Dr. Rie Yotsu Researcher Profile: Addressing Neglected Tropical Diseases

Tue, 06/17/2025 - 11:11

|

Rie Yotsu, MD, PhD, MPH, DTM&H

View PDF

Dr. Rie Yotsu is an associate professor in the Department of Tropical Medicine and Infectious Disease at the Celia Scott Weatherhead School of Public Health and Tropical Medicine at Tulane University. A dermatologist with a focus on global *health, she specializes in skin-related neglected tropical diseases (skin NTDs). She played a leading role in developing the first World Health Organization framework on skin NTDs and promotes integrated approaches to diagnosis and treatment of skin diseases in low-resource settings. Her research centers on the epidemiology, surveillance and clinical management of skin NTDs, with a recent focus on digital health. Dr. Yotsu serves as a consultant to the World Health Organization and holds leadership roles in dermatology and global NTD initiatives.*

My research starts with a simple belief: Everyone deserves access to safe, effective health care, no matter where they live. I focus on skin-related neglected tropical diseases, which affect people in some of the world's most underserved communities. These skin conditions, which include leprosy, scabies and Buruli ulcer, affect millions but receive little attention in global health.

Leprosy, for example, is still found in more than 120 countries and causes an estimated 200,000 to 250,000 new cases each year. Its symptoms develop slowly and often go undetected for years, leading to permanent damage to the skin, nerves and eyes. In many of the places where I work, access to specialized care is limited, and diagnosis often comes too late. That's why my team focuses on improving early diagnosis, before these conditions cause serious, lifelong impacts.

> “Federal investment in science pays off. It fuels progress in global health, reduces long-term healthcare costs and supports real change in communities that face the highest burden of disease."

Leprosy also carries a deep stigma. In some communities, I have met patients who avoided care for years because they feared being judged or shunned — not just for themselves, but for their entire families. I have seen the consequences of delayed diagnosis, such as children who stopped going to school and individuals losing their livelihoods or standing in the community. These are not just medical problems. They are social and emotional challenges.

As I came to better understand these challenges, I collaborated with engineers to develop the eSkinHealth app, which is a digital health tool that allows frontline health workers to securely record patient data, capture clinical images and consult with remote dermatologists. The app helps bring care close to where patients live. Specialists can review cases without traveling, and patients get faster diagnoses and treatment. The app works offline, storing data even in areas with poor internet connectivity. With support from the National Institutes of Health (NIH), we are now testing the feasibility of this approach in Sub-Saharan Africa, with promising results. Beyond supporting individual diagnoses, our project has been helping build the capacity of frontline health workers. Having access to specialist feedback through the app is like receiving bedside teaching — and this continuous learning leads to sustainability, which is our long-term goal.

Our approach could potentially also aid rural U.S. communities, where fewer than 10% of dermatologists practice. In fact, the U.S. has the highest number of new leprosy cases among high-income countries, averaging about 150 to 250 cases each year. These patients need to be diagnosed and provided care, and tools like eSkinHealth — and the AI-based screening tools we are developing — may help fill that gap.

This work connects to Louisiana’s history. From 1894 to 2005, the state was home to the National Leprosarium in Carville, one of the few facilities and the largest of its kind in the United States. The National Hansen’s Disease Program still operates today in Baton Rouge and continues to care for people affected by the disease from both inside and outside the country. At Tulane, we are proud to continue this legacy while addressing the modern challenges of leprosy and other skin NTDs.

While leprosy is a curable disease — with its first effective drug found in Carville in 1943 — treatments have not evolved much since the 1980s. There is still no reliable diagnostic test. This must change, but developing new treatments and tools all requires investment. Unfortunately, NTDs often receive minimal funding, which leaves little room to make progress.

I work closely with the WHO to advance integrated approaches for skin NTDs and promote better skin health globally. Policy change is guided by evidence. Strong evidence comes from the collection of good data from good projects, and good projects depend on trust. Building that trust with communities takes time, consistency and presence. Thanks to NIH support, we have created systems that help frontline health workers bring care to people who have gone far too long without it, while simultaneously generating the high-quality data needed to inform policy and improve outcomes.

Our team has built strong partnerships with national health ministries and international public health agencies. We have introduced innovative tools in clinics and trained frontline health workers to use them, helping translate research into everyday medical practice. This work saves lives and reduces suffering, but it relies on sustained investment. In the long run, local health systems must lead these efforts for lasting change, but that transition takes time and planning. Sudden budget cuts could delay or halt the development and delivery of tools and treatments that help vulnerable populations — many of which have potential for broader application in today’s interconnected world. There are no borders for infectious diseases. Without consistent and respectful support, research teams like ours would lose the ability to move promising solutions into real-world use.

I have seen the results. I have seen people regain mobility, return to school, go back to work and reconnect with their communities. In places that had no diagnoses, there are now answers. In places with no treatment, there is hope. These outcomes are possible because of federally supported research. They show why this work matters.