BioSpectrum the business of Bio & Health Sciences

"Social innovation in healthcare is rising"

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How this start-up from Stanford India Biodesign is making hospital visits safer? In a short span of 200 years, medical science has come a long way from bulky tube based stethoscopes to robots as small as bacteria, swimming in your blood stream to identify and fix problems before they even become known to you. While medical science trots on verge of achieving immortality, India is still combatting public health problems such as tuberculosis, dengue, access to clean water, maternal and infant deaths and access to the most basic medical equipment.

Our nation of 1.25 billion people can hardly be called self reliant when it comes to healthcare devices with over seventy percent of all medical devices being imported into the country. Our so called indigenous products are merely low cost disposables or reverse engineered products that are stripped down of features to reduce costs. The Indian government spends valuable tax-payers money on purchasing exhorbitantly priced foreign medical devices that are not even suited for our healthcare settings and needs. The situation has created huge unmet need for affordable innovative medical devices for our resource constrained settings. Our medical device industry growing at 23 percent per year is a huge opportunity for healthcare innovators to " Innovate in India, Innovate for India".

There has been a remarkable paradigm shift in the last decade with social innovation in healthcare sector rising rapidly to the challenge of addressing the burning needs in healthcare. Programmes like the Stanford India Biodesign are addressing these challenges by training professionals from different backgrounds to solve the unmet needs of our healthcare system. The

programme which runs at the All India Institute of Medical Sciences is structured to train professionals in identifying indigenous needs, coming with feasible solutions within various constraints and making their invention affordable, sustainable and scalable. Dr Balram Bhargava, executive director of the programme says that "We are trying to change the milieu of innovation in India through this initiative." The structure of the programme has rapidly caught on with a lot of institutes across the country, which are now following the model of Stanford India Biodesign in order to develop the medical device innovation ecosystem.

The programme is now evolving into a much larger Biodesign Innovation organization under the leadership of the Department of Biotechnology which is playing a crucial role to develop the Indian medtech innovation ecosystem. A new pedagogy is emerging under the leadership of Dr Bhargava - to entirely train Indian fellows along with international innovators in India itself. Trained under this emerging indigenous pedagogy, Observe Design is the first medical device innovation start-up to emerge from the programme to have been entirely trained at the All India Institute of Medical Sciences.

As their first challenge, the multidisciplinary founding team (Engineer - Product Designer - Clinician) of Observe Design has resolved to eliminate Hospital Aquired Infections from the healthcare settings. Having worked for several months at the ground level with healthcare workers in the All India Institute of Medical Sciences (AIIMS), the team has identified the fundamental causes of poor hand hygiene in healthcare settings. Based on their findings, they have designed a novel wearable hand disinfectant dispenser called Hansure. Agyeya Dwivedi who is the clinician on the team claims that "Hansure will ensure that no infections are ever spread through the hands of healthcare workers".

Hospital Acquired Infections are one of the leading causes of death. CDC estimates that over 4 million people globally lose their lives every year due to some form of HAI. WHO says that over 70 percent of these lives can be saved if healthcare workers across the globe follow the prescribed hand hygiene guidelines. In spite of the established advantages of proper hand hygiene in healthcare settings, the compliance to prescribed guidelines is dismally low. Hand Hygiene Compliance barely reaches 30 percent in the best of facilities. The situation is much worse in India.

"Although hand hygiene guidelines are in place they are just impossible to follow in the existing setup" says Saurabh Bag, the designer in Observe Design team. The problem boils down to ensuring that healthcare workers are compliant with the guidelines at all times. Manually monitoring healthcare workers for hand hygiene compliance is a technique as old as hand hygiene itself. The healthcare managements have however failed to achieve significant improvements in hand hygiene using such methods.

A plethora of electronic compliance monitoring solutions have sprung up in the recent years. " Once we examined the problem in minute detail, we knew that there was something seriously wrong with these electronic compliance monitoring devices. These devices merely build on the same flawed approach of monitoring and penalizing healthcare workers that have failed in the past. We knew that we have to empower healthcare workers rather than forcing them" says Aanan Khurma, the engineer on the team. He says that "Hansure empowers healthcare workers by addressing the fundamental issues that result in non-compliance towards hand hygiene"

The wearable device is able to carry the disinfectant ensuring all time access to hand disinfectant at the point of patient care. Moreover, the smart sensing technology in the device, intimates HCWs at precise instants when they are required to sanitize their hands. All this is done in accordance with the WHO guidelines. The project was initially supported by Johnson and Johnson through their COSAT funding and the company has now received Angel Series funding from a European organization.

The device may be instrumental in preventing spread of dangerous deadly infections such as MERS where healthcare workers themselves become the vehicle of infection transmission. With number of epidemic outbreaks of deadly contagious diseases such as the avian and swine flu on the rise, proper hand hygiene can help in saving a lot of lives.

The World Health Organization is working aggressively to promote hand hygiene in hospital through its SAVE LIVES: Clean Your Hands programme that was initiated to support healthcare workers to improve hand hygiene in healthcare settings. The initiative has evolved into a worldwide effort to curb HAIs resulting in the birth of Global Hand Hygiene Day which is observed on May 5th every year. Observe Design is giving away 100 units of HansureTM to healthcare workers as their support to this initiative.