



USAID | DELIVER PROJECT

Lessons Learned from Latin America

Supply Chain Costing: Visibility and Advocacy for the Public Health Supply Chain



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Technical staff in the La Libertad region of Peru, collect warehousing and transportation costs for the public health supply chain.

Procurement of medicines is not enough to make them available to the last mile. Functioning and fully funded public health supply chains are essential to deliver supplies to all.

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Why Collecting Public Health Supply Chain Costs Matter?

Essential medicines and health supplies—such as vaccines, antiretrovirals, contraceptives, and micronutrients—are key to improving public health outcomes. In the Mesoamerican Region governments spend every year an estimated US\$600 million to procure medicines¹. However, procuring medicines does not make them available to the last mile; functioning and fully funded public health supply chains are essential to delivering health supplies. The international cost analysis has shown that, on average, an additional 12–25 percent is needed (Rosen et al. 2016), in addition to the cost of essential medicines, to deliver them to the last mile. This percentage may vary from country to country, depending on the context, policies, geographical barriers, and efficiency of the supply chains. Thus, the cost of the public health supply chain is an essential consideration for health planning and budgeting. To improve how these costs are measured, the USAID | DELIVER PROJECT (the project) developed a standard approach for measuring and analyzing supply chain costs.

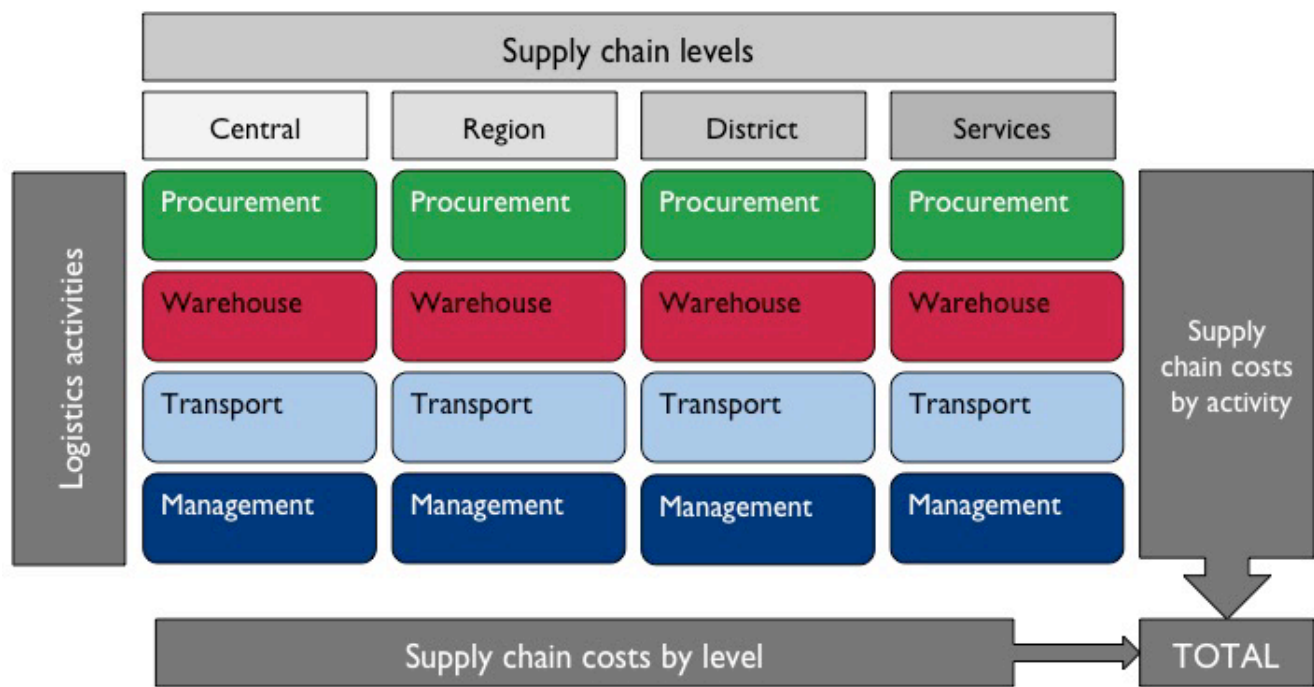
This paper shares the project's methodology, which has been used in Guatemala and Peru, and includes (1) an overview of the methodology, (2) ways the data can be used, (3) decisions made to improve the public health supply chain (SC) system, (4) facilitating factors to implement this methodology, (5) skills and capacities required to successfully implement and use the results, and (6) lessons learned and recommendations.

¹ Getting Essential Medicines to Customers. Why Mesoamerica and Dominican Republic Should Increase Their Investment in Supply Chains. USAID | DELIVER PROJECT and Supply Chain Alliance Members, 2015

Methodology and approach to implement a supply chain costing analysis

The costing exercise used a Microsoft Excel tool developed by the project. This approach uses data from a sample of health facilities along the supply chain—by supply chain function, distribution levels, and cost categories. The reference framework for the costing exercise includes activities shown in figure 1.

Figure 1. Conceptual Framework of the Supply Chain Costing Exercise



In La Libertad, Peru, the scope included a sample of 304 essential medicines, including maternal and child health, nutrition, reproductive health, and HIV and AIDS. It focused on warehousing and transportation activities because the Ministry of Health (MOH) analyzed their system bottlenecks and determined that, to improve product availability, these two functions were the most challenging. The costing exercise estimated that for every U.S. dollar spent on medicines, warehousing and distributing medicines cost 29 cents. Warehousing and distribution cost 22 cents and distribution cost 7 cents. Results by budget line show that 70.8 percent corresponds to labor, followed by vehicle (15.6 percent), warehouse equipment (3.2 percent), per diem (2.8 percent), and storage space (2.5 percent). For more information, read the report at <http://bit.ly/2h8KAaH>.

The Guatemala scope was national and included all levels of the MOH supply chain system, as well as a broad sample of essential medicines and several product categories of centrally managed programs. The costing exercise estimated that for every dollar of medicine in the pipeline (throughput), the supply chain costs 34 cents. When separating by supply chain function, results show that procurement costs 4 cents, warehousing costs 17 cents, transportation costs 6 cents, and management costs 8 cents for every dollar spent on essential medicines. Results by budget line show that 65 percent corresponds to labor, followed by warehouse space at 11 percent, vehicles at 4.5 percent, warehouse equipment at 4.3 percent, and gasoline at 2.2 percent. For more information, read the report at <http://bit.ly/2h1Izzf>.

The next section explains several ways these results have been used and can be used in the future.

Ways to use these data and how they have been used

Data can be used for—

Include advocacy and budget planning

- Knowing the costs of the supply chain is essential to ensure adequate funding goes to each of the supply chain functions and budget allocations are requested based on evidence, either in centralized or decentralized contexts.
- A costing exercise can determine how much it costs to deliver essential drugs from any level (i.e., central, regional) to health facilities, and it can delineate costs based on each level of the supply chain.
- Local governments can use this information to show the hidden costs of supply chain functions; local staff can also have sound evidence to determine how much funding needs to be allocated for the supply chain (human resources, operational costs, per diem, warehousing, gasoline, and transportation).
- For example, if a government saves funds when procuring medicines, these saving can be reinvested to cover the transportation of medicines, or to pilot new transportation modes—such as unmanned aerial vehicles (UAV) in remote hard to reach areas. John Snow, Inc. (JSI) is currently analyzing the cost implications of using UAV technology in resource-scarce settings.

The ultimate goal of a public health supply chain is to deliver medicines and health supplies to people, when and where they need them.

Improve design and planning of the supply chain system

A costing exercise can provide useful information about the factors that influence costs—elements of the system that have the most influence on the cost of the supply chain—for example, human resources, depreciation policies, and location of service delivery points. Therefore, such exercises support strategic decisions in planning and managing the supply chain.

In both Guatemala and Peru, labor cost is between 60–70 percent of the total cost. While human resources are expected to represent a significant cost, this percent may indicate potential inefficiencies in human resource allocation, revealing the need to analyze logistics tasks; duplication of roles and functions; supply chain processes; and human resources management, in general.

On the other hand, in Guatemala, the MOH logistics unit issued official letters to directors of regions requesting that staff include supply chain costs in their annual operational plans and budgets.

Ensure clarity and visibility of funding sources for the public health supply chain

- Costing exercises help provide a more complete picture of who finances the supply chain, clearly illustrating how governments and donors, when applicable, fund the different supply chain functions. Decision-makers can use this data to supplement their budget requests and guide the annual long-term planning process, as well as mobilize the technical and financial resources required for sustainability.
- In Guatemala, the Ministry of Finance (MOF) participated in every stage of the process—the study design, validation of the data collection instruments, data collection, analysis and validation, presentation of results, as well as the use of data for advocacy. Moreover, their government-wide systemic approach to results-based budgeting, and their political will to carry out the study, were critical for implementing this methodology.

- In Peru, CENARES and La Libertad region eagerly needed to obtain distribution and warehousing costs. These results were hard evidence to convince Ministry of Finance (M) to including such costs in annual results based workplans.

Ways data has been used in Peru and Guatemala:

- In Peru, in 2015, the Minister of Health met with all regional directors in La Libertad, shared the study results, and announced that CENARES had developed the SC costing methodology on their website. It is available online for the other regions to input their warehousing and distribution costs data for future analysis..
- In Guatemala, in 2016, during the sessions to discuss the reverse auction procurement guidelines, the MOH mentioned the availability of SC costs, which helped increase the visibility of these hidden costs.
- In Guatemala, the MOF shared the methodology and results with the Results Based Financing Presidential Working Group to explore if it could be used as a model to carry out similar exercises for other government ministries. The Government of Guatemala is also considering its use in annual budgeting and operating plans. Moreover, the MOF is using the methodology as a reference to improve data for the results-based scheme.

MOH PERU leads to expand SC costing exercise

In September 2015, CENARES developed their own web-based cost data tool that enables health regions to collect warehousing and transportation costs online. This initiative helped expand the use of the methodology more rapidly. Today, all regions have submitted their data to CENARES to prepare funded 2016 distribution plans.

Decisions made to improve the public health supply chain system: Peru

In Peru, the La Libertad region budget allocation tripled in 2016, compared to the previous year. This allocation was possible after the region's logistics manager presented the transportation and warehousing costs to the region's director and financial manager, as evidence that results-based budgets must include these costs to improve distribution and availability of health products. In 2015, the MOH CENARES also expanded the costing methodology by developing their own web-based data collection tool, which health regions would use to collect warehousing and transportation costs. To-date, most of the regions, if not all, have collected their data and have sent to CENARES for inclusion in annual distribution plans.

In 2015, San Marcos University of Peru included MOH SC Costing Toolkit in their website, *Gestión en Salud*. In close coordination with USAID Peru and Abt Associates, the project contributed this valuable resource for students at the School of Medicine to understand the importance of supply chain visibility. For more information, follow this link at <http://bit.ly/2h27XoD>.

Facilitate factors to implement this methodology

When planning a supply chain cost analysis, several considerations will help improve every phase—from study design to the use of data; improve the process efficiency and timeline, as well as the accuracy of the results. One of the main facilitating factors is the leadership and political commitment of the MOH to implement the methodology in a practical way and to encourage its use in influencing budget decisions at the highest level. Besides this important condition, the following shall be noted:

- Invest enough planning time to develop a concept note and timeline. The Guatemala exercise took approximately 11 months from the design to the results reporting, while Peru took approximately 7 months. This timeline can be shortened if the staff and financial resources are readily available to stay on

track with the original timeline. The most time-consuming phase was the validation and discussion of results.

- In Peru, automated information improved the accuracy of the calculations, especially the throughput data, which helped reduce the data collection time.
- Data collection forms already validated from previous studies by the project shortened the timeline and gave technical soundness to the methodology.
- How willing is the MOH to carry out the study? For example, in Peru, their willingness to provide their own human and financial resources during every phase of the process, in addition to staff time to design the automated application to collect cost data for the rest of the country, were key to the successful completion and use of the study.
- In Guatemala, the leadership and ownership of the MOF high-level authorities allowing their staff to accompany the data collection teams was crucial. During data collection visits, MOF staff became highly sensitized, because they were able to see the limitations and challenges to providing quality services and supplies to the last mile. This experience, naturally, made them CS champions and more committed to support the health sector during the budgeting processes.

Skills and capacities needed to successfully implement and use the results

- At the country level, it is necessary to include cost analysts (actuaries) within the MOH; they can incorporate this type of analysis into actuarial projections and adjust costs, whenever required.
- To identify, from the beginning, the budget line items that relate to the supply chain functions. The MOH staff need advanced knowledge of information systems, the supply chain structure and its processes, as well as a deep understanding of the budget structure and the depreciation of assets. This is particularly important when expanding the use of the methodology in the future.
- Process-oriented staff that can lead the study when the methodology is expanded are also needed.
- Also needed are human and financial resources from the central- and local-levels to invest in data collection visits, data analysis, and reporting.
- Strategic planning and financing experts must be part of the team; they can present strong arguments and scenarios that provide evidence of negative consequences if the supply chain is not funded adequately.
- Rigorous analysis when collecting data and determining assumptions is key.
- A logistics management unit and actuarial unit should lead the entire process.

Lessons learned and recommendations

Country-level financing

In countries where government-wide financing is static, and health is not a priority, costing data becomes even more necessary, which will provide strong evidence to defend financing for health and for the public health supply chain. Simultaneously, with existing scarce resources, identifying ways to optimize the public health supply chain management is essential.

Data management and monitoring

- MOHs in every country need to create or consolidate cost centers with more disaggregated data to facilitate SC costing exercises and to reduce/manage the number of assumptions.
- The MOH's willingness to share and analyze background documents, policies, budget, and cost structure, with transparency and trust. Also, to identify and agree on data points and assumptions related to the supply chain and budget line items.
- In countries like Guatemala that have recurrent stockouts, to meet all the needs and identify gaps between the actual and ideal throughput, it may be worth analyzing not only the actual throughput, but also the ideal throughput that needs to flow from the central level to the last mile.
- Because the cost doesn't represent what countries should invest, but instead, represents how much the supply chain costs—including inefficiencies in the system—the final report needs to include a proposal to improve supply chain management performance. It should identify where there may be efficiencies, for example, the use of new transportation modes, cost optimization, particularly for labor management; that could reduce the relation throughput cost/supply chain cost.

The MOH in Peru understands the importance of public health supply chains

CENARES staff has expressed in several occasions that, “Every logistics function has a cost and MOH shall document it and make it visible in order to allocate adequate funding for the supply chain management. This is crucial to improve supply chain performance and to ultimately improve availability of essential medicines.”

Communication and coordination

- Prior to initiating a supply chain costing exercise, the process leader and the team should carefully explore context, identify stakeholders who shall be involved from the beginning to end, especially those who will effectively and rapidly influence favorable decision-making to improve funding for the supply chain.
- Develop the concept note to guide the implementation; include and formally designate key MOH and MOF process leaders; set up the scope and expectations—national or regional, for all product categories or selected categories, and all supply chain functions or not—the team composition, human and financial resources, and the timeline.
- When preparing the timeline, estimate sufficient time for data validation and analysis because this phase is sometimes underestimated. In Peru, the study took seven months and two part-time MOH staff. While in Guatemala, the process took 11 months and two part-time MOH staff.
- Prior to initiating the study, to ensure the exercise is cost effective and applicable, the MOH and MOF must agree and commit to incorporating the results in budget decision-making and supply chain improvement plans.
- Involve and train the MOH and MOF officials who prepare the budget with the regional and district health directors, to explain the methodology and—together—agree on local support to implement the study and to understand the benefits of improving the budget calculations.
- When results are ready, either for new studies or cost updates, invite staff from the MOH Special Programs, including the central logistics management units and strategic planning units, to an informational workshop; ideally and jointly led by the MOH and MOF, or its equivalent, in each country.

- After it is complete, disseminate the study results and the tools and periodically update them to obtain data and refine the costing figures for further budgeting purposes. In Peru, continue using the CENARES web-based SC costing tool to regularly update the data collection and improve the tool.

Human resources and training

- It is essential to have an actuarial unit and it should be the leader of the process, from the start until results are analyzed, validated, and disseminated.
- An ongoing technical assistance—either external or internal—is needed to cost the other supply chain functions—management and procurement, in the case of Peru—as well as transferring methodology to technical staff and decision-makers, especially during political changes.
- Allow sufficient time and resources to plan training for local staff—centralized and decentralized units—to prepare for study implementation, expansion, and ongoing updates.
- Bring onboard technical staff already in the MOH that have the analytical capacity and broad SC expertise to be part of the study team.

Advocacy and governance

- Regularly renew the commitment from all stakeholders to use data to influence decisions when allocating funding for the supply chain.
- Adopt a highly participatory approach that motivates leadership at the highest level—MOH general manager, vice-ministers, and minister—to obtain a stronger commitment to use results to influence budget decision and supply chain system improvements.
- Ideally, the MOH should carry out this study to guarantee stronger ownership to lead the process, facilitate access to data sources, and assign human and financial resources, as needed.
- Disseminating the results beyond the health sector is crucial; for example, hold meetings with the health commission of Congress and the presidential task forces, wherever available, that guide the nationwide results-based financing processes.
- At the beginning of the study a purposeful dissemination plan should be developed, as well as job aids or tools for the MOH and MOF staff to regularly use the results for advocacy and awareness raising.

Closing Remark

At the beginning of this brief, the question was, “why collecting public health supply chain costs matter?” The MOH Peru staff answered very eloquently: “collecting and knowing supply chain costs was key to visualize hidden costs and use them to convince MOF to allocate sufficient funding in annual results-based plans, which ultimately will help increase availability of essential medicines.”

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For more information about this summary or the costing methodology, please contact the USAID | PROJECT DELIVER at askdeliver@jsi.com, or CENARES of the Ministry of Health in Lima, Peru.

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