



## Contents

Addressing the human factor in public-health supply chains . . . . .	2
Professionalizing supply chain management . . . . .	3
EPIVAC delivers professional training to district medical officers . . . . .	5
Senegal launches demonstration of mobile warehouse . . . . .	6
A new TechNet21 website: preserving its origins; building the future . . . . .	7
Using software to achieve continuous quality improvement in supply chain performance. . . . .	8
Announcements . . . . .	10
New materials . . . . .	10

Dear colleagues,

I am pleased to present the first in a series of newsletter issues that will highlight the work of individuals and organizations around the world that support the global vision for supply chains of the future. While Optimize is involved in some of these projects, many are being spearheaded by others who understand the need to be visionary and innovative problem solvers when it comes to health system supply chains.

This issue focuses primarily on tenet 2 of the draft global vision: Immunization supply systems are designed to maximize effectiveness and efficiency and are built around mechanisms that support continuous learning to improve system performance.

Inherent in this tenet is the need to streamline supply chains, adapt them to various delivery strategies, make accurate demand forecasts, manage for continuous quality improvement, and develop competent staff who are empowered and informed to make decisions. As readers will see, much work around efficiency and effectiveness relates to human resource development; as such we will be adding a tenet to the vision around the human element of supply chain performance.

As usual, we invite your comments and questions and encourage you to reach out directly to authors to learn more about their work.

Sincerely,  
Michel Zaffran  
Director, Project Optimize

## Addressing the human factor in public-health supply chains

by *Benoît Silve, Bioforce Institute*

Over the last several years, as investments in vaccines and essential drugs have grown, there has been increased interest in helping supply chains deliver health commodities and equipment more effectively to the people who need them. To improve supply chain performance it is common to focus on the technical aspects of supply chain improvements: better performing refrigerators, more timely repairs and maintenance, and effective information systems, for example. One of the most fundamental improvements that can be made, however, is to increase the capacity and competence of supply chain managers and health logisticians. In most developing countries health logistics is not considered a profession; there is little training and high turnover, the job is rarely strategic, and there is no clear career track. However, as demonstrated in many high-income countries, professionally trained logisticians and supply chain managers are needed to improve supply chain performance; they fulfill a strategic role in planning and successfully implementing all manner of activities to support health care initiatives.



Photo: Bioforce Institute

**Bioforce Institute**, a nonprofit institute created by Charles Mérieux in 1983, has been providing training in support functions, particularly logistics, to aid organizations for more than 25 years. Bioforce has long recognized that providing “technical training in logistics” does not sufficiently impact health operations. Training on its own is not effective if the organization is not adapted to the context, nor if the person trained is not assigned to a relevant and long-lasting job.

When logisticians are valued as professionals, on the other hand, and supported by appropriate training, they have the potential to take over numerous support functions that are currently burdening the doctors, nurses, and pharmacists; divided among other personnel; or not addressed at all. Indeed, health logisticians play an enabling role at the peripheral/district level. Far from representing additional expenses on the ministry of health budgets, employing and retaining qualified logisticians will likely increase the efficiency of health programs and structures and lower the wastage rate of increasingly costly products and equipments.

Logistics experts in Africa recently endorsed seven key areas of expertise that professional logisticians should have,<sup>1</sup> including the ability to:

1. Plan logistical activities of health structures and programs at the district level.
2. Administrate and coordinate logistics of health programs and structures.
3. Manage the supply chains for vaccines, drugs, and other health products.
4. Coordinate the use and maintenance (including subcontracting) of medical and technical equipment.
5. Coordinate the maintenance of facilities and housing including water and the sanitation of health structures.
6. Ensure effective logistical support of health emergencies and humanitarian operations.
7. Foster intersectoral collaboration and community participation.

---

<sup>1</sup>. As endorsed by a recent World Health Organization/African Regional Office meeting of logistic experts in Kinshasa, Republic of Congo (May 2010).

While these competences may be modified according to national policies, they provide a useful basis for countries to start from when developing the role and responsibilities for logisticians.

### International training center in Burkina Faso

To provide professional training, the first regional training reference center, the “Center for Expertise Research and Development for Health Logistics” was launched in Burkina Faso in 2007. The center provides in-service international training in health logistics and also works closely with the Ministry of Health in two regions to demonstrate that a well-trained logistics workforce can have a measurable impact on health care provided down the supply chain “to the last mile.”

The Center has already trained several hundred people across Francophone African countries in supply chain management and logistics skills. The training program is comprehensive, including management aspects such as budgeting or purchasing as well as logistical aspects such as monitoring a fleet of vehicles. Training is also provided all over Africa to fit the needs of specific partners, such as the [United States Agency for International Development | DELIVER project](#) and the [United Nations Children’s Fund \(UNICEF\)](#).

The center is now working in partnership with IRSP (Regional Public Health Institute, Ouidah, Benin), World Health Organization African Regional Office, UNICEF, and [Agence de Médecine Préventive](#) to conduct an international preservice training for health logistics in Benin based on the seven competencies quoted above.

Photo: Bioforce Institute



### The future of health logistics as a profession

If there were one single unifying factor for all low-income countries to improve medical care at the lowest cost, it would be to create professional positions for health logisticians. Those countries that invest in the human aspect of supply chains by developing professionally trained logisticians and supply chain managers will see both immediate and long-term benefits. Nurses and doctors who are currently performing logistics functions can focus on delivering quality health care. Equipment performs better and lasts longer with more attentive maintenance. Supplies arrive undamaged and on time at the right location and in the right amounts to meet the needs of the clients of health services. Logisticians will stay in their jobs becoming more experienced and competent every year. When complemented with

other initiatives that are improving supply chain equipment, protocols, and systems, investment in human resources will ensure that the goal of streamlined, efficient, sustainable, and continually improving supply chains is reached.

---

## Professionalizing supply chain management

by Kevin Pilz, USAID contractor and Bonnie Keith, RHSC

Public-health systems everywhere depend upon reliable and efficient supply of medicines and health commodities to ensure positive health outcomes. Despite this, supply chains in low- and middle-income countries are rarely recognized as critical strategic functions within public-health institutions. As such, it is uncommon for public-health institutions to assign technically qualified personnel to manage supply chains; they are typically managed by clinical staff or pharmacists with no formal education or qualification

in supply chain management. Lacking qualifications or strategic authority, supply chain managers are rarely included in policy- and decision-making that impacts supplies. The unfortunate result is poor access to medicines, greater dependence on external technical assistance, reduced human resources available for clinical needs, and poor cost-efficiency of health programs. The status of low- and middle-income country supply chain managers stands in marked contrast to their status in developed countries where supply chain managers must have advanced technical skills and qualifications and are recognized as instrumental to institutional decision-making and success.

To respond to this common and systemic weakness of public-health systems in low- and middle-income countries, the [Reproductive Health Supplies Coalition's \(RHSC\) Systems Strengthening Working Group](#) has launched a new workstream to promote the professionalization of public-health supply chain management. Recognizing the systemic nature of the problem, RHSC is proactively engaging and uniting [governments and organizations](#) beyond reproductive health and incorporating groups focused on health systems, human resources, vaccines, HIV/AIDS, malaria, tuberculosis, and other health programs.

Objectives of the work stream include: (a) recognition that strong supply chains are essential for positive health outcomes and require significant technical and managerial capacity, (b) demand from governments and national institutions for technically qualified staff in positions with supply chain responsibilities, and (c) availability of persons from relevant health cadres with appropriate certifications in supply chain management competencies.

While specific activities associated with the work stream will be determined at a global conference in June 2011 at the World Health Organization (WHO), there are several areas where the joint effort is expected to focus to improve both the supply of and the demand for qualified supply chain managers. These include:

- Develop a harmonized competency framework for public-health supply chain management that accommodates the many different personnel roles that exist within a supply chain (modules from the framework would be applicable, for example, to a clinic nurse, a regional warehouse manager, or a chief supply chain officer).
- Develop a harmonized accreditation scheme for supply chain management training that would allow international or national educational and training programs (whether for nurses, pharmacists, doctors, or specialized supply chain managers) to certify participants against the harmonized competency framework.
- Advocate with national governments and public-health institutions to recruit appropriately qualified personnel for positions with supply chain management responsibilities.
- Improve incentives for retention of supply chain managers including developing professional associations, developing peer networks, or strengthening local training and recruitment.

Professional supply chain managers—with the necessary training, skills, resources, information, motivation, and empowerment at all levels of the health system—are absolutely vital for meeting current and future challenges in public health. We urge donors, technical agencies, and partners that support public-health programs in low- and middle-income countries to support professionalization of supply chain management by engaging in the initiative and participating in the global conference at WHO in June 2011. To learn more, visit the [RHSC website](#) or send an email to: Kevin Pilz ([kpilz@usaid.gov](mailto:kpilz@usaid.gov)).

## EPIVAC delivers professional training to district medical officers

by Philippe Jaillard and Aristide Aplogan, AMP

Over the past eight years, almost 400 district medical officers in 11 African countries<sup>1</sup> have earned professional (masters level) diplomas through a unique practical inter-university program called EPIVAC. The program's name is derived from the words EPIdemiology and VACCinology, and its wide range of topics, includes epidemiology, vaccinology, applied computing, and management of health programs. Together this combination of scientific and managerial skills gives graduates the knowledge required to manage vaccine programs at the district level.

The degree program was specifically developed for district medical officers, physicians responsible for achieving public health goals for a population of between 150,000 and 300,000 people. Though these physicians are often competent clinicians, they are not necessarily trained to handle the managerial, technical, and programmatic requirements of their complex jobs.

Recognizing the need for relevant, on-the-job training, EPIVAC developed a program that minimizes introductory coursework and requires students to apply their learning directly to their individual context. After a four-week residential program, students return to their workplace and complete the remainder of the coursework under the supervision of a tutor. In addition, two national supervisors are selected in each country program (one specializing in vaccinology and the other in management issues) to spend concentrated time with the student working on one or two topics, such as vaccine management, human resource management, or epidemiology. Together, the student and supervisors develop a plan to address the topic; the student then implements the plan and the supervisor assists with an evaluation after eight weeks. Students are also required to complete a thesis which generates data and operational research on topics of global importance in their workplace. A unique feature of this program is that it matches EPIVAC students with supervisors currently working in the students' areas of interest. This year, for example, Optimize staff from the World Health Organization (WHO) in Geneva are directly supervising two thesis topics: "Strengths, weaknesses, and cost efficiency of integrating the supply chain for medical supplies at the district level," and, "Evaluation of data quality and immunization coverage in the health district of Fana, Mali." The main goal of the training program is to have students put their knowledge into action. In the field of logistics for health, students take courses in supply chain management, equipment, and waste management. Studies on the quality of vaccines throughout the supply chain have made it possible to take drastic measures not only at the district level but across the country to improve conditions of storage and transport of vaccines.

Although students consistently report that the program requires a lot of work, they also say they enjoy the program and appreciate its relevance to their jobs. As graduates they are able to speak confidently about vaccinology and immunization and change the way they manage people, resources, supplies, and systems, beyond the immunization program. A recent evaluation of the program found that key management tools were still being used in districts where students were trained. Even after a student has left a district, they have implemented important changes that are still in place. Similarly, students bring their knowledge to new positions, even when those positions are unrelated to immunization.

Currently, 50 students from 9 Francophone African countries are selected each year to participate in the program. Over the next year EPIVAC partners are looking to expand the training within Africa making it available in both French and English. They will also change the structure of the program slightly to

---

1. Doctors have been trained from Benin, Burkina Faso, Cameroon, the Central African Republic, Cote d'Ivoire, Guinea, Mali, Mauritania, Niger, Senegal, and Togo.

improve the impact of the program on performances and better accommodate the ideas and contributions of new funding partners.

Those interested in the EPIVAC program are encouraged to join the network and begin collaborating with alumni and other partners directly.

*EPIVAC is a Sanofi Pasteur (the vaccine branch of Sanofi-Aventis) contribution to the GAVI Alliance. Implemented by the Agence de Médecine Préventive, the program was developed in partnership with national governments of eligible countries and the participating universities, in collaboration with WHO, the United Nations Children's Fund, the Vaccine Fund, and other partners working in Africa. EPIVAC is coordinated with the GAVI Alliance Subregional Working Group and complements other GAVI Alliance support to African countries. The degree, "Organization and Management of Public Immunization Programs in Developing Countries," is jointly awarded by the universities of Cocody-Abidjan (Côte D'Ivoire) and Paris-Dauphine (France).*



Photo: WHO

*The launch ceremony was chaired by Mr. Modou Diagne Fada, Minister of Health and Prevention, and attended by Mrs. Awa Ndiaye, Ministry of Gender and Relations with Women's and Foreign Associations at the Presidency of the Republic, and Dr. Alimata Jeanne Diarra Nama, WHO Representative in Senegal.*

## Senegal launches demonstration of mobile warehouse

*by Madjiguène Ndiaye, SNEIPS; Ibrahima Leye, Consultant; and Mariama Gueye, PATH*

On October 27, 2010, the Government of Senegal officially launched a new project to demonstrate the impact of various changes and upgrades to the vaccine supply chain including the use of mobile warehouses to deliver vaccines to the peripheral levels of the health system. The ceremony kicked off phase two of the Senegal demonstration project which is being jointly implemented by the Government of Senegal and Optimize, a joint World Health Organization-PATH collaboration.

Senegal's collaboration with Optimize was established to demonstrate and validate solutions to meet current and future

challenges in managing supply chains for vaccines, medicines, and other health products. While the existing vaccine supply chain is challenged by various technologies, logistic, and management constraints linked to the introduction of the pentavalent (DPT-HepB-Hib) vaccine, these challenges are expected to multiply as newer products such as pneumococcal and rotavirus vaccines become available in the country.

The project builds upon information gathered during a Phase 1 assessment between September 2009 and January 2010. The assessment helped establish a common understanding of the current status of the logistics of vaccination in Senegal and generated baseline data against which new technologies and systems will be measured.

In Phase 2, the partners will use moving warehouses (a truck and a pick-up) to integrate parts of the currently separate vaccine and medical supply chains and distribute supplies directly from the regional level to the peripheral health posts in all five districts of the Saint-Louis Medical Region. The moving warehouse is equipped with web-enabled computer equipment connected to a logistics management information system for sharing information in real time between different levels of the health system. In

addition, vaccine storage facilities at the Regional Supply Pharmacy and refrigerators in 15 remote health posts will be retrofitted with solar technology which will decrease energy costs and increase the reliability of refrigeration systems in areas with only intermittent access to electricity. All this will be underpinned by increased advocacy and communication support to ensure successful implementation.

In his speech, Mr. Modou Diagne Fada, Minister of Health and Prevention explained how this initiative falls within Senegal's integrative framework of strengthening the health system and how it will streamline resources and improve the timely distribution of adequate quantities of vaccines and medicines in the region. An enhanced information system is also expected to improve management, planning, and coordination of orders and deliveries between different levels of the health system. He urged health workers and all stakeholders to make the implementation a success with the hope that it can be replicated in other regions in the country as well as in other African countries.



Photo: WHO

*These trucks will deliver vaccines and other supplies directly to health centers, collect updated information, and provide preventive maintenance on site.*

## **A new TechNet21 website: preserving its origins; building the future**

*by Padmini Menon, TechNet21; James Cheyne, consultant; John Lloyd, PATH; and Ashley Kartchner, AVASA Web Design*

For almost two decades, [TechNet21](http://www.technet21.org) has provided a bridge for people working in logistics and immunization services to network, share information, and discuss issues with immunization cold chain policymakers. Positive dialogue, global participation, and the timely dissemination of reliable, scientific information has been the mainstay of the website and forum. In keeping with a tradition of providing neutral space for sharing ideas and information among a wide variety of experts all over the world, Technical Network for Logistics in Health (TechNet) is pleased to launch the next generation of its website.

Located at the same web address ([www.technet21.org](http://www.technet21.org)), [TechNet21](http://www.technet21.org) is now easier to use with simplified navigation, a new look, and much more new content to help users find the information they need. The redesign has allowed the site to add more areas for users to share their thoughts and discuss what is

needed to improve logistics and immunization systems and technologies. In addition to familiar features like the expert database and job announcements, users will find new features including:

- A photo gallery.
- A software depot.
- An experts' blog area.
- The ability to subscribe to a forum category or topic.
- An improved events calendar.
- Enhanced job and request for proposal listings.
- A professional networking area.

Although the website provides additional features and improved functionality, its core purpose remains unchanged. The ideas behind TechNet were formed in the late 1980s when Mogens Munck, a United Nations Children's Fund (UNICEF) technical officer in New Delhi, asked for a way for "field" people to send their ideas and suggestions to Copenhagen, Geneva, and New York where many of the immunization cold chain policymakers were developing new technologies, management systems, and training materials. At a subsequent meeting in Cyprus, the TechNet was created with the [World Health Organization](#) as the secretariat. Initially, the forum consisted of annual—and later biannual—meetings where proceedings were captured and reports disseminated to all TechNet members.

The forum soon became the hub for immunization news, views, and discussions. As immunization activity widened, the [Safe Injection Global Network](#) was born to address some of the issues formerly addressed by TechNet. In 1999, The [Global Alliance for Vaccines and Immunization](#) was formed as a broad coalition of stakeholders, including the World Health Organization and UNICEF, to strengthen immunization services and introduce new and under-used vaccines. During the same year, participants in TechNet's annual forum identified management and implementation of known technologies as the goal of global health services over the next ten years.

In 2001, TechNet changed its name to the Technical Network for Strengthening of Immunization Services for the 21st century (TechNet21) and broadened its scope from technologies to management of the operations of immunization services. One year later, TechNet21 launched its first website. The website and its listserv soon became an informal and accessible space for sharing ideas and information across continents. The listserv has now evolved into an active online forum linked to a broader website that provides a library of resources and information relating to immunization support, logistics, and supply chain. While TechNet21 still convenes biannual meetings, the website plays a real-time role in facilitating the exchange of information and ideas. Over the next month we encourage you to browse the new site and make use of its rich tools and resources.

---

## Using software to achieve continuous quality improvement in supply chain performance

*by Sergon Kibet, WHO Kenya; Pamela Zaninka and Tumwine Rweizire, Uganda National EPI; Richard Anderson, University of Washington; and Sophie Newland, PATH*

Improving the efficiency and effectiveness of vaccine supply chains is no easy task, especially when data is difficult to gather, financing is tight, and there is pressure to improve and expand. Supply chains,

by nature, are made up of multitudes of constantly-shifting variables, and few Expanded Programme on Immunization programs have the right tools to track and maintain those variables in a systematic way.

Recognizing the urgent need for countries to inventory and better manage supply chain equipment such as refrigerators, cold rooms, and cold boxes, PATH developed a Microsoft Access-based software tool called [Cold Chain Equipment Manager \(CCEM\)](#). The tool can help vaccination programs manage equipment requirements down to the facility level, forecast equipment needs for different scenarios, and generate procurement lists according to national policies. CCEM differs from other available equipment management tools because, in addition to the usual data management, analysis, and reporting functions of a conventional inventory, it allows countries to view the cost and logistical implications of potential programmatic changes through “what if” scenarios such as procedural changes or the introduction of a new vaccine.

These additional benefits were convincing enough for Kenya to conduct a pilot of the CCEM tool this year. Over the next several months Kenyan health staff will complete district-level questionnaires which will generate data on the existing cold chain equipment in Kenya and its functional status. CCEM will help decision-makers answer some challenging questions: What are the capital and operational costs of introducing pneumococcal vaccine? What would be the cost of changing vaccine presentation from 20-dose vials to single-dose vials? How should the vaccines be distributed? With this data, health staff can use CCEM to generate a cold chain expansion and replacement plan with annual estimated costs associated with introducing newer and bulkier vaccines.

When Uganda piloted CCEM in 2007, public health managers found they could introduce human papillomavirus vaccine without buying new refrigerators. They also saw that the primary storage issues were going to be at the national and provincial levels and transitioned resources to those levels to accommodate the increased burden. Since then, the CCEM tool has been a useful reference bank for information about cold chain inventory and status as it can quickly calculate storage capacities, shortages, and surpluses. This has proven useful as Uganda prepares for the introduction of pneumococcal vaccine. Not only does CCEM calculate equipment needs over time, it also calculates the annual costs of upgrades and determines the long-term costs of various equipment choices. The challenges to the CCEM tool center on data entry which requires some training and knowledge of the equipment specifications and local geography. Improper data reporting by field staff can also result in inaccurate equipment requisitions and placements. The tool itself is difficult to transfer electronically because files are so large and so intricately linked to data. Despite these challenges, health system managers in Uganda have found it to be a very useful tool.

The upgraded CCEM version 2 is up to date with 61 pieces of PQS (performance, quality, safety) prequalified equipment from the World Health Organization (WHO). PATH will continue to keep the equipment list updated as long as funding allows at which point WHO might provide updated lists that can be easily imported into the CCEM database.

CCEM can be implemented at subnational, regional, and/or district levels and requires an upfront investment of time and resources to gather and input data. It also requires ongoing use to keep the data relevant.

CCEM is a timely, free resource that any country can use to inventory and then improve management of supply chain equipment. To inquire about CCEM, send an email to [publications@path.org](mailto:publications@path.org) to receive a free copy of the software. Questions about how to use and implement the software should be directed to [CCEMinfo@path.org](mailto:CCEMinfo@path.org).

## Announcements

TechNet21 has a new look, faster navigation, more features, and the same commitment to sharing ideas and resources between technical professionals worldwide.

---

## New materials

Cold Chain Equipment Manager (CCEM) 2 is now available.

The new [Effective Vaccine Management \(EVM\) website](#) is now online. Visitors to the EVM website will find basic information about the EVM, training materials, and a free download of the EVM tool.

To learn more about what Optimize is doing to build stronger vaccine supply chains download these two-page descriptions of our demonstration projects:

- [An integrated approach to health information systems in Guatemala.](#)
- [An integrated supply chain in Senegal.](#)
- [Collaborating with countries to improve supply chains.](#)
- [Innovative health supply chain solutions in Tunisia.](#)
- [Mobile technology supporting immunization programs in Albania.](#)
- [Vietnam: Bringing innovation to immunization supply systems.](#)

# OPTIMIZE

Immunization systems and technologies for tomorrow

### Optimize

Batiment Avant Centre, 13 chemin du Levant  
Ferney Voltaire 01210 FRANCE  
+33 450 28 43 75 | [technet21.org](http://technet21.org)  
[who.int/immunization\\_delivery](http://who.int/immunization_delivery) | [path.org/vaccine-delivery.php](http://path.org/vaccine-delivery.php)



World Health  
Organization