

SeeTB device can effectively diagnose tuberculosis

By Dr. Bilqeesa Bhat

Delhi based Valetude Primus Healthcare (VHP) Pvt. Ltd. developed SeeTB, a portable microscopy module for TB diagnosis, with support from the Biotechnology Industry Research Assistance Council (BIRAC), a Government of India Enterprise. The efficient screening methods like SeeTB can help to break the cycle of TB infection by highly sensitive screening of every TB patient at the designated microscopy centers.



The innovation would upgrade the existing bright field microscopes for highly sensitive fluorescence-based TB diagnosis system. This point of care device utilizes two novel technologies- cTIRF and SLR.

1. **Compact Total Internal Reflection Fluorescence (cTIRF) excitation device:** A novel patented planar waveguide-based illumination technology was developed by VPH which can be used with bright-field microscope to convert it to fluorescence microscope, without expensive instrumentation modifications to the existing microscopy setup. Evanescent wave-based illumination enhances the resolution in fluorescence imaging and reduces the background noise.
2. **Sputum thinning reagent (SLR):** Sputum processing reagent is a novel method for sputum thinning. Non-specific labelling of debris in sputum leads to poor sensitivity and specificity. Thus, sputum digestion with clearing reagent removes debris and frees the bacilli bacteria present in sputum for fluorescent labelling.

India has the highest burden of TB in the world. Although the Indian government has chalked out an ambitious plan to eliminate TB by 2025, however, it screens only 63% of TB patients

through sputum smear microscopy bright-field microscopes. A person infected with TB, if left undiagnosed, can infect on an average 10-15 healthy individuals in a single year. The existing for TB diagnosing method called ZN-staining, has low sensitivity and misses out over 30-40% of TB cases, as a result, only 63% of TB patients are correctly diagnosed in India. Patents have been filed for the innovation and innovators have received several awards so far.