

Contents

A giant retires	1
CCL Taskforce evaluates the EVM Assessment Tool	2
Demonstration to implementation in nine steps.	5
Civil Society and the GAVI Alliance: Engagement and evolution.	6
SCMS success story: National distribution system in Vietnam	8
Outsourcing: A promising solution for overburdened vaccine supply chains	9
Announcements	11
Resources.	12

A giant retires

by Michel Zaffran, *project Optimize*

This month our friend and colleague John Lloyd retires from PATH.

We are very lucky that John will continue to collaborate with project Optimize as a consultant. Indeed, it would be difficult in this last year of project Optimize to do without the immense knowledge and experience that John has accumulated over the many years he has dedicated to immunization.



Photo: PATH

Some of you may not realize that John's contribution to the field of immunization logistics has been immense, extraordinary, and exceptional.

- John was the architect of the vaccine cold chain. Back in 1976, he convinced Dr. Ko Keja, who was then in charge of the nascent World Health Organization (WHO) efforts to expand immunization beyond smallpox, that the Expanded Programme on Immunization (EPI) would be facing serious challenges if no attention was paid to the quality of the vaccines. Dr. Keja reluctantly gave him a six-month contract to write a white paper. John then went on to collaborate with Ghana to design the first country vaccine cold chain. John stayed at WHO for the next 25 years.
- In collaboration with the National Bacteriological Laboratory in Stockholm, John helped develop the first high-performance, "five-day" cold box for vaccines—a design that many manufacturers continue to exploit to this day.
- John convinced Electrolux (now Dometic) to design and manufacture the first multi-energy vaccine refrigerators operating on gas, kerosene, or electricity. He then convinced them to design the first ice-lined refrigerators that needed only eight hours of electricity per day to keep the vaccines safe—a successful design that was then copied and reproduced by a number of companies around the world.

- John collaborated with NASA to field test the first solar-powered refrigerators in the vaccine cold chain.
- John created the system of equipment standards then known as “[Product Information Sheets](#)” which has served as a reference to program managers and WHO and United Nations Children’s Fund (UNICEF) field staff for over 20 years.
- John pioneered the concept of injection safety. First, he introduced plastic sterilizable syringes and steam sterilizers into the EPI after intense negotiations with a manufacturer of pressure cookers. He then pioneered the introduction of autodisable syringes and safety boxes into the [WHO Product Information Sheets](#) (and recruited Peter Evans from UNICEF to lead that effort).
- John strongly resisted PATH’s attempts to launch the first [vaccine vial monitors \(VVMs\)](#) when he found it matched the characteristics of measles vaccine and not oral polio vaccine (which is the most heat-sensitive of the EPI vaccines). At his persuasion, PATH delayed the launch until a VVM was created that matched oral polio vaccine. VVMs are now required on nearly all UNICEF-procured vaccines.
- John established [TechNet](#).
- John was instrumental in launching the [Kick Polio Out of Africa](#) campaign. He designed the “Kick Polio Out of Africa” logo with his daughter, polio vaccine “day carriers,” and a stool-specimen collection kit. He also wrote a popular regional polio eradication song sung by Koffi Olimode of the Democratic Republic of Congo.
- John designed the [Immunization Services Support \(ISS\)](#) performance-based reward scheme of the [GAVI Alliance](#) (US\$20 share per additional child vaccinated). The GAVI Alliance also called upon John to help design country application forms. Not only did he design the first application forms, but he also proposed the ISS concept.
- John pioneered the use of the [data quality audits](#) for country data supplied to GAVI.

During all these years, John also contributed a few other not-so-small things such as introducing the first portable computers into WHO, driving WHO’s move to more modern computer software, recruiting me into WHO, and introducing WHO to electronic mail.

I am personally grateful to John for everything I have learned through him and for his mentorship over the years. It has been a great privilege and honor to work with him for over 12 years at WHO and then in his capacity at PATH. John was instrumental in the design of project Optimize and its operations over the past four years. I am glad that he wishes to continue to collaborate with us even after his retirement from PATH on January 1, 2012.

Please join me in thanking John for his extraordinary contributions so far and in wishing him well in his retirement.

CCL Taskforce evaluates the EVM Assessment Tool

by Osman Mansoor and Kate Bai, UNICEF; Andrew Garnett, Consultant; and Solo Kone, WHO

In December 2011, the United Nations Children’s Fund (UNICEF) hosted a workshop in New York for the Cold Chain and Logistics (CCL) Taskforce. The main focus of the workshop was to review the Effective Vaccine Management (EVM) Assessment Tool and methods. Participants also reviewed a guidance

mapping effort for CCL tasks and discussed plans for increasing UNICEF support for CCL as part of a refocus on immunization supported by UNICEF's new equity agenda.

EVM review

The EVM Tool, jointly launched by the World Health Organization (WHO) and UNICEF in Cairo, Egypt, in July 2010, provides a standard way to systematically assess the cold chain and logistics (CCL) system and address areas that need improvement. It builds on lessons learned from earlier assessment tools ([Effective Vaccine Stores Management and Vaccine Management Assessment](#)) to provide a more comprehensive assessment of the immunization supply chain.



Photo: UNICEF

CCL Taskforce members discuss the EVM Assessment Tool in New York

The EVM assessment and improvement plan are prerequisites for GAVI Alliance support, and with GAVI funds WHO and UNICEF have supported over 20 national EVM assessments in 2011. The partners aim to complete one in every GAVI-eligible country by 2015. The CCL workshop captured lessons learned and suggestions for improvement from the experience to date.

Stakeholders submitted detailed input on the questionnaire, software bugs, language translation, and visual presentation of the tool. Their broader input related to the size and scope of the tool. In addition to the detailed review of the questionnaire, the workshop recommended a range of measures to improve the quality of the EVM assessment, starting with adequate preparations and composing the right team to do the assessment. These suggestions will be captured in a concept note to highlight recommended practices.

The workshop also identified the need to improve templates for the EVM assessment and the ensuing improvement plan and to make sure the plan deals with the major issues identified in the review. Participants suggested that a model report based on the best aspects of improvement plans submitted to date would be helpful for countries and lead assessors.

The EVM provides an assessment of performance over the past 12 months but can also be used to look forward strategically at how to best meet CCL needs over the next five to ten years. Instead of simply

fixing problems in the current system, the EVM focus on CCL can also be used to develop a vision and plan for a future, optimized CCL system.

Perhaps the most important discussion was on the need to have an EVM Secretariat support the field work, maintain the EVM database, carry out further data analysis from the EVM results, and update the EVM tools and methods based on feedback from the field. The data from the EVM tools are also a rich trove of data that offer the potential for broader use.

CCL guidance mapping

One of the tasks the CCL Taskforce has set for itself is to develop a mapping of guidance for each of the tasks the CCL System undertakes. The initial aim is to map existing WHO guidance for each task in a way that is accessible and user friendly, which will provide health workers with simple, clear, and concise guidance for each task.

The initial mapping has now largely been completed, and the workshop provided an opportunity for experts to review the content. Based on the reviews received, the guidance will be updated and then tested by potential users before finalization by the CCL Taskforce. The guidance material will then be transferred to [TechNet21](#) where it will continue to develop based on user feedback and new technical developments.

UNICEF “scale-up”

UNICEF shared its developing plans for scaling up immunization services with participants, with a focus on the CCL aspect of the plan. The workshop supported UNICEF’s proposed approach with its focus on establishing national systems that generate routine data. The initial focus is on systems for managing vaccine stocks, cold chain equipment, and temperature monitoring.

UNICEF is building on the work of project Optimize to introduce innovative approaches and has adopted the vision developed by Optimize to “meet the changing needs of a changing world to enable the right vaccines to be in the right place, at the right time, in the right quantities, in the right condition, at the right cost” (“the six rights”).

The three systems that generate routine data (stocks, equipment, temperature monitoring) can be relatively easily established, and the data they generate can be used not only to assess system performance but also managerial responses.

UNICEF is now developing a paper on monitoring temperatures using 30-day temperature recorders to detect and prevent heat and freeze damage to vaccines.

The CCL Taskforce is an interagency collaboration convened by UNICEF of agencies and experts involved in supporting national CCL systems in developing countries. (For more information, including previous meeting reports, see http://www.unicef.org/immunization/index_42071.html)

Demonstration to implementation in nine steps

by Ruth Simmons, ExpandNet Secretariat; Peter Fajans, RHR/WHO and ExpandNet Secretariat; and Suzanne Reier RHR/WHO and ExpandNet

Over the next 12 months, project [Optimize](#) will be collecting final data from its demonstration projects and transitioning management of these projects to government partners. Recognizing the challenges inherent in such transitions, Optimize solicited assistance from [ExpandNet](#), a global network of public health professionals and scientists with expertise and tools for scaling up successful health innovations. In October 2011, ExpandNet members traveled to Senegal to help the team there develop a scale-up strategy.



Photo: Ruth Simmons

In October, ExpandNet members met with government and Optimize partners in Senegal to develop a scale-up strategy for supply chain innovations.

ExpandNet has fine-tuned an approach to scaling up that employs a [nine-step process](#). Using a participatory approach, key stakeholders from the project team and government as well as other relevant colleagues start by visiting the project sites together and then participate in a workshop. During the workshop, stakeholders analyze the demonstrated innovations; evaluate the capacity of organizations that will implement them; review the larger institutional and social, cultural, economic, and political context which influences the scale-up process; and assess the availability of resource people who can facilitate the wider introduction of the innovations. Discussions produce specific actions that will facilitate scaling up. Participants also make strategic choices about how to advocate for and disseminate the innovation, how to organize, monitor and evaluate the scale-up process, and how to mobilize resources.

Scale up requires two key efforts: the first is to integrate new approaches into existing policies and service delivery institutions so they are sustainable over time; the second is to expand the innovations to new geographic areas, population groups, or service-delivery sites. The first is often the most difficult, as it requires moving an innovation from a project approach—where innovations are typically funded and supported by external resources and technical experts—to a program approach where they become part of the routine way in which service delivery systems are funded and function. Such a transition requires policy commitment to implement the new approach and government commitment to assume financial costs, assign which agency will be responsible for the implementation, and determine how it will be supervised, monitored, and supported over time.

One of the key lessons ExpandNet has learned is that scaling up is not the same as routine program operations. Scaling up requires an intense effort over a period of time in which resources are mobilized,

decisions are made, trainings and other forms of capacity building are implemented, and monitoring systems are established before innovations are fully functioning within established service systems. Unless there is a team of individuals dedicated to supporting the process, scaling up is unlikely to succeed.

Because scale-up is lengthy and challenging, many organizations are beginning to recognize that scale-up strategies and discussions should be initiated right from the start of any demonstration or pilot project. ExpandNet's tool for organizations that are still designing interventions is aptly named "[Beginning with the end in mind](#)." This tool is comprised of 12 recommendations that help project people think ahead to scaling up. Among the recommendations are to involve key public sector decision-makers in the design stage of the intervention and to test the demonstration with "real-life" resources in "real-life" scenarios. This means providing not only a proof of concept but also a proof of implementation to determine whether the innovation can succeed with the type of resources it is likely to have after the demonstration ends. Designing a demonstration with scaling up in mind will provide country partners the critical information they need for decision-making at the end of the project.

For Optimize in Senegal, a key conclusion of the workshop was to focus the remaining project year not only on completing the demonstrations, but also on securing government agreement on key issues and making arrangements to integrate the new delivery systems and technologies into relevant public-sector institutions. A key step in this process is to ensure the continuity of the demonstration in the Saint Louis Region as well as the availability of a small team of dedicated resource people who will commit time and effort toward facilitating the institutionalization of the demonstration project, as well as its expansion to new geographic areas of the country. "We tried to think about scale up from the beginning of the project," says Modibo Dicko, Optimize project manager for Senegal, "and ExpandNet's expertise and resources have made the steps very obvious. We are now on a clear path toward scale-up and have the resources and expertise to move forward in a common direction."

To learn more about ExpandNet, download their tools, or seek technical assistance, please [visit the website](#).

Civil Society and the GAVI Alliance: Engagement and evolution

by Alan Hinman, Task Force for Global Health; Majeed Siddiqi, HealthNet TPO Afghanistan; and Amy Dietterich, IFRC

While Civil Society Organizations (CSOs) have long played critical roles in supporting immunization services at national and global levels, their role in the GAVI Alliance expanded just two years ago to better tap the knowledge and influence of CSOs around the world. Since that time, the GAVI Alliance CSO Constituency has grown to over 200 CSOs in both the global North and South. Today CSOs participate in all aspects of the Alliance including in the governance structure through a seat on the GAVI Board and representation on the Program and Policy Committee and the Governance Committee as well as in ongoing task teams.

A growing role for civil society in the GAVI Alliance

The development and release of the Civil Society Call to Action at the GAVI Hanoi Partners' Forum in November 2009 marked the beginning of a major effort to organize and formalize civil society's role as a partner in the GAVI Alliance. The Constituency Steering Committee was formed in early 2010 and the

charter developed and approved later that year. In October 2010, the Steering Committee elected its first chair and vice-chair.

A few months later, CSOs played a key role in the Alliance's June 2011 Pledging Conference issuing a second call to action in support of the GAVI Alliance which garnered hundreds of institutional signatories. In addition, two CSO representatives spoke at the conference, alongside the United Kingdom's Secretary of State for International Development, Andrew Mitchell. When the dust had settled, civil society had helped the Alliance to raise \$4.3 billion in pledged support.

Civil society engagement with the GAVI Alliance is an evolutionary process; our perspectives are increasingly sought by the Alliance and our contributions acknowledged. For the first time in the Alliance's 11-year history, civil society is a lead implementing partner after obtaining a grant from the GAVI Secretariat to coordinate CSO involvement in health systems strengthening mechanisms in eight pilot countries. The CSO-led activities fall under the Alliance's second strategic goal and supports in-country CSOs to work side by side with governments, the World Health Organization, and the United Nations Children's fund.

How the GAVI Alliance CSO Constituency works

The Constituency functions through periodic in-person meetings and an email listserv (gavi-cso-constituency@googlegroups.com) where ideas, information, and new developments are exchanged and debated on a daily basis. The Constituency is open to all civil society organizations that support GAVI's mission of reaching every child with immunization.

The Constituency is led by a 20-member steering committee comprising peer-elected representatives from more than 16 countries. The Steering Committee includes the civil society representative on the GAVI Board (currently Dr. Alan Hinman of the Task Force for Global Health), the board alternate (currently Dr. Joan Awunyo-Akaba of the Network for Ghana NGOs in Health), the CSO Steering Committee Chair (currently Dr. Majeed Siddiqi of HealthNet TPO, Afghanistan) and the vice-chair (currently Dr. Jacqueline Bell of the International Federation of Red Cross and Red Crescent Societies [IFRC]). As the Constituency's elected leadership body, the Steering Committee identifies Constituency priorities, provides direction on key initiatives, and takes the lead in synthesizing civil society input to GAVI Alliance governance policies and programs. The Steering Committee meets twice annually, immediately prior to GAVI Board meetings, to formulate Constituency positions on key Alliance governance issues.

The Steering Committee and the broader Constituency are supported by a half-time Communications Focal Point, currently hosted by the IFRC in Geneva, Switzerland. In addition, the CSO delegation to the GAVI Board is supported by a half-time advisor (who also serves as the communications focal point). To learn more about the CSO Constituency, please visit their [web page](#).

About the authors: Dr. Alan Hinman is the Civil Society Representative on the GAVI Alliance Board. Dr. Majeed Siddiqi is the GAVI CSO Constituency Steering Committee Chair and Ms. Amy Dietterich is the GAVI CSO Constituency Communications Focal Point and Advisor to the Civil Society Board Representative.

SCMS success story: National distribution system in Vietnam

by Juanita Folmsbee, SCMS and Hai Le, PATH

While project Optimize seeks innovative supply chain solutions for vaccines, it often finds those solutions already being implemented in other supply chain systems. In this article, we explore a success story from the Supply Chain Management System (SCMS), a project of the US President's Emergency Plan for AIDS Relief (PEPFAR)—administered by United States Agency for International Development—to scale up HIV/AIDS prevention, care, and treatment programs in selected developing countries. In Vietnam, SCMS works with the government to ensure PEPFAR-supported government-care delivery sites receive continuous supplies of antiretroviral (ARV) medicines. Recognizing an opportunity to save valuable budget dollars and increase efficiency, the Vietnamese Administration for AIDS Control (VAAC)—a department in the Ministry of Health—recently collaborated with SCMS to integrate and streamline three distribution systems for ARV medicines.

Current distribution systems

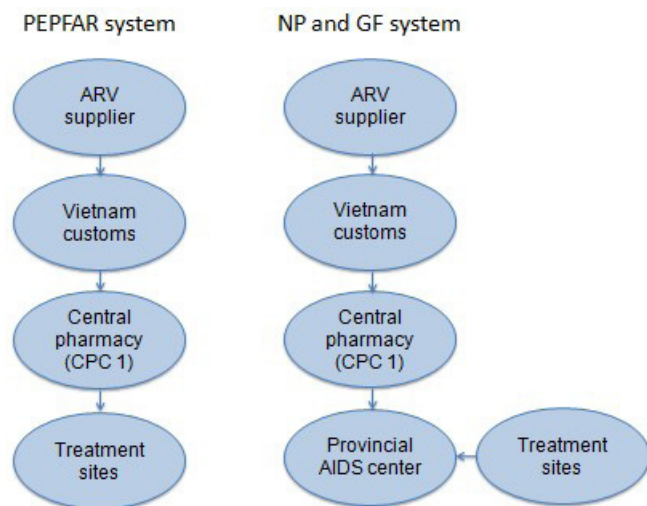
Currently in Vietnam, ARVs are distributed through three different supply channels set up by four different funders: the National Program (NP), the Global Fund (GF), PEPFAR, and the Clinton Foundation, in which PEPFAR contributes 60% of the total budget. According to October 2011 data from VAAC, the NP supports around 4,369 patients at 94 sites, the GF program supports around 17,303 patients at 149 sites, and the PEPFAR distribution system established by SCMS supports 36,388 patients receiving antiretroviral treatment. Each system has different policies for distribution frequency, stock management and quantification, calculation and order, and return and reallocation. Without any centralized management, the three parallel systems have no way of knowing stock levels of the others and only contact one another when there is a stock-out or potential product expiry.

Making one system

Many of these stock-out situations can be averted if the stock status across programs is known and managed centrally. As requested from VAAC, SCMS has developed a “making one system” solution for ARV distribution from the central level to the treatment sites which will require all programs to change some of their current practices.

The GF and NP both use the traditional Vietnamese public-sector distribution practice of sending medicines from a central location to a provincial authority. In the PEPFAR system, stock is delivered directly from central warehouses to treatment sites, bypassing the Provincial AIDS Center (PAC) level. Figure 1 shows the fundamental difference between the two systems. There are many advantages to the PEPFAR system, including shorter lead time to sites, lower stock levels, less paperwork, no need for PAC drug stores, transparent stock management, and easier to manage returns and reallocations. The system is not without disadvantages, however, which include a higher workload for central teams and the central pharmacy (known as CPC 1) and a lack of ownership at the PAC level.

Figure 1. Summary of the two main alternatives for a single distribution system



Couldwell MV, Nhung ATH. *A Single National ARV Distribution System for Vietnam*. Arlington, VA: SCMS; 2009.

Great success...and remaining challenges

The next two years will be focused on centralizing and streamlining the multiple supply chains for ARVs and creating a single, unified supply chain that can efficiently and safely move ARVs from national stores to local health centers. Rather than building its own warehouses or in-house distribution system, VAAC will outsource warehousing and distribution to CPC 1, a quasi-public entity. A challenge for SCMS is to help the government find the appropriate balance between which activities should be centralized and which activities should remain decentralized for drug procurement and distribution of HIV/AIDS commodities.

For more than six years, SCMS has made a great impact on the Government of Vietnam: leading the first national five-year forecast of ARVs in March 2010, implementing a central logistics management information system, making training more immediately accessible and cost effective through self-learning modules to dispensers, and perhaps most notably creating a centralized ARV medicine warehousing and distribution system. Those working on supply chain system efficiencies for vaccines can learn much by collaborating and sharing lessons learned with organizations like SCMS who are also applying modern supply chain solutions to improve supply chain performance.

Outsourcing: A promising solution for overburdened vaccine supply chains

by Patrick Lydon, World Health Organization; Chutima Suraratdecha, PATH; Michelle Arnot, Western Cape Department of Health; Ticky Raubenheimer, Collaborative Centre for Cold Chain Management; Arthorn Riewpaiboon, Mahidol University; and Cha-oncin Sooksriwong, Mahidol University

In recent years, vaccine supply chain management has become a priority for many countries working to scale up vaccine delivery. However, the introduction of new vaccines is increasingly complex and costly, bringing with it a number of challenges. In addition, the resources necessary for expanding the supply chain capacity and better enabling health care workers to effectively manage, store, and distribute vaccines are often unavailable. Without external resources, many ministries of health are hesitant to

make large capital investments in the kind of vaccine supply chain system that scale-up would require.

As a result, more and more countries are engaging the private sector in supply chain and logistic functions. When such expertise is available in-country, governments are frequently outsourcing the physical storage and handling of commodities to specialized private-sector logistic operators.

Outsourcing is a growing trend in high- and middle-income country settings, yet remains an emerging trend in low-income country settings. While the theoretical benefits of outsourcing are clear, the true costs and benefits remain unclear. Optimize recently conducted studies in both South Africa and Thailand to gather information regarding the challenges of outsourcing public health supply systems as well as conditions necessary to make outsourcing successful.

The Western Cape Experience in South Africa

Through a collaboration with the Western Cape Department of Health, the Optimize team recently reviewed the outsourcing experience in [South Africa's Western Cape province](#). This review aimed to demonstrate the benefits of outsourcing as a way to address anticipated challenges in the vaccine supply chain in South Africa and other countries in the region.

The review addresses information gaps regarding the cost and benefits of outsourcing the supply chain and logistic functions of the system. As part of the review, a case study was conducted in the Western Cape in which The Biovac Institute (a third-party private-sector company) took over roles of vaccine procurement, warehouse management, inventory management, and vaccine distribution directly to health centers. At the time of the review, three new vaccines had just been introduced into South Africa's national immunization schedule, which were both voluminous and expensive.

This outsourced supply chain led to a streamlined three-step supply chain for vaccines—from the national to the provincial level and from the provincial level to the health centers. The review provides evidence on the potential benefits of both a streamlined and outsourced system to address the growing pipeline of future vaccine.

The review team took two main approaches to analyze the outsourcing experience. They first interviewed key stakeholders to understand the context and rationale that led to the decision to outsource, the perceived strengths and weaknesses of the system, and clients' (i.e., health centers) satisfaction with the services provided. The second approach included a diagnosis of the outsourced supply chain's strengths and weaknesses based on an effective vaccine management assessment, a temperature monitoring analysis to ensure that vaccines were kept within the recommended temperature ranges, and an economic and financial analysis to understand the outsourcing model's costs and to what extent outsourcing is good value for the money spent.

While outsourcing may not be the right solution in every setting and context, the review concluded that the vaccine supply chain outsourcing to The Biovac Institute has been a good solution for the Western Cape Department of Health and is a viable option for future consideration by other provinces. In fact, the outsourcing agreement proved a key factor in the Western Cape's ability to handle a 2010 measles outbreak and the introduction of the three new vaccines.

Thailand's vendor-managed inventory system

Prior to 2009, Thailand's vaccine supply chain and logistics system had become overburdened with challenges such as wasted and expired vaccine products, inventory control issues, and high costs. In order to improve system efficiency, the government of Thailand launched a pilot project to outsource vaccine supply management and distribution to the Government Pharmaceutical Organization (GPO).

The GPO introduced a vendor-managed inventory (VMI) system, which is a streamlined approach to inventory management and order fulfillment. The goal of VMI is to streamline supply chain operations for suppliers and their customers, increasing management efficiency and reducing vaccine wastage. The GPO subcontracted with a private logistics company to distribute vaccine products in 28 of 76 provinces, and the system gradually expanded nationwide by late 2010.

In order to better understand Thailand's vaccine supply chain system and the challenges of implementing the streamlined VMI system, the Health Systems Research Institute, in collaboration with project Optimize, commissioned a study led by the Faculty of Pharmacy, Mahidol University. This [study](#) aimed to evaluate the overall performance of VMI compared to the previous conventional system and the associated vaccine logistics costs, while also providing recommendations to improve Thailand's vaccine supply chain and logistics system. Conducted in 12 provinces from March 2010 to July 2011, the research involved document reviews, interviews with representatives of implementing agencies, surveys of health officials, and an economic analysis.

The findings revealed that, overall, the VMI system has been implemented successfully in Thailand. The transition from the conventional vaccine distribution system to VMI was viewed positively by staff and implementers. Problems encountered in the early stages of system implementation were adequately resolved. The information technology used in the current VMI system, while satisfactory, could be further developed for even greater efficiency. VMI provided streamlining by reducing the conventional five steps to three steps in the supply chain, thus reducing in-stock vaccine volume and increasing vaccine turnover rate. Furthermore, the economic analysis found that the VMI system saved nearly one-fifth of the total cost of vaccine procurement and distribution in its first year through more efficient use of resources, lower logistics costs, and a smaller number of vaccines procured and distributed.

While the report outlines remaining challenges, such as decreasing vaccine shortages, improving clarity of staff roles and responsibilities, and strengthening the computer system infrastructure, in general, the VMI system has streamlined the supply chain, improved communication, built on existing infrastructure, and increased staff information technology capacity in Thailand.

Lessons learned

The reviews conducted in South African and Thailand highlight successful examples as well as important considerations that other countries should weigh before deciding to outsource. Outsourcing can help improve supply chain performance—but it is by no means a panacea. Venturing down the path of outsourcing will require new sets of skills and will result in a host of new challenges. It is important that the right framework and approach be established in order for an outsourcing public-private partnership to be successful.

Announcements

Contribute to the Global Vaccine Action Plan

On January 16, 2012, the [Decade of Vaccines Collaboration](#) will launch an online consultation process to inform the development of a [global vaccine action plan](#) to stimulate the discovery, development, and delivery of lifesaving vaccines.

Prequalified for performance, quality, and safety

Visit the new [WHO Performance Quality Safety \(PQS\) home page](#) to download the latest catalogue of prequalified devices, vaccines, and PQS-accredited laboratories. Users can also upload reviews on equipment performance in the field.

Resources

SCMS Newsletter

Read the [Supply Chain Management Systems newsletter](#) for the latest news and information regarding integrated supply chain management for antiretroviral medicines.

GAVI Alliance CSO Constituency Newsletter

Read [The Civil Society Dose](#) for news and information about what civil society does to support immunization programs around the world.

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