

NEWS ITEM

Prof. B. Ravi, who was conferred with Abdul Kalam Technology Innovation National Fellowship in 2018, works in Mechanical Engineering Department at IIT Bombay. He also heads Biomedical Engineering & Technology Innovation Centre (BETIC) as well as Desai Sethi School of Entrepreneurship. He guided three young innovators to develop novel medical devices that address unmet clinical needs of financially challenged sections of society. The first is a screening device to identify and alert diabetic patients (currently over 60 million in India) susceptible to foot ulcers and amputations. This was developed by Nishant Kathpal after completing Masters in Electrical Engineering from IIT Bombay.

The second is a novel knee ankle foot orthosis for movement disorder patients, currently over 5 million in India. This was developed by Aneesh Karma and his wife, both Polio victims, who wanted an affordable orthosis that could provide a near-normal walking gait unlike standard calipers. The third product is a pre-sterilized unit for isolation of burns patients, developed by Dinoj Joseph after completing Masters in Industrial Design from IIT Bombay. There are over 7 million burn injuries annually in India, with nearly 0.5 million disabilities or deaths, 75% of them due to infection. The novel pre-sterilized unit can be mounting on to patient bed, while allowing access to clinicians to treat the patients. This can be used in any hospital, circumventing the need for expensive ICUs.

The innovators followed a similar path, starting from identification of the clinical needs and functional requirements from many patients and doctors. They designed, prototyped and tested the devices in accordance with ISO 13485 quality management system. Each won the Biotechnology Ignition Grant of Rs. 5 million from BIRAC, New Delhi and other awards, and incubated start-up companies. The diabetic foot screener has already sold 250 units; the knee ankle foot orthosis is being tested on several volunteers; and the burn patient isolation unit is in advanced prototyping stage. The products have been exhibited at many events such as India International Science Festival. The stories of their 'designed in India, made in India' products are already inspiring many others.



Left-right: Diabetic foot screener, Knee ankle foot orthosis, Burn patient isolation unit,