TECHNICAL BRIEF

QuanTB

USAID FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access
to Pharmaceuticals and Services

A QUANTIFICATION AND EARLY WARNING SYSTEM

QuanTB is an electronic quantification and early warning system designed to improve procurement processes, ordering, and supply planning for tuberculosis (TB) treatment. When used on a regular basis, QuanTB serves as an early warning system by providing information on actual versus planned consumption, impending expiries, and stock-outs of medicines.

CHALLENGE

Ensuring that patients have continuous access to TB treatment requires complex projections and calculations by TB program staff. It is becoming more challenging to make these predictions because new diagnostic devices rapidly increase the number of individuals diagnosed, which impacts the quantity of medicines needed. In addition, when treatment regimens change because new medicines or guidelines are introduced, national programs must carefully plan how to phase medicines in and out to minimize stock-outs or expiries. Frequent quantification and vigilant stock management are vital to ensuring that appropriate types and quantities of medicines are available to meet the evolving needs of TB programs as they scale up treatment.

THE SOLUTION

To promote a systems-strengthening approach to TB medicines management, the Systems for Improved Access to Pharmaceutical Services (SIAPS) Program developed QuanTB—a downloadable desktop tool that transforms complex calculations into user-friendly graphs that display key information on quantification, ordering, and supply planning. By alerting users to risks of stock-out and overstock, QuanTB operates as an early warning system. Currently on its fourth version, QuanTB 4.0 features enhanced quantification and graphs.

FEATURES

- **Available in six languages:** English, Russian, French, Spanish, Portuguese, and Chinese
- **Accurate quantification estimates:** Calculations are now based on desired minimum and maximum stock levels and consumption of each medicine, including adjustment for attrition rates
- **Multiple options for quantification:** Based on the number of cases, type of treatment regimen prescribed, or individual medicine usage
- **Flexible design of regimens for adults and children:** Allows up to 10 phases based on a weekly or monthly schedule or a combination to fit new medications, such as bedaquiline and delamanid; also allows phase-in and phase-out of new and current regimens, such as the new, shorter multiple drug-resistant TB treatment regimens and pediatric formulations
- **Adaptable and customizable:** Users can modify parameters, such as inventory date, lead time, and minimum and maximum months of stock, so that quantification reflects local procurement, distribution, and funding considerations
- **Manipulatable files:** Forecasting files from different settings can be merged and multiyear forecasts can be divided to support budget and supply planning
- **Early warning system:** For each medicine, graphs show the progression of stock on hand over time in relation to the set minimum and maximum months of stock and alert staff of risk for medicine expiries, stock-outs, overstock, and when emergency orders are needed, which allows sufficient time to address supply problems

- **Interoperability with other software:** Allows users to import and export data on stock on hand, stock on order, cases on treatment, and expected cases
- **Builds additional models for different scenarios:** Compares planned versus actual consumption and costs
- **Full cost of order:** Incorporates the cost of medicine, shipping, and customs clearance, among other expenses
- **Enhanced supply planning:** Allows users to plan their preferred schedule of orders (i.e., quarterly or bi-annually) to account for country budgets and logistics

SIAPS EXPERIENCE

SIAPS has trained national TB program drug management staff from 32 countries; other organizations; and independent consultants to use QuanTB to quantify and track TB medicines. QuanTB has been downloaded more than 1,650 times. Within three years of implementing QuanTB, 15 countries reported their use of QuanTB data for medicines tracking and decision making to SIAPS. Achievements include:

Countries that Reported Stock-out of at Least One Medicine

- Reduced percentage of countries reporting stock-outs of first- and second-line TB medicines
- Overstock avoided and more than USD 5 million saved by postponing and reallocating second-line medicines shipments.

SIAPS also works with the Stop TB Partnership's Global Drug Facility on initiatives for the early warning system as part of global forecasting for anti-TB medicines. As a digital health intervention, QuanTB contributes to the three pillars of WHO's END-TB strategy.
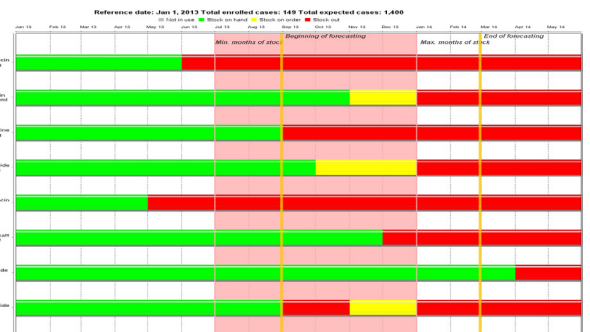
IMPLEMENTATION

QuanTB 4.0 and a comprehensive user guide are available for download at http://siapsprogram.org/quantb/. Feedback and questions are welcome via e-mail at quantb@msh.org.

Sample QuanTB dashboard and graph

The graphs are designed to provide early warning information at a glance, making it easy for decision makers to quickly understand the medicine stock status.
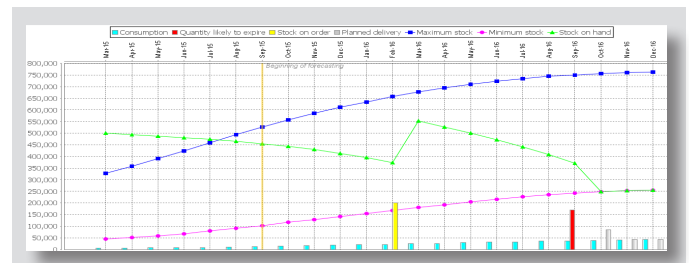
For each medicine, the blue line shows the maximum stock; the pink line shows the minimum stock; and the green line shows stock on hand, which changes over time based on expected events such as consumption, quantity likely to expire, arrival of orders already placed, and planned deliveries. These are displayed at the bottom of the graph.
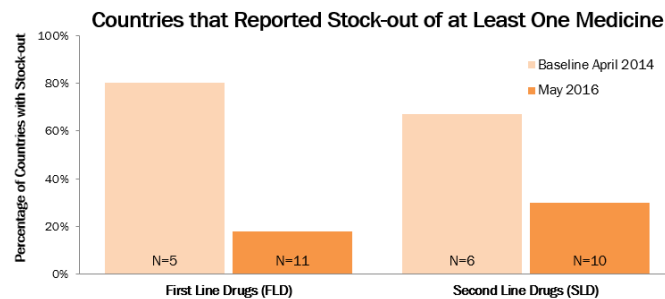

Red indicates a danger of stock-out, yellow indicates orders already placed that need monitoring as to when they will arrive, and green indicates how long that medicine will remain in stock.

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4301 N. Fairfax Drive, Suite 400 | Arlington, VA 22203 USA
Tel: +1 (703) 524-6575 | Fax: +1 (703) 524-7898 | E-mail: siaps@msh.org | Web: www.siapsprogram.org