PATH

Delivering immunization data solutions

PATH works with multilateral organizations to deliver access to immunization data

PATH's Digital Health Solutions (DHS) team managed the design and development of an Immunization Repository for the World Health Organization (WHO) and Gavi, the Vaccine Alliance, providing access to immunization data, dashboards, and reports to over 300 users across the global health value chain. Below is an overview of how we approached this effort, and the results achieved.

STEP 1: DEFINE THE INFORMATION NEED

WHO and Gavi needed an accurate and systematic way to collect, analyze, and share data among partners around the world.

- New vaccine introductions are projected to more than double in the next decade, and the corresponding demands for data to support new vaccine introductions have been on the rise since 2010 as funding and focus has increased within Gavi.
- The WHO has been the nexus of the data flows, but the ability to provide a holistic picture has been limited because of the methods used to capture and share information.
- Quality and timeliness of data were difficult to ensure, and sharing information among Gavi members was even more of a challenge.

"The channels of visibility (from country to global, and vice versa) are opaque, and are not supported by the exchange of robust and transparent data."
Landscape analysis conducted in 2011

STEP 2: ANALYSIS AND DESIGN

In 2011, PATH completed a landscape of Gavi's existing data systems and processes to better understand the flow of immunization data and challenges hindering it. The analysis revealed the following:

- Transparency and sharing of data between producers and consumers of data were limited and at times only done on a "need to know" basis.

- Current systems made coordination and communications between member countries, WHO Regional Offices, WHO Headquarters (HQ), and Alliance members difficult and time consuming to analyze and coordinate.
- As information surrounding a new vaccine introduction frequently changes with time and different perspectives, alliance members were concerned about the perceived conflicts that would be highlighted on a centralized exchange.

Having defined the existing systems for and challenges with immunization data, the PATH team then designed a system that would track key immunization indicators and data for the WHO and Gavi partners. Using the Collaborative Requirements Design Methodology (CRDM) developed by PATH and the Public Health Informatics Institute, the needs of stakeholders and business requirements were recorded and mapped across functional areas through observations and interviews of potential system users.

Immunization repository regional dashboard with key flag indicators

STEP 3: DEVELOPMENT

PATH then led an evaluation of potential development partners for the software solution. With the goal of building a self-sustaining system, Health Information Systems Programme (HISP) in India was selected to adapt an open source platform (DHIS2) to provide the necessary structure and data analysis tools to achieve stakeholder needs.

Using an agile development methodology, the team released Immunization Repository 1.0 in 2013. Features included:

- Immunization related data for 195 WHO member states and seven WHO regions and sub-regions.
- 420 data elements across 18 programmatic Areas of Work with data imported from multiple alliance sources.
- Global and regional dashboards for calculation and tracking of 18 key flag indicators with easy visual cues.
- Cross-cutting regional and country reports that presented data values as well as helpful qualitative discussions stored in the repository.
- Access for over 300 users among the alliance including data collectors, consumers and donors at WHO, Gavi, UNICEF, the Bill & Melinda Gates Foundation and WHO Regions.

STEP 4: DEPLOYMENT

The Repository was further refined over five months to increase features and functionality by 60 percent. Powerful data visualization and GIS tools were added along with custom reports and data entry tools.

PATH also developed and led hands-on training to build comprehension and reinforce adoption by end users. The training process and addition of data to the Repository began to shift behavior patterns from guarded information practices towards online sharing and openness. Users could now update and review data in near-time and create data visualizations and reports previously unattainable.

"[The repository] represents an important step forward on collecting, organizing and sharing essential data for decision making."
−2014 Repository user adoption survey comment

PATH transitioned the long term management of the system to WHO for continued development and operations at the end of March 2014.

STEPS 5 AND 6: USAGE AND SCALE

While the Repository exceeded the initial goals of the project, now reaching almost 450 users from the 194 WHO member states, there is potential to scale it even further:

- Create deeper integration and sharing with existing external data sets from other Gavi partners.
- Provide data reporting analytics and user rights to help countries prepare Gavi applications.
- Provide access and updates at the country level to alleviate data collection burden and share data in near real-time enabling data aggregation and improved decision making.
- Combine and summarize immunization supply chain data below the country level to help with forecasting, or monitor immunization coverage data to identify opportunities or potential hazards at an early stage.
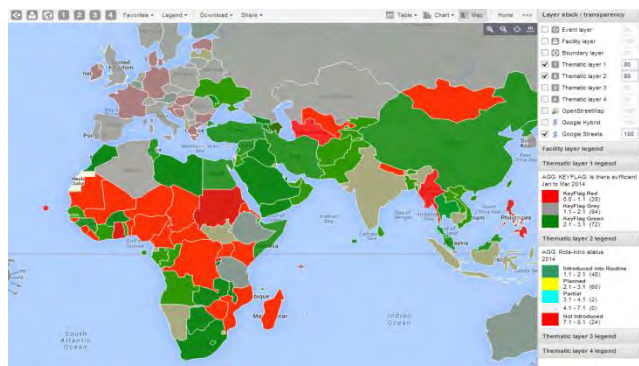
Geographic information system example of cold chain key flag indicator status and Rotavirus introduction plans overlayed to visualize readiness.

HEALTH IMPACT DELIVERED

The introduction of the Immunization Repository brought the project partners together on one common and shared platform so that they can now:

- Focus attention on key indicators of success for new vaccine introductions.
- Apply resources to remove barriers.
- See the full picture of a country's needs.
- Address problems as they arise.

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