

MULA KAY

Isang sanelor...

Nababasa natin sa pahayagan ang SARS-CoV-2 *mutations* na nagpapaliwanag kung saan nanggaling ang COVID-19. Dahil sa *validation studies* ng lokal na COVID-19 testing kit, naipakita sa pag-aaral ng Philippine Genome Center (PGC) na ang mga *samples* noong Marso 2020 ay galing sa Wuhan China, Yokohama Japan (M/V Diamond Princess cruise ship), at Europa. Ang patuloy na pag-aaral ng SARS-CoV-2 *mutations* ay napakahalaga dahil nakatukoy dito ang *testing kit* na ginagamit natin sa Pilipinas. Mabuti na lamang at mayroon tayong PGC, isang napakatanging pang-espesiyalistang pasilidad dito sa bansa na naitatag nuon pa mang walang COVID-19.

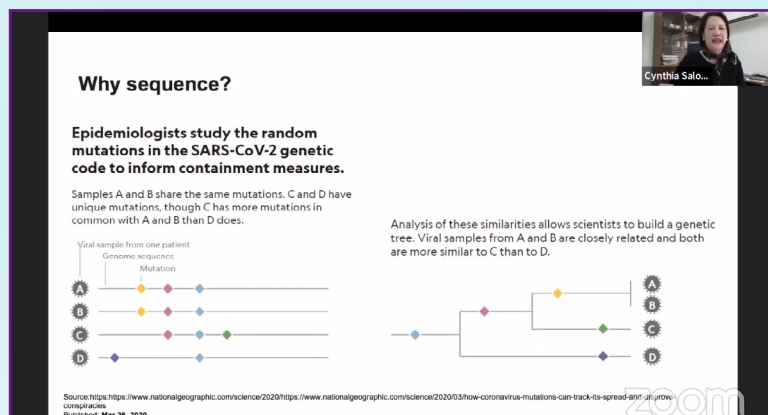
Bilang SEAMEO TROPED Regional Centre for Public Health, patuloy ang pakikipagtulungan ng Kolehiyo ng Public Health sa Embahada ng Britanya sa pagbuo ng mga *webinars* at *training workshops*. Inaasahang magdudulot ito ng mga epektibong pamamaraan upang palakasin ang sistemang pangkalusugan.

Ang pakikipagtulungan at kooperasyon ay napakahalaga sa pag-ahon ng buong bansa mula sa COVID, kaya't ang artikulo tungkol sa National Virtual Town Hall Meeting for Hospitals ay malugod nating basahin.

Ang kwento ni JM ay paalala na kailangan nang magbukas ang Out Patient Department ng Philippine General Hospital. Ang pahayag ni Engr. Jason Pechardo tungkol sa pagtutulungan ng mga doctor at mga inhinyero ay kahanga-hanga. Ibinahagi niya ang kanyang mga personal na kuro-kuro habang nagdidisenyo ng mga kagamitan sa ilalim ng Surgical Innovation and Biotechnology Laboratory (SIBOL). Nakita na natin ang maraming naibungang mahuhusay na kagamitan galing sa SIBOL.

Tunay na napakahalaga ng pagtutulungan at kooperasyon ng lahat upang matalo natin ang kalabang COVID. Mabuti at hindi lamang dito sa loob ng UP Manila kundi pati na sa ibang kolehiyo, hanggang sa mga institusyon sa labas ng bansa nakikita ang pagtatangkilang ganito. Maraming malugod na nakikibahagi sa pakikipaglaban natin sa matinding kaaway na COVID, at una na rito ang Maykapal na Siyang nagbibigay ng liwanag at lakas sa ating lahat. Ipagpatuloy natin ang pagpupunyagi! Padayon UP!

Genetic sequencing research and SARS-CoV-2 mutations



SARS-CoV-2, the virus which causes COVID-19 illnesses, has recorded a lot of mutations since its first discovery late in December in Wuhan, Hubei Province, China. A new variant of the virus, D614G, seems to be sweeping the globe and has not been reported to be present in the Philippines. As news agencies and frontliners worry how this new strain will affect public health, scientists race to know more about it through genetic sequencing.

In the 13th *Stop COVID Deaths: Clinical Management Updates* webinar series entitled “Genetic Sequencing Research: Mutation of SARS-CoV-2 (Implications for Clinical Management and Vaccine Development)” held on July 17, 2020, the Philippine Genome Center (PGC) Executive Director Dr. Cynthia P. Saloma discussed this topic by sharing part of the results of a field validation study of the GenAmplify™ nCoV rRT-PCR Detection Kit.

The GenAmplify™ nCoV rRT-PCR kit, the first locally developed kit for COVID-19, is the work of PGC Deputy Executive Director Dr. Raul Destura and researchers at the UP Manila National Institutes of Health. The kit

underwent three weeks of field validation before it was approved for use by the Food and Drug Administration on 3 April 2020.

In the field validation, the team led by Dr. Marissa Alejandria collected nasal and oro-pharyngeal swabs from 380 volunteer patients at the Philippine General Hospital. Another set of patients came from The Medical City to complete the 500 volunteers in the study. Using the GenAmplify™ rRT-PCR kit, samples with the SARS-CoV-2 genes were rapidly identified. These underwent Capillary Sequencing at the PGC which confirmed the presence of the target gene(s) being detected in the virus. Afterwards, samples also underwent viral metagenomics sequencing through NGS (Next Generation Sequencing) to look for SARS viral sequences as well as those of co-infecting pathogens.

Dr. Saloma shared the profile of six COVID-19 patients— all came from Metro Manila with no travel history outside the country. Two had direct contact with an infected person, one got it by caring for a relative,

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UK Better Health Programme academic roundtable with the UK-NICE on Health Technology Assessment last 30 July 2020.

CPH teams up with British Embassy for COVID-19 efforts

As a global pandemic, COVID-19 has affected the public health system at an unprecedented scale, exposing the need to strengthen surveillance and response worldwide. In keeping with its role as the SEAMEO TROPED Regional Centre for Public Health, the UP College of Public Health (CPH) is partnering with the British Embassy Manila in various endeavors that contribute to health systems strengthening and capacity building.

Improving NCD programs amid COVID-19

The CPH participated in an academic roundtable with the UK-National Institute of Health and Care Excellence (NICE) on Health Technology Assessment (HTA) last 30 July 2020 under the auspices of the British Embassy Manila's Better Health Programme (BHP), in which CPH is the lead academic partner. The roundtable formed part of a broader series of learning workshops that UK-NICE and BHP will be conducting in partnership with the Department of Health HTA Unit and HTA Council. The forum provided insights on how NICE engages with academic institutions in the UK to help support evidence generation, technology appraisals, and decision-making.

No less than British Ambassador to the Philippines Daniel Ponce considered this multi-stakeholder collaboration program under the UK Prosperity Fund (PF) Better Health Programme as one of the "exciting UK-Philippine collaborations that support the COVID response." He added that this collaboration on virtual knowledge-sharing and joint research with the Department of Health, CPH, and local governments will help build local capacity to respond to

health emergencies alongside existing health needs in the country. The forthcoming collaboration entitled "Improving Non-Communicable Disease (NCD) Program Management in an Environment with a Communicable Disease Pandemic (NeCOD)" will be implemented in partnership with the Pasig City Government. This project is expected to provide evidence-based data on improving health planning and decision-making processes in local government units.

Online promotional material on the NHS Joint Unit roundtable on translating evidence to policy amid COVID-19.

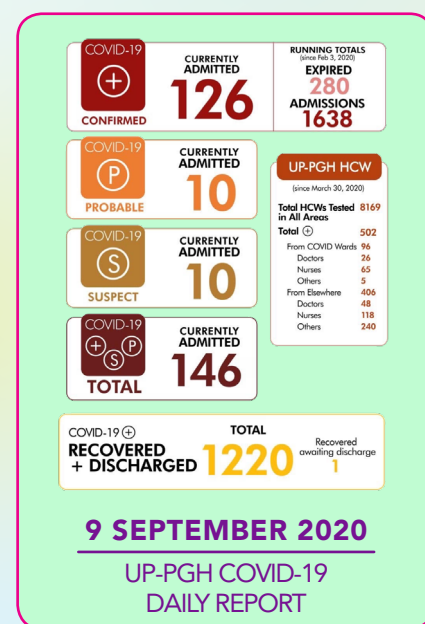
Roundtable on COVID-19 with Malaysia and England

UP CPH, through Dean Vicente Y. Belizario, Jr., participated in a roundtable organized by the UK National Health Service (NHS) Joint Unit, a strategic partner of the UK BHP last May 28, 2020. Other participants were the Malaysian Ministry of Health (represented by Dr. Wan Noraini Wan Mohamed Noor, head of Surveillance Sector, Disease Control Division) and Public Health England (represented by Dr. Fu-Meng Khaw, Director of Programmes, Places and Regions). The event was moderated by Dr. Ryan Li, Senior Health Systems Adviser at the NHS Joint Unit. The roundtable was organized to discuss how the three countries endeavor to translate evidence into policy for implementation during the COVID-19 pandemic.

Forthcoming webinar series on public health amid COVID-19

To further strengthen the health system response to COVID-19 and sustain ongoing health interventions, UP CPH and the British Embassy Manila through its Enabling Fund is organizing a webinar series entitled *Public Health in Time of COVID-19 and the New Normal: A Webinar Series for Public Health Workers*. The series aims to provide a venue for discussing public health program updates and challenges and good practices amid the current pandemic and beyond, in line with Universal Health Care. The project will focus on a number of topics on health programs, such as communicable and non-communicable diseases, environmental and occupational health, maternal and child health, and One Health. The series is expected to run from September 2020 to March 2021. Prospective attendees are enjoined to check the UP CPH website and social media channels for updates: cph.upm.edu.ph, fb.me/upcph, twitter.com/upcph.

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KEEPING OUR HEALTH CARE WORKERS SAFE:

The PGH Experience

A National Virtual Town Hall Meeting for Hospitals



Strengthening measures to protect HCWs in hospitals

With the spike of COVID-19 admissions in the hospitals over the past weeks along with the increasing infections among healthcare workers (HCWs), there is an urgent need to protect those who are working to care for patients. The *Stop Covid Deaths* webinar series of the University of the Philippines and Philippine Health Insurance Corporation held the first virtual national town hall meeting for hospitals entitled “Keeping Our Health Care Workers Safe: The PGH Experience” on August 21, 2020. In this virtual event, officials of three COVID referral hospitals shared the infection control protocols developed by their respective teams to keep their HCWs safe.

Given that there is no playbook on how to respond to this pandemic, Philippine General Hospital (PGH) Director Gerardo Legaspi admitted that most of the lessons PGH learned were realized through painful experiences. He highlighted the formation of a crisis management team, setting up of a command and call center, and infrastructure changes as among the initial responses of PGH. To protect its doctors, nurses, and staff, accommodation and transport were arranged and provided for their comfort and protection; hospital zoning, donning and doffing areas with the presence of safety officers, fit testing of masks, and a unidirectional natural airflow system to ensure air exchange were likewise implemented.

In addition, PGH limited the wearing of Level 3 PPEs to only four hours; surfaces were disinfected using UV light and sodium hydrochloride; and dermatologic care, psychosocial care hotline, and spiritual care through telechaplancy were also provided, the Information Education Committee has so far produced 700

infographics for advisories, reminders, and appeals to keep everyone informed inside and outside PGH.

For contact tracing, Dr. Legaspi noted that targeted testing is the proper way to go and that it should start when one is suspected or exposed, not when tested positive. He pointed out the need for solidarity, the use of science as a solution, and deliver that solution to every Filipino.

According to Lung Center of the Philippines (LCP) Executive Director Vincent Balanag, Jr., the LCP efforts to keep their health workers safe include installation of exhaust systems in all COVID rooms, equipping rooms with CCTV and remote vital signs monitors connected to a central monitor in the nurses’ station, staff communication through handheld radios, replacement of doors with plastic sheets to facilitate entry and exit, and one-way flow of traffic. For administrative measures, the LCP designated color-coded zones with strict implementation of proper use of PPE, designating safety officers in both clinical and non-clinical areas, periodic swabbing, and clinical monitoring.

Dr. Jose N. Rodriguez Memorial Hospital and Sanitarium (DJNRMHS) Medical Chief Dr. Alfonso Famaran said that the safety measures of PGH and LCP are also being done in DJNRMHS. Apart from those mentioned, the following were instituted: CCTVs in donning and doffing areas and isolation rooms were installed in their hospital for ease of monitoring, implementation of a 7 day-COVID wards duty and 14 day-hospital quarantine, swabbing of all HCWs/staff/personnel and immediate family with symptoms

using GENEXPERT PCR with results out within the day, and a mandatory pre- and post-duty medical evaluation prior to entry to all COVID wards.

Weekly disinfection of all areas using filters, UV light, and disinfectants is also being done in DJNRMHS. When an HCW in one area is infected, all are tested. If the majority tested positive, they get a replacement from the buffer group of HCWs. HCWs who tested positive are admitted while asymptomatic and negatively tested HCWs continue their 7-day duty in the COVID wards.

Watch the full webinar [here](#).

ANNE MARIE ALTO

AVOID EYE-RELATED INJURIES

WHEN USING UVC LAMPS

1. Do NOT expose yourself to UV light.
2. When the UV light is turned on, immediately leave the room.

PROLONGED EXPOSURE TO UVC MAY CAUSE PHOTOKERATITIS, PHOTOCONJUNCTIVITIS, FIRST AND SECOND DEGREE BURNS

PARA SA ISANG LIGTAS NA PGH

“Sisitahin Kita”

AWITIN SA HIMIG NG “SINISINTA KITA”

Sisitahin kita
‘Wag kang mapipikon
Para sa atin ‘to
COVID-ligtas tayo!
**Sitahin mo ako,
Ikaw sitahin ko**
Walang personalan...
Mag-sitahan tayo!

- ✓ Mag-mask
- ✓ Mag-hugas ng kamay
- ✓ Mag-face shield
- ✓ Dumistansiya sa isa’t-isa

ISAPUSO NATIN ANG KULTURA NG
KALIGTASAN PARA SA ISA’T-ISA

BAYANIHAN NA!
TALUNIN NATIN ANG COVID-19!

GENETIC SEQUENCING RESEARCH AND SARS-CoV-2 MUTATIONS...

while the other patient (a doctor) got it from his wife who was exposed to a confirmed case. The clinical presentation of the patients ranged from moderate to severe. Four patients had severe COVID-19 pneumonia and two needed mechanical ventilation. Of the six patients, four recovered with some manifesting prolonged viral shedding.

Interspersed in the discussion of the study were the history of COVID-19 in the Philippines and in the world, especially the quarantine of the M/V Diamond Princess cruise ship in Yokohama, Japan, which had 440 Filipino crew members and five passengers repatriated to the Philippines on February 25 and 26; the importance of China's early release of SARS-CoV-2 data which allowed many institutions to develop diagnostic tests and design recombinant vaccines; and, quick lessons on genomic sequencing and its importance in understanding the virus origin, mutations, and how it evolves as it spreads worldwide.

Other take-aways from the forum were the following:

- The six samples showed community transmission.
- From further studies of the early samples done by the PGC and other institutions like the Research Institute of Tropical Medicine, the scientists hypothesized that the virus most likely came from people who worked or stayed at the M/V Diamond Princess cruise ship. (The Filipino crew members were repatriated to the Philippines on Feb. 25-26 and were quarantined in Clark for 14 days. March



Young people's vulnerability to COVID-19 infection underscored

The risk of COVID-19 infection is no longer confined to the elderly and those with existing health conditions, as younger people aged 20 to 59 years old are now considered vulnerable groups.

Health social scientist and UP College of Medicine Professor Dr. Nina Castillo Carandang revealed in a recent interview with CNN Philippines that 80% of the current COVID-19 infections come from this age group.

"These are the people who go to work and run errands because we want to protect the elderly who are at home and vulnerable. They are the returning OFWs usually of the productive age group, the locally-stranded individuals who got stranded in Manila during the March lockdown, and local employees," she stated.

The World Health Organization has declared that majority of the cases in the Philippines, Japan, and Australia



are attributed to those aged 20-59. They are likely to be transmitting the disease unknowingly as they have mild to no symptoms at all.

With these people needing to work, Dr. Carandang urges the need for more discipline, greater awareness, and enforcement of better standards, particularly in workplaces and transport modes that she said have not been fully implemented. She also hoped for improvements of policies in access to care, particularly testing, which is still difficult in many areas and for quicker turnaround time for tests.

"The old are not tested anymore
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22-28 was the period of sample collection from the six PGH patients.)

- Close to half a million Filipinos are seafarers, which makes the process of repatriation and quarantine in our seaports and airports a challenge to avert COVID-19 transmission to the local population.
- The results are from a very small sample of SARS-CoV-2 transmission in the country. There is need to sequence a lot more samples in the country, particularly those from earlier months, if we want to have a clearer and bigger picture of the geographic spread of COVID-19 in our country.
- Based on the capillary sequencing done by PGC from the March, June, and July samples; the D614G variant, where the amino acid aspartate in position 614 in the Spike region of the virus has mutated into glycine, has been common in Europe since March. It was detected locally in three of 5 samples collected in June and it comprised all the nine samples collected in July. Worldwide, it was found

that the D614G is increasing and there are in vitro studies which suggest that it is more infectious than the original Wuhan strain. However, the mutation does not seem to affect the disease's severity and there are no proofs as yet that this variant is more transmissible.

Dr. Saloma identified the future directions of the PGC: (1) genomic epidemiological monitoring of COVID-19 in the Philippines; (2) biosurveillance of SARS-CoV-2 infection in the country to see if the virus is mutating and in which region, and if the mutations occur in regions used to design vaccines being developed around the world; and, (3) creation of the Philippine Virome Database.

The PGC, established in 2009, is a multidisciplinary research center within the UP System which specializes in genomics and bioinformatics. Their paper is now available as a preprint at [medRxiv](https://medRxiv.org). **FEDELYNN JEMENA**

Story of a Cancer Patient and COVID-19

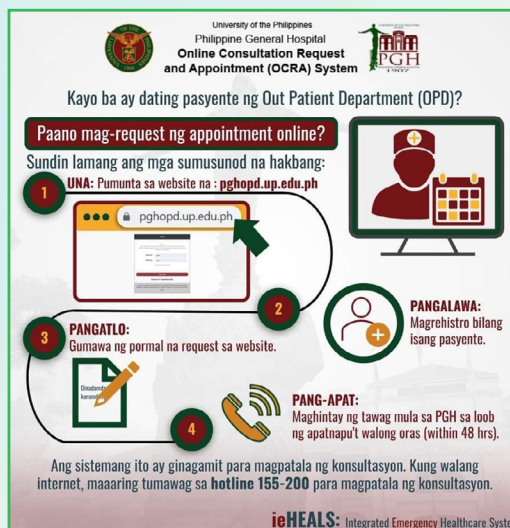
Inside my own humble clinic, the two walls and beige curtain bore witness to countless anecdotes—the last of which just happened this week. JM seemed well, save for a left breast mass with roughly the size of an orange and roughly six months in duration. Like most first-time patients, her face was painted with overwhelming fear, anxiety, and hesitation.

I interviewed her and performed a routine palpation of the mass. It was firm and almost felt malevolent. I then instructed her to undergo some laboratory exams and referred her to a program for charity breast cancer patients. This program offered breast cancer patients like JM a fighting chance for cure through assistance with chemotherapy. I gave her my cellphone number in case she had any concerns during the course of treatment.

As an oncologist, I often find myself standing between the big C and the patients. After a few cycles of treatment, I noticed a dramatic shrinkage of her breast mass. Gradually, the fearful and anxious JM during our first encounter transformed into a more hopeful and motivated cancer warrior. Everything went on smoothly until that unprecedented day of a Luzon-wide lockdown was declared. The world stopped and cancer treatments were indefinitely delayed. Unfortunately, for cancer patients like JM, their tumor cells continue their merciless uncontrolled growth in the absence of regular chemotherapy.

COVID-19 is one of the biggest and most challenging health battles of the world in recent history. The virus continues to paralyze thousands of people with lasting effects on health, finances, livelihood, among others. Cancer patients are at a particularly high risk of contracting the virus due to their immunocompromised state. JM is one of the millions of Filipinos plagued by this virus.

“Doc, ang last chemo ko po ay May 4. Makakapag-schedule pa ba ako ng susunod na chemo?”



Due to the recent lockdown, JM temporarily halted selling local *kakanin* which used to augment her meager income. Her cancer treatment was not only plagued by the virus—it was also threatened by the lack of transportation, impending unemployment, and undue treatment delays. We constantly kept in touch during the course of her treatment mostly through text messaging. Soon I learned the impetus behind her resilience:

YOUNG PEOPLE'S VULNERABILITY TO COVID...

while the younger ones are braver to go out and some of them think they are not vulnerable; so they take for granted the mild symptoms they are having.”

Under the crisis, there are four “tensions” inherent in the COVID-19 pandemic that affect young people's efforts to build self-esteem and self-identity: the tension of isolation, tension of the need for relevance, tension in unemployment, and tension in relationships.

Dr. Carandang observed that as isolation becomes more rampant, there is an irrepressible biological need for them to connect virtually.

“Isolation is a public health crisis because when you're young, these are formative years for building your identity which is hard to do purely by digital means or without actual people to talk

her only child has Atrial Septal Defect (a congenital heart problem), is undergoing rehabilitation because of developmental delay, and on top of all these, she is battling breast cancer.

“Doc, salamat. Dahil sa iyo, nagawa ko magpa-chemo at nagkaroon ako ng lakas ng loob.”

Instead of smiles and cheers on the faces of healthworkers on the frontline, N95 masks and face shields conceal their sweat and tears while hazmats hide their weary souls. On the other side, JM and the rest of the backliners face their own unsung battles every single day.

Not all heroes wear vibrant red capes. Some heroes wear tattered capes of strength, resilience, and hope. And not all heroes fight to save the whole of humanity, some backliners fight for their cancer, for tomorrow, for their only child. *Padayon!*

ROGELIO N. VELASCO, JR. MD

to. Moreover, purely relying to connect through digital means is at times harmful.”

The tension of relevance refers to the need for young people to explore and to be heard which contribute to self-esteem. The lack of self-esteem contributes to the feeling of hopelessness. Without deep psychosocial and emotional reserves to dig into, it will be hard, according to Dr. Carandang.

With the lockdown, she explained that the tension in unemployment and hunger will drive people to find ways to live; however, today's generation does not have as much access to education and employment opportunities so they might end up poorer in the future, she noted.

Lastly, the tension in relationships may lead to more emotional stress due to absence of connection brought by the lockdown. Worse, lockdowns may also lead to increased domestic violence and pregnancy, she added.

CYNTHIA VILLAMOR

Engineering for Care: Perspectives of a Designer

Collaboration is Cure

My ‘backliner’ journey started with a simple design, a face shield frame. The initial prototype was given out to medical professionals and other frontliners with a simple request: that they provide us with a user feedback, so we could continuously improve the product to better suit their needs. In total, the team was able to make and distribute 1500 face shield frames to small hospitals and local government units around the Philippines.

Later, I was fortunate and blessed to be able to join the UP Manila’s Surgical Innovation and Biotechnology Laboratory (SIBOL) team of tech professionals. It is basically a think tank composed of big names in research brought together by Dr. Edward Wang. However, in the eyes of a young professional like me, it pretty much looked like an Avengers team (or Justice League if you are a DC fan). I can still vividly remember our first Zoom meeting. There, on my screen, were the leading researchers in various science and engineering fields in the country. I sat in my room facing my laptop in awe! (Sucks that I couldn’t meet them in person to fanboy but considering the circumstances, it’s definitely for the best).

Working and exchanging ideas with these multidisciplinary experts was really exhilarating. Personally, I believe the lack of face-to-face meetings is one of the main challenges of ideation in the pandemic setting. But how do we make online ideation intimate and personal? How do we transcend the virtual borders and create a useful designer-client connection?

Given the limitations of the type of communication, it is important to compromise a little bit on the designer-client idea exchange and focus on one-way idea transfer. What this means is full reliance on the experience and knowledge of the medical professionals regarding



what they need and fully letting go of that tenacious engineering/design trait known as the “hero complex.”

Don’t be a hero

The hero syndrome is exactly how it goes for most engineering projects I know. But here’s the thing: a three-day immersion will never match the locals and residents’ years of experience. They face those challenges every day so they probably know the most fitting solution that can easily be adopted given their culture and condition.

The same applies when engineering or designing for healthcare. As a backliner, it would be detrimental to the communication and design process for us engineers to take the lead, even more so given the non-ideal online setup of the design sprint. Our limited knowledge and experience with medical processes and culture would have prevented us from making appropriate solutions. Listening to the doctors’ needs became key. Essentially, the entire design process is just a retelling of their story and a strengthening of their narrative.

Designing for care is designing for diversity

As some of the proposed projects started rolling out, I discovered that healthcare engineering means considering diversity and inclusion without exception. This wisdom came to me as our team designed and fabricated the “Sanipod: Self-contained Disinfecting Cubicle”. The Sanipod is basically a small enclosed area that will aid healthcare workers in doffing their protective coveralls safely after a hard day’s work saving

lives. This innovation aims to prevent and control nosocomial infections, or in simple terms, hospital-acquired infections. As we fabricated the alpha prototype, we went through a few (a lot, really) of revisions, particularly on the height and width of the cubicle and the positioning of the spray nozzles. This is actually nothing new; after all, design is an iterative process. But as I became exceptionally frustrated re-drilling holes and re-positioning the piping system,

I began to realize what we were missing. We were always thinking of the AVERAGE. We asked questions like “What is the average height of Filipino males and females? What is the average width of the potential users?” There is nothing wrong about this per se. If truth be told, all engineering and design classes will teach you to always consider the standard user when developing a product. However, medical products are on an entirely different level. It is not about accessibility for most, it is about accessibility for all. If we had designed the Sanipod based on the standard, those with proportions at the extremes would never be able to fit in there. The medical professionals I worked with, Dr. Cathy Co and Dr. Edward Wang, made me realize how limiting my design thinking was and showed me a whole new way of designing for diversity and inclusion. *To be continued in the next issue...*

ENGR. JASON PECHARDO

