



The Novartis Foundation

Leprosy post-exposure prophylaxis (LPEP) program

Program objectives

The overall aim of the leprosy post-exposure prophylaxis (LPEP) program when it launched in 2014 was to evaluate the feasibility and efficiency of contact tracing and the provision of preventative treatment for leprosy under routine conditions in eight countries, and to determine the impact this has on leprosy incidence.

The program was designed to be easily scaled through national leprosy programs. Throughout its operation, the program has been documenting and integrating the evidence generated and lessons learned to ensure that the approach can have widespread implementation.



The results

Thanks to collaboration from a global network of partners, and the inclusion of the approach in the World Health Organization's guidelines on leprosy prevention and treatment, we now have sufficient evidence to demonstrate that the LPEP model is operationally feasible and resource-efficient.

The results consistently show an increase in the number of cases for the first years of the programs followed by a steep decline - demonstrating increased identification of dormant cases which, once identified, led to treatment and a knock-on effect of reducing the overall amount of leprosy cases. This means that in countries with high rates of leprosy, the introduction of contact tracing and issuing of preventative treatment could reduce the number of new cases detected annually by 50% in 5 years and by 90% in 25 years.

- In Tanzania, our LPEP program screened 5,807 at risk of leprosy, giving 80% of those preventative treatment.
- In Brazil, 24,282 people were screened and the overall number of new leprosy cases in pilot centers reduced to <5
- In Indonesia, we continued to see a downward trend of new leprosy cases. From the first attempt in 2014, 1,671 were screened and 43 new cases found. By 2018 we had screened 1,805 and the overall number of new cases had reduced to 5.
- In India, there was a 99% compliance rate among leprosy patients for the uptake of LPEP.
- In Cambodia, 283 index patient cases were traced and 3,963 contacts screened - identifying 20 new cases.
- Of the 55,715 contacts that our LPEP program traced in Nepal, 94% were identified at high risk and provided treatment.



How it works

Since 2014, the Novartis Foundation and partners have been working with Ministries of Health to implement LPEP in eight countries - Brazil, Cambodia, India, Indonesia, Nepal, Myanmar, Tanzania and Sri Lanka. Over 170,000 contacts of patients have been screened and over 150,000 received preventative treatment.

Once a new patient has been diagnosed, health services actively screen household members and neighbors of the patient and examine them. Symptomatic persons are promptly referred for multidrug therapy (MDT) and asymptomatic contact persons are offered a post-exposure prophylaxis (single dose rifampicin), to reduce their risk of developing leprosy by 50-60%. This active contact tracing of newly diagnosed patients is a targeted strategy to prevent leprosy and to accelerate diagnosis and prompt treatment among those most at risk.

LPEP also includes the Cambodian Retrospective Active Case Finding program, which develops an alternative methodology to ensure early detection of household members and neighbors of leprosy patients diagnosed up to ten years earlier. By focusing on areas where clusters of index patients are located, the program works to increase the efficacy of a small team of leprosy diagnostic

experts, by tracing, screening and managing all contacts in a single "drive". This approach is repeated until all high-priority operational districts, identified through high case detection rates or a high proportion of child patients e.g., have been covered. Working with the Cambodian National Leprosy Elimination Program and the Comité International de l'Ordre de Malte (CIOMAL), the program trains healthcare workers, strengthening capabilities in the detection and treatment of leprosy. In 2016, Cambodia expanded its contract tracing approach to include the provision of preventative treatment. In Brazil a similar approach, complementing the evidence from the LPEP program, is used in the "PEP-Hans" project that explores the administration of chemo- and immunoprophylaxis simultaneously (with 30 days interval) to about 20 contacts per index patient. This initiative is implemented in 16 municipalities of Mato Grosso, Pernambuco and Tocantins states and covers index patients diagnosed between 2015 and 2017.

LPEP partners include several International Federation of Anti-Leprosy Associations (ILEP) members: Netherlands Leprosy Relief, FAIRMED, American Leprosy Missions and the German Leprosy and TB Relief Association, and two academic institutions: the Erasmus University Medical Center and the Swiss Tropical and Public Health Institute.



The future of LPEP

Based on the success of the program, the World Health Organization announced the inclusion of the LPEP model in their revised Global Leprosy Strategy for 2016–2020. It is the intention of the program to continue to expand its operations and share its valuable learnings to support widespread implementation into national leprosy programs.

THE NOVARTIS FOUNDATION'S STRATEGY TO INTERRUPT THE TRANSMISSION OF LEPROSY

Despite the availability of free multidrug therapy (MDT) drastically reducing the number of leprosy patients over the past 30 years, the number of new patients diagnosed with leprosy has plateaued over the last decade at about 200,000–250,000 per year. In several countries across Asia and Africa, leprosy remains endemic in high-burden pockets. Now, the challenge of covering the last mile to make leprosy history is to interrupt its transmission.

Although there are still uncertainties as to how leprosy is transmitted, one of the high-risk factors is close and frequent contact with an infectious patient. Once infected, the average incubation period is about 5 years and it can take as long as 20 years for symptoms to appear.

Disabilities are secondary complications which result from late diagnosis, when the nerve damage caused by leprosy is already present, or from acute inflammatory reactions that can occur at any stage. MDT has made it possible to treat patients, reduce transmission and prevent disability. Early detection and prompt treatment is currently the best approach to control the disease.

TOWARD A WORLD WITHOUT LEPROSY

The Novartis Foundation has been active in the fight against leprosy for 30 years. The LPEP program is part of the Novartis Foundation's focus on exploring innovative interventions to bring the world closer to the eventual goal of leprosy elimination.

The strategy is based on consensus reached by a group of leading leprosy and disease elimination experts, who agree that a successful program requires:

- early diagnosis and prompt treatment for all patients
- tracing (also known as active screening) and post-exposure prophylaxis for contact persons of newly diagnosed patients
- development of new diagnostic tools
- action-oriented surveillance systems