UP-PGH SHARES LESSONS LEARNED DURING ONGOING EFFORTS TO PREVENT COVID-19 TRANSMISSION

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For the PGH COVID Crisis Team

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When our country started to reel from the effects of the COVID-19 pandemic, one constant event happened everywhere: CHAOS! There was no handbook or established guide on how to deal with this new virus appropriately; hence most of us just adapted to the situation as we went along. As we braced ourselves for the worst, we have seen the UP-PGH community continue to weather the storm and come out better and stronger for it. This was only possible through the diligence, hard work, and dedication of our HCWs as well as the outpouring of support from the greater community around us in the form of donations, supplies, prayers and assistance. This narrative is a short read from PGH about the FIVE LESSONS we LEARNED on concrete steps to reduce the spread of COVID-19. This is our way of giving hope to the tired frontliners, policy makers and rest of our countrymen during this difficult pandemic.

LESSON 1: Our COVID-19 operations must be based on science, implemented with calculated precision and evaluated objectively. Nothing can be left to chance.

When the Department of Health announced that the PGH was selected to be a COVID19 Referral Center, there was very little time to convert the university hospital into a COVID center. But with a UP-PGH Crisis Command Center orchestrating the movement of manpower, equipment and processes to mobilize what needed to be done, we were able to create, innovate and implement systems based on what was known (science), what we think we know (expertise), and what we felt was needed by our stakeholders: our patients and our staff (compassion). An initial 130 beds were allocated for COVID-19 patients.

Then the battle against COVID began: the PGH community struggled. COVID-19 was a different ballgame. Strict hospital rules particularly on infection control demanded full compliance from all and it felt almost oppressive with a “Do it or die” threat looming over everyone.

Eight weeks later, we paused to ask: Are we doing enough to protect our healthcare workers (HCWs)? We decided to test our COVID Operations and thus, performed a hospital wide surveillance for COVID-19. We asked PGH employees to come according to their designated schedule for COVID testing using nasopharyngeal swabs for the RT-PCR for SARS CoV2. These are our findings:

1) The response of our staff to the call to be tested was phenomenal! There have been many health campaigns in the history of PGH but never did we see this all-out participation and support. A total of 4871 from an estimated 5000 personnel (97.42%) lined up to get tested. It required the organizers almost 4 weeks to complete testing of everyone who signed up: from June 1-23, 2020.

2) Key Result of the Surveillance: Of the thousands who came for testing, only 99 tested positive. While this absolute number was still high, the overall positive rate represented only 2.0% of the 4871 tested PGH personnel. This very low infection rate is comparable to rates reported by other hospitals caring for COVID-19 patients in other countries. Even the COVID Crisis Committee was pleasantly surprised!

3) But what was even more baffling is that among the 1794 frontliners who directly handled COVID patients, the ones who were the most exposed to the dreaded COVID-19 infection working in our COVID wards and ICUs, only 26 tested POSITIVE or 1.4%!

4) Of 863 HCWs whose tasks were to support COVID operations, only 27 tested POSITIVE or 3.12%. Support Staff included: Dietary, Pharmacy, Linen, Security, Janitorial, Property and Supply.

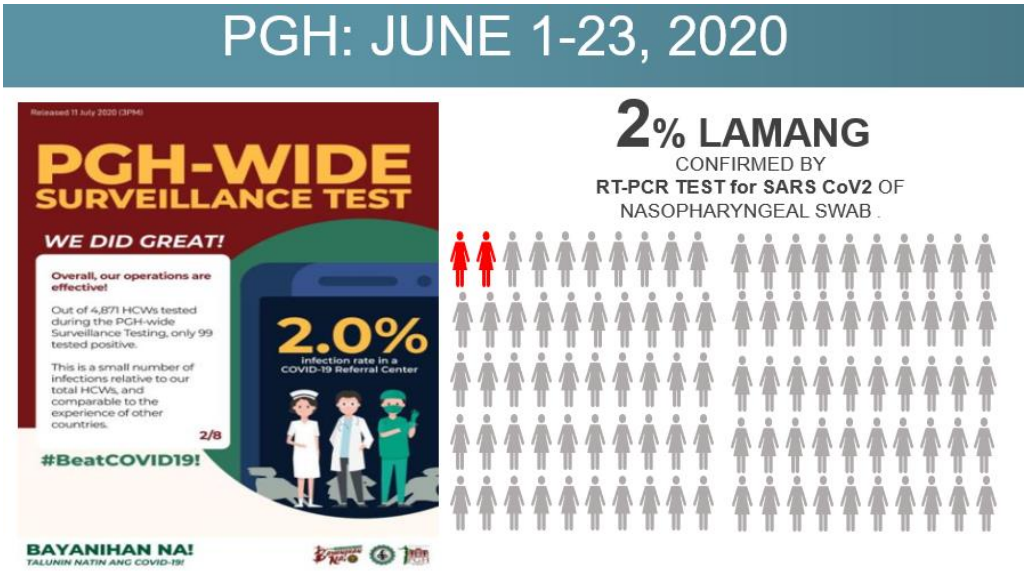
5) Of 893 HCWs who manned the non-COVID wards, only 16 were POSITIVE or 1.8%!

6) Of 858 HCWs who were purely office-based with no direct interaction with any patient, an unbelievably low number of only 10 persons tested POSITIVE or 1.16%! This group included the Executive Offices, Human Resources, Billing, Accounting, Medical Records, Departmental offices, Engineering, and the Information Technology departments.

7) During this time, we did not close the hospital employees' clinic and they continued to see HCWs who felt ill and suspected they may have symptoms of COVID-19. A total of 439 HCWs consulted the clinic during the surveillance period, of whom 21 were confirmed to have COVID-19 or 4.7%.

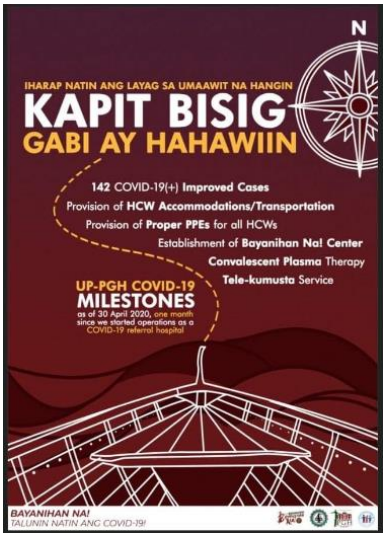
8) Two services were recognized because of extraordinary ZERO infection rates!

- ✓ Cancer Institute with **zero** COVID-19 among 114 consultants, fellows, nurses tested
- ✓ Department of Surgery with **zero** COVID-19 among 130 residents and consultants tested.



We thus were able to affirm our COVID Operations! These are our **BEST PRACTICES:**

- CRISIS COMMAND CENTER IN THE HEART OF COVID OPERATIONS
- UNIFIED CALL CENTER FOR PATIENT QUERIES and DONATIONS
- COHORT SET-UP OF COVID CONFIRMED PATIENTS
- ZONING OF ENTIRE HOSPITAL: Green, Orange, Red
- CONTROLLED VENTILATION SYSTEM
- FIVE RISK-BASED LEVELS OF PERSONAL PROTECTIVE EQUIPMENT (PPE)
    - SPECIAL ARRANGEMENT TO ENSURE ALL PPEs FOR ALL STAFF from LEVEL 1 to 4
    - MANDATORY USE of LEVELS 1, 2 and eventually 2.5 EVEN IN NON COVID AREAS. This is critical. (*See more lengthy discussion in UP Manila website)*
    - FIT TESTING OF N95 AND KN95MASKS
    - UNIFIED DONNING and DOFFING AREAS WITH SAFETY OFFICERS
- ON-SITE ACCESS TO RT-PCR TESTING with 24hour TURN-AROUND TIME
- WORKPLACE UNIVERSITY EMPLOYEES' CLINIC FOR HCW CONSULTATIONS and TESTING



- TIMELY PRODUCTION AND DISSEMINATION OF INFORMATION EDUCATION AND COMMUNICATION (IEC) MATERIALS
- HOUSING and TRANSPORT ARRANGED FOR FRONTLINERS and other staff
- AIR PURIFYING EQUIPMENT, UV LIGHT and AUTOMATED HAND HYGIENE DISPENSERS INSTALLED in ENTIRE HOSPITAL

We are happy to share methodologic details of how all or any of the above can be safely done with other health facilities, institutions, companies and LGUs upon request.

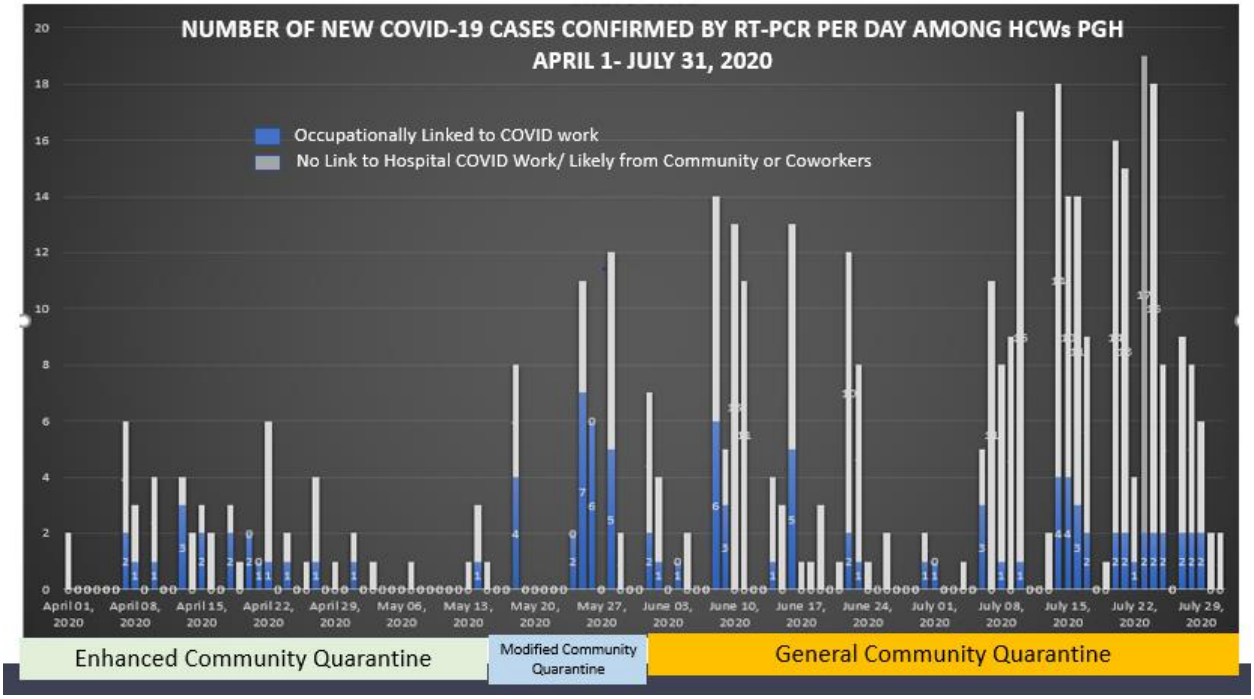
LESSON 2: **The PCR Tests are only point-in-time tests. The assurance it provides is brief and lasts only up to the point a person was tested. COVID-19 is so efficiently contagious that the only true guarantee that any institution is safe is when our entire community works together to get infection rates as low as possible. We in UP-PGH and everybody else need to move as ONE with the rest of society.**

The results of the hospital-wide surveillance were reassuring! It gave encouraging signals that we were on the right track. We began to disseminate this positive information to our staff through various means, even via a hospital-wide Facebook livestream. After months of staying in quarantine, HCWs (specially our frontliners) started to go home to their families and loved ones!

But we also should have explained to our staff that the PCR test is only a POINT in TIME test: A negative test result means that you are negative at the time you were tested. It does not guarantee you will be negative the next day, and the week after. Vigilance must continue. Precautions and all the difficult rules need to stay in place and be complied with.

We were still giving each other a pat on the back when we started noticing an increase in the number of new COVID infections among the staff. As the government started to lift quarantine restrictions, we were not able to control the contribution of human movement anymore. These variables were not part of our initial formula!

Weeks into the General Community Quarantine, our COVID rates among the HCWs rapidly rose as seen in the graphs below. The infectiousness of the virus was indeed very high and more and more of our HCWs started to get infected inside and outside the hospital. Noticeably as the weeks progressed and the numbers of COVID patients in the community ballooned, our hospital rates also swelled to alarming levels, and more and more the PGH HCWs (including those who never even went close to the COVID areas) were getting infected!



PGH is not an island. While we know our COVID Crisis response system works, our hospital system is not isolated from the rest of the community. Many of our staff would go home on a daily basis and interact with their families. Patients and their watchers come in and out. We have given more weight to this angle in our operational processes. Our efforts to fight COVID-19 continues to be strong and data-driven. To keep our infection rates down in PGH and in all other health facilities and workplaces, cooperation from all inside and outside PGH is needed. Our efforts need to extend beyond our hospital systems and we must work with the community. We need to assist each other. Our messages should be the same, our strategies supplement each other and our targets identical: all towards reducing COVID transmission and protecting all.

LESSON 3: There were two seemingly attractive ideas which we did not find helpful, and we have removed them from our routine COVID Operations. These are the Rapid Antibody Tests (RATs) and the routine mass testing of HCWs.

Some of the ideas that did not work for PGH have been deleted from our usual operations.

1) **RAPID ANTIBODY TESTS (RAT) cannot be used to screen for or to detect active infectious COVID-19.**

Through the past months, PGH has received quite a lot of rapid antibody test kits as donations. RATs are used widely by various groups, local governments and industry. Thus, during our June 2020 hospital-wide surveillance activity, we used the donated RATs (7 different brands) whenever we had kits on the day HCWs were tested. The collection and the laboratory processing of the nasopharyngeal swabs for RT-PCR testing were independently performed from RATs; and the result of the RATs did not affect the performance of the swab testing. We show below the results of 3033 RATs with concurrent RT PCR tests results. The box below usually called the 2x2 table shows that:

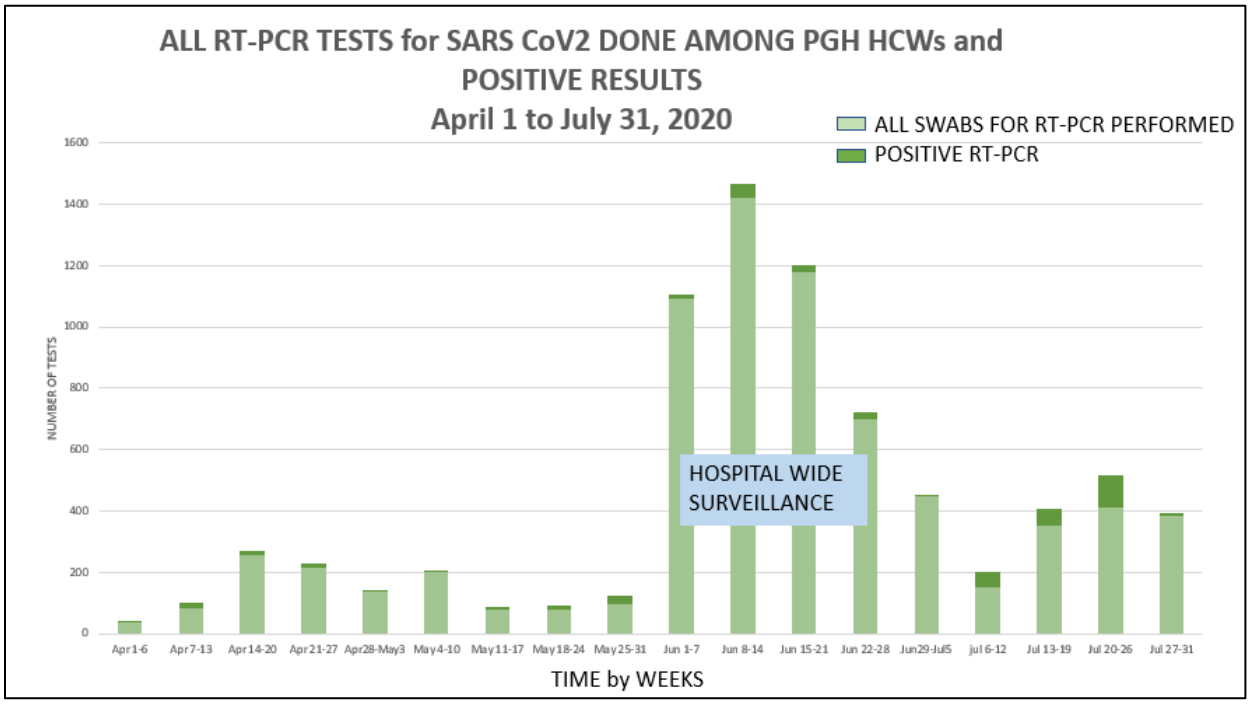
	SARS COV2 PCR POSITIVE	SARS COV2 PCR NEGATIVE
POSITIVE RAPID ANTIBODY TEST	12	57
NEGATIVE RAPID ANTIBODY TEST	48	2916
Total	60	2973

- **In this PGH series, the sensitivity of RAT is only 20%** (95% Confidence Interval CI 10.78% to 32.33%) to detect COVID-19.
- Sensitivity is the probability that the RAT result will be positive when the COVID-19 is present.
- This translates to: Among those who were eventually confirmed to have the COVID-19 based on a positive swab test, only 12/60 or 20% or 1 out of 5 were detected by the RAT. If we were to rely on the RAT as the screening tool, and then swab only those with positive RAT results, then we would have missed 48 out of 60 (80%) as in the table above; or 4 out of every 5 positive COVID cases!
- The level of sensitivity at 20% for PGH is TOO LOW to be of any value. The number of potential missed cases of 80% is TOO DANGEROUSLY HIGH to even consider RAT as a screening tool.
- Let us STOP USING RATs as SCREENING TOOLS TO FIND COVID-19.
- Let us STOP USING RATs TO DIAGNOSE whether person may have active infectious COVID or no COVID.
- We ask LGUs and workplaces NOT TO USE RAT to clear workers to work or not work.
- Serologic tests may have a place in COVID-19 and they are supposed to be for surveillance.
    - To test the use of RATs to detect past infection through IgG, the results of RATs of 25 HCWs known to have had confirmed COVID-19 more than 3-4 weeks ago were noted. Only 3 were positive for IgG using RATs.
- Nevertheless, we are still hopeful serologic tests will have some use in the management of COVID-19. We await further studies about antibody testing using the ELISA and ECLIA methods.

2) **Routine Mass Testing of the 5000 HCW of PGH every two weeks is NOT FEASIBLE. It took us over 4 weeks to complete testing all in the first cycle!**

- We recognize that HCWs are at increased risk for getting the COVID-19 infection.
- We also know that if we use all the precautions correctly, this risk of getting the infection can be reduced.
    - The definition of Close Contact for HCWs is providing direct care for patients with COVID-19 disease without proper PPE.
- **Given the cost, operational and logistical limitations of testing HCW every few weeks, the mass testing for all HCWs is not sustainable in our institution at this time.**
- Instead we recommend **low-threshold targeted testing**:
    - ✓ Maintain a well-fueled adequately staffed Hospital Clinic supported by up-to-date digital technology and applications to be the hub of year-round consultations and testing related to COVID among HCWs.

- ✓ The yield of COVID testing in our University Hospital Clinic (UPHS) during the June activity was higher than the mass surveillance testing.
- ✓ Instill **INITIATIVE** ("in Filipino it is called kusang-loob") for staff to go and get tested if they start to feel sick. Strengthen the use of the symptom checklist. Below is the graph of tests performed in our hospital over the last months of COVID operations. We have already performed over 7000 swab tests for our HCWs alone from March 31 to July 31, 2020.
- ✓ We have been observing a lower threshold for testing as well as prioritized testing:
    - Any HCW with any symptom in our COVID checklist is tested (More details in Hospital Memorandum August 5,2020 *Updated PGH Guidance on Management of Covid-19 Among Healthcare Staff)*
    - HCWs with high-risk exposure are tested
    - HCWs who come because of undue concern for one's status is tested. This is deemed a reasonable and allowable trigger for testing of HCWs (e.g., after weeks of working in the COVID ICU)
- ✓ **SIMPLIFY** the testing process. In PGH, the testing has been markedly simplified so the turn-around time (TAT) of the PCR testing at the PGH Molecular Laboratory has gone down from a previous of 5 days to 24 hours. There is also a fast lane for emergency cases where the test takes only 3 hours for the results to be released.
- ✓ The processes of the UPHS and the PGH Molecular Laboratory have evolved immensely and both are now among our best practices!
- ✓ Make the testing procedure also an **OPPORTUNITY FOR COUNSELLING and EDUCATION**. Before testing and while waiting for the release of results are timely occasions to reinforce COVID19 information among those who are being tested, even if they are HCWs, whether by handouts or verbal reminders.



The economics of COVID Testing if done routinely does not support an efficient use of resources:

- We tested 4871 individuals during the June Hospital-wide surveillance in June 2020. Most of the materials spent on this activity were donations otherwise this would have cost: 4871 x P3800 per test = P18,509,800.
- We put in 14 days (112 hours) to complete the testing of nearly 5000 persons. This massive manpower requirement if done routinely will be taxing to a system with competing needs.
- Instead these huge resources can be channeled to proven and cost efficient preventive measures.
- Instead of routine mass testing, we advocate for targeted testing and opt to test HCWs whenever they need to be tested such as when a staff member has
    - symptoms
    - been unduly exposed to a COVID patient
    - been exposed without the benefit of adequate PPEs
    - whenever they feel they need to be tested.

LESSON 4: Contact tracing is very important. It is also time-sensitive and thus every COVID suspect and confirmed case demands that contact tracing should be initiated at once!

This means response time to a COVID-19 positive case should be immediate. Contact tracing loses its impact if initiated one day, one week, one month after the case is identified. Quarantine must start upon identification of a high-risk exposure. If we wait for the COVID test results as many contact tracers usually do, it might already be too late and many more persons may have already been exposed.

On July 5, 2020 our Infection control unit noted three new infections in one 'critically important' department and alerted the area. Several persons had to be quarantined. However, on July 7, there were another 3 new infections. A department outbreak was declared and actions took place to control the situation. Despite all efforts, 37 of 108 (30%) in the department got infected with COVID-19. We again patted ourselves on the back for having potentially averted an explosive outbreak which may have involved the entire department as well as spread out to other departments and cause an outbreak in the entire hospital and to patients. But "good job" as it sounds, it was not just good enough. On program review, the index case had symptoms on June 28 and we should have started the contact tracing that day. Perhaps if we were able to immediately identify and quarantined exposed persons at that point, we would have avoided the 37 infections. So the learning here is the earlier we start contact tracing, the more alert our systems are, the less infections we will have.

Some key points in contact tracing which needs to be cascaded to our communities:

- For COVID-19, the window of **BEST OPPORTUNITY** to intervene and make a difference is VERY NARROW! The time ONE IS EXPOSED TO THE TIME ONE STARTS BECOMING SYMPTOMATIC occurs mostly from Days 1 to 7, averages 4-6 days in most series, and can extend up to 14 days. This is called the incubation period and the reason behind the 14 day quarantine stretch.

- To cut the transmission, persons with High Risk Exposure needs to be identified, alerted and voluntarily go for strict isolation as soon as with symptoms.
- **COVID patients are most infectious from one day before and up to the first three days of start of symptoms.**
- The only way our numbers will go down is to do:
    - Immediate quarantine as in as soon as exposed;
    - Immediate test and isolate once with symptoms.
- All of society MUST know that when they get High Risk Exposures they need to start quarantine, not next week but right away! For instance, living in the same household of a COVID positive case is a high-risk exposure. All household contacts should go on quarantine starting on the same day the positive result is released.
- Just like our staff in PGH who needs to be constantly reminded on the symptoms, the general public needs to be constantly reminded especially by their local officials.

LESSON 5: The most valuable resource in the COVID crisis are our healthcare workers. We MUST listen to what they are really saying, what they are not saying and what they are trying to say.

Health facilities rely on their HCWs to deliver the service to their patients. With this COVID pandemic, the entire health system heavily depends on the HCWs to be at the forefront of caring for the COVID patients while also safeguarding the rest of the entire population from this very contagious enemy. We have put on the shoulders of HCWs the immense work of not only guarding the frontlines but manning the back-end as well so that more can be saved and fewer will be lost. The UP-PGH COVID Crisis Command team recognizes the HCWs and is grateful for their resilience and cooperation. The many stories of heroism and kindness as well as expressions of despair, fatigue and frustration aired in all platforms are heard and extensively discussed in weekly meetings, and serve as the basis for constant improvements.

Some issues have persisted through the months. Here are the continuing efforts of PGH to make it better for their HCWs:

a. KNOWLEDGE FACTOR: Below are examples of lingering misconceptions of our own staff:

"Akala ko ay normal lang ang may lagnat at nanginginig."	**HINDI TAMA**
"Hindi naman ako siguro nakakahawa kaya pumasok ako."	**HINDI TAMA**
"Uminom na ako ng Biogesic kaya hindi na ako nakakahawa."	**HINDI TAMA**
" Akala ko ay trangkaso lang ito"	**HINDI TAMA**
"Kailangan ko pong pumasok dahil wala nang ibang pwedeng gumawa ng ginagawa ko, kaya nandito ako kahit ako ay maysakit."	**HINDI TAMA**
"Hindi ko po alam na sintomas pala ng COVID ang lagnat at ubo."	**HINDI TAMA** Dapat ay alam na alam na natin ito.

- The hospital ecosystem is as diverse and varied as that of the larger society. Not all HCWs would have the same level of COVID-related knowledge. To succeed, all levels of hospital HCWs must be reached by a continuing information campaign in various languages and communication venues (e.g. personal phone interviews and counselling, videos shown in PGH TVs, infographics printed in tarpaulins, vibe, FB, Twitter, Telegram, YouTube, website, personal emails, & COVIDiyalogo by FB Live).
- We should tirelessly correct misinformation.
- As of July 31,2020 over 700 creative IEC materials under the "Bayanihan Na!" have been produced by our IEC COVID Committee.

b. ACCESS FACTORS: In crisis situations, enablers may spell the difference between success versus failure. HCWs are innately "passionate" and committed and their seeming difficulty to comply to or fully support a new or changing process may be due to their inability to access certain needs. Extending extra assistance to staff is like making that special effort to address a call telling us: please make it feasible for me so I can support PGH.

- The Lakbay Alalay is to supplement basic supplies of protective gears such as masks and face shields for use inside as well as travel to and from PGH.
- Assistance for accommodations into hotels and dormitories around PGH as well as transportation through the shuttle buses during the periods of community quarantine are enablers to make it feasible for the HCWs to come to work safely.

c. ECONOMIC FACTORS: Difficulty in asking staff to stay home instead of coming to work when they are already sick may stem from loss of income due to 'no work, no pay' policies of UP-PGH and its service contractors. Our HCWs' call for fair compensation, salary adjustments and unpaid hazard pay are all justified complaints and urgent needs. Administration should reassure staff that these are already in the process of being addressed.

d. FEAR FACTOR: The constant fear and anxiety which the pandemic imposes on all brings about new dimensions in coping. Even our seasoned Infectious Disease consultants and fellows experience these. It is not surprising that many sectors in the workplace experience various forms of fatigue to conquer the "fear in fighting an unseen enemy." There is now the PPE fatigue, the Quarantine fatigue and the Caution fatigue and all forms of mental and physical fatigue from the prolonged restrictions, repeated reminders, coupled with the sense of no clear light at the end of this very long tunnel. The new normal processes should address these new developing needs and find ways to best respond to them.

Conclusion: A CALL TO SOLIDARITY AND ACTION: The COVID-19 pandemic is here to stay for a few more months. Let us gather our best practices and continue to learn from each other. We are one with the WHO when it states what we need to get through this pandemic are: *SCIENCE, SOLUTIONS, and SOLIDARITY*. Most of all, if there is one thing we learned from the hard work of the UP-PGH community, from the support of the greater community around us: there is hope. We can do this! We are one with the rest of the Filipino people as we call out as ONE VOICE: Together, we shall fight this fight. Together, we will HEAL as one if we WORK as one! Together, our mantra should be: I am only okay if everybody else is okay!


UP PGH
COVID19 Crisis Management Team