

UP- PGH Division of Cardiovascular Medicine Fellowship Training and COVID-19: Opportunities and Innovations

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Abstract

BACKGROUND: The COVID-19 pandemic greatly affected training programs because of changes in patient load and service assignments. This posed certain challenges in the implementation of the pre-COVID-19 training curriculum recommendations by the Philippine Heart Association Specialty Board on Adult Cardiology.

OBJECTIVE: This article describes the challenges, training adjustments and innovations, and the impact on the training program of these changes instituted by the University of the Philippines–Philippine General Hospital (UP-PGH) Division of Cardiovascular Medicine (DCVM) during the COVID-19 pandemic.

METHODS: This is a descriptive article based on review of changes and improvements of the UP-PGH DCVM training manual and guidelines adopted during the COVID-19 pandemic.

FINDINGS: The COVID-19 pandemic challenges provided opportunities for innovation of the training program. The program emphasized focus on maximizing team-based learning from every clinical encounter toward achievement of learning outcomes and competency. The training committee closely monitored the learning environment and trainee's learning progress to achieve outcomes beyond the traditional metrics such as census and procedural numbers. It adopted online clinical encounters, conference, and case discussion. To enhance learning, virtual engagement supplemented physical encounters between consultants and training fellows assigned to various clinical rotations. Real-world research results on the impact of COVID-19 on cardiovascular health were utilized to enhance knowledge. Risk mitigation and transmission reduction strategies were adopted to ensure safety of all staff. The division also incorporated a strong wellness program to provide holistic approach to trainees' and trainers' health. New competencies were developed such as telemedicine, infection prevention and control, and creation of virtual patient education programs.

CONCLUSION: The training institution met the challenges posed by the COVID-19 pandemic with resiliency and unity. The adjustments and innovations in training instituted by PGH DCVM proved useful in addressing the challenges posed by the pandemic. The situation was viewed as an opportunity to innovate and pursue a better program adaptive of the ever-changing environment, toward forming competent future cardiologists by enhancing focus not only on numbers but rather on the process of achievement of learning outcomes, embracing virtual and online strategies, institutionalization of wellness program, and development of new guidelines in the approaching patient management cognizant of both health care provider and patient safety and new competencies such as patient virtual education and telemedicine in cardiology.

INTRODUCTION

On March 15, 2020, the National Capital Region of the Philippines was placed under community lockdown amid the rapid surge of the COVID-19 pandemic. At that time, various programs in adult cardiology across the country were preparing to start a new training year.¹ Among those training programs, the one conducted by the Division of Cardiovascular Medicine (DCVM) of the Philippine General Hospital (PGH) was greatly affected, as the latter was eventually designated by the Department of Health as a COVID-19 referral center.² This crucial turn of events would later on prove to be one of the most important developments that would cut across all aspects of operations in the national university hospital, with training receiving the brunt of the impact. Among the various consequences of the pandemic, the balance between training and service was clearly tilted in favor of the latter for a good reason, as existing staff power had to be redirected to address the COVID service areas. Despite nurses and residents manning the COVID frontlines, subspecialty fellows had to be tapped to reinforce the limited health care provider pool as admissions for COVID infection rose exponentially. Cardiology training fellows instantly became members of the COVID-19 care teams, tasked to go on duty not only as fellows-in-training, but also as internists in selected critical care units.

The first 3 months of the pandemic dealt with one of the most palpable blows to cardiovascular training. As logistical and human resources were siphoned off in favor of admission and management of patients afflicted with COVID-19, other services had to be toned down or sacrificed, which inevitably affected training. The indefinite closure of the outpatient department coupled with the general public's fear of contracting COVID infection due to nonurgent hospital visits led to a 78% decrease in the number of admitted patients referred daily to the Adult Cardiovascular Service. Moreover, trainee apprehensions regarding adequacy of infection control measures, insufficient testing, revamped duty schedules, and uncertain timelines compounded the difficulties faced by the training program.

As the COVID-19 pandemic continued to take its toll on the population, we saw an increase in the referrals to our service, particularly cardiovascular complications of the disease, such as venous thromboembolic events, arterial thrombosis, acute coronary syndromes, and acute or decompensated heart failure. In addition, as our institution continued to function as a main COVID-19 referral center, our testing capacity increased, and we eventually started opening our doors to patients without COVID infection who needed both inpatient and outpatient care.

The uncertainties and the accompanying changes brought about by the COVID-19 pandemic challenged existing health care systems. In terms of training, there was an overwhelming need to ensure that trainees received the best possible training in the pandemic setting, without compromising their safety and well-being. The University of the Philippines (UP)-PGH

DCVM saw these as opportunities to innovate and revitalize the cardiovascular training program.

OBJECTIVES

This article describes the challenges, training adjustments and innovations of the training program, and the impact of the changes instituted by the UP-PGH DCVM during the COVID-19 pandemic.

METHODS

We conducted a descriptive study of the training strategies in adult cardiology at the PGH amid the COVID-19 pandemic, with particular emphasis on the challenges encountered, the adjustments and innovations implemented, and the impact of such changes on the training program. Faculty members of the training committee of the DCVM, together with selected training fellows, reviewed existing policies and practices in training and noted the modifications brought about by the pandemic. Key informant interviews were conducted to obtain opinions and personal insights, with the trainee's real-time experiences placed under the spotlight. The core curriculum recommended by the Specialty Board of Adult Cardiology (SBAC) of the Philippine Heart Association-Philippine College of Cardiology served as the main benchmark for the review and assessment. Specific aspects of training were preselected for the review, which include the following: (1) patient encounters, (2) diagnostics, (3) conferences, (4) research, (5) evaluation tools, and (6) novel competencies.

Patient Encounters

Challenges

Early in the pandemic, the volume of patients and procedures dropped by 78%, from approximately 120 to 150 patients to only 27 to 39 patients being handled by our service daily. Aerosol-generating procedures were put on hold. Only emergent and urgent surgical cases were performed; thus, there was also a decrease in referrals for preoperative evaluation and intraoperative monitoring. Interventional cardiac procedures were limited to unstable patients needing revascularization. Early in the pandemic, the safety of health care personnel was given prime importance, and optimization of medical management was prioritized.

The variety of cases seen by the trainees was also affected. Using the Specialty Board of Adult Cardiology core curriculum as benchmark, the key learning areas that were profoundly affected were cardiac diagnostics and imaging (stress electrocardiogram, ambulatory blood pressure monitoring, stress and transesophageal echocardiography, vascular studies, nuclear radiology, computed tomography, cardiac magnetic resonance imaging [MRI], and invasive studies), congenital heart disease, valvular heart disease, cardiovascular surgery, and perioperative cardiology. Stable-phase cardiology also significantly declined due to the closure of the outpatient department. Most cases being seen by the fellows were limited to patients with COVID-19 and referrals for cardiovascular

complications of the disease such as venous thromboembolic events, arterial thrombosis, acute coronary syndromes, acute or decompensated heart failure, and myocardial and pericardial diseases. The nature of these COVID-19 complications increased the fellows' encounter with patients requiring emergency cardiovascular and critical/intensive unit care.

In addition, there was a change in the number of on-site fellows. Because our fellows were serving as members of the critical care teams for patients with COVID-19, they were also rotating on 8-hour shifts in the intensive care units (ICUs) aside from dedicating 24-hour duties as cardiology fellows on duty. The hospital deemed that health care workers involved in caring for COVID-19 patients had to have a rest, and quarantine week, especially at the start of the pandemic, when there was limited testing and only symptom-based monitoring after exposure was recommended. Hence, a team of fellows was assigned to work in the hospital at a time, and the others were performing tasks from home and learning remotely.

The changes seen with the number of clinical encounters brought concern whether the basic caseload requirements and the rotation duration prescribed by the Specialty Board of Adult Cardiology will be met by each training fellow.

As the economy was gradually reopened, and the community quarantine measures were gradually eased in June 2020, new-normal practices were initiated. Three months into being a COVID-19 referral center, the hospital began admitting more non-COVID cases, and the fellows' caseloads eventually increased. By July 2020, the inpatient Adult Cardiovascular Service Daily Census was already 30% of its pre-COVID numbers. By October 2020, the inpatient Adult Cardiovascular Service Daily Census reached 70% to 80% of its pre-COVID numbers.

Previously, all cardiology fellows were assigned to see COVID-19 patients, whether as fellows-on-duty, fellows-in-charge, or internists-on-duty in the ICUs. Because of the influx of non-COVID cases, changes in the patient assignments were implemented, with two separate teams formed for dedicated COVID-19 and non-COVID care, respectively.

Adjustments and Innovations

Periodic evaluations of caseload to strategize rotations were conducted. Accurate assessment of the evolving changes in the number of caseloads was deemed important to strategize the rotations and develop supplementary reading modules; therefore, structured monitoring and analysis of the loads were done. A committee tasked to monitor rotations, caseloads, and rotation evaluation was organized. To ensure that caseloads required by the Specialty Board of Adult Cardiology were being met, a systematic caseload monitoring system was initiated and submitted monthly. An online form was generated to document all the patient interactions and learning encounters of each fellow. Meetings were done in order to determine how to maximize learning encounters for each patient seen by the Adult Cardiology Service and devise necessary measures to

augment the fellows' learning experience. A single patient may be included in the caseload of multiple trainees as long as each trainee significantly contributed to the management of the patient (eg, an ICU patient with heart failure and deep venous thrombosis is included in the caseload of the general cardiology fellow-in-charge [FIC] and the vascular rotator) and discussed the cases with his/her consultants.

Core curriculum lectures based on Braunwald topics recommended by SBAC were conducted to enhance the fellow's mastery of the other key learning areas affected by the changes brought by the pandemic. A consultant, senior, and junior fellow were assigned a chapter from Braunwald, which was discussed from a take-off case handled in the wards or outpatient.

To augment exposure to stable-phase cardiology cases, the telemedicine service was ramped up, in accordance to the guidelines released by the Department of Health. A dedicated telemedicine hotline was opened for patients who needed outpatient monitoring but could be handled via remote follow-up.

The training program focused on assessing competency and achievement of learning outcomes rather than traditional census numbers or time spent in rotations. It encouraged fellows to maximize learning and document such encounters even outside their usual subspecialty rotation.

Impact

The systematic caseload monitoring system allowed the training committee to identify the key learning areas that need to be prioritized per fellow. This, together with the annual rotation grid, became the basis of team assignment of each fellow. Rotations and schedule were tailored per fellow in order to maximize learning encounters and fulfill the learning proficiencies required from different year levels. Patient encounters were maximized with multiple fellows learning from a single case; hence, the caseloads of the fellows were addressed.

The introduction of telemedicine for outpatient cases increased the fellows' exposure to stable-phase cardiology cases. The number of outpatient cases seen by each fellow increased from 0 during the start of the pandemic to 8 to 13 cases per week.

The innovations to increase patient encounters and actively address the fellows' required caseload gave assurance to the trainees that training would not be compromised for service, lessened their anxiety regarding meeting training requirements, and addressed the fear of training extension due to lack of cases.

Diagnosics

Challenges

The uncertainty regarding existing infection control measures and the fear of exposure of patients and health care providers limited the fellows' exposure to diagnostic procedures. During

the start of the pandemic, only non-COVID patients were brought to the Cardiovascular Diagnostic Laboratory for echocardiogram and vascular studies. Myocardial perfusion imaging (MPI) and cardiac magnetic resonance imaging (MRI) were also limited as fellows were no longer able to visit other training institutions to augment exposure to these imaging modalities. Potentially aerosolizing procedures, including treadmill stress testing and stress echocardiography, were put on hold. Outpatient diagnostic procedures were likewise severely limited because of the need to focus resources on inpatients. The limited number of cases caused concern on whether the exposure during diagnostic rotations will be enough to enhance the learning and skills of the fellows on diagnostics performance and interpretation. Previous reading and supervised reading sessions between fellows and consultants proved challenging due to the fear of exposure and changes in duty schemes.

Adjustments and Innovations

To continue service and to guide fellows with their interpretation of cardiac diagnostics, reading and supervised sessions between fellows and consultants were held online. Personal encounters between fellows and consultants continued based on the consultant's preferred mode of interaction

Rotations to diagnostics and imaging, such as 2D echocardiogram, arterial and venous duplex scan, myocardial perfusion imaging, ECG Holter monitoring, ambulatory BP monitoring, and interventional cardiology, were supplemented by diagnostic interpretation modules, virtual learning kits, and case-based discussion modules. The Sections of Interventional Cardiology, Echocardiography and Electrophysiology prepared modules using previous, present, or theoretical cases wherein the fellow, together with the clinical research fellow and the consultant, analyzed and studied each case virtually starting from the history until the formulation of the diagnosis and plan. The fellows were given time to review the cases prepared by consultant mentors and discuss the cases with the assigned mentor. Learning was supplemented by attending additional virtual lectures and case discussions. To further augment the learning experience, the diagnostic fellow rotator, together with the clinical research fellow, was invited to join the consultants during their diagnostic procedures performed at their private clinics. The DCVM partnered with an institution able to perform these services to allow our trainees to observe and learn, under the supervision of our cardiology faculty.

The DCVM purchased a handheld echocardiogram machine, which allowed the fellows to perform bedside cardiac point-of-care ultrasound and 4-point deep vein thrombosis (DVT) screening even for patients diagnosed with COVID-19. Requests for diagnostic studies for patients with COVID-19 were streamlined as the different section reinforced performance of diagnostic tests based on appropriateness of use, limiting unnecessary exposure of the fellows and staff to the disease.

Impact

The conduct of supervised diagnostic reading sessions online allowed service and training to continue despite the pandemic. The diagnostic interpretation modules, virtual learning kits, and case-based discussion modules provided an avenue to increase encounters of fellows to cases and augment their caseloads. Not only did it increase the learning experience of the fellows but also boosted their confidence and skills in cardiac diagnostics interpretation. From baseline nil at the start of the pandemic, diagnostic rotators were able to observe, assist, and interpret at least five to eight stress echocardiograms performed at the private clinic of the consultants and interpret at least 20 treadmill exercise tests and Holter monitors, at least 5 nuclear studies, and 25 angiography and hemodynamics studies from the modules prepared by the consultants alone.

The purchase of the handheld echocardiogram machine made huge impact both in service delivery and training. As referrals for cardiovascular complications of COVID-19 increase, the availability of bedside diagnostic imaging modality augmented the fellows' exposure in the performance and interpretation of the test. It also enhanced the learning experience of the fellow by allowing correlation of history and physical examination findings with the results of the diagnostic examination performed. With the purchase of the handheld echocardiogram machine, diagnostic rotators were able to see up to 300 studies per month from a baseline of 30 to 65 studies during the first months of the pandemic. The number of DVT screening done likewise increased from at most 10 at the start of pandemic to at most 39 cases per month.

Conferences

Challenges

One of the learning avenues hit hardest by the pandemic is the traditional conference. During the pre-COVID era, all conferences were physically conducted at the UP-PGH Ramon F. Abarquez (RFA) Learning Center located at the sixth floor of the hospital. This regular event not only served as a venue for display and evaluation of trainee performance but also provided a welcome opportunity for trainees to make meaningful encounters with their cotrainees, mentors, and paramedical staff. Formative learning was most palpable during these physical conferences, as presenters benefitted from verbal and nonverbal feedback from highly esteemed faculty of the DCVM, as well as colleagues from other disciplines. Limitation of face-to-face encounters, in line with local government directives regarding community quarantine, led to revision of the format and frequency of conferences of the DCVM. As a result of the pandemic, infection control measures were strictly enforced, necessarily shifting the conference strategy to default online platforms.

Adjustments and Innovations

In an attempt to sustain quality training amid the service-heavy mindset brought about by the pandemic, the training team mobilized a dedicated conference committee consisting

of a fellow and consultant coordinator. They were tasked to carefully map out the string of conferences for each month and adjudicate topics as well as timing of presentations to adapt to prevailing training needs. Online conference policies were drafted and implemented, with particular emphasis placed on the designation of a senior moderator and consultant mentor. Conferences were further classified according to priority level, with low-priority ones automatically being de-escalated in terms of frequency during hospital-wide calls for streamlining of trainee work in the face of recurrent surges in COVID admissions. Efforts, however, were exerted to sustain variety and quality of learning conferences, which include the major weekly Division Hemodynamic Conference, multidisciplinary case conference, preoperative conference (joint thoracic and cardiovascular surgery–DCVM), subspecialty conferences (interventional cardiology, echocardiography, cardiac rehabilitation, vascular medicine, electrophysiology, nuclear medicine), and Quality Management Session. Higher-order learning objectives are set and achieved at the end of each conference. After each conference, evaluation was carried out via online forms. A 360-degree format of evaluation was also initiated wherein the presenter was evaluated by cofellows, faculty moderator, and mentor, as well as other consultants in attendance. Mentors and moderators were likewise evaluated by the presenter, fellows, and other consultants in attendance. In consonance with directives from the Department of Medicine, the frequency of online meetings and access to conference content were flexibly managed. Recorded online conferences were properly archived for easy asynchronous access by various learners, particularly those who were unable to join in real time.

Impact

One of the most obvious immediate byproducts of the shift to an online format was the increase in attendance. The average attendance prepandemic grew by approximately 35% during the height of the pandemic. Faculty members who historically were unable to physically join the said conference because of time or logistical constraints suddenly found themselves becoming fixtures in these virtual conferences. Even resource persons and guests from other departments were more easily tapped to participate, highlighting the advantage of the said online strategy. Medicine students were likewise able to attend and learn from the conference. Engagement between the presenter and his/her peer and consultant moderators was enhanced, as all parties involved were particularly focused on ensuring concise but high-quality presentations. A group effort was magnified as other training fellows and consultants pitched in the teaching and learning process, with some becoming very active in the “chat” function of the online meeting, addressing queries of learners with varied competency levels (medical student, intern, resident, fellow) on a rolling basis to augment the efforts of the fellow presenter. This team-based strategy assured the group that these online conferences would be able to cater to the varied educational needs of a wide range of learners. Finally, the use of synchronous and asynchronous methods for learning helped mitigate the anxieties and inadequacies of trainees who were thrust into intense duty

schedules that consequently affected their capability to join learning sessions in real time.

Periodic Examination

Challenges

Evaluation is an integral part of training. Prior to the pandemic, the fellows have three formative, one summative, and one oral examination per year. These were conducted face-to-face at the RFA Learning Center of DCVM. However, the uncertainty regarding existing infection control measures and the fear of exposure brought anxiety with regard to the conduct of these examinations. Following the protocols set by the Hospital Infection Control Unit proved challenging as the venue that was previously able to accommodate all of the trainees can now hold only a number of trainees while practicing physical distancing. Being in an enclosed space for several hours during the examination with cotrainees with different exposures was also a concern at this time.

Adjustments and Innovations

Online meeting platforms were maximized. The oral examination of the fellows was conducted using a hybrid approach, with some stations having on-site interaction and other stations that were held online. The written examinations of the fellows were initially still conducted on-site in a venue with a bigger capacity, but were eventually converted to an online activity. The training committee introduced the fellows and consultants of DCVM to the University of the Philippines Manila Virtual Learning Environment, which is an online site where examinations and training activities may be uploaded and taken by the fellows at a specified time. Feedback sessions were likewise converted online.

Impact

The shift to an online format allowed the examinations to push through as scheduled despite the pandemic. There was also a noticeable increase in consultant availability to participate in these training activities. Prior to the pandemic, each station of the fellows’ oral examination was manned by a single consultant. This increased to at least 2 to at most 5 after the shift to online format. During the conduct of training-related activities, no transmission of COVID-19 between the fellows, consultants, and staff was reported.

Research

Challenges

Prior to the pandemic, engagement of fellows with consultants with regard to research was held every Friday morning weekly. This is an on-site activity where the fellows and consultants convene to discuss and present either fellow-initiated research ideas and protocol or a critically appraised topic. During the start of the pandemic, this activity was temporarily placed on halt as the fellows were allowed to adjust to the new roles, additional tasks, and burden placed by COVID-19. Focus was shifted to service delivery and well-being of fellows.

Innovations

Online format was maximized. Consultants actively engaged

fellows through online platforms to brainstorm on potential research topics. Instead of large group meetings, small group online meetings were organized, allowing a more focused discussion between the trainee and the consultant. Critically appraised topics were likewise presented and uploaded online.

Impact

Adapting the online format paved way to the return of research hour in the schedule of fellows. Although still not as frequent as it was before the pandemic, the fellows and consultants were able to engage in meaningful research discussions at least once or twice a month.

Non-COVID researches continued as it is also equally important to focus primarily on cardiovascular conditions. The medicine census for 2019 identified acute coronary and heart failure as among the leading causes for admission and in-hospital mortality among patients admitted to the medicine wards. These were also among the common referrals to cardiology service during the pandemic being cardiovascular complications of COVID-19. The significant burden of these diseases necessitates that the standards for the quality of care among these patients are met to improve quality of care. Review of the recent quality of care studies done for these conditions has shown that there are quality measures that still have to be met. The Department of Medicine and DCVM created a group to develop a clinical pathway for acute coronary syndrome and heart failure.

Researches on COVID-19 were also initiated particularly on thrombosis, heart failure, and echocardiographic and ECG manifestations of the disease. Clinical profiles and outcomes of hospitalized adult patients with COVID-19 and heart failure admitted to the PGH in a fellow-initiated retrospective study. Point-of-care ultrasound findings and clinical outcomes among COVID-19 patients will also be investigated. Another study will describe the ECG findings and the cardiovascular profile and clinical course of adult patients with COVID-19 admitted to the PGH.

Novel Competencies

Infection Prevention and Control in Cardiology

Early during the pandemic, several physicians, including our well-esteemed colleagues and friends in cardiology, died of the disease. The proximity of cardiologists to patients and the emphasis on rapport building, history taking, and physical examination might have inadvertently exposed them to infected patients, at a time when we were still uncertain about the risk and modes of transmission. Through the course of battling this pandemic, we recognized that cardiologists and trainees alike have to be adept at infection control measures, not only to protect themselves but also to ensure that they can safely deliver optimal cardiovascular care to their patients.

In the DCVM, we established a safety committee and identified safety officers from the trainees and the staff. A safety and infection control monitoring system was devised to keep track of the development of symptoms, exposures, testing

results, and quarantine and isolation measures. The safety officers regularly updated the administrators regarding the status of our trainees and staff, and the division's resources were mobilized for each personnel who got sick. Heightened awareness of exposure and symptoms of COVID-19 and strict implementation of infection control standards were key in limiting the spread of the disease among our trainees. The division also invested in the procurement of filtration and barrier devices for the working and living areas of the trainees and elastomeric masks for their COVID-19 encounters.

In terms of patient encounters in COVID-19 areas, all fellows became well-trained in donning and doffing personal protective equipment (PPE). Majority of our referrals from COVID-19 areas necessitated focused cardiac or vascular ultrasound; hence, the trainees became adept at performing focused cardiovascular physical examination and obtaining echo and vascular images in shorter durations. The immediate management of our patients was relayed to the physicians on duty, but charting of our patients was done remotely through the online electronic management system of our hospital, after the trainees have doffed their PPE and performed necessary disinfection.

Telemedicine and Virtual Patient Education

In the Philippines, the telemedicine service was in its infancy prior to the pandemic, with many physicians resistant to the idea of doing remote consultations. However, because of the risk of infection and with official approval from the Department of Health, the practice of telemedicine gained traction and is currently the major mode of consultation with our outpatients. Telemedicine allows us to deliver quality care without compromising the safety of both the trainees and the patients. At the start, a maximum of 20 patients weekly were seen through our adult cardiology telemedicine service. As our trainees gained confidence in the practice of telemedicine, and as our patients started to accept it as a reliable mode of consultation, we gradually increased our telemedicine slots to accommodate at least 50 patients per week. Telemedicine is now incorporated in the outpatient service and training evaluation of the fellows and is considered as the major innovation of the training program.

To ensure continuity of care of discharged inpatients, FICs were also encouraged to follow up their discharged patients via telemedicine within 2 weeks of discharge. During this follow-up, patient education is emphasized, and instructions on nonpharmacologic interventions, including lifestyle and dietary management and physical exercises, are provided.

Wellness Program

There is no question that the COVID-19 pandemic has brought suffering of epic proportions to patients and health care workers alike. The risk of infection in each patient encounter has led to the revisions of previous practices on rapport building, history-taking, and physical examination. Each patient interaction, which was previously filled with nonverbal cues, including touch and facial gestures, has become severely limited. Trainees also had to observe physical distancing from their colleagues

and mentors, and simple acts of camaraderie, including dining together, became forbidden. The burden of caring for isolated patients with COVID-19 is heavy and pervasive. Integral to the profession of medicine is the virtue of empathy and the suffering witnessed and experienced by the trainees in the line of duty, which has also given them untold anguish and made them vulnerable to the disruption of mental and emotional well-being.

Hence, the hidden, and sometimes, unrecognized burden of COVID-19 is its effect on the mental health of trainees. Trainees were thrust into the frontlines, not only as fellows-in-training, but also as physicians going into battle against an unknown and unpredictable enemy. The fear of getting the infection and transmitting it to their loved ones was constant. The shift to virtual interactions also put a strain on already delicate mental and emotional balance. Anxiety and depressive emotions were heightened, and most trainees were at risk of burnout. In response, the DCVM formed a partnership with the Division of Consultation-Liaison Psychiatry, to establish a wellness and mentoring program, designed to identify and address mental health issues, develop resilience and self-compassion, and strengthen the well-being of the trainees. Monthly pulse surveys, mindfulness-based sessions, regular mentoring sessions, and online bonding sessions called “Zoomustahan” were implemented. A simple referral system to accommodate the need for psychiatric evaluation and counseling was also implemented.

DISCUSSION

The spread of COVID-19 drastically changed the landscape of Cardiology practice, service delivery, and training in our country. There was a paradigm shift that incorporated innovation and flexibility in the face of uncertainties.

In terms of training, several innovations on teaching-learning activities and evaluation were made to achieve the different intended learning outcomes. New guidelines, competencies, and rotations were also created to continue learning while ensuring quality service to patients in COVID and non-COVID areas. The availability of video conferencing applications such as Zoom has enabled the trainees and mentors to maintain learning activities, with emphasis on interaction, through screen sharing, live polling, and online conversations. Each conference is now archived at an online repository, and fellows are encouraged to perform asynchronous learning during their free time by reviewing videos uploaded to this repository. The cancellation of elective procedures early in the pandemic led to more one-on-one interactions between mentor and trainee, with more time dedicated to learning about cases. The DCVM also continues to collaborate with different institutions to allow sharing of learning and educational opportunities, similar to that of other institutions abroad.⁵ Each patient encounter was maximized with case discussions held via online conferences or through online communication platforms such as telegram and Viber to allow sharing of learning encounters. The training program shifted its focus on assessing competency and achievement of learning outcomes rather than traditional census numbers or time spent in rotations, ensuring adherence

to the prescribed learning outcomes of SBAC and DCVM. An online caseload monitoring system with regular evaluation of individual fellow's caseload was created in order to strategize fellows' rotation schedule and patient encounters, ensuring that the number of caseloads set by the SBAC was met.

In terms of service delivery, the physical and mental burden of caring for patients is truly inestimable, but trainees recognize that they are uniquely given the opportunity to deliver quality care in the middle of the pandemic. Like what happened in other COVID-19 referral centers in the country and abroad, cardiology fellows, with their baseline internal medicine training, skillset, and critical care experience, became valuable human resources who were redeployed to COVID-19 critical care units.³⁻⁵ General cardiology trainees became internists again, and clinical research fellows became general cardiologists in order to ensure adequate service delivery.

In terms of research, trainees experienced a disruption in research activities, particularly in data collection for research designed in the pre-COVID area. Limited patient interactions and physical distancing necessitated adjustment in research protocols. However, the COVID-19 pandemic also brought new opportunities in research, particularly about its effects on the cardiovascular system.⁴ In DCVM, trainees were encouraged to explore new research ideas and submit new protocols related to COVID-19.

We recognize that the protection of the well-being of trainees entails not only physical protection from COVID-19 but also protection of their psychoemotional states. Hence, the pandemic provided a great opportunity to strengthen our wellness and mentoring program, which we envision will make our trainees resilient, even when this pandemic ends. The effect of loss of the clinical encounter and clinical discussion, not being able to talk to and examine patients, was mitigated by virtual and in-person rounders as well senior fellow corounder, who continue learning from each other side by side.

The pandemic had challenging impact on training strategies and service delivery. It was mentally and physically challenging, but it taught the trainees and mentors as well to be resilient and innovative.

It made us work harder and seek modes to connect and to maintain focus on humane application of cardiology.

CONCLUSION

Despite the setbacks brought by the COVID-19 pandemic, the training committee of the UP-PGH DCVM found an exemplar system of maximizing learning outcomes in upholding the path toward excellence in education, training, research, and service, while maintaining its core institutional values of compassion, integrity, leadership, lifelong learning, and innovation. The adjustments and innovations in training instituted by PGH DCVM proved useful in addressing the challenges posed by the pandemic. Facing these challenges, the resilient, ethical, and professional nature of all the fellows, consultants, and

staff of the entire DCVM shall continue to propel its trainees as excellent clinicians, leaders, and educators in the Philippines and Asia Pacific region.

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