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Treating Refugees, Three Minutes at a Time

Emergency medical response nonprofit works faster and smarter with offline GIS mobile tools

For anyone like the millions of Syrian people seeking refuge, living in crisis and extreme poverty poses many health risks. Poor skin care is a danger, and it's often a neglected area of public health.

Untreated skin conditions can lead to troubling health issues, such as physical pain, infection, and the inability to work. To help Syrian refugees at risk of such issues, Direct Relief—a global nonprofit that provides medical resources in more than 70 countries—organized a six-day mission to treat and document skin conditions among refugees living in a rural area of Jordan. With several obstacles ahead and hundreds of people in need of immediate medical attention, Direct Relief incorporated Esri's latest geographic information system (GIS) technology into its action plan to take its mission to the next level.

Navigating a Crucial Process

The teams that Direct Relief dispatched consisted of a general practitioner, a dermatologist, and a medical record scribe who worked together each day in an outdoor tent, treating as many patients as possible before sunset.

With limited resources and only daylight available, teams had approximately three minutes to diagnose, treat, and record each patient's visit. And with hundreds of refugees to treat in Jordan, Direct Relief needed to speed up the medical data collection process while maintaining accuracy. To ensure local partner agencies could locate patients and provide critical follow-up care, the organization also needed to capture and share patients' geographic information as part of triage.

"Under these demanding field conditions, any amount of time a scribe spends not being able to see a computer screen properly or waiting for the next survey to load—all of these moments add up and become critical to the whole process working smoothly," said Andrew Schroeder, Direct Relief director of research and analysis.

↑ Direct Relief built a powerful survey tool fast with Survey123 for ArcGIS. The custom mobile app delivered advanced logic and branching, embedded images and audio, and multilingual capabilities.

Equipped with the Right Tools

Direct Relief worked with Esri to identify a solution to meet the teams' critical needs. The nonprofit supplied each medical record scribe with an Android tablet equipped with Esri's new Survey123 for ArcGIS app. Survey123 for ArcGIS supports disconnected editing and simple data capture through customizable forms. Despite the remote nature of the refugee camps and limited time, the scribes were able to easily use the app as part of the triage process.

Using the app's offline capabilities, scribes quickly entered accurate data for each patient, including name, symptoms, diagnosis, and location. Teams also

← Direct Relief medical teams embarked on a six-day mission in rural Jordan to treat Syrian refugees. Each team was supplied with Android mobile devices equipped with Survey123 for ArcGIS.

← Medical scribes worked quickly, efficiently, and securely while recording patient medical and geographic data in custom forms.

uploaded audio and photos to medical records and used the app's multilanguage function in the surveys. When teams returned to camp each day, Direct Relief was able to sync and instantly share the data with partner agencies via real-time maps hosted in ArcGIS Online.

Solutions That Succeed Offline

By implementing an efficient data entry workflow with Survey123 for ArcGIS, teams maximized their time in the field and shared data-rich maps with partner agencies. Direct Relief treated and collected data on up to 200 patients per day and managed to record information on more than 1,200 refugees in six days.

"With Survey123 for ArcGIS, our goal was to see as many refugees as possible with skin conditions. It was a success. We provided treatment for everyone who needed it and were able to turn over a useful dataset to our local partner to continue [the team's] efforts," Schroeder said.

Partner agencies were able to utilize the shared data to identify the exact location of patients who needed critical follow-up care and prioritize where to dispatch medical teams based on the severity of patients' conditions. Local agencies also relied on embedded audio and photos in patient medical records to provide optimal follow-up care.

Direct Relief continues to use the data collected from the campaign to determine where to allocate limited resources. Since Survey123 for ArcGIS forms are based on the XLSForm specification, organizations can capture virtually any kind of information they need.

"We learned how to build complex surveys fast," Schroeder said. "In the future, we foresee that Survey123 for ArcGIS will be useful for disaster response situations or anything time-sensitive that requires us to collect and share data."

Direct Relief is now looking to use this data to build web applications and story maps. The nonprofit plans to leverage ArcGIS Online to further share the results of the teams' work so other nonprofits can use the refugee medical data in their planning.

For more information, visit survey123.esri.com or contact Andrew Schroeder, Direct Relief director of research and analysis, at ASchroeder@directrelief.org.

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