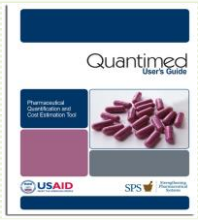
Technical Assistance in Quantification



Quantimed is designed to improve the accuracy of order planning and budgeting by providing a systematic approach to organizing and analyzing data. Quantimed facilitates the calculation of commodity needs using either a single method or a combination of any of the three primary quantification methods: past consumption, morbidity patterns, and proxy consumption.

Quantification and Technical Approach

SIAPS helps partners and national-level staff members build their capacity to conduct efficient quantification and supply planning. Since multiyear forecasts make it easier to advocate for resources to ensure commodity security, the program helps to set up coordination mechanisms for in-country stakeholders to estimate medium- to long-term needs, while determining funding gaps and procurement costs. Staff members are provided with effective tools such as Quantimed and PipeLine for forecasting and supply planning and given formal training and mentoring.

Quantification is the process of estimating quantities and costs of products required for a specific health program during a specific period, and determining when the products should be delivered to ensure uninterrupted supply for the program. It involves not only estimating quantities, but also the funding required for purchasing and delivering products, and when shipments of the products should be delivered.
It has two major components:

- Forecasting: estimating the quantities and costs of products required to meet customer demand during a particular time frame in the future.
- Supply planning: estimating quantities required to fill the supply pipeline, total costs, lead times, and arrival dates of shipments in order to ensure optimal procurement and delivery schedules.

Quantification links information on services and commodities from the facility level with program policies and plans at the national level, and is then used to inform higher level decision making on the financing and procurement of commodities.
It is a continuous process that requires regular monitoring and updates; and relies on: an established and functioning supply chain system, data, and evidence based assumptions.

What are the applications of quantification?

Quantification has a variety of purposes, some of which include:

- *Calculating estimated order quantities, costs and delivery dates for procurement*
- *Planning financial requirements and mobilizing and securing financial resources*
- *Facilitating coordination with donors, procurement agents, health facilities and other stakeholders*
- *Estimating storage needs*
- *Informing manufacturers on future demand of commodities for manufacturing decisions and preparation*
- *Assessing rational use of commodities*
- *Estimating emergency needs for disaster relief and epidemics*

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Quantification Approach and Process

Quantification system setup:

Setting up a system for consistent quantification of health commodities contributes significantly to the success of quantification activities, as well as strengthening of the supply chain in general. It ensures the involvement of the major stakeholders, increases commitment from government and donors, and increases credibility of the processes and results. It also facilitates an effective outlet for sharing information, coordination, and addressing the overall supply chain challenges in a robust manner. A proven approach of a quantification system setup is the establishment of a functional and well-represented quantification Technical Working Group (TWG) or Committee for leading and coordinating quantification activities. The following steps may be taken to setup and capacitate a system for quantification:

- Assess/Review stakeholders and decision makers in the supply chain
- Outline roles of the stakeholders and decision makers in the supply chain
- Select and notify the major stakeholders to be part of national quantification TWG/Committee (Programs, CMS, donors, health facilities, Implementing Partners etc.)
- Draft Terms Of Reference (TOR) and Standard Operating Procedures (SOP) for the quantification TWG/Committee to define the roles of the members and activities of the TWG
- Establish quantification TWG/Committee
- Develop the final TOR and SOP for the TWG/Committee
- Provide orientation/training to the TWG to properly manage the quantification process

The following table includes further information on the proceeding steps and phases:

Step	Explanation
Phase 1: Planning and Preparation	
Step 1: Identify partner organization and people to lead and participate in quantification	- There is a need to establish a mechanism to inform decision making authorities and organizations and seek guidance and directions from them at the central level for effective quantification and use of the results of the quantification. - If a quantification system is already in place in the form of a functional quantification TWG/Committee this body leads and coordinates the activity throughout. The TWG/Committee includes and may be chaired/lead by Program, Logistic Management Unit, Central Medical Store, or Pharmacy Department of the MOH. Other members of the TWG/Committee could include donors, Implementing Partners, health professionals from health facilities etc.
Step 2: Define the program and define the scope, purpose and period of quantification	- Describing the program: describe the program background, trends, current status, strategic plans and goals. - Defining the scope: define the coverage in terms of - national, regional, or facility based; specific partners (example: PEPFAR, Global Fund,...); public or private or both; specific product groups (example: ARVs for ART and PMTCT, HIV RTKs, Anti-malaria ACTs,..); - Defining the period of the forecast and supply plan (example: 3-year forecast from Jan 2013 to Dec 15 and 2-year supply plan from Jan 2013 to Dec 2014)

Step 3: Identify and estimate resources and time and prepare action plan	- Identify and estimate resources and time for the quantification exercise and prepare an action plan listing the tasks and time for the whole quantification exercise from data collection to production of technical report and continuous follow up and updates. -Check and confirm the availability of staff and resources for the quantification exercise and make necessary adjustments in the action plan. -Plan the quantification consultative workshop and send out the invitations to all the participants.
Step 4: Define data requirements and data sources	-The data types to be collected for quantification include consumption, morbidity, service statistics and population/ demographic. Data for multiple periods are required to derive trends. These data could be obtained from established and functioning LMIS and HMIS. Additional data/ information to be collected for quantification include program status reports, strategic plans, standard treatment guidelines, previous quantification reports, stock on hand, expiries, stock out period, lead times, minimum and maximum stock levels, prices of products, freight, logistics and related costs and available funds.
Step 5: Prepare data collection tools	-Data collection tools are usually needed to be developed in order to obtain the collected data in a form that is easy to analyze and input into the forecasting and supply planning tools. For example-Quantimed provides different data collecting tools for morbidity and consumption methods of forecasting.
Step 6: Allocate tasks and follow up	-With delegated responsibilities and more accountability in place quantification activities are completed more efficiently. -Assigning tasks and following up the accomplishment of the tasks based on the developed action plan helps ensure the success of quantification exercises.
Step 7: Collect data and information	-The best way to get data would be from an already existing mechanism for the continuous and regular collection, organization and analysis of data: LMIS and HMIS. -If a system does not exist for the collection of data from health facilities, representative sample health facilities can be identified and adequate data may be collected with a quick assessment and the collected data and information can be extrapolated to the national level. -It is also equally important to collect the available information on the program background, current status and future goals and plans.
Step 8: Organize, analyze and adjust collected data	-Usually, even the routinely collected data are not available in organized, analyzed and adjusted manner. To derive information for decision making and see trends the collected data needs to be organized, analyzed and adjusted. - Adjustments could be made for under-reporting, stock out periods, machine failures…
Step 9: Compare data from different sources and develop scenarios accordingly	-Analysis of data from different data sources usually gives different results -Comparing the different data and corresponding different results gives information about the implementation of the program, use of products, quality of data….
Phase 2: Quantification Workshop	
Step 10: Conduct a quantification	-Ensure adequate presence and active participation of technical and program management staffs from major

consultative workshop	stakeholders in the supply chain -The objectives are to evaluate and validate the available data and information , to build assumptions, to agree on the methodologies and tools and to draw challenges, lessons learnt and recommendations about the quantification activities and systems and the general strengthening of the supply chain -Select the forecasting and supply planning tools depending on the availability of data and capacity to use the tools -Whether complete data is available or not assumptions have to be made in quantification. Assumptions are made on the historical data and future inputs of the current quantification. Assumption should be based on evidence. The evidence may be historical data, realistic program plans and strategies or experience
Phase 3:Forecasting	
Step 11: Organize forecasting data and assumptions; Enter organized data and assumptions into the selected forecasting tool	-Organize the input data and assumptions for the current forecast in a way that is easy to enter into the selected forecasting tool. It is very helpful to use decision tree and tables especially the morbidity method of forecasting. -Enter the organized data into the selected forecasting tool
Step 12: Calculate forecast consumptions using selected methodologies and tools	-Calculate estimated future consumptions of commodities using the tool. Monthly, quarterly or yearly forecasts may be produced depending on the nature of the program. For programs like malaria, where number of cases /consumption varies significantly on seasons, further analysis of the seasons and the forecasted quantities is necessary to align forecasted quantities of requirements with time of demand season by season. -If more than one forecasting methods and tools are used: compare the results and reconcile as needed.
Phase 4: Supply Planning	
Step 13: Organize supply planning data and assumptions; Enter organized data and assumptions into the selected supply planning tool	-Organize the input data and assumptions for supply planning in a way that is easy to enter into the selected supply planning tool. Use decision tree or tables to organize the input data and assumptions. -Enter organized data and assumptions into the selected supply planning tool. Forecasted consumptions with or without wastage and other adjustments are also part of the input for supply planning
Step 14: Develop supply plans using the selected tool	-Develop plans for quantities of each product to be procured, costs of procurement, timing for ordering, shipping and receiving shipments during the supply planning period using the selected tool. -If PipeLine is used- the tool calculates quantities and costs of products to be ordered based on the desired stock level for the program and it also determines the dates for ordering, shipping and receiving the planned shipments based on the inputs. PipeLine can also give reports on stock status of products month by month, different actions necessary to be taken and time to ensure delivery of the planned shipments at the right time. It also produces pipeline problems in terms of over stocks, shortages and stock outs.

Phase 5: Funding Gap Analysis, Documentation Result Dissemination	
Step 15: Do funding gap analysis, document the quantification process and results and disseminate results	-Organize funding data and assumptions -Compare total estimated procurement costs with available funds. Make sure all relevant costs are included in the calculation of requirements. Calculate budget deficit or surplus. -Document the quantification process and results -Disseminate the quantification results: the quantification results may be disseminated by organizing a half-day meeting with all relevant stakeholders and by publishing the technical quantification report and distributing to the stakeholders. -In the event that the total required procurement costs are higher than the available fund for the supply planning period consider ways to increase the fund available. • If it is possible to increase more fund after discussions with donors and government mobilize the additional fund, prepare procurement plans and procure requirements • If more funding is not available consider cost reduction strategies, revise forecasting and supply planning assumptions and produce final supply plan based on the available fund.

Common Challenges in Quantification
Data: availability, completeness and quality
Limited analysis and use of the available data
Lack of coordination among different stakeholders to share information and make decisions
Limited implementation/inadequate adherence to Standard Treatment Guidelines and testing protocols
Out-dated Standard Treatment Guidelines and protocols
Mismatches of program targets, service capacity and supply chain capacity
Lack of institutionalization of the quantification process and lack of commitment
Overall supply chain weaknesses
Available tools not used appropriately or to their full potential
Limited availability of skilled and experienced quantification experts to lead and coordinate the exercise

Lessons Learned

- The quantification exercise is time and resource intensive – requires planning, funding and human resources, and involvement of stakeholders
- A mechanism at national level to inform decision making, monitor and coordinate the implementation of activities strengthens the quantification process and increases credibility and use of results.
- A "systems approach" should be used for quantification – a comprehensive approach to addressing supply chain management is key.

- Availability, completeness and quality of data have significant implication on the accuracy and reliability of quantification results.
- Forecasts and supply plans need to be monitored and updated regularly
- Taking appropriate measures to address challenges and implement recommendations improves future quantification activities and strengthens the supply chain.

Achievements and Results

Activity	Countries
Establishment of quantification committees or technical working groups	**Bangladesh, Kenya, Swaziland, Uganda**
Training of MOH and other partners in quantification	**Bangladesh, Kenya, Namibia, Swaziland, Uganda**
Quantification exercises conducted on a range of commodity groups- HIV/AIDS,TB, Malaria, FP, Nutrition	**Angola, Bangladesh, Burundi, Cameroon, Ethiopia, Kenya, Mali, Swaziland**
Financial savings due to quantification	**Multiple countries (ex. Bangladesh, saved over 1 million USD)**
Decreased stock outs and expiries of medicines	**Multiple countries (ex. Bangladesh, Swaziland)**
Quantimed used for forecasting	**Angola, Bangladesh, Burundi, Ethiopia, Kenya, Namibia, Swaziland, Uganda**
Development of Quantification Guide for Malaria Commodities	**Global level**