



Commentary

Who is preparing the next generation of immunization supply chain professionals? ☆



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1. Introduction

“Countries can no longer rely on a handful of appropriately trained individuals to distribute vaccines worth tens of millions of dollars. Any improvement to vaccine delivery will require a substantial increase in the number, training, and retention of logistics staff.”

[1]

Organizations in high income countries (particularly the private sector), have acknowledged the importance of supply chain and need for professional supply chain personnel for many years, while government run supply chains in many low income countries still do not recognize this need [2,3]. It is estimated that by 2020, the Gavi Vaccine Alliance (Gavi) eligible countries, will manage twice as many vaccine products as in 2010, with quadruple the volume and five times the value [4]. As new vaccines are introduced and new technologies are becoming available that can improve efficiencies more supply chain professionals will be needed with the appropriate technical and leadership competencies to run immunization supply chains from end to end. Gavi has been one of the first international bodies to articulate the complex interrelationships that need to be addressed if we are to move towards highly performing,

next-generation supply chains, by focusing its immunization strategy on improvements that can be made through leadership, continuous improvement, data, better cold chain equipment, and system design [4].

There has been an increasing focus on professionalizing human resources for supply chain management starting with Project Optimize in 2007 (<http://sites.path.org/vpsse/optimize/>) and more recently with the People that Deliver (PtD) Initiative in 2011 (www.peoplethatdeliver.org). Tasks within the supply chain are often not considered as requiring a professional role or specialized training and this leads to inefficiencies in the supply chain [2,3,5,6].

A key lever for change is to ensure that supply chain professionals with the right competencies are placed at the right level within national health supply chain systems [4,6]. This invites the question “who is preparing the next generation of immunization supply chain professionals”?

Effective supply chain management with strong leadership is critical for any system change and must be placed within the context of a comprehensive systematic approach to human resources (HR) by focusing on the five building blocks for human resources development; engaging with stakeholders, optimizing policies and plans, identifying workforce development and performance management initiatives, and supporting processes for professionalization [6,7]. This will build the required support for the development of effective supply chain professionals through appropriate policies, improved performance and retention, and professionalization of the supply chain workforce.

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Table 1
Summary table of resources – tools and guidance.

Organization	Tools and guidance offered	Web link
<i>Specific immunization and supply chain project resource repositories that have been developed and shared in recent years by a range of partners</i>		
Project Optimize 2007–2013	All materials generated by the project	http://www.who.int/immunization/programmes_systems/supply_chain/optimize/en/
USAID DELIVER PROJECT 1986–2016 Management Sciences for Health	All materials generated by the project Systems for improved access to Pharmaceuticals and services program (SIAPS)	http://deliver.jsi.com/dhome/ https://www.msh.org/our-work/projects/systems-for-improved-access-to-pharmaceuticals-and-services-program
PFSCM (John Snow International and Management Sciences for Health)	Supply Chain Management System (SCMS)	https://www.msh.org/our-work/projects/supply-chain-management-system
<i>Organizational based immunization and health supply chain resource and training repositories</i>		
UNICEF Supply Division	General guidance and tools	http://www.unicef.org/supply/index_immunization.html
WHO	Immunization	http://www.who.int/topics/immunization/en/
WHO	Immunization and vaccines	http://www.who.int/immunization/documents/en/
PATH	Vaccine resource library	http://www.path.org/vaccineresources/
VillageReach	Resources	http://www.villagereach.org/resources/
<i>Themed resource repository</i>		
UNICEF SD	Cold Chain Support Package	http://www.unicef.org/supply/index_68367.html
Life Saving Commodities Practitioners Network	Knowledge services in reproductive, maternal, newborn, child and adolescent health (RMNCAH).	http://www.lifesavingcommodities.org/category/knowledge-library/tools-guidelines-job-aids/
GAVI Alliance People and Practices Working Group*	HR Country Support Package for Immunization Supply Chain Managers	http://www.peoplethatdeliver.org/node/26646
People that Deliver	Technical Guidelines and tools for human resources development	http://www.peoplethatdeliver.org/content/technical-guidelines-and-tools
<i>Global resource repositories that work across health supply chain commodity groups</i>		
Reproductive Health Supplies Coalition	LAPTOP – Web based health supply chain interface	http://www.rhsupplies.org/activities-resources/tools/laptop/
I+ Solutions with WHO	Procurement and Supply Management (PSM) Tool box	http://www.psmtoolbox.org/en/

N.B. This table does not represent all of the web based tools and resources currently available.

2. Aim

This commentary presents a number of the current projects and initiatives seeking to develop the next generation of health supply chain professionals and calls for increased engagement with country governments to further support systematic approaches to HR to develop the professionals needed to sustain the next generation of immunization and health supply chains.

International aid agencies, donors, and NGOs are working together to promote professionalization of supply chain management, with this community launching a number of initiatives in recent years, ranging from Project Optimize (2007), a collaboration between the World Health Organization (WHO) and PATH on optimizing immunization supply chains to meet the demands of a large portfolio of vaccines, to the People that Deliver Initiative (2011), a global partnership seeking to provide a coordinated, multi-organizational approach to addressing human resource issues in health supply chain management. In addition, there has been much work undertaken by UNICEF, WHO and other global partners to develop and share tools, training and other resources for country-based immunization supply chain practitioners (Table 1).

3. Professional development initiatives

The following professional development initiatives and activities are available globally that aim to professionalize and equip immunization supply chain professionals. These include:

- International networks
- Regional centres of excellence
- Academic degree programs
- Leadership development programs
- Supporting tools, guidance and training programs

3.1. International networks

Three prominent immunization and health supply chain networks have been developed by the international community to

support professionalization and systematic strengthening of immunization and health supply chain managers, particularly in low and middle income countries.

In 1989, the **Technical Network for Logistics in Health** (TechNet) was initiated by WHO, establishing a professional network of experts involved in the management of immunization and other primary health care operations, at both grassroots and global levels. Growing through the years, in 2015, 256 delegates attended the 14th TechNet conference in Bangkok, Thailand (<http://www.technet-21.org/en/>).

In 2007 the **International Association of Public Health Logisticians** (IAPHL) was established. Currently it has a membership approaching 4000 individuals from 138 countries. Hosted by John Snow Incorporated (JSI), IAPHL has a mission to “support the professionalization of supply chain managers and others working in the field of public health logistics and commodity security, with particular focus on developing countries, equipping individuals to strengthen the health systems in which they work.” (www.iaphl.org).

In 2011 the **People that Deliver** (PtD) Initiative was established. Currently it has more than 450 members from over 80 organizations globally. Hosted by UNICEF, PtD has a mission to “promote global awareness, generate evidence-based approaches, and catalyze national capacity to plan, finance, develop, support and retain national health supply chain workforces through global partnership” (www.peoplethatdeliver.org).

3.2. Regional centres of excellence

Global partners have also come together to develop two initial regional centres of excellence for immunization and health supply chain managers in Africa. There is growing interest in developing such centres in Asia and other regions.

Agence de Médecine Préventive (AMP) and WHO, with support from the Bill & Melinda Gates Foundation (BMGF) founded **LOGIVAC** in 2011 to focus on francophone West Africa (extending to Haiti). The project led to the creation of the Benin LOGIVAC Centre, dedicated to strengthening the capabilities of immunization and

public health logisticians and disseminating good professional practices. The centre trains health logisticians through a one year Bachelor's degree and professional immunization short courses. The development of a Masters curriculum is currently being explored (<http://amp-vaccinology.org/activity/logivac>).

The German Development Bank (KfW), Gavi and BMGF founded the **Regional Centre of Excellence for Vaccines, Immunization and Health Supply Chain Management (RCEVIHSCM)** in March 2016 to focus on the East African community. The centre is based at the University of Rwanda's School of Public Health. Short professional courses supporting the development of immunization and health supply chain competencies have begun with a Masters curriculum due to be launched in the near future. The centre will have a focus on education and training, research and consultancy as it develops in the coming years.

3.3. Academic degree programs in health supply chain management

Academic degree programs in health supply chain management are growing in interest and number. A landscape analysis of supply chain management degrees and certificate programs in Africa performed by Massachusetts Institute of Technology (MIT) in May 2016, found 73 complete certificates, degrees, and short courses operated out of academic or academically-affiliated training institutions. The countries included Egypt, Ghana, Kenya, Malawi, Namibia, Nigeria, Seychelles, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe (unpublished report).

For example, following engagement with PtD the School of Pharmacy at Jimma University, Ethiopia, launched the Master's degree in 'Pharmaceuticals Supply Chain Management' in 2013, after an exhaustive consultative process involving many national agencies, NGOs and international donors. Priority was given to the Master's program to produce high calibre cadres. The School of Pharmacy at Addis Ababa University followed suite with a Master's degree in 'Health Supply Chain Management' being launched in October 2016.

3.4. Leadership development programs

Leadership development is becoming a priority for many international donors and public health supply chain projects, with a number of global partners having produced programs to support general supply chain leadership competencies (see the 'PtD Health Supply Chain Management Competency Framework for Managers and Leaders' [8] for such competencies) [9].

Gavi in collaboration with the United Parcel Service (UPS) developed the Strategic Executive Leadership Program (STEP 153). Based on leadership training practices from the private sector, the program targets leaders, managers and senior officials of ministries who are responsible for strategy, policy and decision making. The training follows the 1-5-3 model: one month of distance learning, five days of classroom based learning & three months of mentorship. The program was first run at the Regional Centre of Excellence at the University of Rwanda in 2016 [10].

USAID has invested in leadership initiatives both through the USAID|DELIVER PROJECT and Management Sciences for Health. USAID|DELIVER launched the Supply Chain Management leadership initiative in January 2014 to ensure that countries have supply chain champions in place and champions to advocate for an increased focus on HR, and is developing health supply chain leaders in India through the India Lead Lab. Management Sciences for Health developed the Leadership Development Program Plus (LDP+) [5] in 2002, which targets health leaders and managers to learn the basic practices of leading and managing to create a work climate that supports staff motivation and teams that are committed to continuously improving client services.

3.5. Supporting tools, guidance and training programs

Table 1 provides a sample of what is currently available from global internet-based repositories. They record the work of specific immunization and health supply chain projects, organizations (i.e. WHO, UNICEF), themed and global repositories (e.g. RHSC – LAP-TOP, I+/WHO – PSM Tool Box). Although such knowledge is plentiful in nature, it must first be accessed by supply chain managers through a functioning internet and needs to be applied to their local context. This observation loops back to the need for supply chain professionals requiring the right competencies, at the right level within the national supply chain system, and an enabling environment to be able to apply this global knowledge effectively. An approach supported by undertaking human resources development systematically, with reference to a number of building blocks [7].

4. Change at the country-level

The challenge of global supply chain strategies is applying them to the local context. As Gavi partners move forward to enact country-based change, the Effective Vaccine Management (EVM) assessment tool and other health supply chain assessment tools will be the entry point from which the capacity of human resources at the country level can be assessed [11]. The results of these assessments allow focused capacity development suitable to the country context. Using the five building blocks for human resources development will help build up support for the development of effective immunization supply chain professionals through appropriate policies, improved performance and retention, higher capacity, and professionalization of the supply chain workforce (Fig. 1). Engaging with existing global and regional professional development initiatives should hasten this development.

A good start has been made to advance the professionalization of immunization supply chain personnel, with the development of global networks, creation of centres of excellence and academic degree programs, approaches to leadership development, and development of supporting tools and guidance. What is needed next is for global influencers to advocate for investments in the systematic approach to professionalizing the human resources needed for the next-generation immunization supply chains, and for in-country decision makers to understand the drive for change and create the opportunity for professional development while leveraging initiatives and available resources seeking to support them.

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