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Inside

DOST-PCHRD Balik Scientists join fight against COVID-19 p2

DOST-PCHRD rolls out more RxBox telehealth devices to fight COVID-19 p3

DOST's science high joins fight against COVID-19 with PisaYuda outreach program... p4

DOST-FPRDI develops antimicrobial soaps, hand mists

By Apple Jean C. Martin- de Leon, DOST-FPRDI

Exploring the vast potential of our local forest resources, the DOST- Forest Products Research and Development Institute (DOST-FPRDI) has developed personal care products useful in maintaining personal hygiene amid the COVID-19 outbreak.

The antimicrobial liquid hand soaps were formulated using cinnamon (*Cinnamomum mercadoi* Vidal) and bamboo-activated carbon, with lavender and Manila elemi oil scents. The hand bar soaps, meanwhile, used bamboo charcoal (*Bambusa sp*), bamboo-activated carbon, sapang (*Coesalpinia sappan L.*) and tawa tawa (*Euphorbia hirta L.*), with eucalyptus oil scent.

“The results of DOST-FPRDI’s previous and on-going studies on bamboo charcoal

and bamboo-activated carbon were useful in making these personal care products,” shared research team leader Dr. Jennifer P. Tamayo.

“The bamboo-activated carbon helps remove microorganisms, such as germs, by absorbing them. While the Institute has yet to study sapang and tawa tawa thoroughly, available literature point to their antimicrobial properties,” she added.

The Institute also prepared antimicrobial hand mists for disinfecting hands in the absence of soap and water. The hand mists were made from cinnamon, a proven natural disinfectant, and infused with either lavender or Manila elemi oil scent.

According to Dr. Tamayo, bioassay testing and sensory test are now being done to further study the products. DOST-FPRDI aims to partner

with local bamboo-based companies to speed up the manufacture of these antimicrobial soaps.

“Maintaining personal hygiene, such as through washing and sanitizing of hands, is deemed an important step in preventing the spread of diseases. As COVID-19 cases continue to rise in some areas of the country, DOST-FPRDI will look for more ways to help protect the public against this global pandemic,” said DOST-FPRDI Director Romulo T. Aggangan.

Aside from Dr. Tamayo, the research team includes Rebecca B. Lapuz, Rowena E. Ramos, Benjo S. Salvatierra, Rogelio O. Rantael Jr., Kim Wilmer B. Balagot, Kimberly B. Delica, Audel V. Mosteiro, Kristopher R. Breis, and Alexis B. Dorado.



Prior to mass production, the FPRDI-formulated hand and liquid soaps, and hand mists will undergo further bioassay testing to determine their germ removal efficiency. (Photo from DOST-FPRDI)

DOST-PCHRD Balik Scientists join fight against COVID-19

By **Rodolfo P. de Guzman**, *DOST-STII*

Heeding the call to help the country fight COVID-19, Filipino scientists formerly based abroad have joined other frontliners in the fight against COVID-19 and are now working in different hospitals in the country.

Carrying the “bayanihan” spirit in their hearts, these gallant medical practitioners are now offering their expertise under the Balik Scientist Program of the Department of Science and Technology (DOST) in close collaboration with the Philippine Council for Health Research and Development (PCHRD).

Dr. Edsel Maurice T. Salvaña is a member of the Technical Advisory Group (TAG) that advises the Department of Health and the Inter-Agency Task Force (IAFT). Dr. Salvaña is a multi-awarded and internationally recognized scientist, physician, and HIV/AIDS advocate. He is a director at the University of the Philippines Manila, an Associate Professor at the University of the Philippines-Philippine General Hospital

(UP-PGH), and Adjunct Faculty for Global Health at the University of Pittsburgh.

Dr. Joseph Adrian L. Buensalido, an expert in infectious diseases, is a graduate of the De La Salle University-Health Sciences Campus. After his fellowship from the Wayne State University-Detroit Medical Center in Michigan, USA, Dr. Buensalido conducted clinical research on the mechanisms of action of antibacterials, antibiotic resistance, hepatitis, HIV, and infections of the spine, among others. He is currently an Infectious Diseases and Internal Medicine Consultant at the Asian Hospital and Medical Center, Makati America Center, Manila Doctors Hospital, and had conducted his research studies at the UP-PGH.

Dr. Jonel P. Saludes, a professor of Chemistry and Associate Vice President for Research at the University of San Agustin, is now assisting in assessing the capacities of the Western Visayas Medical Center (WVMC)’s facilities and technicians for compliance and

accreditation by the Department of Health. Dr. Saludes is trained on various fields like magnetic resonance spectroscopy and mass spectrometry, chromatography, and chemical biology, to name a few, from the University of California Davis and University of Colorado Boulder.

Dr. Doralyn S. Dalisay, a 2019 Outstanding Professional of the Year awardee in the field of Pharmacy given by the Philippine Regulatory Commission, is also assisting in assessing the capacities of the Western Visayas Medical Center (WVMC)’s facilities and technicians for compliance and accreditation by the Department of Health. Dr. Dalisay returned to the Philippines as the Department of Science and Technology (DOST) Balik Scientist in June 2015 to establish a research program on natural products drug discovery at the Center for Chemical Biology and Biotechnology (C2B2) in University of San Agustin. Incidentally, she holds two US patents on the use of a marine natural product for fungal infections and cancer.

Dr. Raymond Francis R. Sarmiento leads the Data Warehouse Team of FASSSTER, a project of the Department of Science and Technology-Philippine Council for Health Research and Development (DOST-PCHRD) to fight COVID-19. FASSSTER stands for Feasibility Analysis of Syndromic Surveillance using Spatio-Temporal Epidemiological Modeler which has been used for creating predictive models and visualizing possible scenarios of outbreaks of Dengue, Typhoid Fever, and Measles, at specified time periods.

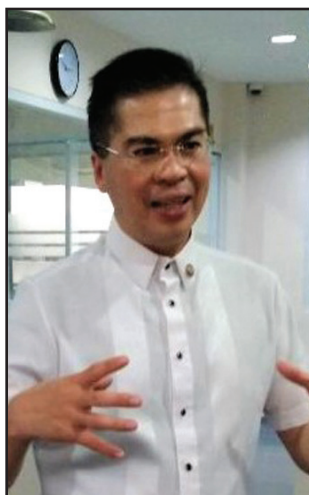
Currently, Dr. Sarmiento works as the Director of the National Telehealth Center of the UP National Institutes of Health (UPNIH). He is a Balik Scientist of the DOST who specializes in clinical and public health informatics and health data science, among others.



Dr. Edsel Maurice T. Salvaña



Dr. Joseph Adrian L. Buensalido



Dr. Jonel P. Saludes



Dr. Doralyn S. Dalisay



Dr. Raymond Francis R. Sarmiento



Dr. Reynaldo L. Garcia



Dr. Harvy Joy C. Liwanag

DOST-PCHRD rolls out more RxBox telehealth devices to fight COVID-19

Text and photo by Rodolfo P. de Guzman, DOST-STII

Dr. Reynaldo L. Garcia, an expert in biomedical research, consulting and biotechnology enterprise, now leads the national databasing of laboratories with polymerase chain reaction (PCR) to assist DOH in testing. Dr. Garcia returned to the Philippines in 2010 as a Balik Scientist and was appointed as a Full Professor at the National Institute of Molecular Biology and Biotechnology, University of the Philippines Diliman, and concurrently as UP System Director of the Technology Transfer and Business Development Office. He currently heads the multi-awarded Disease Molecular Biology and Epigenetics Laboratory.

Dr. Harvy Joy C. Liwanag - performs projections for DOH on the health workforce requirements for the Philippines to address COVID adequately. Dr. Liwanag is the Coordinator of the Training Center for Health Research Ethics and Good Clinical Practice at the University of the Philippines Manila-National Institutes of Health. Dr. Liwanag returned as a medium-term Balik Scientist after completing his PhD in Epidemiology at the Swiss Tropical and Public Health Institute (Swiss TPH) and is currently being hosted by the DOH- Health Human Resource Development Bureau (HHRDB).

As the fight to put a stop to the spread of this deadly virus continues, it is expected that more and more medical practitioners, scientists, and researchers will render service in different capacities and share their expertise to protect the lives of the Filipinos. (Source: PCHRD, V1. Updated JCM Talking Points-PCHRD Program for COVID-19)



RxBox telehealth device provides medical diagnosis particularly for patients in remote rural areas in the country with limited access to health facilities.

While waiting for the so-called “flattening the curve” in terms of the spread of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) that causes the deadly COVID-19, the Department of Science and Technology-Philippine Council for Health Research and Development (DOST-PCHRD) continues to deploy more RxBoxes in different hospitals across the country.

The DOST in collaboration with the University of the Philippines Manila – National Telehealth Center (UP-NTHC), University of the Philippines Diliman – College of Engineering, DOST-Advanced Science and Technology Institute (DOST-ASTI), and the Department of Health (DOH) developed this telemedicine device that aims to supplement the country’s community healthcare system particularly to help Rural Health Centers (RHC) in the country.

Classified as a telehealth device, the RxBox is capable of measuring a patient’s temperature, blood pressure, heart rate, oxygen saturation, uterine contractions, and electrocardiogram readings remotely. In other words, the patient need not be physically present in the hospital because the device allows diagnosis to be done in another hospital by a specialist doctor.

Thus, the use of the RxBox device can reduce contact between patients diagnosed with COVID-19 and healthcare workers, as it provides an efficient way for healthcare workers to monitor multiple patients at once.

The RxBox devices are now deployed in selected healthcare facilities for bedside monitoring of vital signs, oxygen saturation, and electrocardiogram readings of patients diagnosed with COVID-19, especially those in severe or critical conditions who need continuous monitoring.

Some 106 RxBox devices were initially sent to designated COVID-19 wards in the Philippine General Hospital.

As the implementing agency, DOST Region IV-A assesses and coordinates the needs of the healthcare facilities in each region for the rollout of the RxBoxes to augment the health facilities, particularly in the provinces.

On the other hand, according to DOST Region X, there are 65 RxBox Telehealth devices earmarked for distribution in selected RHU sites across Northern Mindanao (Region 10). The sites will be appropriately evaluated through the project’s Pre-deployment Assessment procedure during which the Regional Management Team validates the qualifications of the proposed health facilities. Once approved, four (4) staff from the RHUs will be invited for a Super User Training and the facility will receive one (1) RxBox Telehealth device, one (1) CPU, one (1) monitor, and one (1) router for the deployment.

The RxBox units are being manufactured in partnership with IONICS EMS Inc., a local manufacturing company based in Laguna.

ABOUT US

The DOST Digest is published by the Department of Science and Technology- Science and Technology Information Institute. For comments, suggestions or queries, contact: (02) 837-2071 to 82 loc. 2148/839-2193 local 107 or email: dost.digest@gmail.com

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DOST's science high joins fight against COVID-19 with PisaYuda outreach program

By Jasmin Joyce P. Sevilla, DOST-STII

“Ayuda” is the Filipino word that means “help” and with the continued threats of COVID-19 in the country, the Department of Science and Technology's Philippine Science High School (PSHS) system responded to the government's call for bayanihan as it launched “PisaYuda: Siyensya para sa Bayan”.

PisaYuda is an outreach program of PSHS system that aims to help frontliners, health workers, and communities who are in need of personal protective equipment (PPEs) and relief goods to continue the battle against this deadly virus.

True to its core value of “commitment to service”, all of its 16 campuses composed of faculty members, administrators, alumni, students and their parents joined forces at a time “when kindness and unity are needed the most.”

To date, the PisaYuda outreach program was able to provide 16,316 face masks; 23,673 face shields; 1,291 ear savers; 86 aerosol boxes; 927 liters of alcohol; and 1,914 liters of disinfectant to health workers, police officers, and other frontliners in their immediate communities.

Moreover, five employees from the PSHS system volunteered to assist in the Mega Swabbing Center at the Philippine Arena. Aside from this, PSHS system donated 9,945 food packs; 30 sacks of rice; and PhP 539,490 worth of groceries to different beneficiaries across the country.

‘PisaYuda: Syensya para sa Bayan’

The PisaYuda outreach program did more than just relief goods donations. As a science institution, the PSHS campuses used science and technology to their advantage in order to give and to serve the country better.

The PSHS system was also able to install sanitation tents and wash basins, that they fabricated as well. In addition, PSHS faculty members and staff collaborated to provide face shields to medical frontliners and security officers using the 3D printers and laser cutters in its 16 campuses.

“Considering that none of the doctors in Argao Hospital in Cebu has PPE, we started designing and mass printing upon the approval of Campus Director Rachel Luz Rica,” said Benito A. Baje, Physics Unit coordinator at the PSHS-Central Visayas Campus (CVC) as he shared their efforts to provide PPEs in their region.

PSHS also ramped up their information campaign by giving out flyers and posters and providing tele-counseling services (psychological

service provided through telephone) led by PSHS' guidance counselors, and online sessions on different topics, which were provided to medical frontliners and other beneficiaries.

The PSHS campuses across the country worked together in lending their facilities and equipment to hasten the country's efforts of combating COVID-19.

The PSHS-Main Campus in Quezon City and PSHS-Ilocos Campus lent their gym and housing facility, respectively, to house suspected and probable cases of COVID-19 and also provided free shelter for health workers.

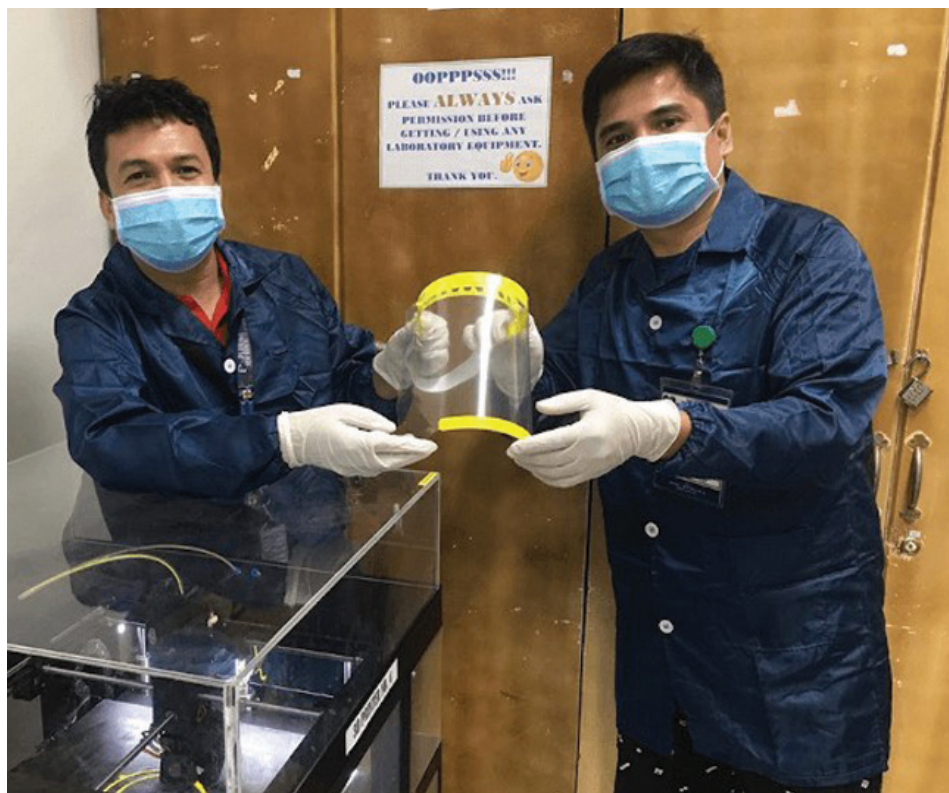
“We are in the midst of a health crisis that is possibly the worst in our history, and allowing a part of the campus to be used by Philippine Children's Medical Center is our way of contributing to the fight against COVID-19,” PSHS-Main Campus Director Lawrence Madriaga said in his statement from the Philippine News Agency.

On the other hand, the PSHS-Eastern Visayas Campus lent their PCR (polymerase chain reaction) equipment to assist in the COVID-19

testing in the region. They also assigned one of their faculty members to operate the machine at the regional office of the Department of Health in Region VIII. On the other hand, two certified bio-safety officers from the PSHS-Western Visayas Campus joined in the training and setting up of COVID-19 testing centers in Iloilo City, Negros, and other areas in Region VI.

To aid in the COVID-19 testing in Mindanao, the PSHS-Southern Mindanao Campus lent their drying oven machine to the Philippine Genome Center housed at the University of the Philippines Mindanao. The drying oven can be used to sterilize and disinfect medical equipment or PPEs to ensure the safety of health workers in the testing centers.

As the country continues its battle with COVID-19, the PSHS system, through the PisaYuda outreach program, will also continue its efforts in helping frontliners and affected communities by using technology and innovation to bring science to the people. (Information from PSHS-Office of the Executive Director)



Benito A. Baje (left) and Gencianus Alphonsus Retardo (right), research assistants from PSHS-CVC show the sample face shield they produced using their 3D printer. The PSHS-CVC is just one of the 16 PSHS campuses that extended a helping hand in producing face shields for frontliners as part of the PisaYuda outreach program. (Photo from PSHS-CVC)