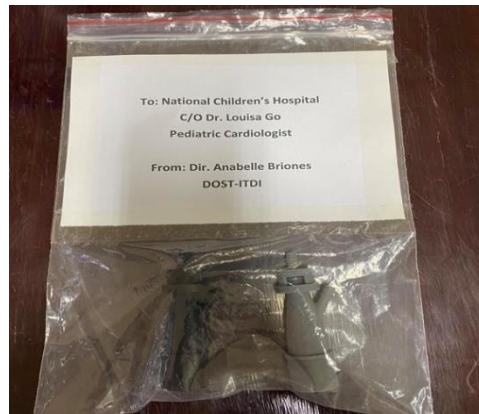


DOST-ITDI develops respirator, ventilator parts for COVID-19 patients

The fight against the COVID-19 pandemic has been a struggle for most Philippine hospitals as need for respirators and ventilators continues to increase.

With confirmed cases reaching 5,453 as of Wednesday, April 15, 2020, DOST-ITDI Director Dr. Annabelle V. Briones, through its MATDEV Team Leader and Materials Science Division Chief Dr. Blessie A. Basilia, delivered two prototypes of 3D printed respirator venturi valves to the National Children's Hospital in Quezon City on April 14 to test fit in their existing respirator.



The MATDEV (Multiple Materials Platform for Additive Manufacturing Project) Team, using Fused Deposition Modeling and Markforged Mark Two 3D printers developed the



prototype to assist hospitals as they easily run out of respirator valves. These valves connect patients in intensive care to breathing machines. Respirator venturi valves are commonly used by hospitals worldwide because these can be used for a maximum of eight hours at a time.

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MATDEV is also working on 3D printing prototypes of parts of the Multiple Patient Ventilator Splitter and Mechanic Ventilator- Mini-War Zone. Also listed by DOH as one of badly needed equipment for COVID-19 treatment, ventilators are machines that help to get more oxygen into the lungs and take carbon dioxide out. It is designed to breathe for somebody who is unable to breathe effectively on their own.



Ventilator Splitter



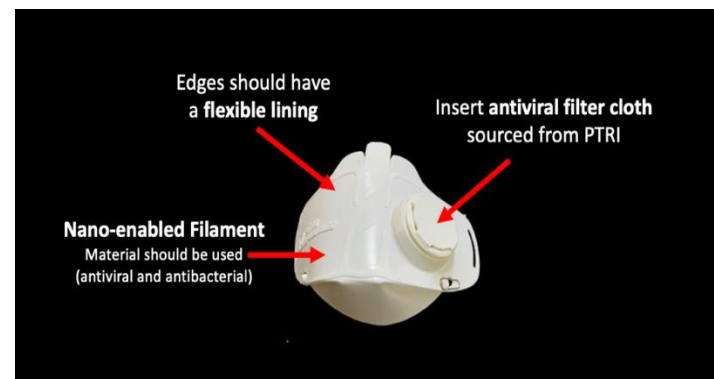
Mechanic Ventilator-Mini-War Zone

Currently, five hospitals in Metro Manila are waiting for their 3D printed prototypes of ventilator parts.



Further, the Team is improving nebulizer mask design. They developed a 3D printed filter attachment for use in commercially available masks such as the Modified Oxygen Concentrator Mask. The attachment allows for a more efficient way for patients to breathe in medications.

They also 3D printed a prototype of N95 mask and are now considering some improvements for optimum functionality by using nano-enabled filament material, an anti-viral filter cloth, and adding a flexible lining on the edges of the mask.



Meanwhile, ITDI donated 100 3D printed frame and face shield assemblies to the Perpetual Help Medical Center in Las Pinas City on April 14. This augmented an initial donation of 100 of the shield assemblies each to the Philippine Heart Center on March 30, and the Lung Center of the Philippines on April 6.

Through innovative thinking and application of research and development advances, the science community can serve the people, help save lives, and impact change. (AMGuevarra\ ITDI S&T Media Service)

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