

Project at IIPH-Gandhinagar miniaturizes negative pressure chamber for Covid-19 procedures

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AHMEDABAD: The doctors and paramedical staff treating Covid-19 patients are getting infected with the virus. Primary reason for the phenomenon is proximity of the anaesthetists and surgeons to the patients' head and neck area where viral load and presence of aerosols is more.

A team of Dr Atul Gaur, consultant anaesthetist at the University Hospitals of Leicester, UK, and Dr Rajeev Lochan Tiwari, HOD anaesthesia at Fortis Escorts Hospital, Jaipur, have found the solution to this problem in form of I-CAD (infection control assist device) project. The project is incubated at **Nidhi Techno Business Incubator (NIDHI-TBI) at Indian Institute of Public Health, Gandhinagar (IIPH-G)**.

Dr Gaur, lead inventor for the device, said that the project could be defined as a simple solution for complex problem. "Advanced healthcare systems have concept of negative pressure operation theatres (OTs) for management of airborne contagious diseases. It's different than the normal OTs as it's pressure is lower than the adjoining areas, causing the air to flow from higher pressure to lower pressure area, changing the air inside," he said. This helps in reducing the infectious viral load leaking out to reduce the indoor hospital pollution. "But not all hospitals can afford to get such OTs. Thus, the idea was to create a small enclosure that can function exactly like the negative pressure chamber."

Dr Tiwari worked on the first prototype where he used a bin to create the hood-like device with two suction tubes. “Compared to about 12 air changes an hour in negative pressure OTs, the device has air change rate of about 100-120 per hour, which increases its efficiency in removing the virus-laden aerosols,” he said. “We have designed it in such a way that it provides easy access for the doctors, and their hand movement is not restricted. It’s also transparent and does not induce claustrophobia for patients.”

Dr Gaur said that compared to the disinfection of the entire OT, the device can be disinfected and can be used multiple times. “While creating specific OTs for Covid-19 is expensive and time-consuming process, we are hopeful that the device would have cost under Rs 10000,” he said, adding that **IIPH-G** is helping them make a prototype near Ahmedabad based on improved design.

Kamlesh Patel, CEO of NIDHI-TBI, said that intellectual property rights for the design have been obtained. “It’s a concept which would not only be a huge boon for the frontline medical staff during Covid-19 time but also in other infectious diseases both in OTs and OPD setup,” he said, adding that right from the design to manufacturing, they are hand-holding the initiative.

Professor **Dileep Mavalankar, director, IIPH-G**, said that medical innovations aimed at Covid-19 is need of the hour. “This challenge would inspire us to think out of the box and devise solutions which are economic, implementable and accessible for the masses,” he said.

Source: - Times of Indian (24th April 2020)

<https://timesofindia.indiatimes.com/city/ahmedabad/Project-at-IIPH-Gandhinagar-miniaturizes-negative-pressure-chamber-for-Covid-19-procedures/articleshow/75347249.cms>