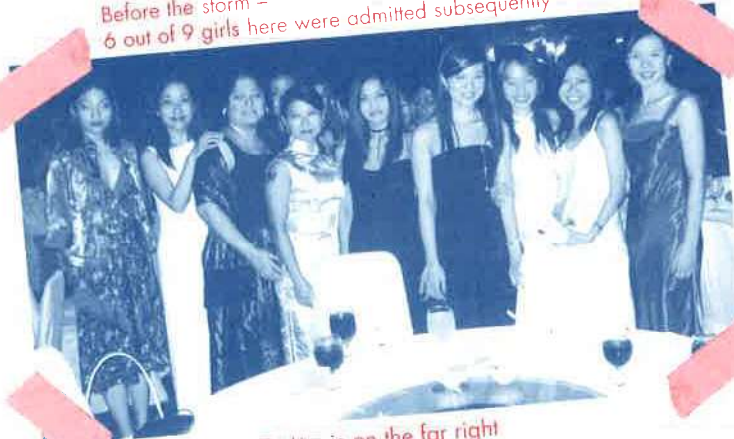


SARS AND THE HEART INSTITUTE

DR LIM ING HAAN, Ambassador to the Courage Fund,
has kindly penned her personal experience for the THI PULSE

Before the storm -
6 out of 9 girls here were admitted subsequently



Dr Lim is on the far right

"Ing Haan, come join in the dance." The night is still early and the mood jovial. I am still wheeling from the titillating dance performance by our nurses from Ward BA, who have somehow morphed from the white angels I see in the daily morning rounds to sultry sirens. Allow me to quote Hamish Brown, the MC for the evening. "Wow, so much glitter...all these beauties dressed to the nines...I wouldn't regret spending some time in Tan Tock Seng...Heh, Heh..."

That was 14th March 2003. Glitteratzi, the Tan Tock Seng annual dinner and dance. The night where everything seemed so perfect, where Hok Su came with his fiancée, where staff nurse Ash grooved to the music in a skirt that was so very strategically cropped, where almost everyone in our big family turned up to enjoy themselves.

What was unknown to me at that time was that a few nurses from Ward 5A have already been warded for fever 2 days ago. With unnerving coincidence, the nurses from Ward 8A (cardiology inpatient ward) and Ward 6A (CCU) started developing high fever over the weekend and were being admitted to CDC. WHO declared SARS a worldwide health alert on 15th March 2003.

I remember Monday the 17th clearly. It was the day I felt too tired to get out of bed. I started having a dry cough and hyperaesthesia but still dragged myself out of bed for the morning rounds. Hok Su, Xu Wei and my fellow registrar, Mary all reported sick. I was given 2 days medical leave but felt better after sleeping the entire afternoon through the night.

I turned up for work on Tuesday as I felt better. The clustering of cases was worrisome; Tan Tock Seng went into red alert. At that time, I still have no signs of fever or cough, just hyperaesthesia, but felt compelled to discuss my own symptoms with an Infectious Disease Consultant. It was with relief when I was told that an X Ray was not

yet warranted. My schedule was hectic as usual. I saw close to 60 patients on Tuesday and Wednesday morning clinics.

Wednesday, the 19th started like any other day. I will always be thankful that I actually donned an N95 mask for the morning clinic. The whole idea was to protect my patients from myself. This attracted the bewildered stares from my clinic nurses and of course, my patients. I would never have known that this was to be a harbinger of things to come. I had to take over Mary's call because of manpower shortage. I had no fever, no excuse, and am resigned to the fact that till now,

I have only spent a grand total of 5 days with Greg, in our new house, having just come back from honeymoon. In between blue letters (consults) and trips to the emergency department, I found myself outside the radiological department. By some bizarre logic, I decided to take a chest XRay there and then, because the chances of me next walking by the same place over the next 24 hours were pretty slim.

The right lower lobe infiltrate looked insignificant. But Dr Kong Po Marn took just one look, jumped a metre away and threw me a mask. Just at this moment, someone collapsed in the CCU, wisdom overruled impulse, I had to be isolated with immediate effect. Fortunately, Dr Raymond Lee saved the day and the patient. Dr Ng Chee Keong kindly did a step down cover for the call. My temperature hit 39.5°C by the time I walked to CDC. I was promptly admitted.

Thus Cardiology Tan Tock Seng sank into the darkest moments in its history, with 2 registrars, 3 medical officers, 1 technician and half of its CCU nurses admitted over the next few days. This was followed by the official closure of the hospital to non-SARS patients on the 24th March 2003. Despite the permeation of fear and uncertainty, every single one of the remaining cardiology registrars did not hesitate when called to pitch in to help in the SARS wards. Dr Ng Kheng Siang took the lead by taking care of the sickest ones in ICU needing cardiac consult. Dr Yong Quek Wei spent the next 2 months doing rounds in CDC.

This is a new disease, respecting no boundaries. True to the Tan Tock Seng spirit, those blessed with the MRCP came forward without being asked. All nurses and staff voluntarily stayed on. In fact, till now there were only 2 resignations due to SARS. There was initial thought of segregating hospital staff into teams, but morale was so low that the hospital administration decided against it.

The perennial question at that time was: why Cardiology? Fate has it that we succumbed through unprotected exposure to Mdm Fainah who had been admitted for heart failure and who later contacted pneumonia from the first index case whilst in the open ward. Her diagnosis was retrospective through epidemiological links.

All these took place while I was on my sick bed. There was no idling as I with all the admitted nurses and doctors kept close contact with each other through phone calls. We were worried for each other but were not allowed to move around. Initially, I was allowed one visitor before the no visitor rule. The highlights of the day were the morning and evening rounds where I tried to participate actively in my own management. Otherwise, it was just CNN and the Iraqi war. What I still find bizarre was that fresh flowers were banned.

In the initial days, there appeared to be no consensus on treatment. Some of us were started on Ribavarin and high dose prednisolone. Ribavarin made me sicker than I really was. I lost what was left of my appetite and became prostrate with nausea. By that time, I was cohorted into a four bedder because the hospital had run out of isolation beds. The patient opposite me seemed to have intractable vomiting through the nights. It was miserable. I eventually decided to exercise my rights and discontinued both these medications.

There were very few comforts. One of them was drinking Ribena. A legacy from Cindy, a CDC medical officer who was discharged way before I was. I finished half the bottle. Other little gestures kept me sane. The daily meals that Greg sends me without fail, the daily phone calls from my family and friends including Dr Susan Quek's, which came daily with clock-like regularity. It never fails to bring a smile to my face.

Through the little window of my door, I saw Hok Su's name rubbed off the white board. I realised with terror that something untoward had happened but it was even worse than I had dared imagine. I couldn't cry nor sleep. One of

the MOs stayed over to keep vigil. I could not erase the feeling of guilt that washed over me. To me, Medical Officers are the babies of the department. We mould and train them and watch them grow up into reliable doctors. We should be responsible for their safety too. My heart was very heavy.

Life can be so unpredictable and unfair. Hok Su has just joined TTSHT only 4 months ago after coming from UK. He was dependable and capable, young and vibrant. He impressed with his intelligence and his exuberant smile. He embodied youth and unrealized potential that was aching to be fulfilled. My heart went out to Hok Su's mother and grandmother who were also hospitalized at the same time. And my heart bled for Hok Su's family.

For me and for everyone in Tan Tock Seng, what happened to Hok Su serves as a rude reminder of the fragility of life, the limitations of modern day medicine, the folly of complacency, and the importance of vigilance. What any one of us went through is miniscule compared to the pain that Hok Su's family were put through. Little did we know now that we would be again put to the test with Alex and Sister Hamidah.

My own discharge was further delayed a week after I developed nosocomial pneumonia requiring intravenous Fortum and gentamicin. The point hit home only on the day of discharge when I discovered I was too breathless to cover the distance

between the wards and my office without stopping for a breather. And all I had was my overnight bag and some books. Before this, I had always felt young, healthy and invincible. This is a humbling experience.

It is without doubt that we have survived and stayed together under the charismatic leadership of Dr Lim Svet Woon. He made timely and momentous decisions to steer us in these uncharted waters. We have even undertaken measures over and above WHO recommendations.

He recognized early that fear and rumors are bred through the cloak of secrecy and undertook to update all of us through daily emails. This is a first. I am proud of all the healthcare workers, including all the volunteers from other hospitals, who joined forces to battle SARS with selfless determination. Those fallen must not be forgotten.



CCU Ward Staff @ TTSHT

SARS IN THI

THE Severe Acute Respiratory Syndrome (SARS) hit Singapore in March 2003 and changed the way we live and practice medicine. SARS is indeed the greatest challenge Singapore faces since the 2nd World War. The Heart Institute is in the midst of SARS action. As Tan Tock Seng Hospital becomes the SARS hospital of the country, National University Hospital cardiology, cardiothoracic and vascular surgery and Alexandra Hospital cardiology are affected as well.

In NUH cardiology, all CME meetings within the department were cancelled. All annual leaves were also cancelled. Quickly, doctors in the department segregated into two teams - ward



The donning of PAPR for high risk procedures

vs non-ward. The 2 teams worked with no face-to-face contact so that if 1 member of a team was down or needed quarantined, the other team could take over and provided coverage. Ward rounds and clinics are run donning personal protective equipments, namely gowns, N95 masks and gloves. Histories are retaken on SARS contacts and febrile episodes. Every staff consistently checks his / her own temperature thrice a day, even on public holidays. Movement charts are constantly maintained. We receive daily Ministry of Health alerts and the hospital Ops center updates. Policies are tuned and fine-tuned. Emails see a huge leap to overflowing numbers. Despite facing many uncertainties, all staff worked single-mindedly to perform our duties in looking after our patients. As the face of SARS changes, the battle with SARS continues...



The ward team in CCU (THI @ NUH) with PPE

SARS AND THE CARDIAC MO

diary of DR MILDRED HO, NUH

It all started when Mr Wholesaler was admitted to NUH for CCF on 8/4/03. I should have trusted my intuition that there was something fishy about him. He smelt of SARS - on hindsight.

Hindsights are always too late, and that was how I and my colleagues and nurses got quarantined.

It sounded fun initially. Hey! A full 10 days of enforced leave was certainly welcomed after a seemingly endless period of tiring ward work. We could wake up late and waste the whole day on brainless things like watching marathon TV, doing jigsaws, dozing off... There was no dateline to meet, no need to worry about ill patients and unfinished work.

It worked. By day 5, I felt my brain rotting away.

By day 7, I went mad. I accused everyone at home of being unfeeling, shutting me up in my bedroom all the time, trying to kill me with sheer boredom. Mother-in-law's sumptuous meals were meant to fatten me like a fenced chicken for slaughter. Her offer to help clean and disinfect my room seemed like a hint to get rid of me.

The same day news of another NUH doctor being admitted to ICU struck me. That was the first time I realised how vulnerable life was. Even though I don't know the doctor personally, I sensed the chilling fact that someone within such close vicinity who was still walking about a few weeks ago could become so ill suddenly. I broke down.

Perhaps that was why my temperature shot up to 37.8 the next day, which landed me in CDC for 2 days. My first holiday at CDC was rather enjoyable - apart from the usual stifling, tropical heat and hospital food. I was certainly well looked after. The single room was well equipped with an attached bathroom, a 21inch TV plus remote control, my personal phone line. I even had my daily supply of The Straits Times. A call-bell for room service and friendly helpful nurses and doctors were added bonuses.

I indulged in the amount of attention I got, non-stop calls from everyone, including my bosses. There was even a visit from Prof YT Lim!

It turned out that I was completely afebrile (and asymptomatic) throughout the first stay - which ended my trust in China-made mercury thermometers forever. It must have been reading falsely high.

But that didn't stop my dad from his berate of "see-what-you've-done" and "I-told-you-so" when he admitted himself to TTSH for fever 1 day later claiming contact with me when I wasn't masked. He was clearly frightened. He was convinced he had SARS.

Then my father-in-law went down with fever and got admitted to TTSH. The timing couldn't have been worse. I would feel guilty if his condition deteriorates.

Fortunately none of us had SARS, we were just SARS-suspects. Of course it didn't make a difference to

most people who only know 'SARS' and 'no SARS', the words 'suspect' and 'probable' were not in their vocabulary.

The second time I was admitted to CDC - this time for real fever, I realised that despite not having URTI symptoms, breathlessness or CXR changes, I could never prove that I didn't perhaps, have the subclinical or mutated form of SARS (which made anything under the sun attributable to SARS since one can in theory get everything from mutations).

This time I was really sick. A splitting headache which failed good ol' panadol, then diarrhoea, and subsequently 5 days of intractable retching. It didn't help matters with the incessant drilling and hammering right outside the window, upgrading works I was told. I couldn't eat or drink. Everything I did made me queasy so I ended up lying in bed the whole day until my body ached. I finally yielded to the intravenous drip.

After my family got quarantined, my friends and bosses took turns helping to deliver food and drinks in attempts to cheer me up. It felt like a miracle when my retching suddenly stopped. I felt so well that I was convinced I could be discharged the next day. But alas, bad news, my platelet count was only 72.

But the real ordeal was already over, I was seeing my last days at CDC. Nothing much mattered after that except that my one and only palpable cubital vein got thrombosed from repeated venepuncture. Gosh, I've never been poked repeatedly so many times before. Now I still wince a little when I set plug on patients.



Dr Ho (left) with her friend Dr Florence Loh

LIVING WITH SARS

personal experience of DR ONG HEAN YEE,
Cardiac Registrar at the National University Hospital

"2 weeks in Ward 54"

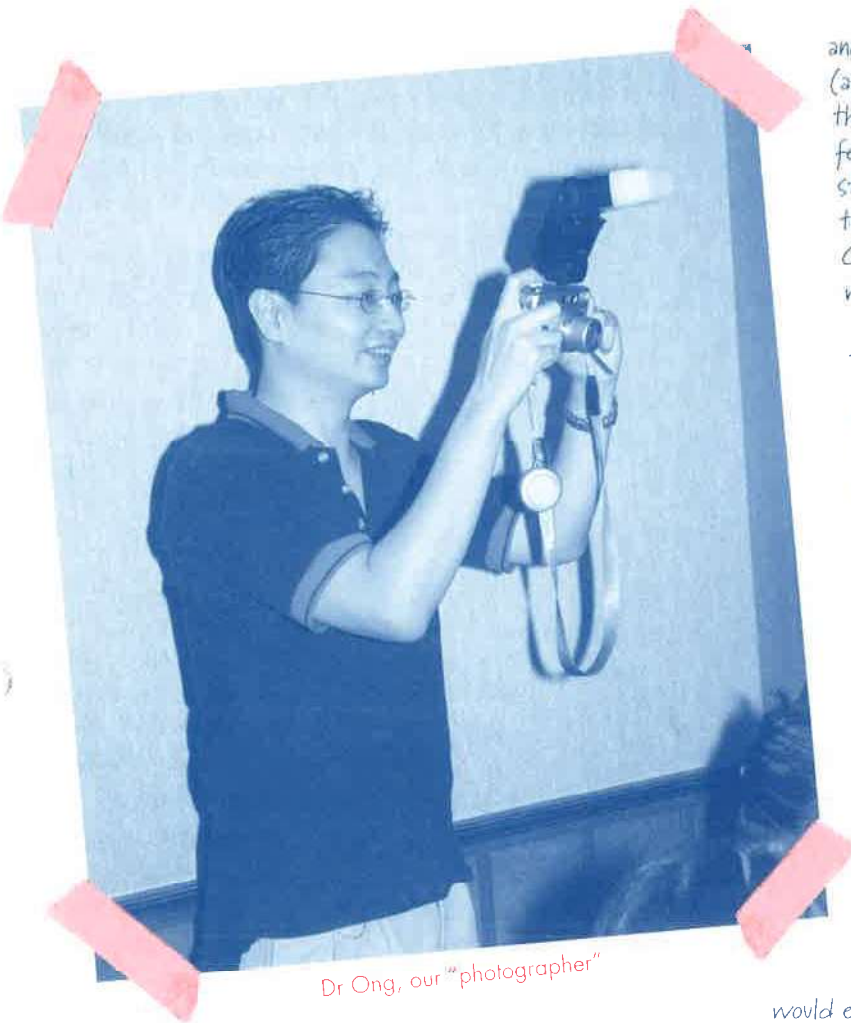
Prologue

I was having lunch with 3 MOs and 5 other registrars / consultants and was looking forward to a 'relaxing' afternoon in the cardiac follow-up clinic, when the NUH Ops Center paged to tell us that three MOs and I would have to go into quarantine with immediate effect for the next 10 days. A fourth MO was on 2 weeks sick leave due to a less lethal and more familiar viral illness known as chicken pox. This left our last MO wondering if he would have to

do a 1 in 1 call for the next 10 days. Well, the rest of the guys were humane and a contingency plan was already formulated (to make the registrars do MO calls) by the time we finished eating.

Ward 54

Ward 54 was closed because a previous patient there was transferred to Ward 76 (isolation ward) on the 31st of March and subsequently to TTSH. There were already 4 Ward 54 staff quarantined there - 3 nurses, one each from China, Burma and the Philippines and 1 cleaner from Johor.



Dr Ong, our "photographer"

The Ward 64 cohort consisted of myself, two nurses from China, six nurses / care assistants from the Philippines and one Singaporean nurse. Most staff that chose to quarantine themselves in the hospital were foreigners who could not stay with their flat-mates. There was a visit from Sister Ng and Usha who helped to orientate us and supply us with some magazines and newspapers as well as loads of snacks for which we were very grateful. On the second day the Ward 54 staff were moved to Chip Bee Gardens in the Holland Village area to segregate the different cohorts.

Fever

On the third day, one of the Ward 54 staff was admitted to Ward 76 with fever. It was pretty obvious she was very anxious when she left. But we were still hopeful that all of us would get through this. But then in rapid succession, another nurse developed a fever on the morning of the 4th day and was admitted to Ward 76; later that same night another nurse had a temperature of more than 38°C

and was admitted to TTSHT. Everyone ate separately (as well as quietly) that night as we soon found out that another registrar and one of our MOs were febrile as well. Although there were no more febrile staff after that, it was always on our minds from then on. Those old enough to have watched John Carpenter's classic "The Thing" will know just how we felt.

Freedom and then again

We managed to survive till day ten with regular calls from family, colleagues, and with regular infusions of unhealthy food from the nursing officers as well as visits from Chief and other consultants. On the morning of Day 11, we were all packed and ready to go when we were hit by bad news. Ops center has decided to extend our quarantine by 4 days as we were technically in contact with the nurses that were now classified as probable SARS. Some of the nurses in our cohort were still bravely going upstairs to Ward 64 to work and they came back daily with reports of more patients being febrile and transferred to isolation. We came to realize that our contact was a 'super-infecter' and how lucky we were so far. Later we came to know that he was the Pasir Panjang vegetable wholesaler and that 3 members of his family would eventually succumb to SARS as well as several others in contact with him. All this could then be traced back to the SGitt outbreak and the initial index case - very sobering indeed.

Nearly there

On day fifteen, we were again packed and ready to go; unfortunately the night before, one of our cohort who had left on day 10 developed fever on day 12. There was talk of keeping us for another 5 days. This was also the day that we heard the heartwrenching news of Dr Alex Chao's death. I moved out of Ward 54 to my sister's flat while waiting for the final decision regarding further quarantine extension, as I was beginning to feel imprisoned despite the best efforts of HR to cheer us up. Fortunately the particular staff was later not classified as SARS and we were finally allowed to return to a way of life that by now had changed forever.

Dr Ong Hean Yee,
National University Hospital

EULOGY FOR DR ONG HOK SU

Friends and Colleagues:

We still can't believe that he's gone. Dr Ong Hok Su. "Hok Su" to us who knew him as our colleague, and our friend. He left us on 7 April 2003 for a better place, his last days spent in Tan Tock Seng Hospital.

He was indeed a friend to all of us fellow Medical Officers in the Department of Cardiology at TTSH. A rare fellow in a world which champions looking out for "Number One", he was unselfish and giving. Efficient and competent, he would finish his work and then, instead of resting, would go on to help the rest to run treadmill tests, complete discharge summaries, write prescriptions, take blood, and so on.

Many a time, we would be pleasantly surprised to find our work already done, and on inquiring, would find out that it had been done by Hok Su. He didn't call our attention to what he had helped with, but instead took a quiet pleasure in lightening our load.

When a fellow MO was on call during a public holiday, he would bring in soup from home to cheer up the one on duty. Even now, we remember his "chipmunk" smile, that youthful grin in a young man full of promise, so far removed from death as can be in this world.

A Malaysian from Batu Pahat, he moved to Singapore to study in the Anglo-Chinese School, distinguishing himself academically. He earned top honours as the OBA (Old Boys

Association) Gold Medallist in Junior College. He began his medical studies in Sydney, Australia, before moving on to St Bart's in London, where he obtained his degrees and completed his housemanship.

Next, he returned to Singapore where he took up a position in the National University Hospital's Department of General Medicine. Hok Su didn't choose to join the Cardiology Department in TTSH, but having been posted here, he did his best and performed well in all areas. He also found the time to study for the specialist physician exams, and was planning to sit for the 1st part in May 2003. Ironically, he wanted to work in the Coronary Care Unit, as he felt he needed to learn more about that area.

One can't help feeling that Hok Su "took the bullet" for us. In a sense, he was the sacrifice that let the rest of us off the hook. It would be in the CCU that Hok Su, together with many other doctors and even more nurses and other staff, was infected with the novel coronavirus responsible for the outbreak of SARS in Singapore in 2003.

Hok Su leaves behind a loving family - his father Dr Ong Thiam Teng, his brother and sisters, and poignantly, his fiancée Tania Oh, whom he planned to wed in September this year. Sadly, Hok Su's mother, a fellow doctor, also succumbed to the same deadly virus. Together with their loved ones, we mourn their passing.

We miss Hok Su - his cheerfulness, his gentleness, his friendship, his smile. We will remember him always. One thing is certain - his smile will stay with us forever.

Dr. Ong's family and fiancée wish to convey their appreciation to the staff who took care of him during his stay at Tan Tock Seng Hospital.

In Memoriam,
From the
Medical Officers
Department of Cardiology
Tan Tock Seng Hospital

Dr Chin Chee Fang, Dr Lee Kwok Keong, Dr Liew Li Lian, Dr Liu Wei, Dr Xu Wei, Dr Yeo Poh Shuan Daniel, Dr Yeo Wee Song.



Dr Ong was second from the left