

Immunization supply system efficiency

Tenet 2: Immunization supply systems are designed to maximize effectiveness, agility, and integration with other supply systems and to support continuous system improvement through learning, innovation, and leveraging synergies with other sectors.

The visioning process

Over the course of 2010 and 2011, partners have joined forces to develop a shared, long-term vision for immunization supply and logistics systems and technologies. The goal of this vision is to guide key stakeholders at country, regional, and global levels in their work to strengthen supply and logistics systems. This process is being facilitated by project Optimize, a collaborative project of the World Health Organization and PATH.

The following proposed attributes characterize the vision, or desired state, of future supply systems.

- Supply systems are designed to maximize their effectiveness and agility:
 - Streamlined design and supply chain processes.
 - Demand driven and flexible to meet different needs in different situations.
 - Quality planning, quality control, and quality assurance are embedded as routine practices throughout supply systems.
- Vaccines and supplies are integrated with wider health supply systems when relevant:
 - Integration is considered during the design of a more effective and agile supply system.
 - Different approaches to integration are examined to choose the most relevant one for each context.
 - The potential impact of integration is modeled and tested prior to full implementation.
 - Information systems are integrated into the architecture of the overall national logistics management information systems.



Landscape analysis focus areas

Capacity-building

Improving systems

Integration

Outsourcing

Streamlining

The vision

By 2020, state-of-the-art supply systems meet the changing needs of a changing world in order 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.

For more information

PATH

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- Vaccine supply systems continually improve with ongoing monitoring, learning, and innovation:
 - Continuous monitoring of key performance indicators and regular analyses are conducted to identify the need for corrective actions.
 - Assessments are undertaken regularly to ensure that effective vaccine management practices remain at desired levels.
 - Regular training and supportive supervision are provided to ensure that supply systems management best practices are kept.
 - Innovation in vaccine supply systems, technologies, and practices continue to ensure improved performance within changing environments.
- Vaccine supply systems leverage synergies with other sectors including the private sector:
 - Public-private partnerships are built where appropriate.
 - Identification and mapping of weaknesses in the existing supply systems processes and workflow take place.
 - Existing projects involving the private sector are identified.
 - Different outsourcing possibilities are evaluated.

Landscape analysis

The landscape analysis of immunization supply system efficiency was conducted to better understand the work underway by all global stakeholders in this area. We looked at the systems component of vaccine supply chains with a view to optimize their design, management, and operational function. The goal is to enable more effective and efficient management of a growing number of vaccines being introduced today, as well as those in the pipeline, which will result in a greater volume of throughput in the system. Relevant initiatives and collaboration with the private sector have also been reviewed in this regard.

Preliminary gaps

The goal of the landscape analysis was to identify gaps that need to be addressed to realize the vision of future immunization supply systems. Preliminary analysis indicates key gaps in the following areas:

- Supply systems that maximize effectiveness and agility including:
 - Regional distribution hubs to manage the growing pipeline of vaccines.
 - Innovative last-mile transport solutions for health workers.
- Guidance on how and when to integrate with wider health supply systems including:
 - Review of successful integrated health commodity supply chains in the world and lessons learned on best practices.
 - Guidance on optimal design and management oversight of an integrated supply system.
- Further investigation in ways to continually improve supply systems, with ongoing monitoring, learning, and innovation:
 - Technological and management solutions for temperature monitoring as part of required quality control processes during in-country transport of vaccines.
 - Innovative funding mechanisms to ensure that recurrent expenses for vaccine transportation are covered.

- Ways to leverage synergies with other sectors including the private sector, such as:
 - Analysis and feasibility of transport back-loading and/or reverse logistics options.
 - Innovative maintenance solutions for cold chain equipment.

Landscape analysis summary table

By 2012, the vision statement will reflect evidence found through the following landscape analysis and other analyses. For more information, please contact optimize.who@path.org.

Vision of future immunization supply and logistics systems: Core tenets

1. Vaccine products and their packaging are designed with characteristics that best suit the needs and constraints of countries.
2. Immunization supply systems are designed to maximize effectiveness, agility, and integration with other supply systems, and to support continuous system improvement through learning, innovation, and leveraging synergies with other sectors.
3. The environmental impact of energy, materials, and processes used in immunization supply systems from the international to local levels is assessed and minimized.
4. Immunization information systems help staff plan and manage immunization activities and resources while ensuring that adequate quantities of vaccines are always available to meet demand.
5. Human resources policies provide immunization supply systems with adequate numbers of competent, motivated, and empowered personnel at all levels of the health system to overcome existing and emerging immunization supply challenges.

June 2011

Vision of future immunization supply and logistics systems: Tenet 2 landscape analysis summary—Immunization supply system efficiency

Focus area	Project/concept	Partners involved	Description	Location	Keywords
Capacity-building	Capacity Development Initiative Private-Sector Role in Health Supply Chains	Transaid-DHL Partnership	This initiative trains public-sector actors in supply chain issues. It includes professional training to commercial vehicle drivers and development of relevant legislation in Malawi and Zambia.	Malawi, Zambia	private sector, transport
Capacity-building	Transport Management Systems www.transaid.org	Transaid	Transaid Transport Management System empowers everyone who has responsibility for transport, from the driver to the transport manager. The system has been used to make dramatic improvements to service delivery across ministries of health in Africa and has also been utilized to improve the supply chain of health commodities.	Bangladesh, Democratic Republic of Congo, Ghana, Kenya, Malawi, Mozambique, Nigeria, Sierra Leone, South Africa, Sri Lanka, Uganda, Zambia	private sector, transport
Capacity-building	Improving transport systems in low-income settings www.riders.org	Riders for Health	Riders for Health manages and maintains vehicles used in the delivery of health care in Africa. Health workers have the reliable transport they need so they can deliver regular health care to the most isolated communities.	Democratic Republic of Congo, Gambia, Ghana, Kenya, Lesotho, Nigeria, Tanzania, Uganda, Zambia, Zimbabwe	private sector, transport
Improving systems	Cabo Delgado Project www.villagereach.org/where-we-work/mozambique/	VillageReach, Mozambique Ministry of Health	VillageReach developed a pilot program to reach poor, underserved populations in remote areas. The pilot combines delivery of liquid propane gas for refrigeration, waste disposal, and household needs with delivery of vaccine and medical supplies.	Mozambique	last mile, product delivery
Improving systems	Increasing the availability of essential health supplies through supply-chain expertise www.crownagents.com/Projects/Increasing-availability-supply-chain-expertise.aspx	USAID DELIVER Project, Crown Agent	DELIVER ensures that in-country supply systems have the capacity to effectively manage and distribute commodities for malaria prevention and treatment programs. It also addresses the availability and supply of malaria commodities at the global level, and for the long term.	Angola, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia	product delivery, storage and transport
Improving systems	Supply and distribution of affordable drugs in Nigeria www.crownagents.com/Projects/Supply-distribution-affordable-drugs-Nigeria.aspx	DFID Health Commodities Project, Crown Agent	The Health Commodities Project is a four-year program designed to ensure the sustainable supply of medical equipment, essential drugs, and consumables to primary and secondary health care facilities to key states in Nigeria. Target recipients are the poorest of the poor and the project inputs focus on safe motherhood, emergency obstetrics care, and common illnesses such as diarrhea, malaria, and pneumonia.	Nigeria	product delivery, storage and transport
Improving systems	Strengthening procurement and supply chain management in Kenya www.crownagents.com/Projects/Bed-nets-to-save-70000-lives-in-Kenya.aspx	Global Fund, Crown Agent	Crown Agents, part of the Global Fund's Procurement and Supply Chain Management Consortium working with the Kenya Ministry of Health, bought and delivered 3.4 million long-lasting insecticide-treated nets. Distribution went smoothly with most districts achieving 95% coverage of targeted populations and increased bed net ownership by 50% to 10.6 million.	Kenya	product delivery, storage and transport
Improving systems	Building efficient, demand-led medical supply systems in Zambia www.crownagents.com/Projects/Building-demand-medical-supply-systems-Zambia.aspx	Management of Medical Stores Ltd., Crown Agent	Medical Stores Limited is viewed as a key institution in the delivery of Zambia's health services. Crown Agents played a major role in convincing other health-sector partners to work through Medical Stores Limited as the existing national drug supply system, thereby ensuring the pooling of resources maintaining parallel vertical logistics structures.	Zambia	demand driven, product delivery

Vision of future immunization supply and logistics systems: Tenet 2 landscape analysis summary—Immunization supply system efficiency

Focus area	Project/concept	Partners involved	Description	Location	Keywords
Improving systems	To develop and link supply chain management services to lower levels of health care www.samasha.com	Supply Chain Management Services for Health for Africa	SAMASHA is currently implementing a project in Uganda's Mityana District that is working with public-health facilities to strengthen inventory management. The project provides technical assistance in assessing and improving efficient management of stock in any organization including private clinics.	Uganda	demand driven, product delivery
Integration	Commodity Security and Supply Chain Management Reference document: Mozambique WorldBank Commodity Security and SCM July2010	World Bank, Mozambique Ministry of Health	The project will contribute to averting a crisis faced by Mozambique by providing gap-filling financing for core health care commodities, including those related to HIV/AIDS treatment. The project will also address the commodity security of essential medicines and medical supplies by contributing to the strengthening of supply chain systems for the delivery of these drugs, especially to rural areas.	Mozambique	product delivery, storage and transport
Integration	Scaling up and integrated health logistics system http://www.jsi.com/Managed/Docs/Publications/ScalingUpSeries/nepal.pdf	USAID, JSI	In 1993, Nepal had no integrated health logistics system. By 2005, Nepal's health logistics system had been developed, scaled up, and become a model of integration and effectiveness. In part because medicines and other supplies are now available, the quality of health services and access to basic health services by poor, underserved, and marginalized populations has dramatically improved.	Nepal	product delivery, storage and transport
Integration	Integrated Child Health Campaign www.malariajournal.com/content/7/1/73	International Federation of Red Cross and Red Crescent Societies, Togo Ministry of Health	The Togo Integrated Child Health Campaign in 2004 represented the first campaign on a national scale in which various health interventions, including the distribution of a long-lasting insecticide-treated bed net as well as measles vaccination, were delivered to households with at least one eligible child aged 9 to 59 months.	Togo	product delivery
Integration	Child Survival and Development Reference document available on Optimize project SharePoint: "Synergy between Health and Integrated Child Development Services (ICDS) in GUJARAT"	UNICEF, Indian Institute of Public Health	The synchronization of Health and Integrated Child Development Services in Valsad is a successful capacity development initiative. It provides a strong foundation on which further gains can be built to promote child survival and development. It demonstrates the value of two sectors collaborating, so they can facilitate more meaningful outcomes than could have been generated individually.	India	synergy, systems
Integration	Integration of Public Health Supply Chains deliver.jsi.com/dlvr_content/resources/allpubs/logisticsbriefs/InteProvPrac.pdf	USAID DELIVER Project, Ministry of Health	For over 20 years, the goal of USAID's health supply chain strengthening efforts has been to maximize customer service based on the resources available. As part of this quest, the DELIVER PROJECT has engaged in supply chain integration efforts across a variety of countries, programs, and situations, although these were rarely labeled as supply chain integration interventions. The project has also undertaken product integration efforts in a number of countries, usually in response to national strategies and policies in which integration of this kind is a priority.	Ghana, Kenya, Malawi, Tanzania, Zambia, Zimbabwe	product delivery
Outsourcing	Outsourcing the vaccine supply chain Reference document available on the Optimize SharePoint: "CDC Outsourcing the US Vaccines for Children Program SCM"	CDC, McKesson Corporation	CDC revolutionized the way vaccines are delivered in the United States. By outsourcing the supply chain management of vaccines to a private company and adopting best practices from the private sector, the Vaccines for Children program improved considerably the overall immunization coverage and the vaccines delivery system.	United States	private sector, storage and transport
Outsourcing	Improving transport using private sector Private-Sector Role in Health Supply Chains	Sample Transportation, DHL	Early infant HIV diagnosis requires complex and expensive tests with significant logistical requirements, such as blood refrigeration and transportation. By collecting infant blood on dried blood spots, samples can be created that are both easy to transport and stable for relatively long periods without refrigeration. Samples were transported by DHL, testing was done at a national HIV reference laboratory, and results were returned by fax. In 2005, 930 infant infections occurred in Botswana compared to the 4,650 infections that would have occurred without this program.	Botswana	private sector, storage and transport

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Focus area	Project/concept	Partners involved	Description	Location	Keywords
Outsourcing	Regional Distribution Centers Frequently Asked Questions: Regional Distribution Centers	PEPFAR, PHD	Regional distribution centers are state-of-the-art warehousing facilities that operate in Ghana, Kenya, and South Africa and which store and distribute the most frequently requested essential medicines and other health products. The centers provide shorter delivery times than ordering directly from the manufacturer, reducing the turnaround time from three to four months to approximately two to six weeks for planned orders.	Ghana, Kenya, South Africa	regional hub, storage
Streamlining	Seamless supply chain in reproductive healthcare in Zimbabwe www.crownagents.com/Projects/Seamless-supply-chain-healthcare-Zimbabwe.aspx	DFID Delivery Team Topping Up Project, Crown Agents	From 2003 to 2006, Crown Agents was subcontracted to JSI Europe as an implementing partner on the Delivery Team Topping Up Project. The project is a continuing success and the benefits to date have included: A seamless and efficient operation of logistics/supply chain. Reproductive health commodity security for all men and women of Zimbabwe. Reduced stockout rates of reproductive health commodities at all public-health centers from above 40% to below 5%. Logistics management information for all stakeholders.	Zimbabwe	product delivery
Streamlining	Streamlining Immunization Logistics www.path.org/files/IMM_strmln_lgstcs_Indonesia.pdf	PATH, Indonesia Ministry of Health	The ultimate aim of the Streamlining project is to replicate its methodology in other Indonesian provinces. Within the context of a PUSH+ system of vaccine distribution (a system of health center visits to distribute vaccines, collect sharps waste, and provide supervision), the project was targeted to achieve specific objectives in the categories of immunization services, vaccine distribution chain, injection safety and sharps disposal, supervision, and monitoring.	Indonesia	product delivery, transport

Abbreviations used: CDC, US Centers for Disease Control and Prevention; DFID, UK Department for International Development; JSI, John Snow, Inc.; PEPFAR, US President’s Emergency Plan for AIDS Relief; SAMASHA, Supply Chain Management Services for Health for Africa; USAID, US Agency for International Development.