

How is India tackling the scourge of TB?

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The fact that one-fifth of the world's TB patients are in India (according to WHO) acts as a good catalyst for companies to set up their production units. Also, the vast pool of diseased subjects motivates them to establish their R&D units in India. One example is the setting up of a research facility by AstraZeneca, which is dedicated to TB research among others.

Mr Anandh Balasundaram, MD, AstraZeneca Pharma India, while speaking regarding the center, says, "AstraZeneca's Discovery Research Center in Bangalore is part of our global Infection Innovative Medicines Unit focused on tuberculosis (TB) research and other diseases found primarily in the developing world. Until date, we have delivered a candidate drug to treat TB in both its drug sensitive and drug resistant forms, which also offers the potential to shorten the duration of therapy. The compound is in phase II clinical trials."

Despite having a long history in tuberculosis (TB) research, the disease still remains a major health issue in India. Each year nearly two million people in India develop TB, of which around 870,000 are infectious cases. It is estimated that annually around 330,000 Indians die due to TB. Lack of availability of TB drugs, high costs of treatment with the few drugs available, issues pertaining to early diagnosis of the disease are the primary reasons. In addition to this, the emergence of MDR-TB (multi-drug resistance TB) and XDR-TB (extensively drug resistance TB) have caused significant concern in eradicating TB.

Conventional market-based patent incentives are ineffective in addressing the public health needs in developing countries, with only 1 per cent of the newly developed drugs targeting neglected diseases. New highly potent and fast acting drugs with short treatment regimen are essentially required for treatment of TB which has seen a slow pace. According to reports,

between 1975 and 2004, only three out of 1,556 new chemical entities arrived in the market for TB treatment.

While a chunk of the basic research is currently being conducted within the realms of academic institutions and government-funded research institutes, companies in India are still in the apprehensive mode while allocating their R&D budgets for TB. Dr KK Bhutani, officiating director, National Institute of Pharmaceutical Education and Research (NIPER), Mohali, says, "There is TB research happening in India and I know of around 52 research institutes conducting ground breaking research in TB in the country."

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Despite the grim situation, industry experts are positive that given the presence of a fast growing life sciences industry, India has a huge potential in leading the forefront in TB research. Dr Lucica Ditiu, executive secretary, Stop TB Partnership, comments, "The challenge is clearly huge, but India is rising in the global health arena. The country is moving towards universal access to quality TB care. It has the world's fastest growing pharmaceutical industry and it has huge potential to become a global frontrunner in biotech, medical and public health research."

Initiatives in the field

As a first-of-its-kind government initiative, the Open Source Drug Discovery (OSDD) was launched in September 2008 by the Council of Scientific and Industrial Research (CSIR). It is a \$35 million collaborative research effort that focuses primarily on TB. The vision of OSDD is to provide affordable healthcare to the developing world by providing a global platform where scientists can collaborate and collectively endeavor to solve the complex problems associated with discovering novel therapies for neglected tropical diseases such as TB, thus accelerating research for TB drugs.

To achieve this goal, OSDD aims to reduce the risks in the discovery stage by facilitating collaborations between scientists, doctors, technocrats and students through a collaborative platform. The latest development on this front is the release of its 'Connect 2 Decode' (C2D) project to re-annotate the biological and genetic information relating to the *Mycobacterium tuberculosis*.

"We need to have a balanced view between health as a right and health as a business. It is because there has been imbalance in this view that diseases like TB, with high mortality but low profitability, are neglected by the current system of pharmaceutical research," says Dr Samir K Brahmachari, director-general, CSIR. "As virtually no new TB drugs have been developed since the 1960s, the OSDD's model in particular holds great promise for the scientific community by stimulating the development of better drugs and diagnostics for patients," he adds.