

During the difficult time of pandemic of Covid 19, VNIT comes forward to the help of city's Covid warriors.

Nagpur's prestigious institute, VNIT, under the able guidance of its Director, Prof. Padole, has developed, in record time, splitters and restrictors for Indira Gandhi Government Medical College and Hospital (IGGMC), Nagpur, for trial to be used along with ventilators.

A ventilator is what stands between life and death as it helps the patients breathe by artificially pumping oxygen through their windpipe. According to WHO report, India has only 48,000 ventilators and as cases pick up in India, ventilators, which are in a short supply, is the biggest worry and same situation can be in our city also because count of the corona patients are increasing day by day.

The doctors of IGGMC, concerned with the possibility of shortfall of ventilators in days to come, contacted Dr. P. M. Padole, who happens to be working in the area of Bio-medical Engineering, and sought the help of VNIT.

Responding to the call, a prototype two-way ventilator splitter was designed and developed at VNIT, using digital manufacturing technology as per the requirement from the city hospital.

The prototype was handed over to IGGMC and the trials have been conducted at Surgical intensive care unit by Dr. Vaishali C. Shelgaonkar, Professor Anesthesiology. The device will help doctors to use one ventilator for two patients. It is a part of preparedness of COVID ICU. The splitters were tested in both, volume and pressure mode of ventilators, in test lungs with different compliances.



Splitters and restrictors developed by VNIT, during testing at IGGMC, Nagpur

According to Dr. Shelgaonkar, in the event of crisis, addition of one or more splitter both on inspiratory and expiratory limbs of ventilator, in series, will help to attach one ventilator to four patients, however, it may not be feasible practically, as the four patients may have different extent of lung damages. But two patients with near similar lung pathology can easily be treated.

Besides the splitters for the ventilators, VNIT has thoughtfully designed an ergonomic ear strain reliever, a small implant, which can be attached to face mask elastic so that strain on ear lobules, caused by the prolonged use of N95 or respirator masks by the doctors, is reduced.

Dr. Shital Chiddarwar and Abhijit Raut, from VNIT, have taken special efforts to for developing the prototype and the strain reliever.

While from IGMC side, Dr. Vaishali C Shelgaonkar and her team of Dr. Medha Sangawar, Dr. Umesh Ramtani, Dr. Samruddhi, Dr. Ketan and Dr. Nagesh have been instrumental in the development of the splitter.

Dr. Shelgaonkar has expressed her gratitude towards Dr. Ajay Keoliya Dean IGGMC and Dr. Ravi Chavan, Deputy Medical Superintendent for their support.

In addition to the above, a team of researchers, led by Dr. Padole is working for the development of a remotely operated trolley for transporting food and other items in the quarantined zones of the patients. The product has already been designed and shortly be manufactured. This trolley has been developed for All India Institute of Medical Sciences (AIIMS) Nagpur. Dr. Mrunalini Phatak, from AIIMS is coordinating the project.

Working on another project, Prof. Bhurchandi and Dr. Patrikar of VNIT have developed an ultra violet chamber for sanitization of masks and other PPEs. The prototype preparation is underway and the UV chamber will also go into production shortly, informed Prof. Padole. VNIT Alumni Association (VNITAA) has taken the responsibility of financing and making available, the gadgets developed by VNIT, to the city doctors, informed Shri. Shashikant Chaudhari, Chairman VNITAA.