changes rapidly, respiratory care including intubation may become necessary.

### **Brainstorming of Innovative Ideas and Adoption of Technology Applications**

Panic purchases of oximeters which have turned into one of the most sought-after items during the pandemic are a common phenomenon. Another medical device that has drawn wide attention is the High-Flow Nasal Cannula (HFNC), which is known online as a life-saving



**If in-hospital preparatory training has been completed and proper attention is paid to personal protection, there is no need to be excessively worried when carrying out specimen collection and testing in the hot zone of infection in accordance with relevant SOP.**

device.

Warm-hearted donors have donated 11 HFNC devices to Taichung Tzu Chi Hospital. Dr. Shen Huan-Ting, Director of the Division of Thoracic Medicine, points out that international research findings clearly indicate that the use of HFNC in COVID-19 patients can reduce intubation rates by around 20%. The main advantages of these devices lie in the maintenance of a stable supply of high-flow, highly concentrated oxygen and effective regulation of temperature and humidity which facilitates the coughing up of phlegm by patients and faster recovery from the acute stage of shortness of breath. When oxygen is transported to the lungs through the nasal cavity, the risk of environmental contamination and infection of medical personnel through aerosolized oral and nasal secretions from COVID patients is reduced.

Dr. Shen adds that not every confirmed COVID patient needs a HFNC device for his treatment. These devices are only utilized when lung infiltration is significant or oxygen saturation falls below 94% and traditional oxygen therapies are not effective provided that intubation treatment is not deemed necessary.

When blood oxygen levels of critical COVID-19 patients exhibit changes requiring intubation and ventilator treatment, ventilator settings are constantly adjusted to ensure

the best care possible. However, healthcare personnel must go through the troublesome and time-consuming procedure of donning protective gear and are exposed to an increased infection risk when frequent adjustment of ventilator settings in COVID-19 wards is necessary. In a sudden flash of inspiration, the Division of Thoracic Medicine contacted the equipment manufacturer to request the removal of the ventilator control panel from the host next to the patient bed and placement in the clean area of the nursing station. The goal is to transform these ventilators into autoboots which can be remotely controlled from outside the ward and thereby achieve the dual effect of rapid, real-time control and reduced exposure of medical personnel to droplets and aerosols.

Smart technologies are incorporated into the hospital care routine and turn into a highlight of dedicated wards. Tzu Chi members have demonstrated their wholehearted support of this initiative through the donation of an intelligent robot named “A Hsin” which named by the Supt. Chien’s nick name. “A Hsin” performs tasks in the dedicated wards to maximum effect and has turned into a valuable companion in the fight against the pandemic. Upon configuration of paths, “A Hsin” can perform ward inspection duties, monitor and record patient temperature, blood pressure, and blood oxygen values



on behalf of physicians and RNs by relying on his built-in camera lens. He can also deliver meals and supplies and even provide health education and medical advice for discharged patients. “A Hsin” determines patient understanding through quizzes to reinforce compliance upon discharge.

## Cohesive Sense of Vocation Facilitates the Implementation of Pulmonary Rehabilitation Care

The COVID-19 pandemic represents a great challenge for healthcare workers. How much courage does it require to stand at the frontline of treating critical patients in a steadfast manner? Dr. Chiu Kuo-Liang, Medical Secretary and Director of the Critical Care Center has been practicing medicine for over 20 years. He is deeply convinced that it is the responsibility of a physician to show a firm commitment to critical care and saving lives.

He confides that “during my tenure as a resident physician, I held a rather negative view of the Division of Thoracic Medicine. I thought that it was a dirty environment where patients constantly cough and expectorate. In the course of my training, however, I witnessed the extremely challenging nature of the Division’s duties and

experienced first-hand the enormous contributions of the members of the Division in the treatment of critical patients in the ICU unit.” A strong sense of vocation reflected in a resolve to save lives opened up the door to a career in intensive care medicine for Director Chiu.



**The first critical COVID-19 patient Mr. Yang is safely discharged from the hospital. He is deeply grateful to the Taichung Tzu Chi Hospital for saving his life and promises to give back to society after his full recovery.**



**The hospital is deeply grateful to warm-hearted donors for the donation of High-Flow Nasal Cannula (HFNC) devices, which facilitate faster recovery from the acute stage of shortness of breath.**

Director Chiu give the following account of his unforgettable experiences in respiratory physiology therapy in the ICU unit: “Accurate and adequate ventilator adjustments can immediately stabilize the patient’s breathing pattern and improve the oxygen saturation. Critical patients return from a state of hypoxia to a stable condition. These devices help extend the golden period for saving the patient’s life. They also enable the patients to make the transition from the critical to the recovery stage. After a

training period, the ventilator can finally be removed.”

Director Chiu has remained true to his calling of saving critical patients. In view of the importance of respiratory therapies, the Thoracic Medicine Division of Taichung Tzu Chi Hospital has built its Pulmonary Rehabilitation Center on a solid foundation over many years with the ultimate goal of improving the quality of life of chronic pulmonary patients. This year, the center has proposed a holistic care plan for interdisciplinary teams targeted



at patients suffering from Chronic Obstructive Pulmonary Disease. The center has been honored with a SNQ national biotechnology quality mark for its “Health Mastery: Patient-Centered Pulmonary Rehabilitation” program.

The physicians of the Division of Thoracic Medicine share certain common traits. They have a strong sense of responsibility, embrace high ideals, and are willing to put themselves on the frontline. Their solidarity stems from their sense of vocation which is derived from their passion for medicine and critical care. These characteristics are in line with the expectation of Dharma Master Cheng Yen that all medical teams should be deeply committed to combating the



**When blood oxygen levels of critical COVID-19 patients exhibit changes, intubation and ventilator treatment is required (left image). In a sudden flash of inspiration, the Division of Thoracic Medicine decided to request the removal of the ventilator control panel from the host next to the patient bed and placement in the clean area of the nursing station to transform these ventilators into autobots which can be remotely controlled from outside the ward.**



epidemic and to protecting Taiwan in a spirit of solidarity, harmony, and valor. The members of the Division of Thoracic Medicine stand at the frontline of treating critical patients and dedicate their lives to accompanying their patients. They view suffering as an integral part of their daily routines and do their utmost to save lives.

After intubation, Mr. Yang was on the verge of death. Three days later, his oxygen saturation levels started to improve, but in the course of ICU treatment, he suddenly entered a state of delirium and great agitation. The medical team therefore asked Mrs. Yang to make an emotional appeal and soothe his troubled mind over the phone. Mr. Yang finally agreed to stop resisting to treatment. On June 4, 13 days after his transfer to Taichung Tzu Chi Hospital, he was at last successfully extubated.

When he was discharged from ICU, he waved at the medical personnel and gave them a thumbs up and finger heart. He even wrote a personal thank-you letter. "After I contracted COVID-19, serendipity brought me here to Taichung Tzu Chi Hospital. The rescue process that night was fraught with fright, and I was knocking on death's door several times. Fortunately, I was in the care of an outstanding and passionate team of doctors and

nurses who saved my life through their dedicated efforts. They gave me a new lease of life. Words fail me to express my deep respect and gratitude to this exceptional team."

After his transfer to the dedicated COVID-19 ward, he obediently followed the routine prescribed by the medical team and persisted in his efforts to fully recover from this terrible disease. After another six days, his CT value finally met the criteria for release from quarantine and he was discharged on June 11.

His near-death experiences have given him a profound understanding of the life exists in between breaths. On the day of his release from the hospital, he thanked the team for their considerate care and stated his intention to dedicate his life to helping other people.

Mr. Yang is only one of the many life and death battles, the critical care team of the ICU unit has fought during this pandemic. In these tugs of war with death, the team has successfully saved numerous lives and prevented broken families by exerting their utmost efforts. Mr. Yang's response is heartening and uplifting. The world is filled with the power of love due to these positive cycles, which is the best reciprocation.



# Quality Certification for Chronic Obstructive Pulmonary Disease (COPD) Care

## A Further Upgrade of Cross-team Healthcare Services

By Lu Jung-Hao

Reviewed and approved by Dr. Chiu Kuo-Liang, Medical Secretary & Director of the Critical Care Center of Taichung Tzu Chi Hospital

During this pandemic of the century, the physicians of the Division of Thoracic Medicine stand at the frontline of epidemic prevention and their hearts are with their patients whose health they deeply care about. The Division of Thoracic Medicine of Taichung Tzu Chi Hospital has made an ongoing commitment to Pulmonary Rehabilitation Care over the past 10 years. After the division was awarded the Symbol of National Quality Mark (SNQ) in 2018, it earned a Disease-Specific Care Certification for COPD in 2021. An all-around upgrade of patient-centered healthcare services has been achieved through cross-team integration, marking a major new milestone.

Chronic Obstructive Pulmonary Disease (COPD) is a disease which is characterized by obstruction of



**Taichung Tzu Chi Hospital is recognized for its achievements in the field of COPD care with a Disease-Specific Care Certification presented by the Joint Commission of Taiwan (the image shows Superintendent Chien Sou-Hsin on the left and Medical Secretary Chiu Kuo-Liang on the right).**

airways caused by chronic respiratory tract inflammation. Patients frequently experience symptoms such as coughing, phlegm generation, stuffiness, or shortness of breath. As the air cannot pass through the airways in an unobstructed manner, we finally realize that life really exists in between breaths.

COPD is sometimes accompanied by comorbidities such as cardiovascular disease, osteoporosis, diabetes, pneumonia, which result in poor life quality and shortened lifespans. Recent statistics released by the Ministry of Health and Welfare reveal that COPD is one of the ten leading causes of death, killing over 5,000 people on average annually. High death and incidence rates should not be taken lightly. Early diagnosis and high-quality care prolong the lives of patients and improve their quality of life.

Mr. Chen, who is in his seventies, started to experience breathlessness



**Mr. Chen reports for his weekly endurance exercise sessions at the Pulmonary Rehabilitation Center.**



**A respiratory therapist (right) gives directions to a COPD patient (left) on how to conduct pulmonary rehabilitation exercises at home.**



**A COPD patient (left) conducts a six-minute walking test (6MWT) monitored by a respiratory therapist (right).**

when walking down the street or up the stairs two years ago. He often felt weak and could no longer indulge in his beloved horticulture hobby. His life quality was greatly affected, and his life suddenly turned black and white. Last year, he was diagnosed with COPD after a checkup. This disease has been caused by his lifelong smoking habit (he smokes one pack of cigarettes a day). After receiving integrated care involving different medical teams for over one year, he was finally able to take deep breaths again and could resume his favorite pastime of growing plants and flowers.

The Pulmonary Rehabilitation Center of Taichung Tzu Chi Hospital was established in 2012. The center was recognized with a Symbol of National Quality Mark (SNQ) in 2018. Dr. Chiu Kuo-Liang made a vow to develop a COPD care program in sync with the findings of evidence-based medicine and acquire a Disease-Specific Care Certification from the Joint Commission of Taiwan. In addition to the formulation of five quality indicators as goals in line with the basic certification criteria, another 13 items have been included. Visits to medical centers were organized for the team to acquire new knowledge and make continued progress towards optimal care quality for patients.

During his tenure as director of the Internal Medicine Department, he already

led the Division of Thoracic Medicine on the path towards his vision. He enlisted 19 professional grades spanning different divisions and departments for the joint design of a cross-team integrated card model. Smoking cessation case managers assist patients in kicking their habit. Respiratory therapists actively intervene by designing exclusive pulmonary rehabilitation exercise programs in line with the patient's current conditions. Pharmacists ensure the accuracy and medication adherence for inhaled drugs. Dietitians provide customized dietary guidance based on patient weight. In addition, COPD-specific health passports are designed in line with the



**The COPD case manager strives to get a better understanding of the recent conditions of a patient to facilitate provision of health education and counseling services.**

key directions of patient self-care. Well-meant admonishments by physicians give the patient a better understanding of his current progress and ensure that efforts toward achievement of therapy goals are maintained.

Administrative units also make valuable contributions by harnessing their professional expertise. IT units utilize a Cross-Grade Handoff System and the Team Plus App to intensify communications between team members. A case management system facilitates systematic tracking and care for patients by COPD case managers in addition to the provision of seamless continuous care. Each team and unit gains the ability to track the patient's current status on an ongoing basis and adjust therapy intensity accordingly while performing its own functions. The ultimate goal lies in an equal emphasis on the disease and the patient as a person.

The Center of Quality Management has adopted a Power BI interactive dashboard to facilitate quality indicator management and give the teams a quick grasp of care quality. Monthly meetings are convened to ensure ongoing reviews and improvements and provide teams with a forum for the deliberation and formulation of quality enhancement strategies with the goal of improving the overall quality and results of delivered care.

As a result of constant advances

in the field of care quality, pulmonary rehabilitation therapy completion rates have reached 85% on average as revealed in the latest statistics. Overall results in 2021 including the assessed ratio of patients undergoing pulmonary rehabilitation therapies, accurate medication rates, emergency care rates, and fourteen-day rehospitalization rates are superior to the average rates for the whole hospital. These exceptional achievements are ranked in the top tier.

COPD therapies which involve large investments of manpower, materials, and space don't generate any profits for the hospital. Dr. Chiu is deeply aware of the profit motives in the field of health care. However, his strong sense of vocation and the full support of the Tzu Chi healthcare system have enabled him to stay true to his mission of protecting and saving lives. Over the past ten years, he has quietly cultivated his professional COPD care team at Taichung Tzu Chi Hospital. He spares no efforts and expenses in providing top-quality services coupled with increased time and space allocations. His attitude and commitment have earned the praise of his patients who have multiplied in recent years. Dr. Chiu has his eyes firmly fixed on his vision of turning Taichung Tzu Chi Hospital into a benchmark institution in central Taiwan in the field of respiratory disease care by relying on his own ceaseless efforts.



# Retinal Detachment During Home Quarantine

## Physician Performs Surgery to Restore Vision

By Ma Shun-De

Mr. Chen, a Taiwanese businessman, suddenly experienced a loss of vision in his left eye during home quarantine after his return to Taiwan. Since he was afraid he would permanently lose

his vision, he sought medical help at Taichung Tzu Chi Hospital. The attending ophthalmologist Chau Siu-Fung directly admitted Mr. Chen to the dedicated COVID-19 ward and



**Dr. Chau Siu-Fung first conducts a fundus exam for the patient in the dedicated isolation ward.**

successfully saved his vision through surgery. Mr. Chen was deeply grateful for the kindheartedness of his physician and the medical assistance by the hospital team. He therefore decided to make a charitable donation to help more patients in need of assistance by reinforcing the cycle of compassion.

Mr. Chen recalls that the vision in his left eye was partially blocked by a dark curtain when he got up on the morning of his flight from China back to Taiwan. He put the symptoms down to the fact that he hadn't slept well. After he got home, he began his 14-day home quarantine. The worsening of his vision loss caught him off guard and he feared blindness. He therefore called the local health bureau to arrange emergency treatment. The results of the examination indicated retinal detachment, but the physician requested that the patient complete his home quarantine prior to surgery.

After this rejection, he returned home with a heavy heart. He points out that his gradual loss of vision filled him with fear, and he couldn't eat or sleep. He also recalls making a lot of phone calls to beg for help. After getting a clear understanding of the patient's condition, Dr. Chau Siu-Fung of the Department of Ophthalmology at Taichung Tzu Chi Hospital, he knew that surgery couldn't be delayed since

retinal detachment is an emergency medical condition. He concluded that Mr. Chen's previous doctor was probably worried that surgery in full protective gear would be more difficult and the risk of failure was higher. Dr. Chau finally decided to admit the patient immediately to save his vision.

Despite the fact that his PCR test was negative, he was still under home quarantine. Consequently, the medical procedures had to be carried out in accordance with the regulations governing suspected COVID cases. The patient entered the hospital through the emergency department and was directly admitted to the dedicated ward. After his hospitalization, the physician on duty carried out an initial inquiry. Dr. Chau thereupon entered the ward in full protective gear and conducted a fundus exam with a mobile device to confirm that retinal detachment had already reached the macula at the center of the retina. This would indicate that immediate surgery is necessary to prevent hypoxia-induced photoreceptor necrosis which results in permanent vision impairment.

Dr. Chau explains that the retina contains the photoreceptor and choroid layers which should be firmly attached to each other. Retinal tears cause the fluid resulting from vitreous liquefaction to penetrate between the

photoreceptor and choroid layers which causes them to become detached just like wallpaper comes loose from walls. Since the photoreceptor layer is supplied with oxygen and nutrients through the choroid layer, prolonged detachment of the former from the latter results in cell necrosis and permanent vision impairment. The earlier surgery is performed, the better is the visual outcome.

Since Mr. Chen was treated as a suspected case, all healthcare workers present in the operating room were required to don full PPE. Dr. Chau points out that it was indeed quite challenging to perform this microsurgery in full protective gear with three layers of gloves, a face shield, medical safety goggles, and eyeglasses. Luckily, he was quite experienced in retinal detachment surgery and considered himself familiar with all parts of the eye. However, his rapid breathing caused his glasses to fog up. After recalling one of Dharma Master Cheng Yen's teachings to "remain unwavering", he immediately controlled his breathing and calmed his mind. The slower breathing technique kept his glasses fog-free, which enabled him to successfully complete the surgery.

During the surgery which lasted over one hour, Dr. Chau reattached





**During the pandemic, the patient had to be treated as a suspected COVID case. Dr. Chau Siu-Fung of the Department of Ophthalmology at Taichung Tzu Chi Hospital and his team therefore performed retinal detachment surgery for this acute patient in full protective gear to prevent permanent vision impairment or even blindness.**

the photoreceptor layer to the choroid layer. Another fundus examination was conducted during the convalescence period of several days to confirm proper healing before the patient was released from the hospital to recuperate at home. Follow-up exams in an outpatient setting were considered sufficient.

Mr. Chen was deeply grateful to the medical team of Taichung Tzu Chi Hospital and Dr. Chau for their willingness to perform surgery for him in the face of immense difficulties and

for treating him like family. He made a charitable donation to help more patients in need of assistance. Dr. Chau warns that retinal detachment is a medical emergency which requires immediate medical attention. Even during epidemic prevention periods, patients should proceed to a local hospital for a checkup and medical treatment without delay to prevent lasting vision damage. If healthcare personnel protect both the patient and themselves in the most meticulous manner, there is no risk of infection.