The Health Workforce Information Ecosystem

Strengthening connections between health workforce information domains and e/mHealth technologies

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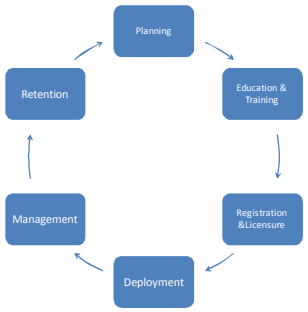
Figure 1: Good health worker data are needed to support health workers in a variety of ways



Introduction and Purpose

Health workforce information systems have been proliferating recently in countries to address different health workforce needs (*figure 1*), including management systems in the public and private sector, regulatory information systems including professional council registration and licensure, and training information systems. However, these different systems are not reaching their full potential due to failure to work as an interoperable whole.

The iHRIS open source community, supported by the global Capacity*Plus* project, leads the development and deployment of the iHRIS open source health workforce information software. This software is currently used by 19 countries to support more than 950,000 health worker records.

Due to this success, the Capacity*Plus* project was asked to lead the health worker registry community of PEPFAR's Open Health Information Exchange (OpenHIE) project (www.ohie.org) to establish an open architecture, community of practice, open standards, and an open source reference technology to facilitate interoperability of these component systems and a greater understanding of the national health workforce.

Figure 2: The health workforce information architecture has multiple domains of management, training, and regulatory information systems and sources

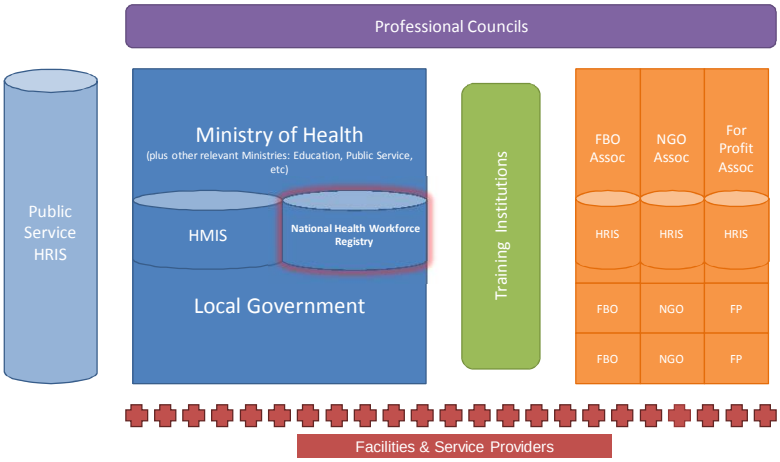
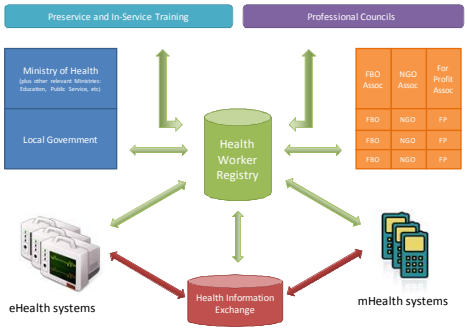


Figure 3: The health worker registry links the health workforce information domains with eHealth and mHealth technologies using the Care Services Discovery exchange standard



Findings

In order to establish this interoperability, an international data exchange standard was needed. The OpenHIE Health Worker Registry (HWR) community worked with the Integrating the Health Care Enterprise (IHE) international standards body to develop a new data exchange standard—Care Services Discovery, or CSD (*figure 3*). This technology is open and collaborative, available for support by a wide variety of technologies, including iHRIS, DHIS 2, and UNICEF's RapidPro platform.

These three technologies have been rapidly combined into the mHero (www.mhero.org) platform in the Ebola response in Liberia and the other outbreak countries—effectively creating a health worker communications and coordination platform.

By linking e/mHealth technologies with national iHRIS health workforce management and regulatory systems through CSD, countries can now share health worker data across systems, effectively linking the preservice education "supply" side for health workers with the "demands" of health service delivery.

In addition to the Ebola outbreak countries, other countries now rolling out this approach include Nigeria, Rwanda, and Zimbabwe. Other countries are actively exploring the opportunities.

Design and Methods

The USAID global Capacity*Plus* project has been working with PEPFAR and a variety of other partners to define a health workforce information architecture (*figure 2)* to facilitate appropriate design and support of these component systems. This architecture features a national health workforce registry that uses a minimum data set from different data sources and component systems to create a complete picture of the national health workforce and to make these data available more broadly to other eHealth and mHealth applications.

Conclusions

Open source technologies and open standards approaches make a formidable combination to address information needs. Many stakeholders are involved with health workers at the national level; none of them have a complete picture of the health workforce. This picture can only be achieved through an interoperable health workforce ecosystem—whether for epidemic response or essential health systems strengthening.

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