



Case Study: Cambodia's 115 Hotline

Expanding Access to the Reporting and Detecting of Disease Outbreaks

Principle(s) Addressed

Reuse and Improve, Build for Sustainability, Understanding the Existing Ecosystem



Overview

Cambodia's 115 health hotline is a tool that aims to improve disease detection, expedite response times to illnesses, and inform the population about possible threats. When creating the hotline, the InSTEDD team reviewed the [government's existing reporting and response](#) mechanisms and essentially expanded and refined them. While there had been a single toll-free hotline operated by the country's Ministry of Health, it was redesigned into a voice response system using InSTEDD's [open source](#) interactive tool, "Verboice."

The InSTEDD team also ensured they [designed with the users from the start, engaging with communities for ideas and feedback](#). Any proposed solution, no matter how easy or effective, cannot happen without community buy-in and ownership. Overall, the project resulted in many promising outcomes, including:

- Citizens' trust in the system, and not fearing to report potential disease threats
- Reports from health centers throughout Cambodia that are more timely, accurate and frequent

Objectives

To assist the Cambodian government detect infectious diseases signal, [InSTEDD iLab Southeast Asia](#) helped build a public health hotline that can be accessed by dialing 115. The main goals included:

- Bridging gaps in data collection, tracking and reporting from health centers throughout Cambodia to provide accurate first-hand accounts and cost-effective processing of information to inform health experts and decision-makers on the health of the country's 15 million people.
- Providing Cambodian citizens with a health hotline that was free and easy to use. They would no longer be required to travel in the heat or rain to a health clinic for reporting or getting updates on emerging diseases. Instead they can now simply make a phone call to report an abnormal disease or illness and educate themselves on preventative measures.



Background

The idea for a health hotline has made extensive use of [understanding the existing ecosystem](#), [reuse and improve](#), and [build for sustainability](#) in mind. The idea for a health hotline originated from a design hackathon, which was spearheaded in 2013 by the [Skoll Global Threats Fund](#) (Which became [Ending Pandemics](#)). Public health and technology experts convene to discuss challenges faced by public health officials working in low resource communities. In January 2016, the InSTEDD team collaborated with the Cambodian Ministry of Health's Center for Disease Control (Cambodian CDC) to roll out '115': a toll-free national health hotline.

The design of the health hotline benefits both the general public and health professionals. It allows the general public to easily make a call via mobile phone and report an outbreak signal or obtain information posted by the Cambodian CDC. At the same time, the hotline provides a means for frontline health professionals to effectively report infectious disease data. Using their mobile phones to dial into the hotline, health workers can report real-time disease data, and the weekly infectious disease report, a job that once required more time, more administrative paperwork, and more travel.

The high mobile penetration rates in Cambodia drove the 115 health hotline's design and development. It allowed the InSTEDD team to create a low-tech solution that was available to anyone in Cambodia with mobile network coverage.

RESOURCE

Visit [INSTEDD Website](#) for more information



Poster advertising the 115 hotline in Cambodia.





Actions

InSTEDD's core approach in designing the 115 health hotline was to be very agile and prioritize [collaboration](#), incremental delivery, continual planning, and [continual learning](#).

Analysis & Planning

It took several years of working directly with the Cambodia Ministry of Health and the community to understand the country context, challenges, opportunities and to build trust. Located in country, the InSTEDD team did fieldwork across projects (not only focused on infectious disease, but on HIV, Malaria, etc.) in which the target community was the same. They visited health centers to better understand their work, reporting and challenges. Prior to the 115 hotline, the InSTEDD team prototyped the [reporting wheel](#), which was tested and piloted with 10+ health centers.

Overall, it took a few years to transition from conversations about the 115 health hotline to its actual creation. To identify key features that users needed and to ensure that service performance was at the forefront, the InSTEDD team [utilized the information and experiences gathered from their prior engagements with the community](#). Throughout the analysis and planning phases, they continued to interact with others – speaking to users and community health leaders – to reimagine and build a [sustainable health hotline](#). Long-term [sustainability](#) can be facilitated by obtaining strong buy-in from the community and government, specifically the Ministry of Health and the Ministry of Posts and Telecommunications.

Design & Development

From the start, the InSTEDD team wanted to design a health hotline that would be [able to scale](#) in the long-run, but faced two major hurdles: (1) they didn't have resources upfront, and (2) they needed full political acceptance, which would come through design, field testing, and then improving the design of the product.

DID YOU KNOW?

[In response to COVID-19](#), the 115 hotline has also become the primary channel to screen eligibility for testing and has helped communities participate in preventative activities. For instance, the Cambodian people have been able to uphold social distancing requirements since they can make a phone call to report symptoms or hear information about the latest public health threats. In many ways, it provides a measure of safety for both the public and health staff.

RESOURCE

InSTEDD's reporting wheel simplifies the interaction between health workers and the system to ultimately allow them to report disease cases in a semi-structured way. <http://ilabsoutheastasia.org/it-without-software-2/>



In Cambodia since 2009, the InSTEDD team had a good understanding of the existing ecosystem, which was key to building a sustainable health hotline that would integrate the initial human system (of picking up the calls), the champions, and what they hoped to achieve. With high mobile penetration rates within Cambodia, the InSTEDD team determined that a low-tech solution was possible and would enable people from all across the country to have access to the 115 health hotline. This low-tech solution is also beneficial since it is voice activated and does not require high literacy rates.

The creation of the 115 health hotline was a continuous iteration of development and testing, where staff redesigned an existing limited hotline into a toll free interactive voice response line with a more structured database system. The staff presented it to end-users, received feedback, and continued to rework features until they produced a product that resonated with users. This included adding a keypad entry combination to make case entries easier, and adjusting the forwarding of calls from the public to health operators to promote fair distribution.

Deployment & Implementation

Because the 115 hotline was an improvement on an existing government hotline, it was able to quickly transition from the design and development phase to implementation. The standard process involved the InSTEDD team working with the Cambodian Ministry of Health to determine what the features of the system should look like, create it, and then test it in the field. To build public awareness for the tool, a campaign was conducted both online via Facebook and offline using conventional tactics, such as radio, banners, and posters in health centers in the community.



Monitoring & Evaluation

The 115 hotline system collects health data from the grass-roots level to better inform the country's health landscape. The Ministry of Health can see how many times users call into the 115 hotline system to report health symptoms or to educate themselves on emerging health issues. From that, the team can evaluate the community's needs, update the content users are listening to, and reflect the country's health situation. It is used as the official means to inform and provide immediate health related information.

The 115 health hotline has become an integral part of Cambodia's public health services by helping tackle disease and improving Cambodia Ministry of Health workflows. Since its roll out in 2016, the amount of data collected by the Health Ministry has increased, and reports submitted by health centers and health workers are improving timeliness and accuracy of reports, as well as enhancing investigations into outbreak response and prevention measures. It has also helped reduce the operational costs for the Cambodia CDC in collecting weekly routine disease reporting from over 1300 health centers. One of the greatest moments of 'realized' success arrived in 2017 with a call by a farmer in Svay Rieng province that led to a confirmed case of H5N1. Even though his chickens were killed to stop the spread of the disease, he was happy that the outbreak was contained and that his family was protected. Although it's difficult to estimate the full impact of the hotline during COVID-19, the InSTEDD team has already recorded:

- Calls increasing from 500-600 calls per day to ~20,000 calls on peak days
- Roughly 75% of callers accessing the health education menu
- Roughly 25% of callers reporting suspected COVID-19 cases or symptoms

The InSTEDD iLad Southeast Asia continues to support the 115 Health Hotline as it scales and grows.

Challenges

When designing at the national level in low-resource countries, there is a need to assess the level of acceptance, verify the channel that people can engage in, and determine the learning curve. For the InSTEDD team, the biggest concerns when trying to improve Cambodia's public health system were literacy, financing, and the interest of the public.



Photos from 115 hotline training in Cambodia

COVID-19 Response

The Cambodian CDC is using the hotline as a primary first point of contact for all potential COVID-19 cases in the country. While testing is limited, this approach is helping reduce any potential pressure on the health system.

At the beginning, the InSTEDD team needed to convince the Ministry of Health that the 115 health hotline was a good idea, as there were other organizations supporting the Ministry of Health on disease reporting, but not specifically on close outbreak signal detection from the community. [Collaborating](#) with groups such as the World Health Organization (WHO), InSTEDD built a tool to complement the work WHO had done in deploying DHIS2 (District Health Information Software 2) for data gathering and reporting from district levels. The InSTEDD team went beyond discussions, and on a small-scale, tested and improved the health hotline to demonstrate to stakeholders how it helps gather reporting from the health center level (or grassroots level) and feeds the data into DHIS2. Because InSTEDD was working for both government and end-user buy-in and addressing needs, extra diligence and effort was necessary to ensure all stakeholders were included and informed.

"For people in poorer communities, health is not a critical priority and not something that they'd spend money on. Survival is more important. The engagement of people in a public venue must then be based on creating something that is simple in terms of cost and literacy levels."

- Channe Suy Lan, Managing Director of InSTEDD's Southeast Asia iLab.

Lessons Learned

- The key factors to developing a successful product is to develop trust and solid [partnerships](#). Having worked in Cambodia since 2009, the INSTEDD team built a strong working relationship with the Cambodian Health Ministry, which helped open the door to the 115 health hotline.
- [Ensuring the sustainability](#) of the hotline requires a product that responds and aligns to the core work. The 115 hotline is part of the public health solution provided by the Cambodian government; it is essential to detecting disease outbreaks. Therefore, even after external funding ends, the government will continue to fund it. The hotline has also reduced operational costs, which also contributes to its sustainability.
- [Working directly with the user](#) early into the design process and including them as an active participant is critical to the product's success. It's important to determine their level of acceptance, the channels that they might engage in, and calculate their learning curve.
- Created using [open-source](#) technology, the 115 hotline model can be quickly replicated and adapted by other countries. While it does not have to be exactly the same, the key is to mobilize the limited resources available in country to garner the greatest impact possible. The 115 health hotline has done just that in Cambodia – delivering real-time data to health officials and reducing the burden on its health care system.