QuanTB

User's Guide

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

QuanTB User's Guide

Version 4.1

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access
to Pharmaceuticals and Services

This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number AID-OAA-A-11-00021. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

This report may be reproduced if credit is given to SIAPS. Please use the following citation.

SIAPS Program. 2013. *QuanTB User's Guide.* Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Website: www.siapsprogram.org

CONTENTS

Introduction 1
The Challenge 1
A Solution 1
Installing QuanTB 3
Installation on a PC 3
Installation on a Macintosh 10
Upgrading or Reinstalling QuanTB 16
Use the same location as the old version and overwrite existing program files 17
Use the same location as the old version and do not overwrite existing program files 17
Use a different location for the installation 17
Version Compatibility 18
Customizing QuanTB 19
Modifying the medicines list 19
Modifying the treatment regimens list 21
Changing languages 30
Starting a New Quantification 33
Opening a new quantification 33
Case information 36
Stock information 43
Quantification Results 53
Parameters tab 53
Summary tab 53
Medicines report tab 54
Cases report tab 55
Medicines detailed report tab 55
Order and schedule tab 56
Graphs tab 60
Saving quantifications 62
Opening saved quantifications 64
Exiting the system 65
Exporting Quantifications to Excel and Printing 67
Export to Excel 67
Dividing and Merging a Quantification 69
Dividing a quantification 69
Merging a quantification 71
Using QuanTB as an Early Warning System 75
Regular monitoring 75
Viewing QuanTB files created by others 77
Annex 1: Quantifying for Multiple Years 81

Annex 2: Quantifying for Ancillary Medicines 83
Annex 3: Quantifying for Patient Kits 85
Annex 4: Reporting an Error 87

INTRODUCTION

The Challenge

Ensuring that patients have continuous access to tuberculosis (TB) treatment requires complex projections and calculations by TB program staff. These projections are becoming more challenging as new diagnostic tools rapidly increase the number of individuals diagnosed, and thus the quantities of medicines needed. As treatment regimens change, national programs must plan carefully for phasing in and out various medicines in order to manage the risk of stock outs. Frequent quantification, along with management of stock on hand, are vital to ensuring that appropriate types and quantities of medicines are available to meet the changing needs of programs and that TB programs are alerted of potential problems with TB medicines in a timely manner.

A Solution

To promote a systems-strengthening approach to TB medicines management, the USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program developed QuanTB—a downloadable, desktop tool that transforms complicated calculations into a user-friendly dashboard displaying key quantification and supply planning information. By alerting users to risks of stock outs, QuanTB operates as an early warning mechanism.

QuanTB allows you to forecast needs of tuberculosis medicines and treatment regimens for any period of time. Quantification can be done by:

- The number of enrolled and expected cases per month or by percentage of use of each medicine
- Either multidrug or single-drug regimens

For cases currently on treatment, QuanTB takes into account the month when treatment was started and the duration of regimen. The system also takes into account the medicines currently in stock (stock on hand), and the medicines on order (stock on order) during the quantification period. This tool also allows you to project your future procurement and budget needs.

You may download the QuanTB software from http://www.msh.org/resources/quantb

We would appreciate your testing of this tool under different scenarios and providing feedback, comments, and suggestions. Please send your comments to quantb@msh.org.

INSTALLING QuanTB

Installation on a PC

1. Visit the QuanTB website at http://www.msh.org/resources/quantb to request a copy of QuanTB. You will receive an e-mail with a link to download the software. Use the link in the e-mail to download and **save** the QuanTB software to your computer.

2. Double-click on the QuanTB.zip file to unzip it. You will get a folder called QuanTB Download.

3. In the QuanTB Download folder, double-click on the **QuanTBforPC.exe** file to run it. The **Language Selection** screen will appear:

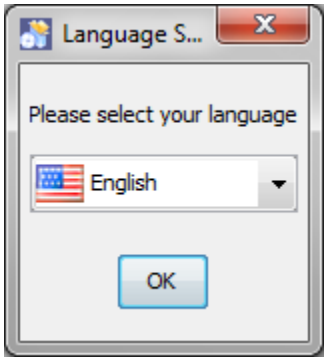


Figure 1

4. In this example, English was selected. Click **OK** to continue. The following screen appears:

Figure 2

5. Click **Next** to continue then read the license agreement that appears. You must accept the terms of the agreement to continue the installation, as shown in the screen below.

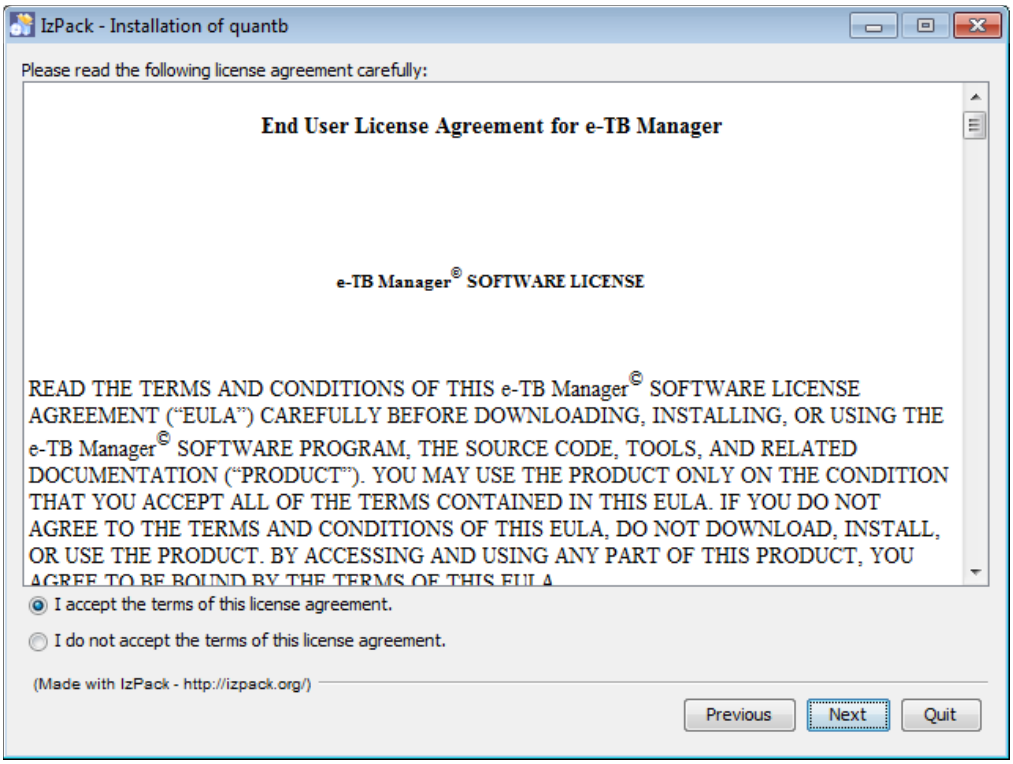


Figure 3

6. Enter an installation path for the software, as shown on the screen below and then click **Next**. We recommend accepting the default path that the program suggests.

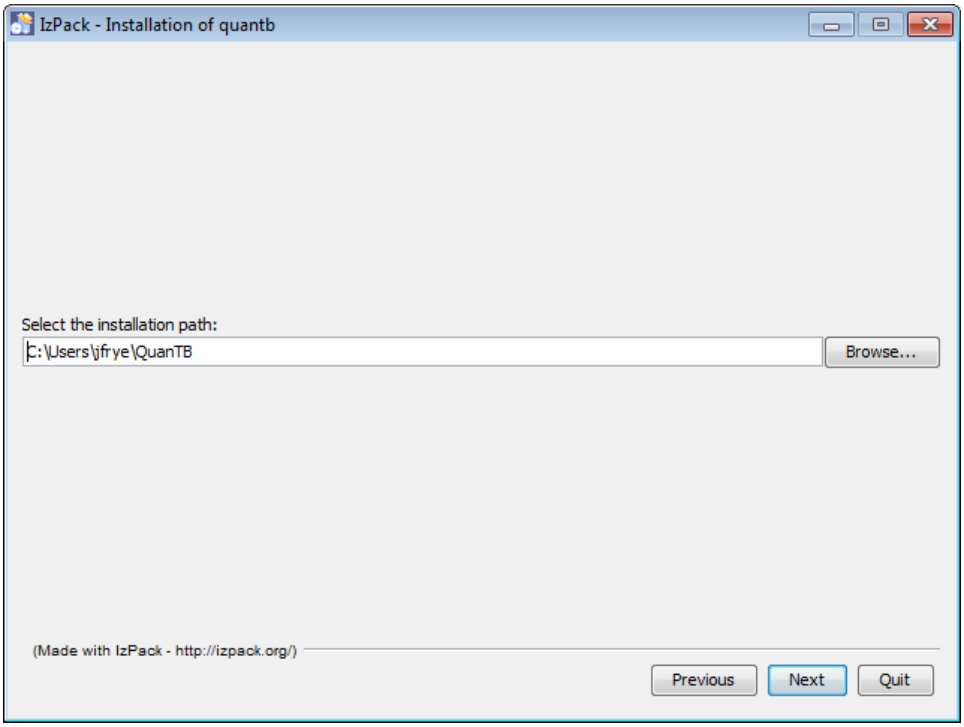


Figure 4

7. The program will confirm the installation directory it will create. Click **OK** to continue.

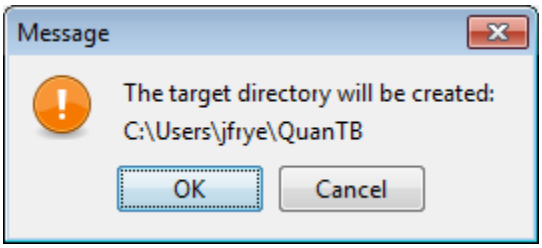


Figure 5

8. Select the packs you want to install. We recommend installing all of them. The greyed options are required, so you cannot unselect them. QuanTB comes with pre-populated lists of medicines and regimens standardized by the Global Drug Facility (GDF) and the World Health Organization (WHO) in the dictionary folder. QuanTB also has some "fictitious" quantifications for training/exercise purposes in the documents folder. If you have already installed QuanTB on your computer with customized lists of medicines and regimens or saved quantifications, your information will be overwritten if a new version is installed and the boxes are checked during the installation.

   If you are reinstalling the software after customizing the medicines, regimens, or quantifications, please read the Upgrading or Reinstalling QuanTB section of this manual to learn how to protect your existing medicines and regimens lists. If this is the first time you are installing QuanTB, we recommend keeping all of the boxes checked. Click **Next** to continue.

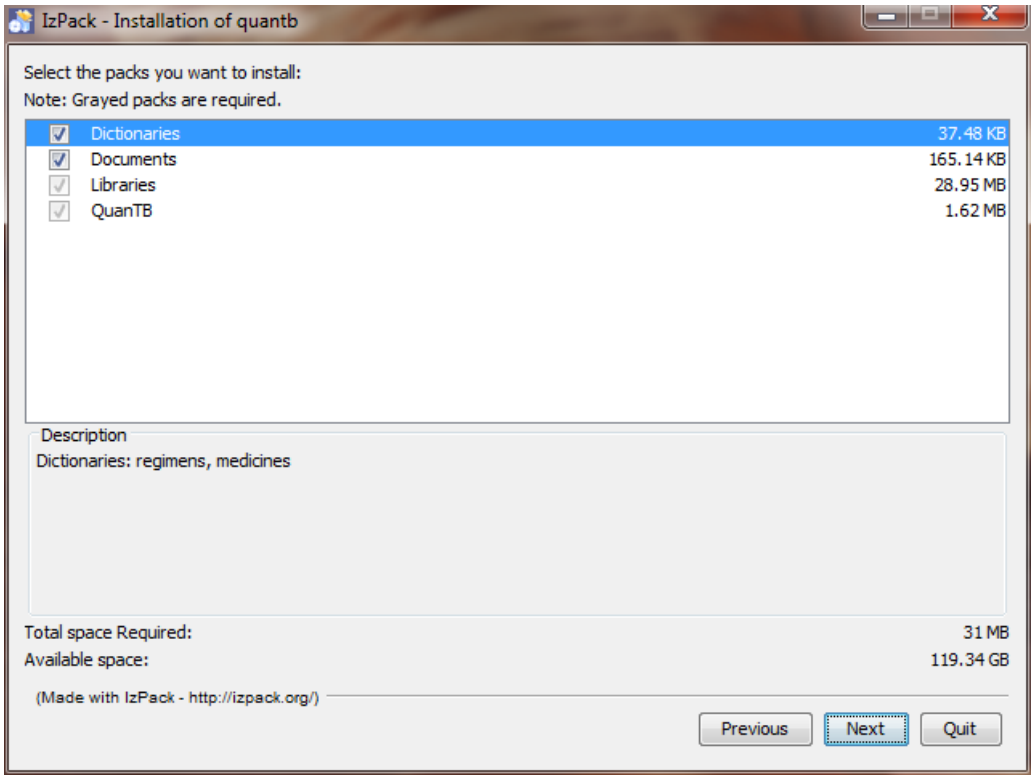


Figure 6

9. If you already have QuanTB installed in the same location and the dictionary and document boxes are checked, the system will warn you that you will overwrite files. An example for one of the files is shown below. Select No if you want to keep previously modified drug lists and/or treatment regimens. See the section on Upgrading or Reinstalling QuanTB for more information.

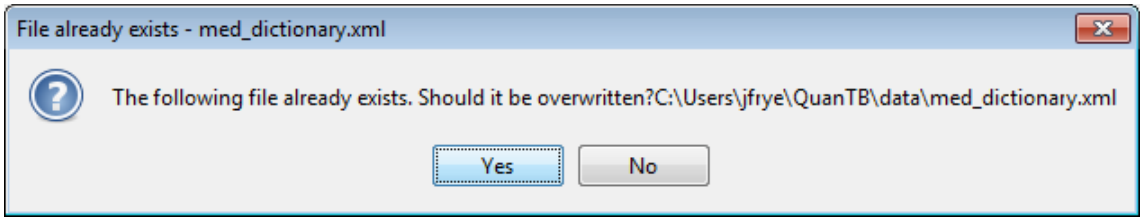


Figure 7

10. The software will display its installation progress, as shown on the screen below. Click **Next** to continue.

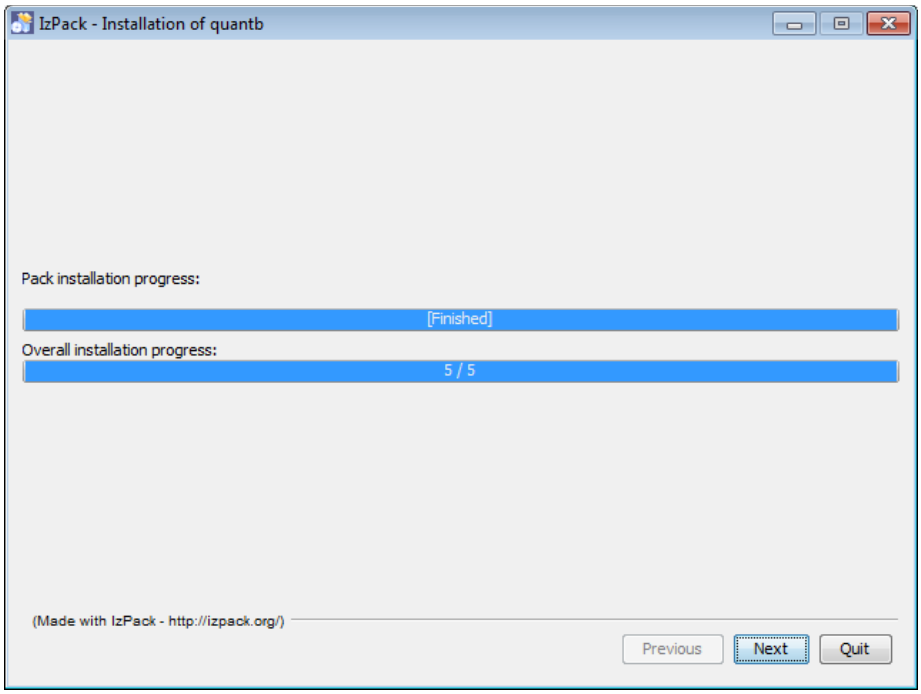


Figure 8

11. Choose which shortcuts you want the program to create for you, then click **Next**:

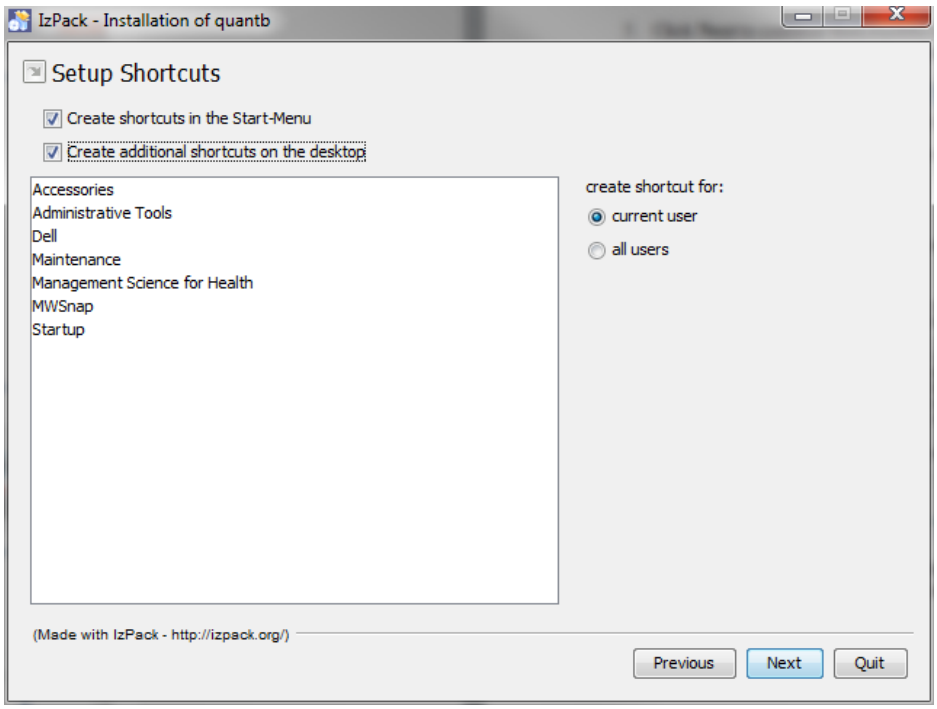


Figure 9

12. A screen confirming a successful installation will appear next.

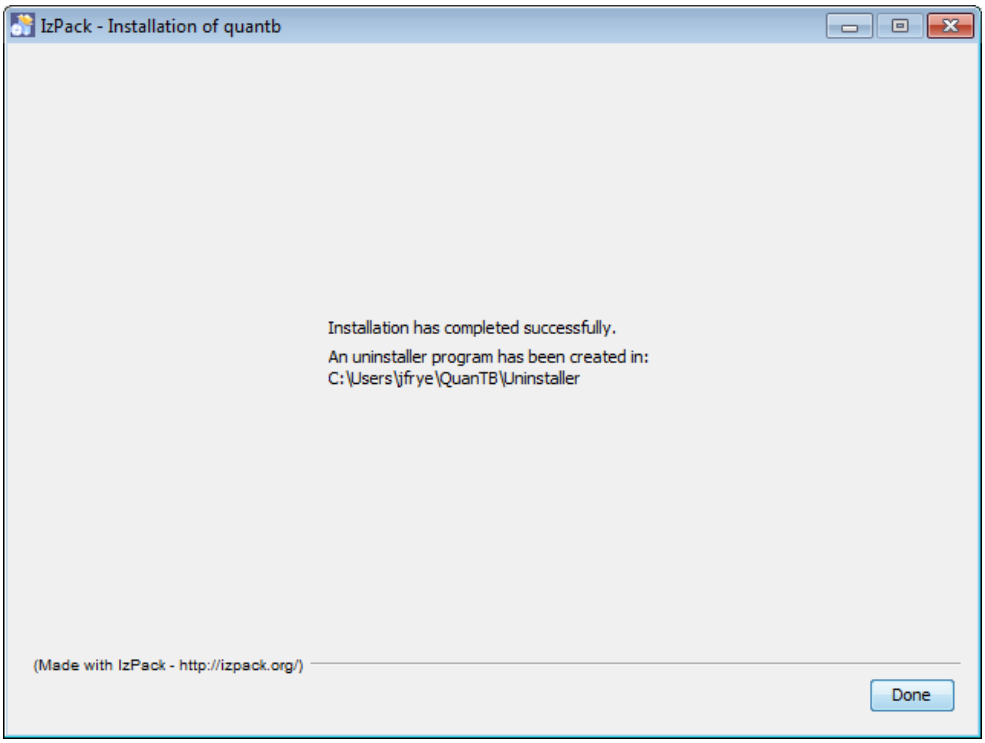


Figure 10

Depending on your version of Windows, you may get a Program Compatibility Assistant message after the installation (shown below). You should click the “This program installed correctly” option.

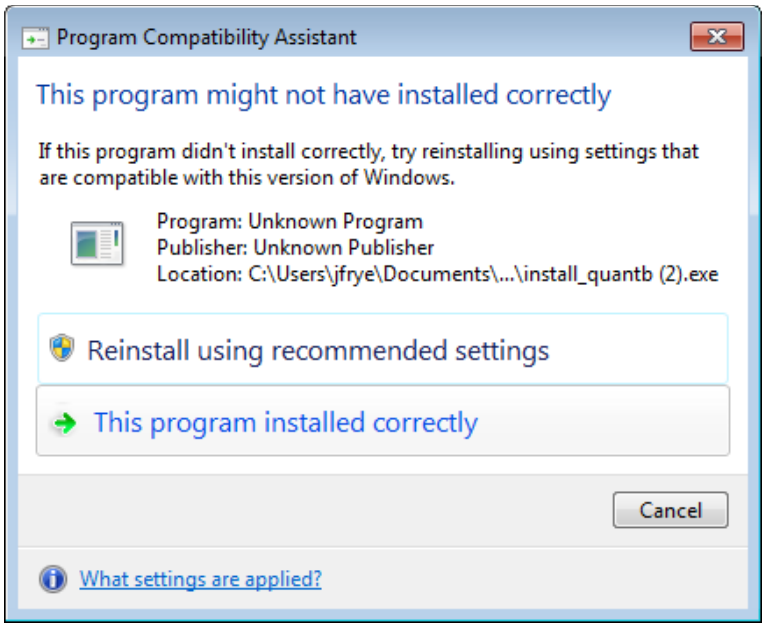


Figure 11

Note: As with any software, you should back up your data on a regular basis. If you used the default installation options, the medicines and regimens lists are stored in C:\Users*yourname*\QuanTB\data. Your quantification files are stored in C:\Users\ *yourname* \QuanTB\docs.

This user's guide is available electronically through the **Help** menu option in the software.

Installation on a Macintosh

1. Visit the QuanTB website at http://www.msh.org/resources/quantb to request a copy of QuanTB. You will receive an e-mail with a link to download the software. Use the link in the e-mail to download and **save** the QuanTB software to your computer.

2. To install QuanTB on a Macintosh, you must have the latest version of Java and the JDK (Java Development Kit) installed on your Mac. Go to www.java.com to download updates if necessary. Your computer will prompt you to install the software if it is necessary.

3. Double-click on the QuanTB.zip file to unzip it. You will get a folder called QuanTB Download.

4. In the QuanTB Download folder, double-click on the **QuanTBforMacintosh.jar** file to run it.

5. If you downloaded the installation file from the Web, you may need to bypass the Mac Gatekeeper software to run the install. Do this by holding down the **Control** key and clicking the **QuanTBforMacintosh.jar** file. Then click **Open** on the menu that appears and **Open** on the popup window to begin the installation.

6. The **Language Selection** screen will appear:

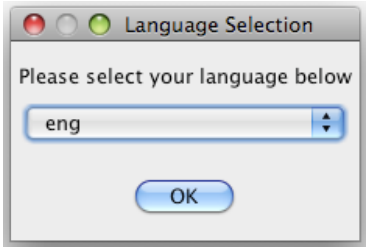


Figure 12

7. Select your desired language and click **OK** to continue. The following screen appears:

Figure 13

8. Click **Next** to continue then read the license agreement that appears. You must accept the terms of the agreement to continue the installation, as shown in the screen below.

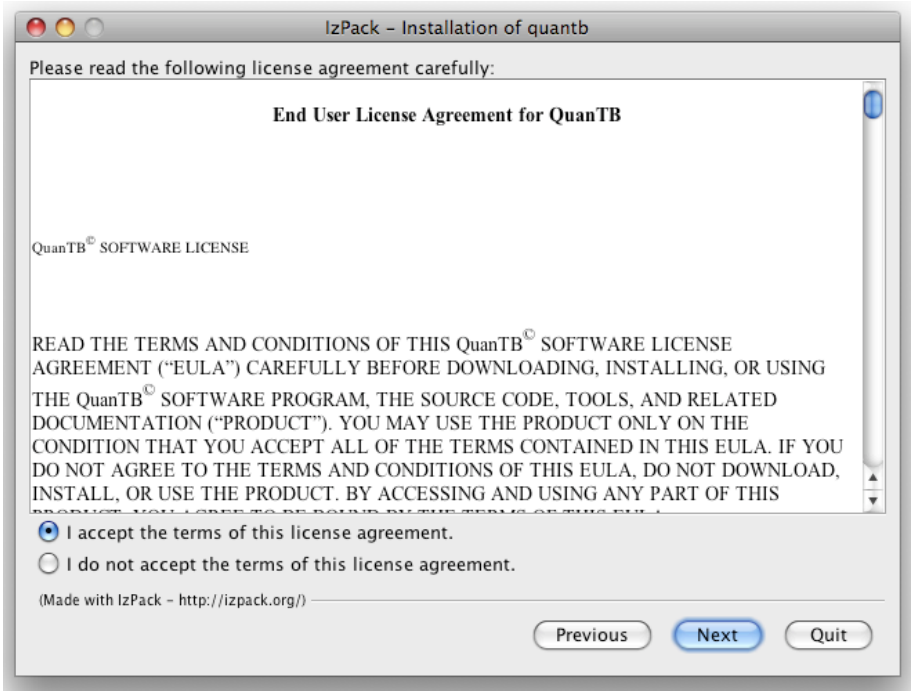


Figure 14

9. Enter an installation path for the software, as shown on the screen below and then click **Next**. We recommend accepting the Applications default path that the program suggests.

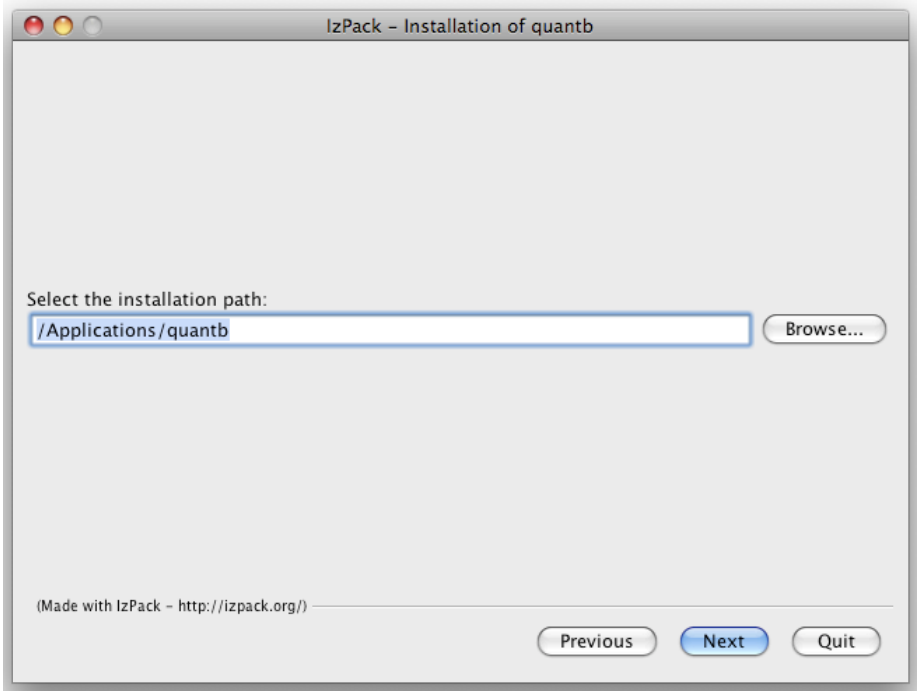


Figure 15

10. The program will confirm the installation directory it will create. Click **OK** to continue.

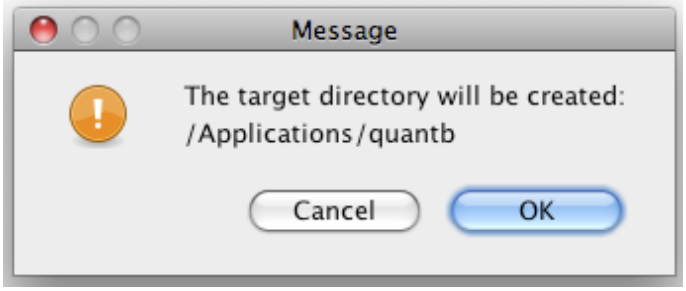


Figure 16

11. Select the packs you want to install. We recommend installing all of them. The greyed options are required, so you cannot unselect them. QuanTB comes with pre-populated lists of medicines and regimens standardized by the GDF and WHO (in the dictionary folder) and some "fictitious" quantifications for training/exercise purposes (in the documents folder. If you are reinstalling the software after customizing the medicines, regimens, or quantifications, please read the Upgrading or Reinstalling QuanTB section of this manual to learn how to protect your existing medicines and regimens lists.

If you are reinstalling the software after customizing the medicines, regimens, or quantifications, we recommend that you uncheck the documents and dictionary boxes to preserve your existing files. If this is the first time you are installing QuanTB, we recommend keeping the boxes checked. Click **Next** to continue.

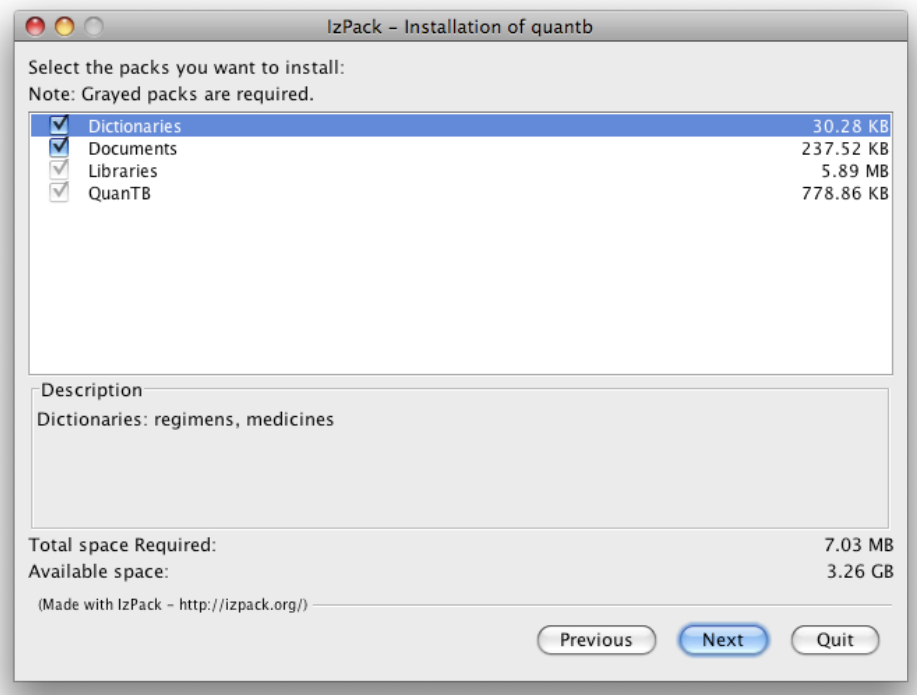


Figure 17

If you already have QuanTB installed in the same location, the system will warn you that you will overwrite files. Select No if you want to keep previously modified drug lists and/or treatment regimens.

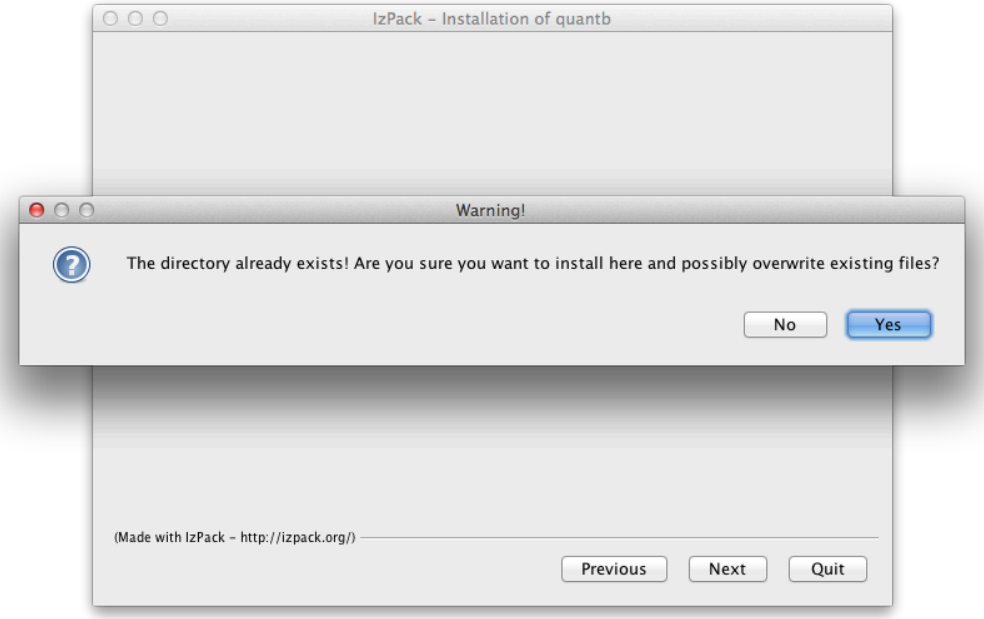


Figure 18

12. The software will display its installation progress, as shown on the screen below. Click **Next** to continue.

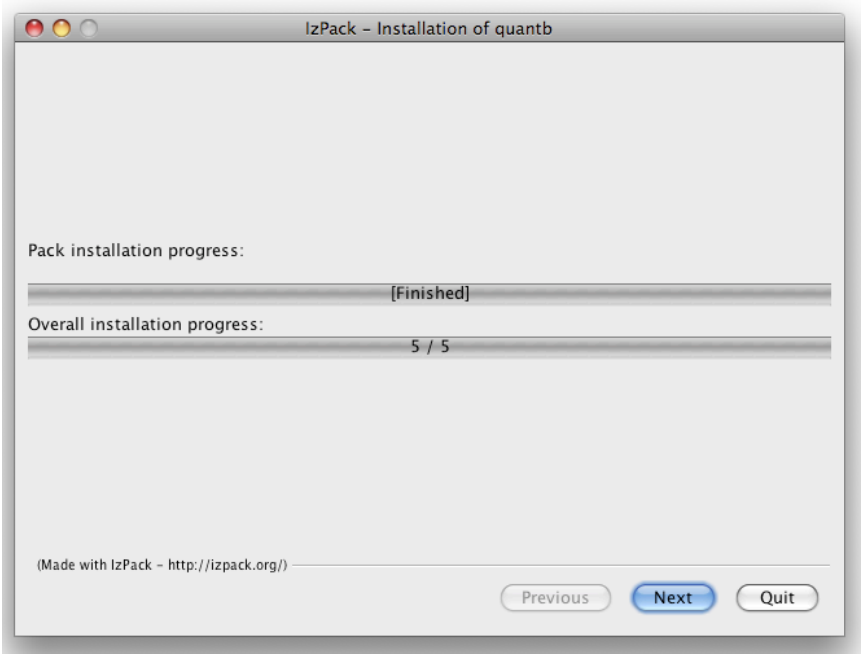


Figure 19

13. A screen confirming a successful installation will appear next. Click **Done** to complete the installation process.

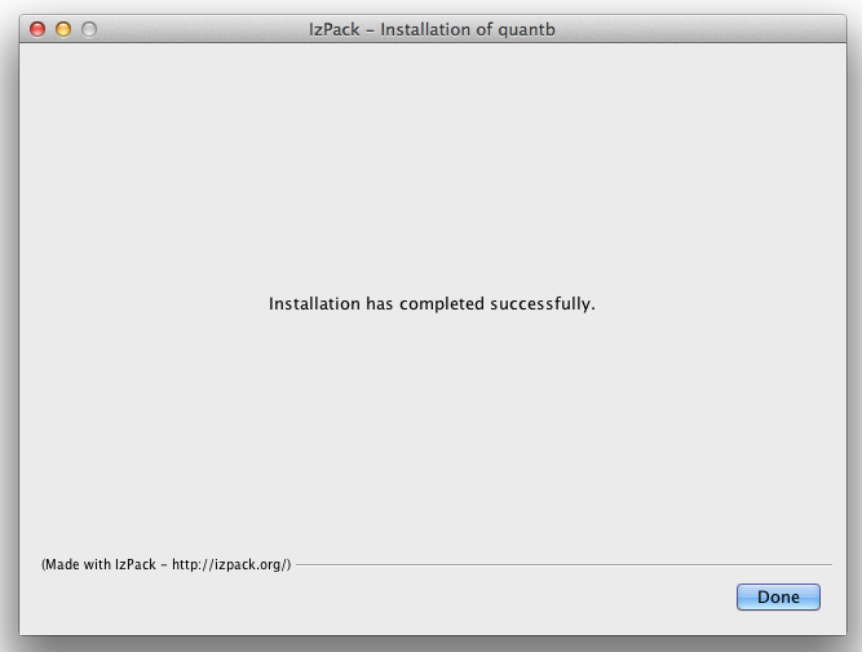


Figure 20

14. To run the program, go to Applications and double click on the **QuanTB** folder.

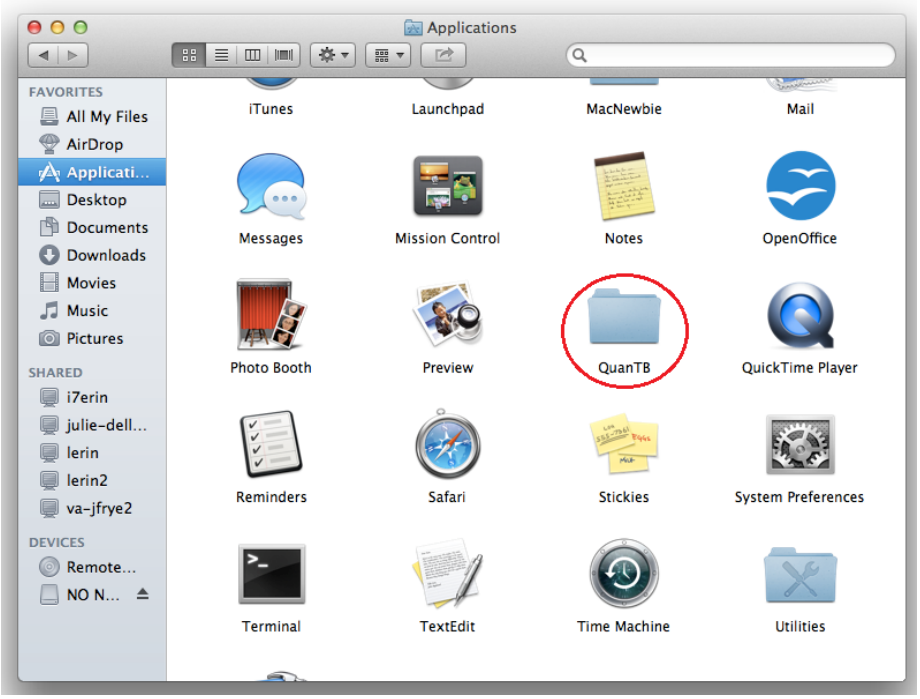


Figure 21

15. When the folder opens, double click on the **QuanTB.command** file to launch QuanTB.

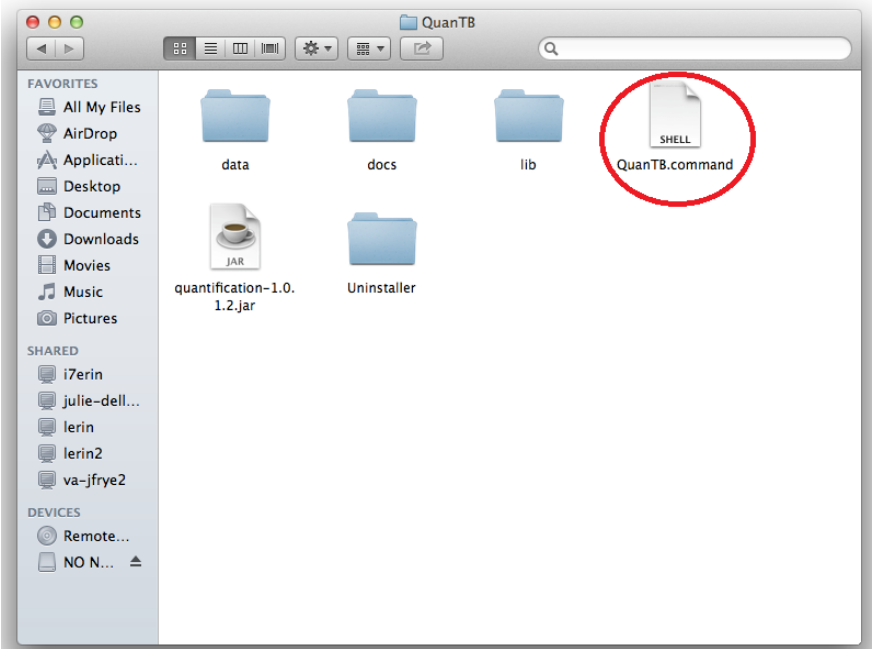


Figure 22

Note: As with any software, you should back up your data on a regular basis. If you used the default installation options, the medicines and regimens lists are stored in C:\Users\yourname\QuanTB\data. Your quantification files are stored in C:\Users\ yourname \QuanTB\docs.

This user's guide is available electronically through the **Help** menu option in the software.

Upgrading or Reinstalling QuanTB

If you are upgrading or reinstalling QuanTB after modifying the medicines and/or regimens lists, you need to take steps to ensure that you do not overwrite your data and lose your work. As a precaution before reinstallation, go to the location where your QuanTB files are saved and copy the DATA folder and save it in a different location. If you make a mistake during the reinstallation and overwrite your medicines or regimens lists, you can replace the new data files with your old files to restore your customized lists.

When upgrading or reinstalling QuanTB, you have three options during the installation:

- Use the same location as the old version and overwrite existing program files.
- Use the same location as the old version and do not overwrite existing program files.
- Use a different location for the installation and do not affect your original installation at all.

The program files of QuanTB are defined as the medicines and regimens lists, the quantification examples (i.e., the “Fictitia” files), and the software itself.

Use the same location as the old version and overwrite existing program files

If you use all of the default options in the installation program, QuanTB will alert you that files already exist and will ask if it should overwrite the old versions. If you accept, your previous QuanTB medicines lists and treatment regimens files will be replaced with new versions. If you have modified the medicines list or treatment regimens in the old version, your work will be lost once the files are replaced with the new versions.

Note: If you have created and saved quantification files with your own names, these are not overwritten, even if you reinstall in the same location as the old version and allow QuanTB to overwrite all existing files. QuanTB only overwrites the files that are distributed as part of the standard installation, i.e., the quantification examples, the medicines and regimens lists, and, of course, the software itself.

Use the same location as the old version and do not overwrite existing program files

When you are running the installation program, uncheck the dictionaries box (Figure 6) to preserve your information. Your medicines list and regimens list will not be changed by reinstalling the software.

If you leave the documents box checked, QuanTB will ask you whether you want to overwrite the quantification examples (i.e., the “Fictitia” files) that were included in your original version of the software. If you have not modified these examples, it is fine to overwrite them. Any quantification files that you have created with your own names are not affected by the reinstallation.

Note: When upgrading from QuanTB version 1.0, you must update your existing medicines and regimens lists if you do not overwrite them with the files provided with the new software.

- For the medicines list, go to each medicine and select the dosage form from the new dropdown list.
- For the regimens list, go to each regimen and click on the Composition link to auto-generate the composition.

Use a different location for the installation

If you change the default installation path (shown in Figure 4) to a different location than you used previously, you are creating a new copy of QuanTB on your computer. You can have multiple copies of QuanTB on your computer in different locations, for example if you want to do quantifications for different countries. In this case, you must leave the document and dictionary boxes checked because the program requires the folders and files to run.

Note: QuanTB must find a data folder with files named med_dictionary.xml and reg_dictionary.xml in it (e.g., C:\Users*yourname*\QuanTB\data) to run with full functionality. If that folder or files are missing, you can open and run quantifications and change the numbers of cases in them, but you can't access the regimens or medicines through the File menu. You can delete medicines and regimens from quantifications, but you can't add or edit them.

Version Compatibility

If you create a treatment regimen with three or more phases in QuanTB version 2.0.0 (or later), then try to open that regimen dictionary file (or a quantification using it) in a previous version of QuanTB, it will NOT work properly because information will be lost. This is because earlier versions of the software only recognize treatment regimens with two phases or fewer. For this reason, we recommend that all current users upgrade to version 4.0 (or later), which recognizes all treatment regimens and quantifications, regardless of which version was used to create them.

Double-click the QuanTB icon or filename on your computer to start the software. Before you start using QuanTB, you need to customize the tool for specific country settings, e.g., adding new medicines or regimens to the system.

The opening screen summarizes the steps you need to take. You can click the option at the bottom of the screen to display or hide this text.

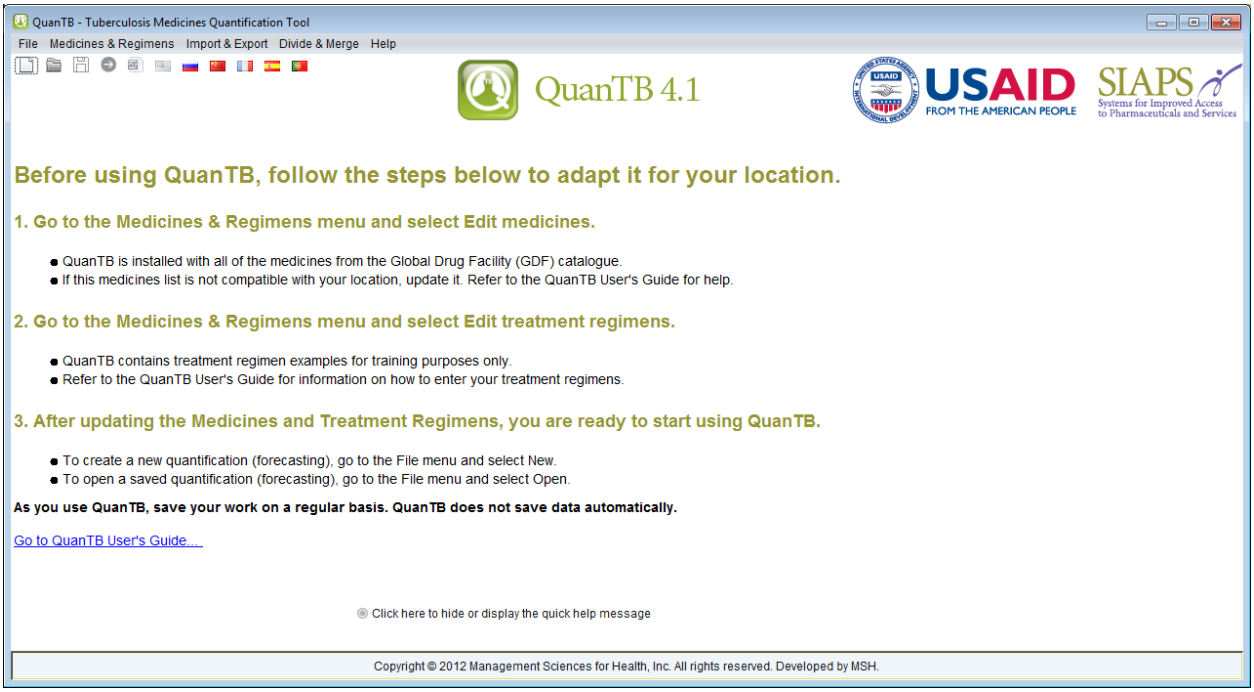


Figure 23

Modifying the medicines list

1. Go to **Medicines & Regimens** menu and select the **Edit medicines** menu option.

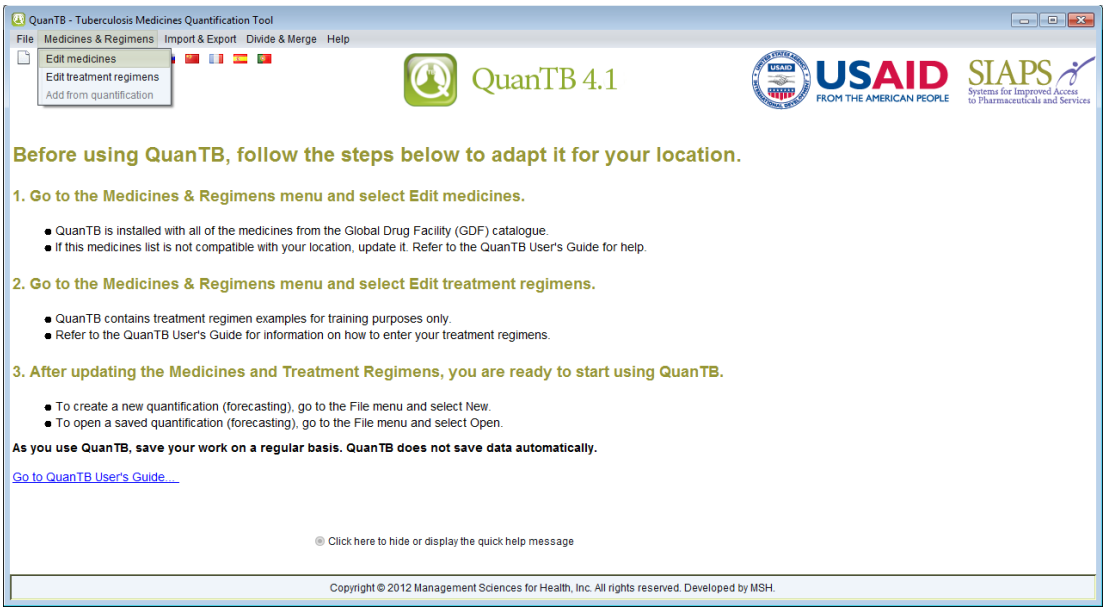


Figure 24

2. QuanTB is installed with all of the medicines from the Global Drug Facility (GDF) catalogue. To add medicines on this list, click on the **New** button. In the **New medicine** dialog box that appears, enter the international nonproprietary name (INN), abbreviated name, strength, and select the dosage form and type from the dropdowns. If you select "Other" you can enter information in the field below the dosage form. The type is "Adult first line," "second line injectable," etc. and is selected from the dropdown window. Click on the **Save** button to confirm your new medicine or click on **Cancel** to undo it.

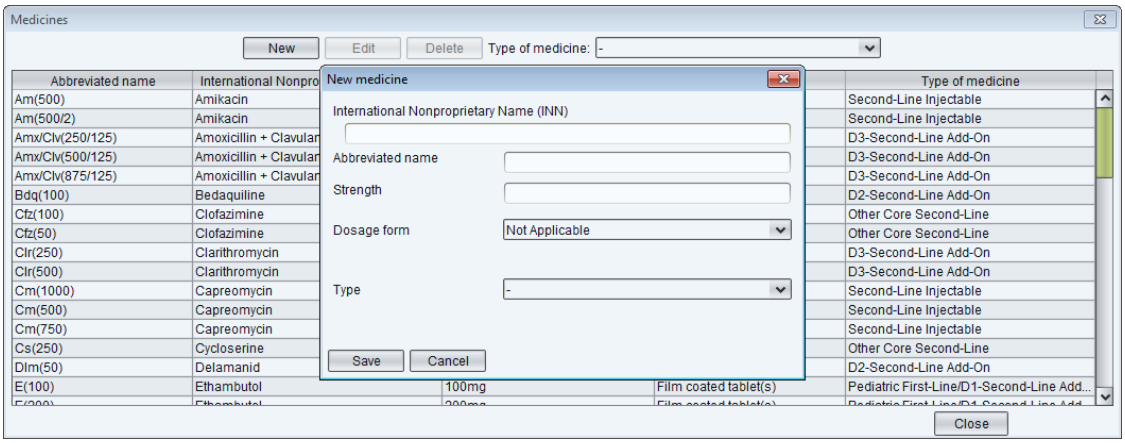


Figure 25

If you try to create a new medicine with (or edit an existing medicine to have) the exact same name, abbreviated name, strength, and dosage form of an existing medicine, QuanTB will not permit it. Any difference in any of these fields, including capitalization, dots, or spaces will be understood by QuanTB as a different medicine and you will be permitted to save the item. Be careful not to create duplicates.

3. To change or delete medicines on the list, click on the medicine you want to modify and the **Edit** and **Delete** buttons will be enabled. Click on the buttons and follow instructions in the respective dialog boxes that appear. If you modify a medicine that has been used in a regimen, you must delete it from the regimen and re-add it so that the updated information appears in the regimen.

Modifying the treatment regimens list

1. Go to **Medicines & Regimens** menu and select the **Edit Treatment regimens** menu option.

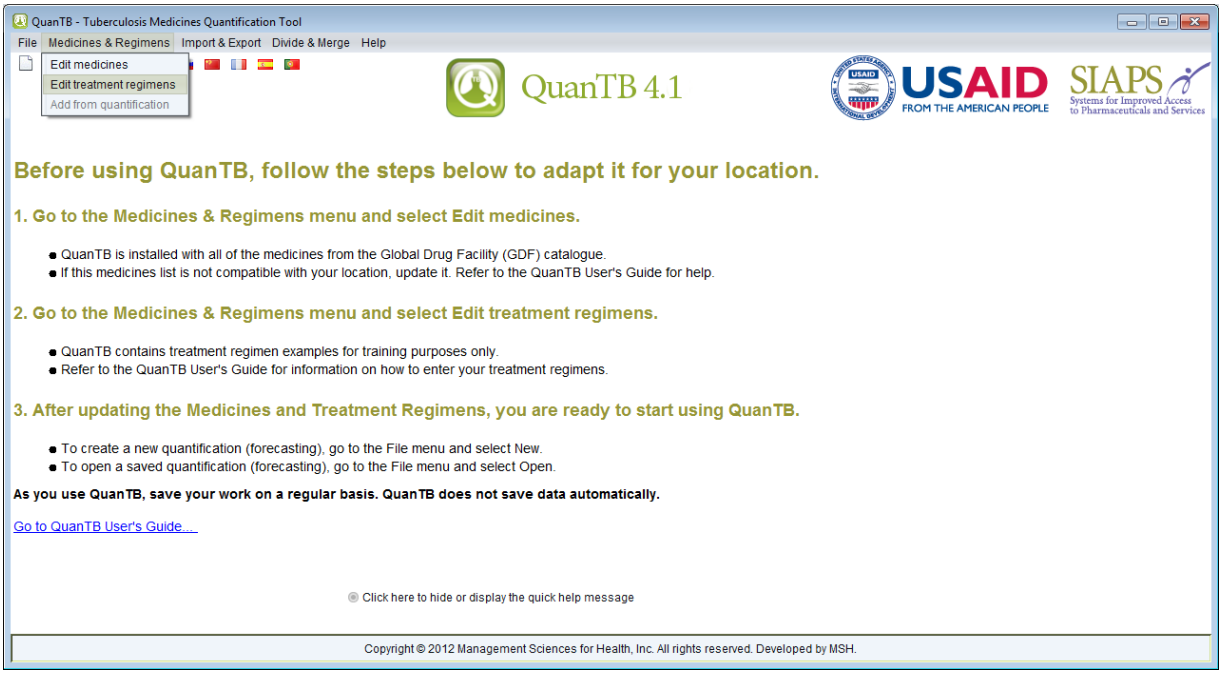


Figure 26

2. The tool already contains treatment regimens **for training purposes only**. To create a regimen, select Multidrug or Single Drug in the dropdown window, and then click on the **New** button.

Note: When creating or selecting regimens, please remember that in QuanTB, quantification can be done either by regimens, or by percent of use of each medicine. Thus, two types of regimens can be created depending on how you want to quantify: multidrug regimens for quantification by regimens, or single-drug regimens for quantification by percent of use of each medicine. The steps below describe multidrug regimens first, then single-drug regimens. The term “single-drug regimen” is used for convenience, to distinguish it from multidrug regimens.

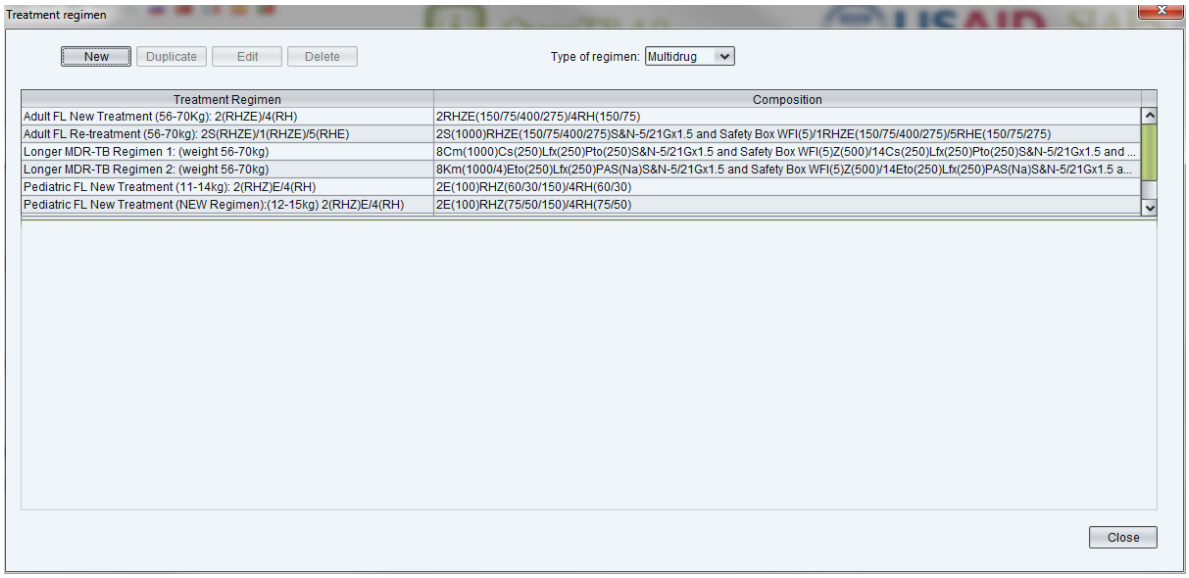


Figure 27

NOTE: If you want to number your treatment regimens, you should use a leading 0 with the numbers 1 through 9 (e.g., 01, 02, 03), so that they will appear in the correct order. If you don't use a leading 0 and you have more than nine regimens, the numbers 10 and higher will appear in the wrong order.

3. In the **New Treatment Regimen** dialog box that appears, enter information in the Name field. The Composition field will be automatically completed by the software, based on the medicines you enter. You may modify it after the regimen is created, if you wish. You may add up to 10 phases for each regimen and have a duration of weeks or months for each phase.

   In the Phase 1 window that appears when you create a new treatment regimen, click on the **Add Medicine** button. In the list of medicines that appears, select the medicines you want to add to the regimen by clicking the checkbox(es), and click on the **Save** button to confirm or **Cancel** to undo it. Use the dropdown window to set the **Duration** by choosing a number and weeks or months.

   For each medicine in the phase, click in the appropriate column to enter the **Units per Day** and **Days per Week**.

If you have more than one phase for this regimen, click the **Add phase** button. Repeat the process described above by clicking on the **Add Medicine** button in the Phase 2 window. Another option is to copy the previous phase by clicking on a phase, then clicking the **Copy previous** button. When you click this button, the system copies information from the immediate previous phase of the one that is selected and replaces all existing information in the selected phase. For example, if there are 3 phases and the second is selected (i.e., opened), the system will copy data from the first phase. This resource can be useful when the same medicines have been used in more than one phase.

Note: Because there is an average of 4.3 weeks per month, the quantities required for a regimen defined in weeks will differ from a regimen defined in months. The difference increases with the length of the regimen and can be surprising, if you are assuming that 4 weeks equals one month. Four weeks does not equal one month, because four weeks is 28 days and one month is 30 or 31 days.

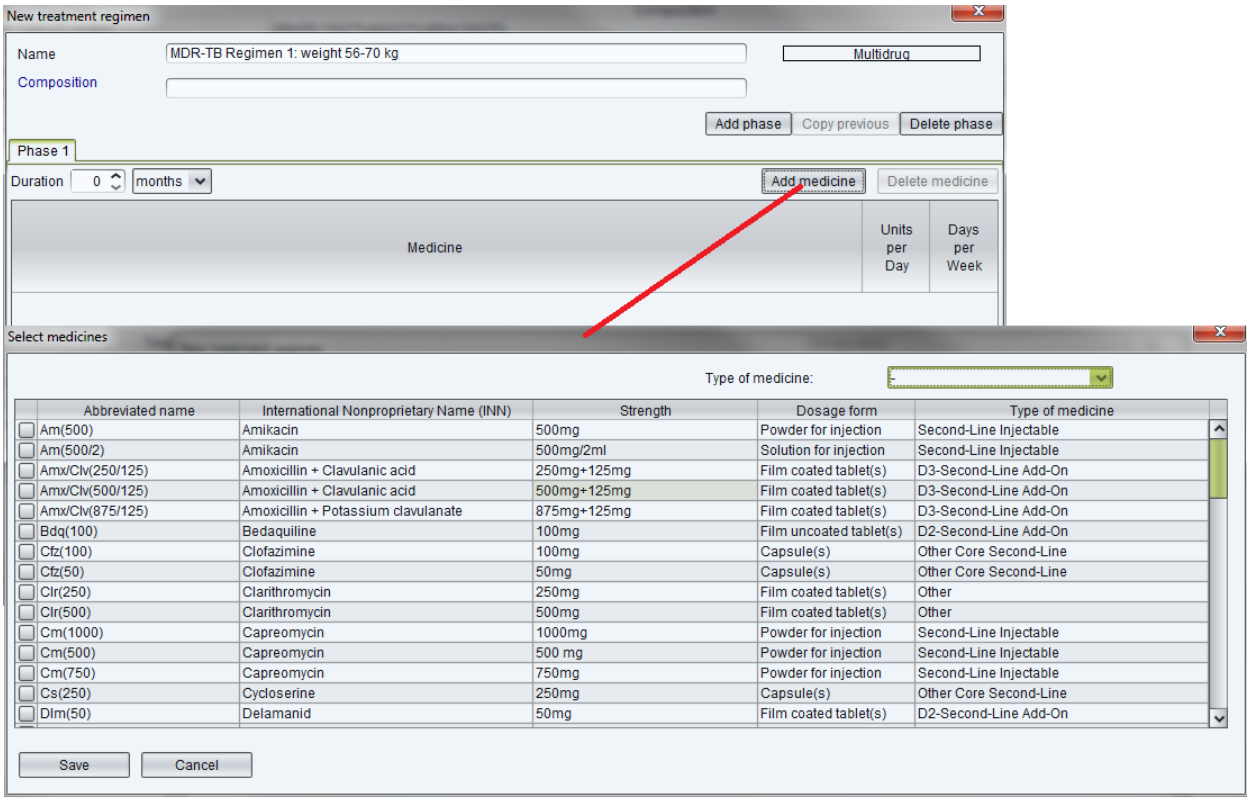


Figure 28

4. After adding medicines in the relevant number of phases and entering information on the **Units per Day**, **Duration (weeks or months)**, and **Days per Week** fields, click on the **Save** button to confirm or **Cancel** to undo it. Only whole numbers can be entered for these fields. The software will fill out the **Composition** field for you, based on the information you enter, but you may modify it if you wish.

   The first number in the Composition field displays the number of months of the first phase of the regimen. Any time there is a change in the number of months for a medicine (e.g., when changing to the continuation phase), the software will insert a "/" to divide the description. The first number after the "/" displays the number of months for the next phase. The abbreviated names of the medicines (with their strength in parentheses) follow the numbers of months. When a medicine has a duration of weeks, the weeks are converted to months in the Composition field.

Note: In keeping with international standards, we require that all medicines in a phase have the same duration.

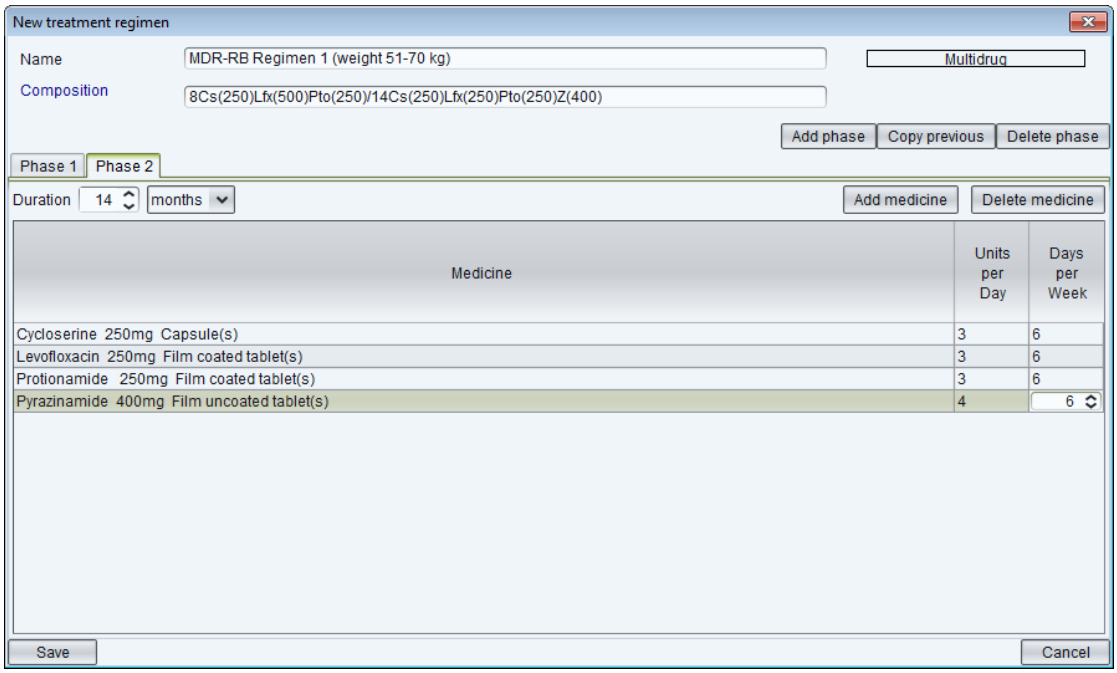


Figure 29

5. To modify recorded treatment regimens, select one regimen you want to change and click on the **Edit** button. In the Edit treatment regimen screen that appears (below), you can replace, delete or add medicines to an existing regimen.

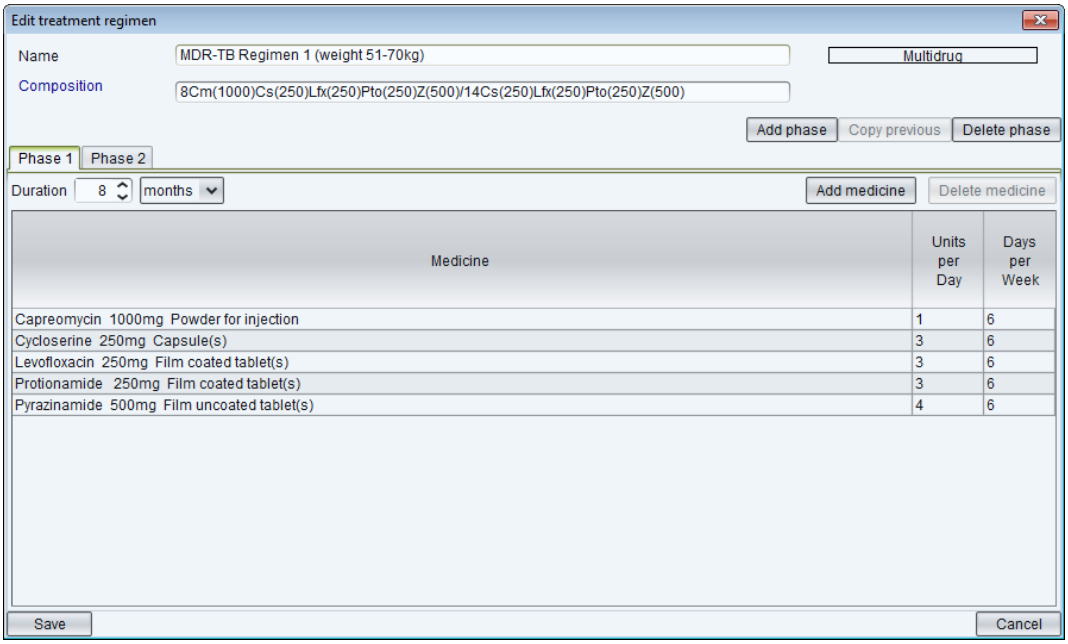


Figure 30

6. To add a new medicine, click on the **Add medicine** button. In the **Selected Medicines** dialog box that appears, choose the medicine(s) and click on the **Save** button to confirm or **Cancel** to undo it. If necessary, repeat the process for medicines you want to add in other phases.

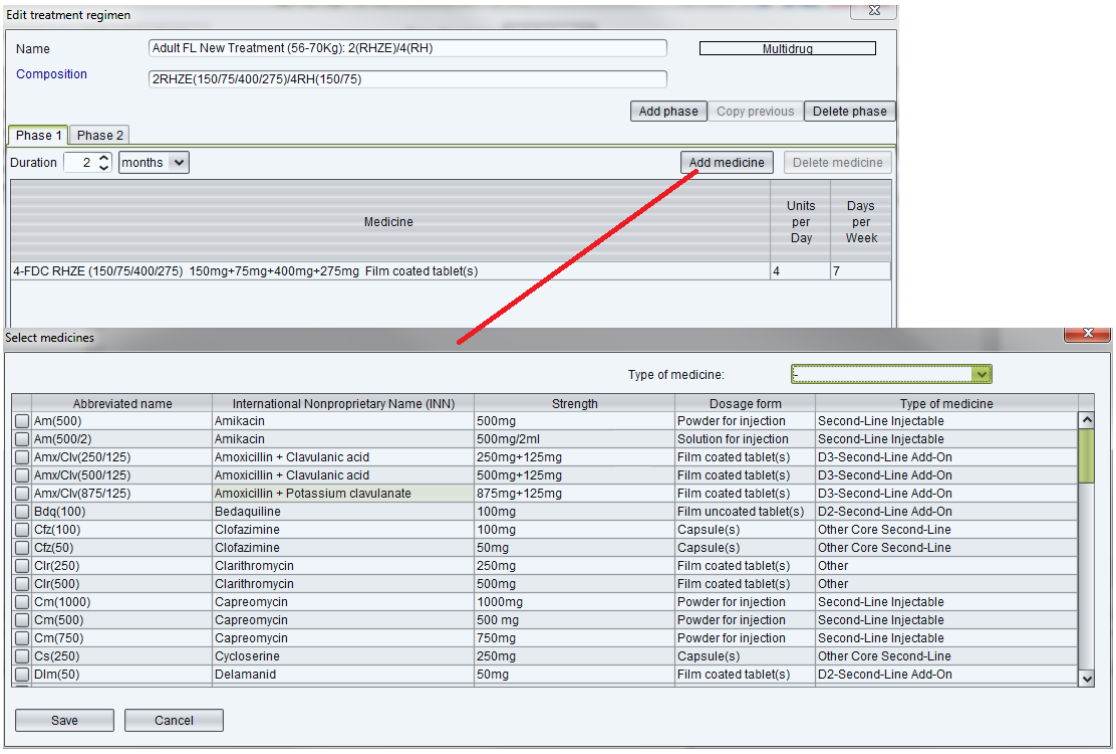


Figure 31

7. To delete a medicine, click on it and then click on the **Delete Medicine** button. In the confirmation dialog box that appears, click on the **Yes** button to confirm or **No** to undo it. If necessary, repeat the process for other medicines you want to delete in all phases.

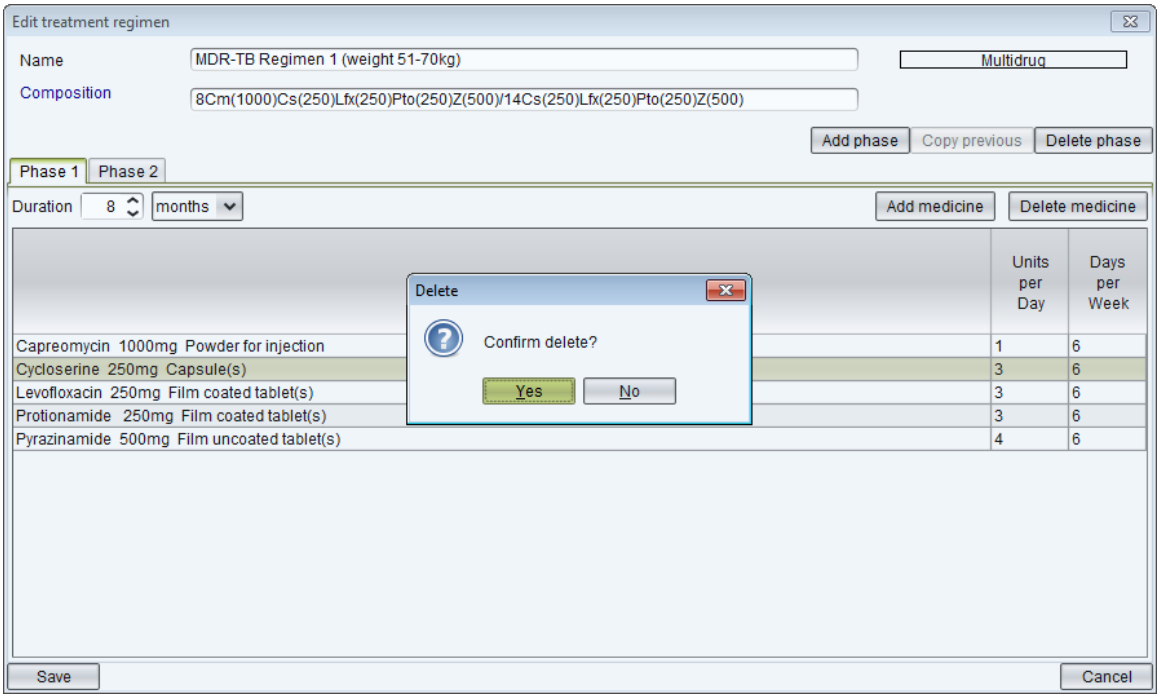


Figure 32

8. After all modifications are made, click on the word **Composition** to update the description automatically. Then click the **Save** button to confirm or on the **Cancel** button to undo them. Be careful not to create duplicate regimens. QuanTB follows the rules below:

    - If you try to create a new treatment regimen with the exact same name, medicines, units per day, duration, and days per week of an existing regimen, QuanTB will not permit it.

    - If you create a new treatment regimen with the same name but other different information (medicines, units per day, duration, and days per week), QuanTB displays a warning message, but will allow the creation if you click the yes button.

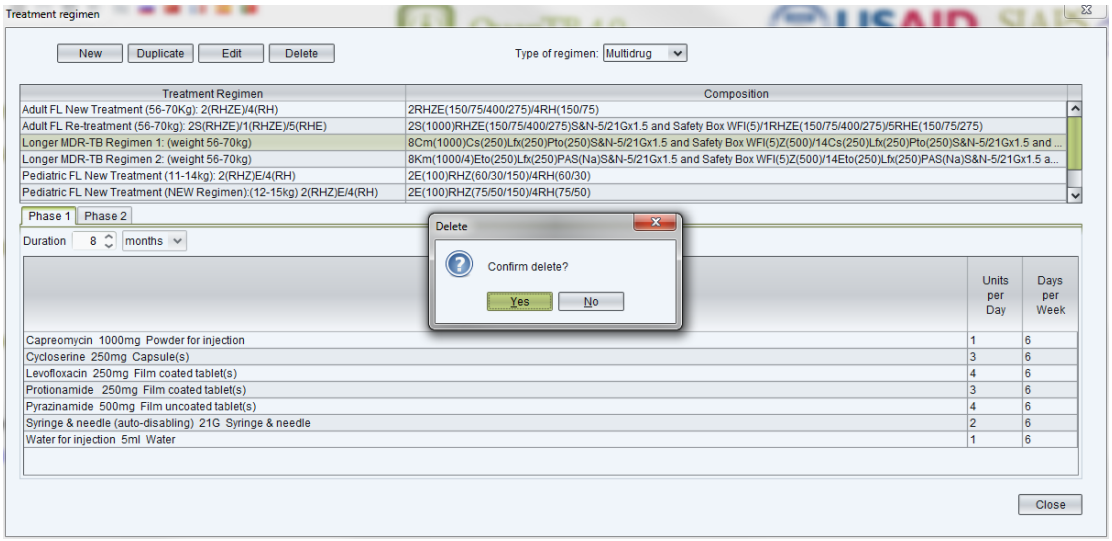
    - If you create a new treatment regimen with a different name but the exact same other information (medicines, units per day, duration, and days per week), QuanTB displays a warning message, but will allow the creation if you click the yes button.

- If you edit a treatment regimen to have exactly the same name, medicines, units per day, duration, and days per week of another existing regimen, QuanTB displays a warning and will not save the information.

- If you edit a treatment regimen, keeping the name, but changing information for the medicines, units per day, duration, and days per week to match an existing regimen, QuanTB will display a warning message, but will allow the regimen creation if you click the yes button.

- If you edit a treatment regimen, changing the name, but keeping information for the medicines, units per day, duration, and days per week to match an existing regimen, QuanTB will display a warning message, but will allow the regimen creation if you click the yes button.

9. To delete recorded treatment regimens, select one regimen you want to remove and then click on the **Delete** button. In the confirmation dialog box that appears, click on the **Yes** button to confirm or **No** to undo it. If necessary, repeat the process for other regimens you want to delete.



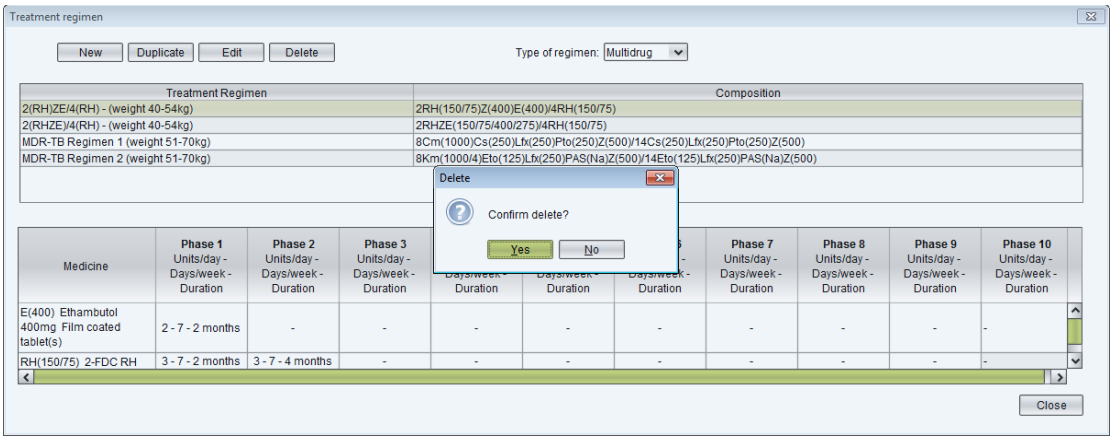


Figure 33

10. When creating new multidrug or single-drug regimens, you may copy an existing regimen and edit it. The regimen you want to duplicate must be selected. The click the **Duplicate** button to copy it. The regimen will appear in the list of regimens with "- Copy" after the name. Click on it and modify it as described above.

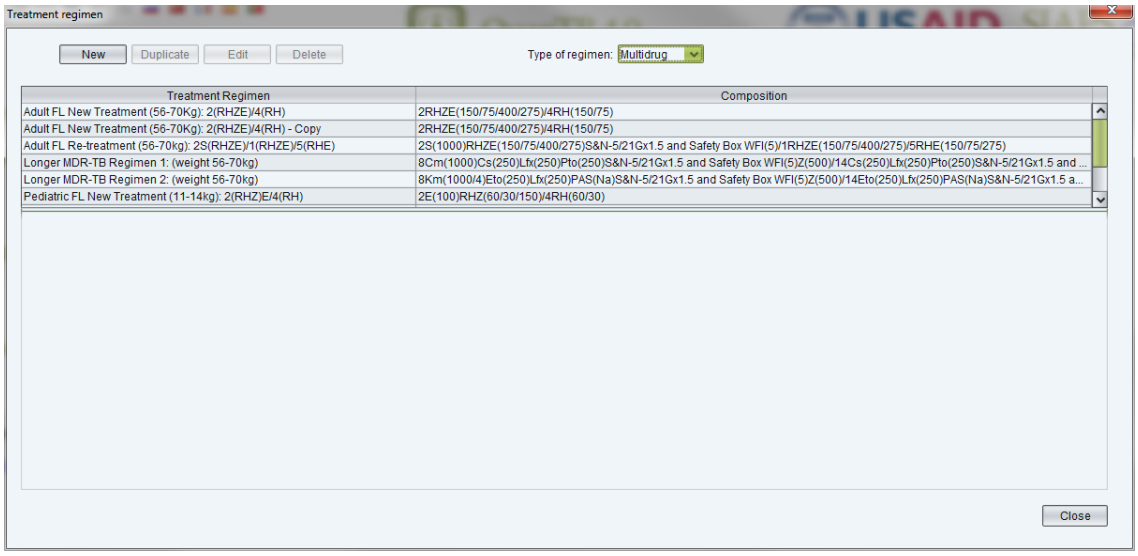


Figure 34

11. If your quantification is based on the percentage of use of each single TB medicine, you must create single-medicine regimens. At the **Treatment Regimen** screen, select **Single Drug** in the dropdown window, and then click **New**.

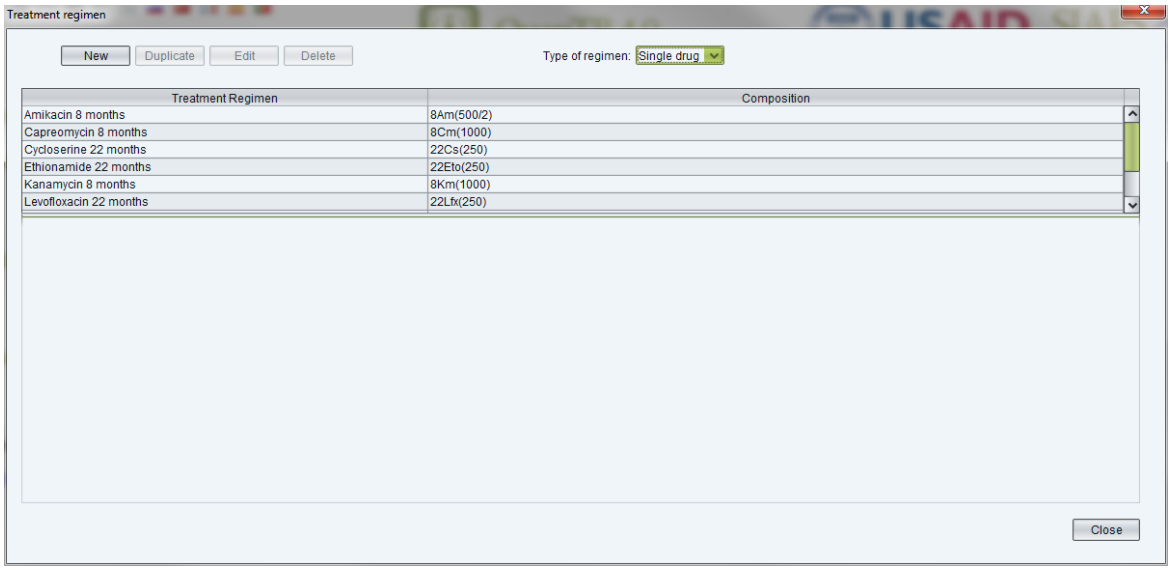


Figure 35

12. Enter the **Name** of the treatment regimen and then click on **Set Medicine.** Select a medicine by clicking on it on the **Select medicines** screen that appears. Click **Save** to confirm your choice or **Cancel** to discard it.

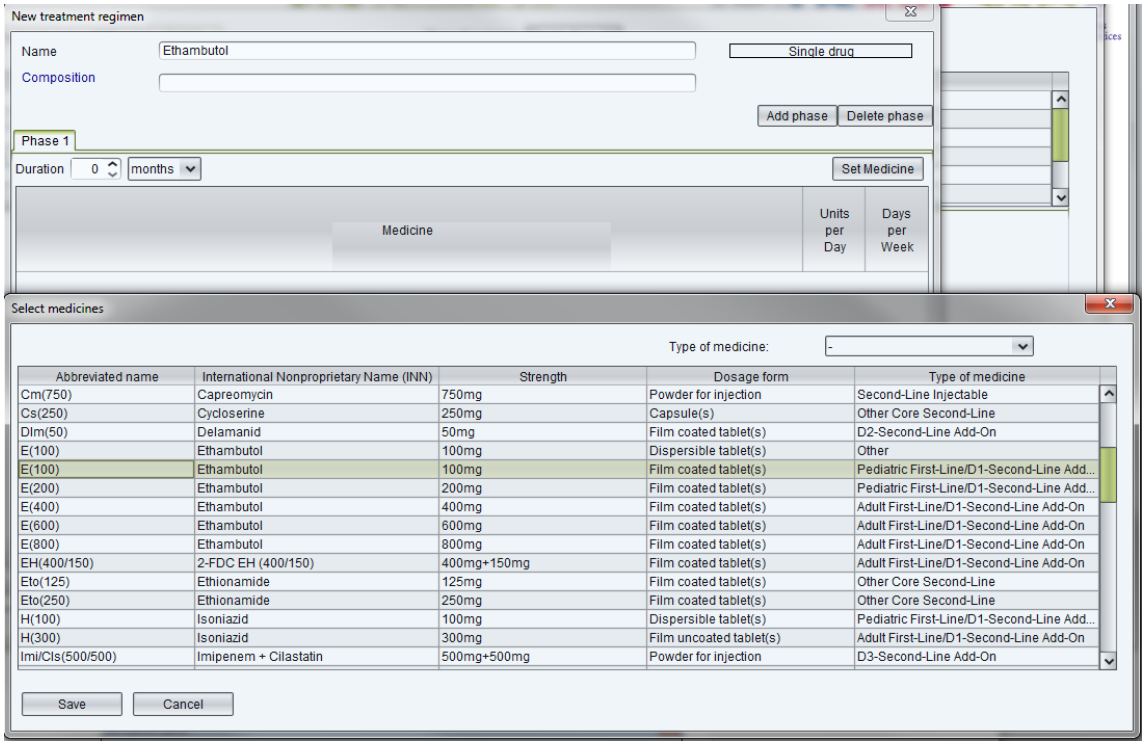


Figure 36

13. On the **New treatment regimen** screen, enter the **Duration (in weeks or months**), **Units per Day** and **Days per Week for** that medicine. The system will not allow you to enter

more than one medicine. Click on the **Save** button to confirm or on the **Cancel** button to undo it.

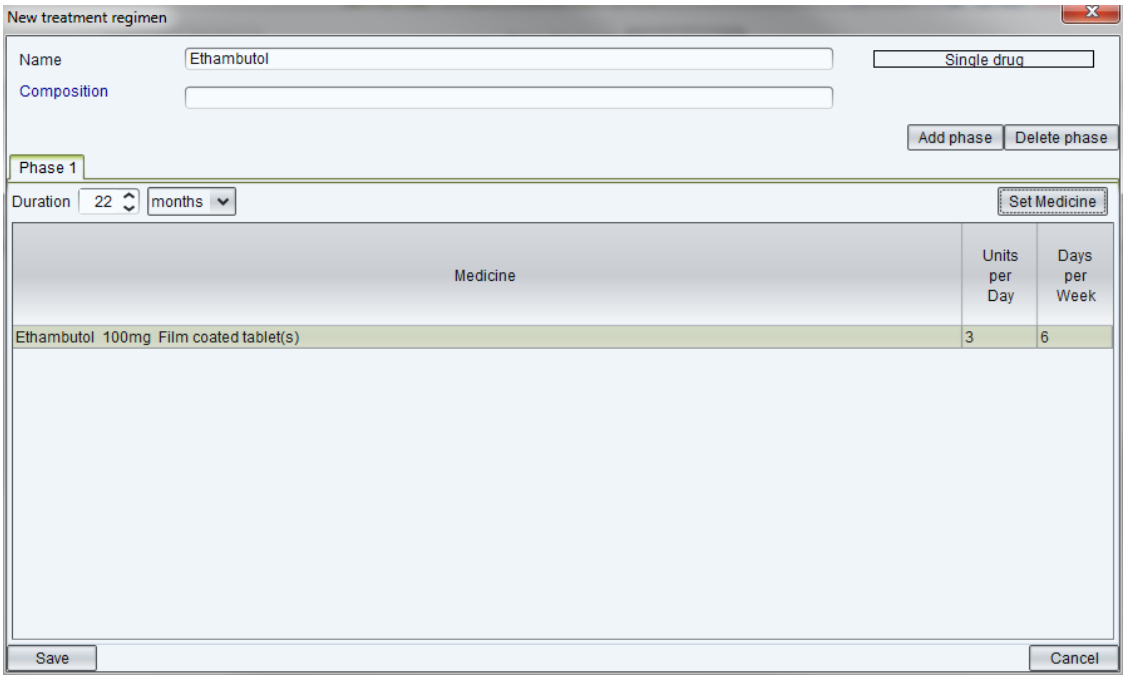


Figure 37

Note: The list of medicines is stored in the med_dictionary.xml file and the list of regimens is stored in the reg_dictionary.xml file, both located in the QuanTB data folder. You can only have one version of each of these files in this folder. If you need to have two different lists of medicines (or regimens), e.g., because you are working with two countries, you must install two copies of QuanTB on your computer in different folders.

Changing languages

After QuanTB is installed, you can switch from one system language to another by clicking the flag icons at the top of the screen. If you hover the mouse over the flag, you can see the name of the language that it represents. When changing the language of the tool, QuanTB checks all open quantifications before making the change. If any quantification is not executed, the system will prompt you to save it. If any quantification was executed with an error or warning message (e.g., for cases or percentage with zero or missing information on parameters tab) QuanTB will display these messages again before changing the language.

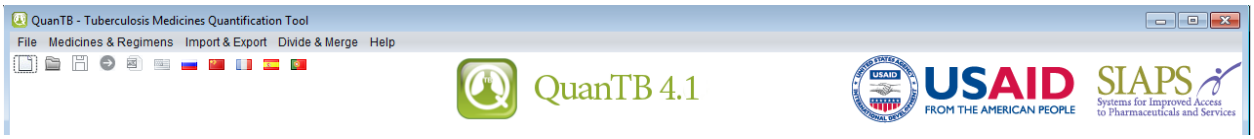


Figure 38

If you created your medicines and regimens in one language, when you change to another language, everything that is free text (i.e., not in a dropdown window) will remain in the language in which it was created. You will have to go to each field and re-enter the free text information in the new language. Please note that the medicines list and the sample regimens that come with QuanTB when installed are in English. You may translate these to another language if necessary.

STARTING A NEW QUANTIFICATION

As you use QuanTB, please **save** your work on a regular basis.

QuanTB does not save data automatically.

It is important to understand that the calculations in QuanTB quantifications assume 100% adherence, that is, that all patients receive all doses of all medicines and no one is lost to follow-up. If you know the attrition rate for each medicine, you can enter it for the enrolled and expected cases. These results will appear in the dashboard. If you simply adjust the quantity to order, that will not appear on the dashboard.

Opening a new quantification

Go to the **File** menu and select the menu option for **New** or click on the **New** icon in the left upper corner. Enter the variables/parameters in the fields and check/select the regimens you want to forecast in the list. All fields must be filled out. See the explanation below about the fields in the **New quantification** dialog box.

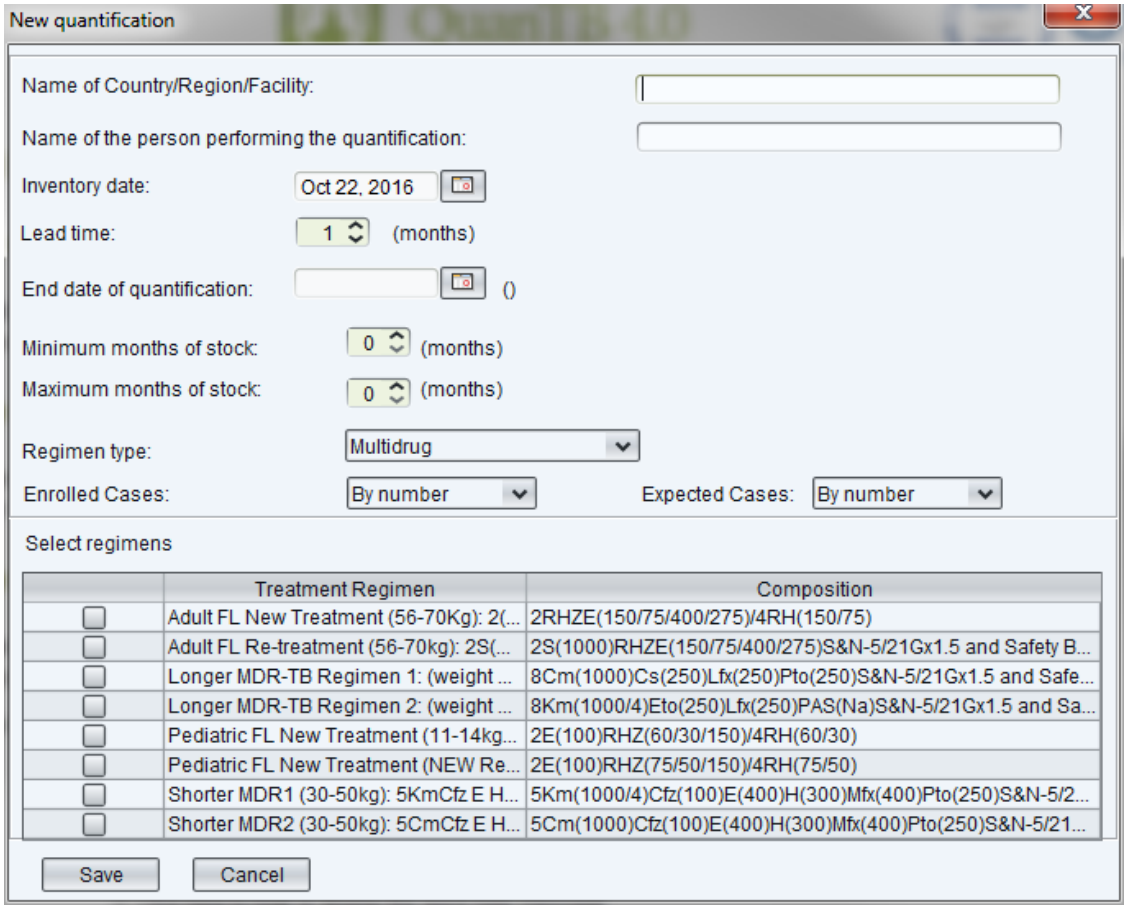


Figure 39

Name of Country/Region/Facility: Defines the context to which the quantification refers

Name of the person performing the quantification: Defines the individual who is entering data and generating the results of the quantification

Inventory date: The current day as set on your computer is automatically entered. You may move the **Inventory date** back to the past if needed (e.g. if your medicines stock information is dated), but you should not move it forward. The inventory date should be the date you counted the stock information you are entering, so an inventory date in the future will not have any inventory information. The quantification begins the day after the **Inventory date**.

Lead time: Enter the number of months normally necessary for your orders to arrive. The figure entered should include all of the time that starts with planning for quantification and ends when the medicines are available on the shelf. It is not simply the suppliers' lead time. QuanTB will allow you to enter 0 for the lead time, but we strongly recommend that you don't because it is not realistic.

End date of quantification: Defines last day of the period for which the quantification is made. This is a future period and the start date must be later than the inventory date plus the lead time. When you enter a date, the quantification period will automatically appear next to the end date.

Minimum months of stock and Maximum months of stock: Enter the minimum and maximum number of months of stock that you want to keep on hand. These figures affect the stock calculations. They are used to set the range of months on the dashboard and to determine the estimated months of stock. The first day of the month(s) QuanTB calculates that you reach the minimum level of stock triggers the need to order. If you have not set a minimum, a stock out triggers an order. If you want to keep buffer stock, you must include it in your minimum. The minimum and maximum can't be the same, unless both are zero. If you set the minimum stock to 0, QuanTB will calculate the quantities needed as if minimum stock were set to one.

Regimen type: Select multidrug or single-drug in the dropdown window.

Enrolled cases: Use the dropdown window to select whether you want to enter the number of enrolled cases by number or by percentage.

Expected cases: Use the dropdown window to select whether you want to enter the number of expected cases by number or by percentage.

Select Regimens: All treatment regimens previously defined in the system are displayed here. Check the boxes for regimens you want to forecast.

Note: QuanTB doesn't allow performing quantification for multidrug regimens and single drugs in the same quantification. You can either select full multidrug regimens for quantification by number of regimens and percentage of cases on each regimen (as many regimens as you need), or select single-drug regimens for quantification by percentage of each medicine use

against total number of cases (as many drugs as you need). In the **New quantification** dialog box you may check only multidrug regimens or single-drug regimens in the **Select Regimens** boxes and create two separate forecasts to accommodate these needs. You cannot simultaneously use both methods.

For the greatest precision, use multidrug regimens and numbers of cases. The next most precise option is to use multidrug regimens and percentages. Using single-drug regimens will produce less precise quantifications.

After filling in the fields, click on the **Save** button to confirm your choices. The system creates a **New quantification** tab with the **Parameters** tab inside. Clicking on the **Cancel** button will close the dialog box and all entered information will be lost.

If you expect to have attrition in your program, you can use the **Adjust medicines quantity for attrition** button to reduce the quantity initially calculated for each medicine related to enrolled and expected cases. This adjustment is reflected in the quantity needed (summary, medicine, and medicine detailed reports), and also appears in the dashboard. In the example below, the medicine quantities have been adjusted for a 10% reduction in enrolled cases and a 5% reduction in expected cases.

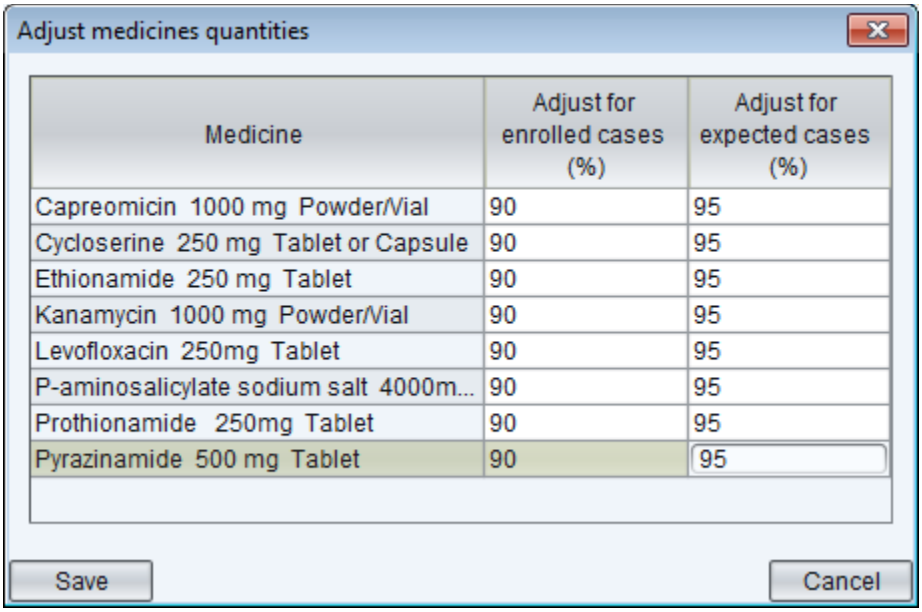


Figure 40

If you make changes in the Parameters, **save** them, and then click on the **Execute Quantification** button to make them effective and see updated results. **QuanTB does not save data automatically.**

Case information

Previously entered variables are displayed in the **New quantification** tab and can be changed as needed. The **Enrolled Cases**, **Expected Cases** and **Stock of Medicines** tabs are also displayed to be completed as described below. You can click on the regimens of the quantification to see more details about them. You can't make changes to the regimens here.

Enrolled Cases

Total Number of Enrolled Cases per Month:

If you selected to forecast by actual cases enrolled per each regimen, the system will display all of the months for the selected regimens depending on their duration, starting with the months in which cases were enrolled that could still be on treatment at the inventory date. If, for example, the duration of a selected regimen to treat MDR-TB is 22 months and the inventory date is April 1, 2013, the system will display months starting with July 2011, because some cases enrolled in that month could still be on treatment, and thus must be accounted for in the quantification process.

The date used in calculations is one day after the inventory date, after counting back the number of months in the regimen. For example:

- Inventory date for the quantification: 15 October 2014
- Length of treatment regimen: 6 months
- The first date for the enrolled cases is 16 April 2014. This is six months before the inventory date, plus one day.

For quantification calculations (consumption), entered cases are considered as started on treatment in the first day of each month, unless the inventory date is not the first of a month.

For each month, you should enter the number of cases **enrolled** in this month.

You may copy and paste data from another source (e.g., Excel spreadsheet, Word table, QuanTB quantification, etc.) into the enrolled or expected cases. To copy and paste, please follow these rules:

- The sequence of the regimens in the source information must be same as for QuanTB data. The system cannot verify that the information you are entering matches, so please be careful that the sequence matches.
- The number of columns of the source information cannot be more than the number of months of the longest regimen in your QuanTB quantification.
- The number of rows in the source information can be less than QuanTB, but cannot be more.
- If the source information has fewer rows than QuanTB, the data will be pasted from the top to the bottom (so the last rows in QuanTB will be blank).

- Only whole numbers from the source information can be pasted to QuanTB, or an error message is displayed. Zero is considered a whole number. Text is not permitted either, so be careful that you don't copy the names of your regimens from the source information.
- An empty cell in Excel is considered a "non-whole number" and will trigger an error message.
- You may copy selectively, e.g., only one cell (one month of specific regimen) of enrolled and/or expected cases by double-clicking the number, hitting Ctrl C and pasting it to another cell using Ctrl V.
- As in Excel, if you copy a number, you may paste that number into multiple months in QuanTB by highlighting the range of months, then hitting Ctrl V.

When regimens have different durations, the system considers the number of columns of the longest for the pasting process (also for validation and generation of the error message related to the number of columns displayed). If you leave the months not used for the shorter regimens blank, the system displays an error message. You must fill the months not used in the shorter regimens with some valid data (e.g., 0) to allow pasting, even if this information won't be used later.

In the example below, only the blue cells in Excel should be copied. No cells are blank, because 0 has been entered as the value for the cells with no enrolled cases in the MDR-TB 1 regimen.

MDR-TB 1	10	10	10	10	10	10	10	10	0	0	0	0
MDR-TB 2	5	5	5	5	5	5	5	5	5	5	5	5

Note: If monthly enrollment data are not available, you can use the number of cases enrolled per quarter, entering the data in the middle month of a quarter. Quantification in this case will be less precise.

To perform "what if" scenarios, you can use the **Enable** box to mark which regimens should be included in the quantification. Unticking the **Enable** box means that the regimen won't be included when you execute the quantification, although all of the information about regimen remains and can be included in the quantification by simply ticking the **Enable** box and executing the quantification again. If you enable/disable stock or regimens, you must execute the forecasting to get the updated results.

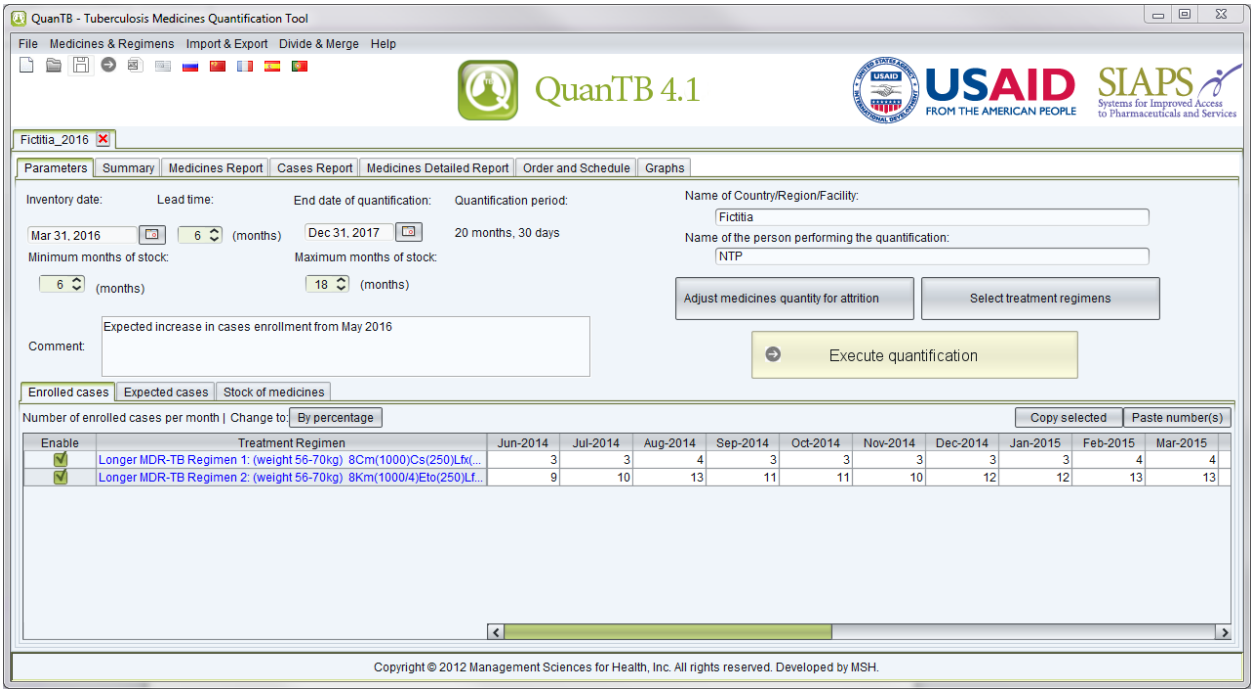


Figure 41

Percentage of Enrolled Cases per Treatment Regimen:

If you selected to forecast by percentage of use of each regimen, the system will display all selected regimens. Enter the percentage of enrolled cases that are using each regimen. For multi-medicine regimens the total percentage must be 100%. (For single medicines the calculations are different, so the cumulative percentage could be any number.**)** Also enter the **Total Number of Enrolled Cases per Month** for each month.

Note: Using the percentage method is not recommended for quantification in a setting with a small number of enrolled cases. However, if you do so, the system will keep cases in the Case Report tab as decimals and round up only for the total medicines quantities needed by month.

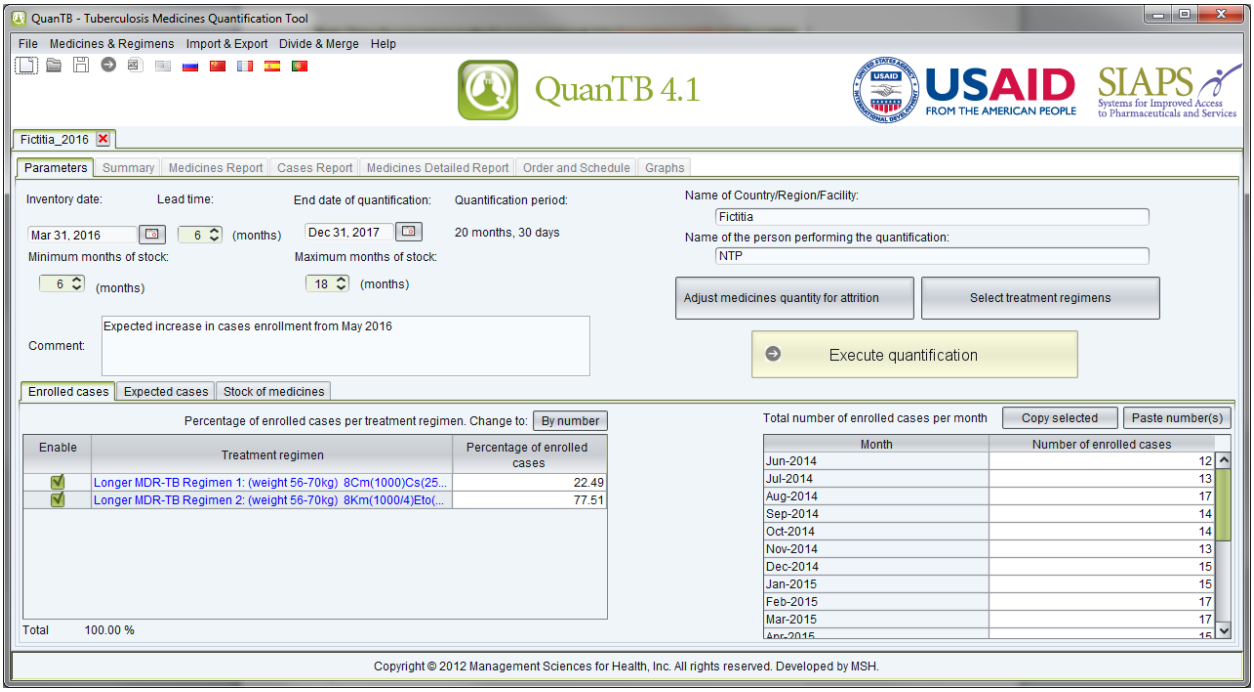


Figure 42

Expected Cases

Estimated number of expected cases per month: The system will display all of the months for the selected regimens, starting with the inventory date and ending with the end of the quantification period. Enter the numbers of cases you expect to enroll by month of the quantification period

On the Expected Cases tab, the first month displayed can be the same as the last month of the enrolled cases, if the inventory date is not the first of the month. The inventory date divides the enrolled cases and expected cases, so if the inventory date is 15 October 2014, the enrolled cases stop on 14 October 2014 and the expected cases start on 15 October 2014. Until the reference date, cases are enrolled and after the reference date, they are expected. The expected period starts the day after the reference date. Be careful not to double-count cases in that month if the inventory date is in the middle of the month.

You may copy and paste data from another source (e.g., Excel spreadsheet, Word table, QuanTB quantification, etc.) into the enrolled or expected cases. To copy and paste, please follow these rules:

- The sequence of the regimens in the source information must be same as for QuanTB data. The system cannot verify that the information you are entering matches, so please be careful that the sequence matches.
- The number of columns of the source information cannot be more than the number of months of the longest regimen in your QuanTB quantification.

- The number of rows in the source information can be less than QuanTB, but cannot be more.
- If the source information has fewer rows than QuanTB, the data will be pasted from the top to the bottom (so the last rows in QuanTB will be blank).
- Only whole numbers from the source information can be pasted to QuanTB, or an error message is displayed. Zero is considered a whole number. Text is not permitted either, so be careful that you don't copy the names of your regimens from the source information.
- An empty cell in Excel is considered a "non-whole number" and will trigger an error message.
- You may copy selectively, e.g., only one cell (one month of specific regimen) of enrolled and/or expected cases by double-clicking the number, hitting Ctrl C and pasting it to another cell using Ctrl V.
- As in Excel, if you copy a number, you may paste that number into multiple months in QuanTB by highlighting the range of months, then hitting Ctrl V.

When regimens have different durations, the system considers the number of columns of the longest for the pasting process (also for validation and generation of the error message related to the number of columns displayed). If you leave the months not used for the shorter regimens blank, the system displays an error message. You must fill the months not used in the shorter regimens with some valid data (e.g., 0) to allow pasting, even if this information won't be used later.

In the example below, only the blue cells in Excel should be copied. No cells are blank, because 0 has been entered as the value for the cells with no enrolled cases in the MDR-TB 1 regimen.

MDR-TB 1	10	10	10	10	10	10	10	10	0	0	0	0
MDR-TB 2	5	5	5	5	5	5	5	5	5	5	5	5

Note: For quantification calculations (expected consumption), entered cases are considered as started on treatment in the first day of each month. The only exception is the month of the inventory date (first month displayed), where cases are considered as started on treatment on the inventory date.

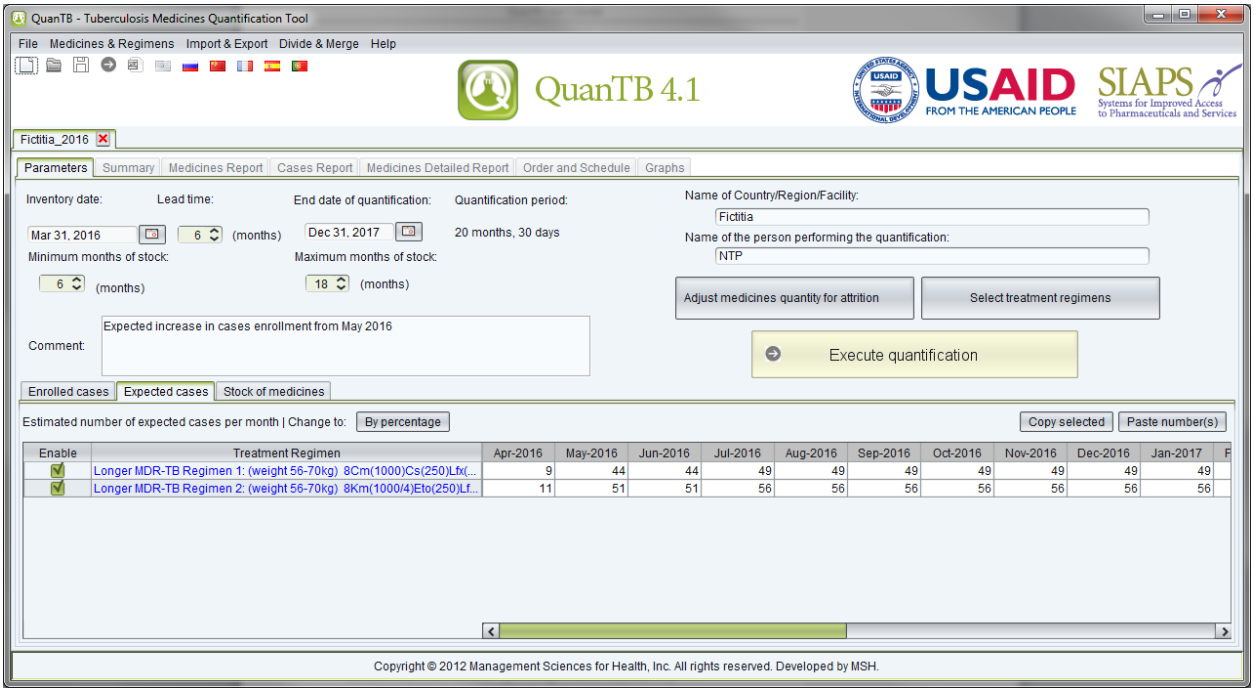


Figure 43

Percentage of Expected Cases per Treatment Regimen: Displays all selected regimens. Enter the percentage of expected cases that will be using each regimen. For multi-medicine regimens the total percentage must be 100%. (For single medicines calculations are different, so the cumulative percentage could be any number.**)**

Note: Using the percentage method is not recommended for quantification in a setting with a small number of enrolled cases. However, if you do so, the system will keep cases in the Case Report tab as decimals and round up only for the total medicines quantities needed by month.

Estimated Number of Expected Cases per Month: Enter the total numbers of cases you expect to enroll by month of the quantification period, for all regimens.

To perform "what if" scenarios, you can use the **Enable** box to mark which regimens should be included in the quantification. Unticking the **Enable** box means that the regimen won't be included when you execute the quantification, although all of the information about regimen remains and can be included in the quantification by simply ticking the **Enable** box and executing the quantification again.

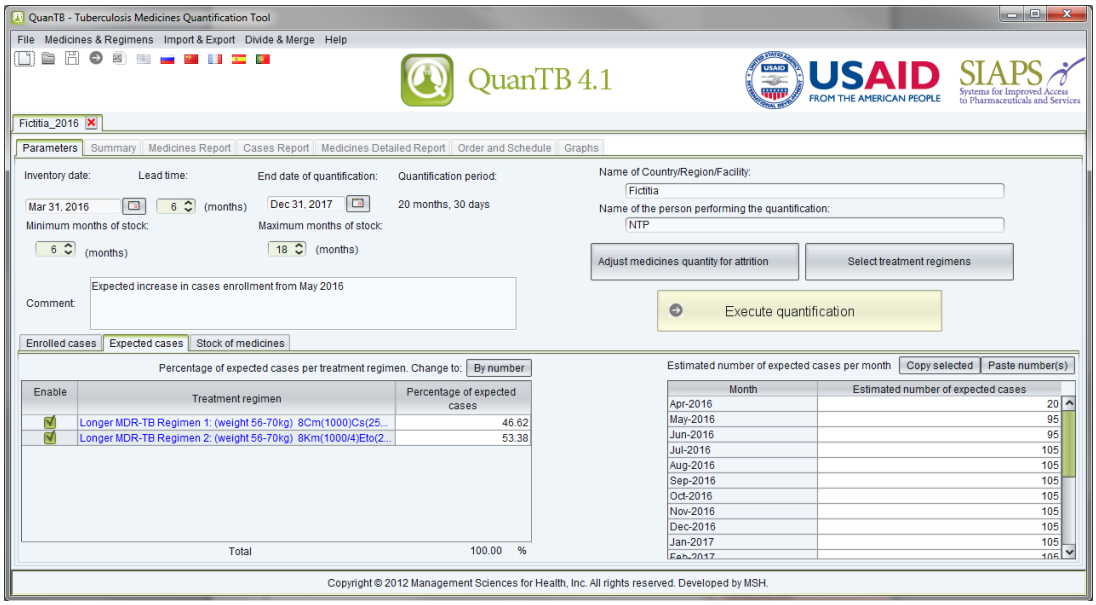


Figure 44

Changing from quantification by number to quantification by percentage and vice versa

You can change how you enter information about your enrolled and expected cases by clicking the **By number** or **By percentage** button, which is above the treatment regimens on the **Parameters** tab, as shown below. The option on the button will be the method you are not currently using.

Using this option allows you to try different scenarios, but certain things must be understood:

- You can only switch between the percentage and number methods for multidrug regimens (not for single-drug regimens).
- You must execute the quantification to see the results of your change.
- The results of each type of quantification will be different.
- If you change the quantification method, saving, executing, or exporting the forecasting will replace your last numbers or percentages with the newly calculated values, so you should save the quantifications under different names if you want to be able to see them all.
- If you want to keep your changes after changing from one method to the other, you must save the quantification.

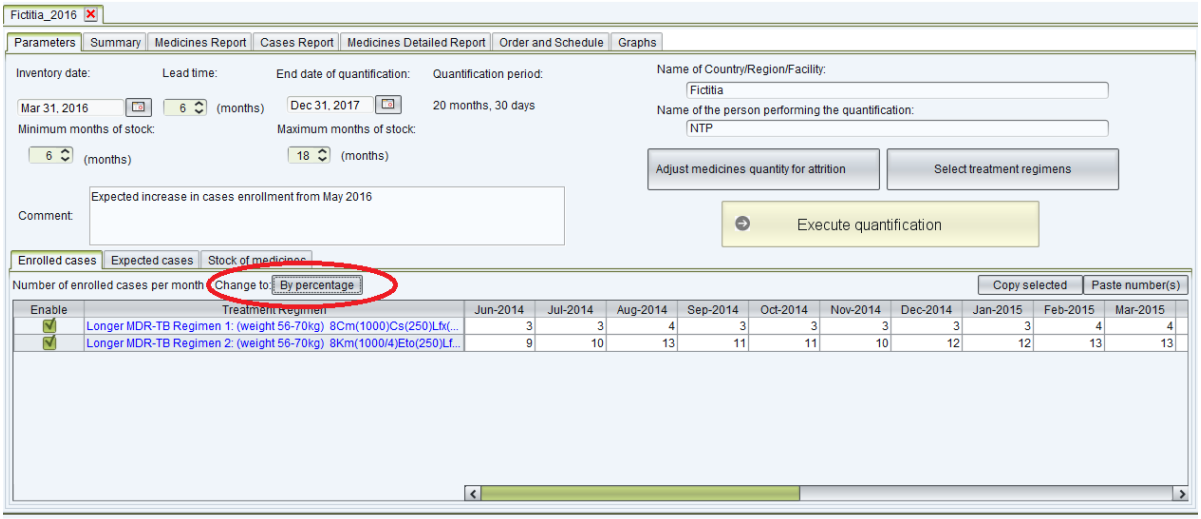


Figure 45

Stock information

Stock of Medicines

This tab displays all the medicines that compose the selected treatment regimens. Clicking on the quantity causes the batch details for that medicine to appear. For the stock on hand, the first-to-expire batches are listed first. For the stock on order, the earliest expected receiving date is listed first.

QuanTB has a feature to create a template that you can fill in and then import into the software, saving time. You must have a quantification file open. Then go to the **Import & Export** menu, click on **Import from Excel**, then click on **Get template for stock data**.

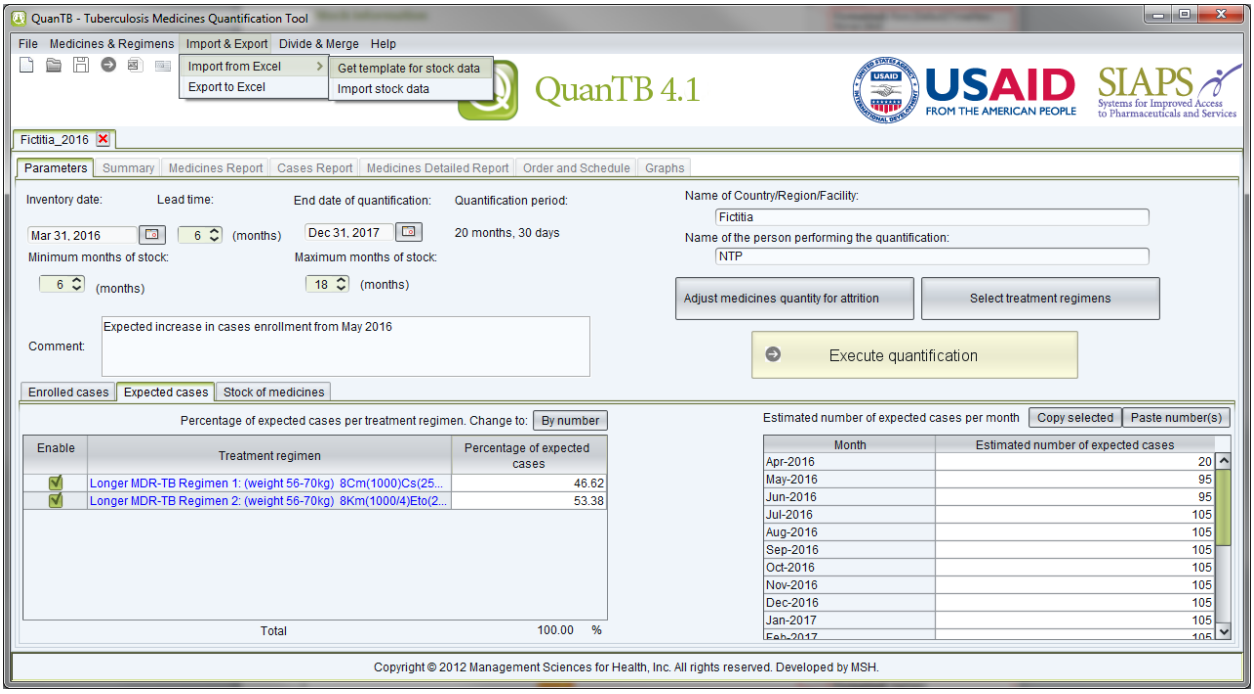


Figure 46

A window asking you to give your template a name will appear as shown below. Name the file and decide where you want to save it.

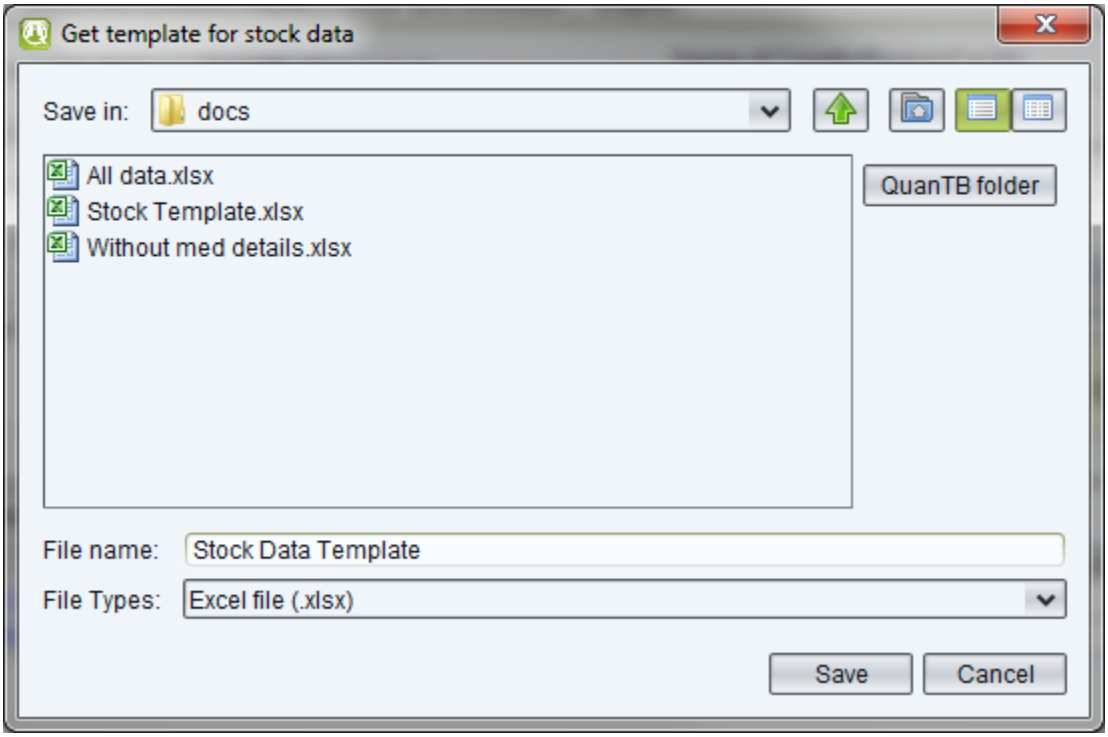


Figure 47

When the file is created, you will be asked whether you want to open it. After clicking **Yes**, go to Excel to see the file.

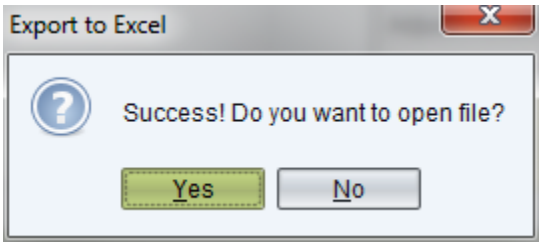


Figure 48

A sample template is shown below.

Medicines	Stock on hand	Expiration date of the stock on hand	Stock on order	Expected receiving date	Expiration date of the stock on order

Figure 49

Fill in your inventory information, including the **Medicines, Stock on hand, Expiration date of the stock on hand, Stock on order, Expecting receiving date**, **and Expiration date of the stock on order** (if known). Save your file.

To import this template into QuanTB, click on the **Import & Export** menu, then **Import from Excel**, then **Import stock data**.

Note: Do not copy and paste information into this template because you will change important formulas and formatting.

Or, if you don't want to use the template and your stock on hand data is in your own spreadsheet, you can import that into QuanTB. The data containing the medicine names, quantities, and expiration dates must be properly formatted and in an .xlsx file. To format the file, use the Define Name feature in the Formulas tab in Excel:

- Select the range of cells with the medicine names, and then define the name for it as "M" (without the quotes). This range must only contain medicine names or numbers and blank cells.

- Select the range of cells with the stock on hand quantities, and then define the name for it as "Q" (without the quotes). This range must only contain whole numbers.
- Select the range of cells with the stock on hand expiration dates, and then define the name for it as "D" (without the quotes). This range must only contain dates.
- Select the range of cells with the stock on order quantities, and then define the name for it as "QO" (without the quotes). This range must only contain whole numbers.
- Select the range of cells with the stock on order expected receiving dates, and then define the name for it as "DE" (without the quotes). This range must only contain whole numbers.
- Select the range of cells with the stock on order expiration dates, and then define the name for it as "DO" (without the quotes). This range must only contain dates.

Tip: If you need to make changes in your named ranges, use the Name Manager option in the Excel Formulas tab.

After defining the names (or after making any changes to the spreadsheet), save the file. Certain rules must be followed in the formatting:

- You can list a medicine name more than once (e.g., for multiple batches), but all of the repeated batches for that medicine must be in contiguous rows.
- All ranges must start from the same row and the first row must not be blank.
- Each range must only have one column.
- Do not select the entire column to define the name and do not include the column heading in the range.
- If you have a medicine expiration date, you must have a quantity for it and vice versa.
- Only the first sheet of data in the spreadsheet is imported.
- Merged rows or columns will not be imported.

Note: If you import your stock on hand data from Excel, it will overwrite the stock on hand data that you have in the quantification to which you import it. If the quantity figure for an item is blank in the import file, the quantification's original data is preserved. If the quantity figure is 0, the quantity for that item in the quantification will become 0.

To import your file into QuanTB, click on the **Import & Export** menu, then **Import from Excel**, then **Import stock data**.

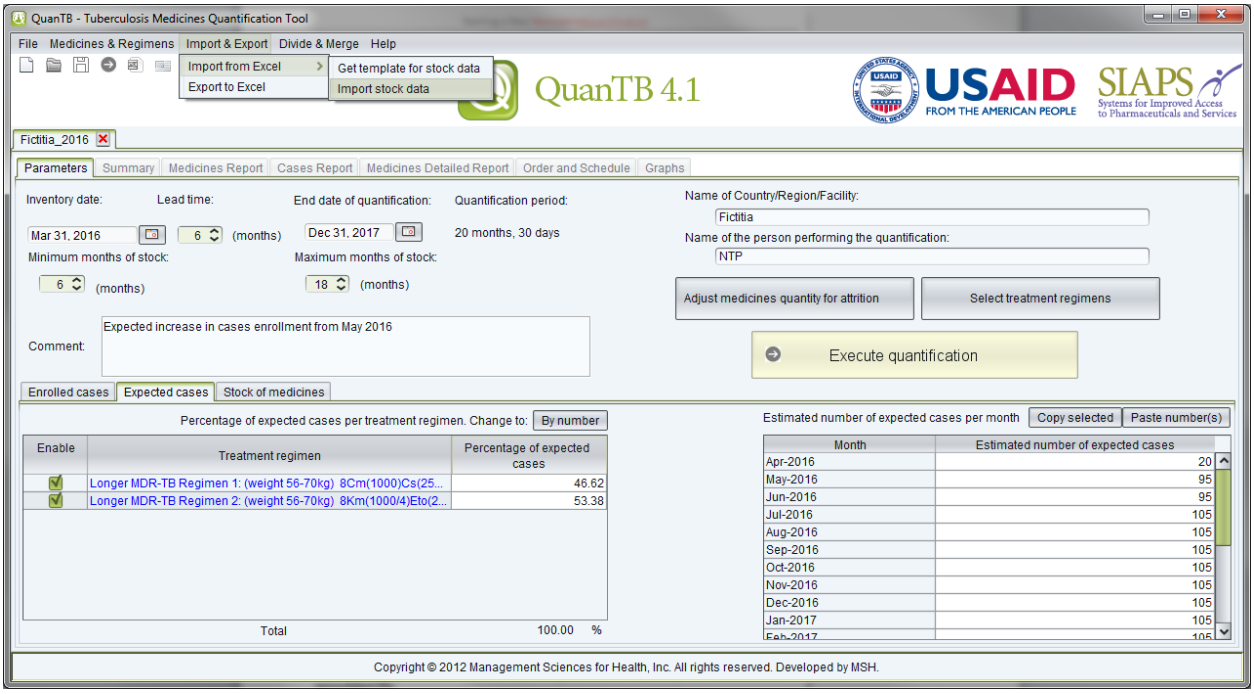


Figure 50

After selecting your file, the following screen appears so that you can match the medicines in QuanTB with the medicines in your spreadsheet. Click the dropdown arrow to show the list of medicines from your spreadsheet and select the one that matches each QuanTB medicine. When you click **Save**, the medicines, quantities, and expiration dates will be imported from the .xlsx spreadsheet file.

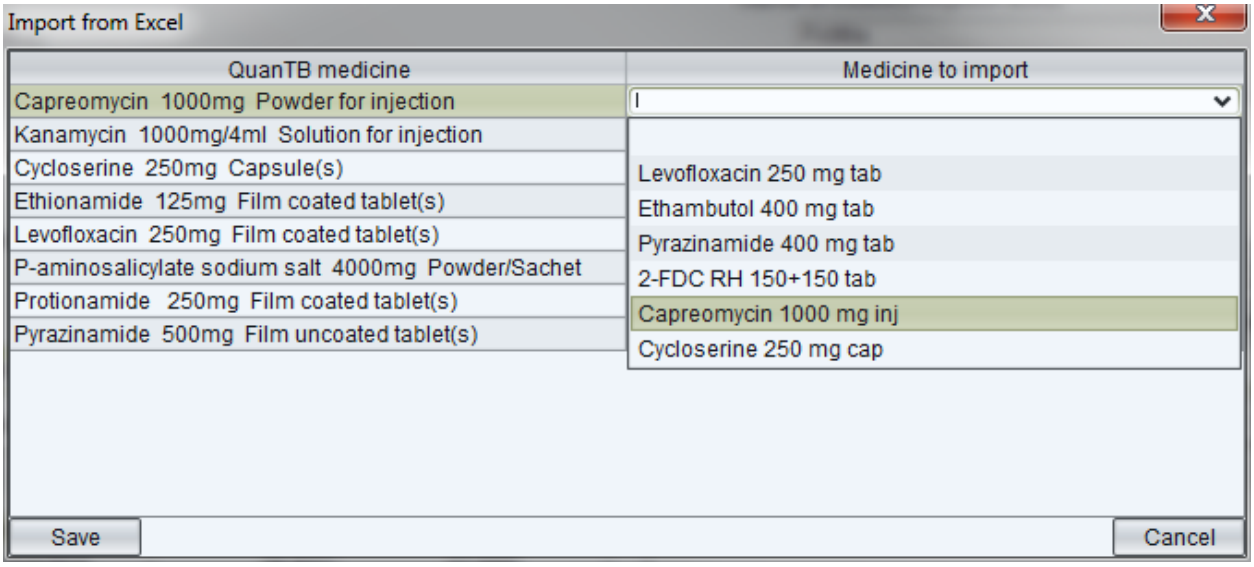


Figure 51

You can also enter your stock on hand data manually. Click on the cell value of **Stock on Hand** for one medicine. Then, in the **Batches Details** box click on the **Add** button. In the dialog box

that appears, enter the expiration date of the batch and the quantity of units available in stock (on the inventory date). Click on the **Save** button to confirm or **Cancel** to undo it. If needed, repeat the process for all existing batches of the same product and for all other medicines available on stock.

Note: You may copy and paste numbers into the Stock on Hand Batches Details **Quantity** field from another source (e.g., Excel file, Word table, QuanTB quantification, etc.) by copying a number using Ctrl C and pasting it with Ctrl V.

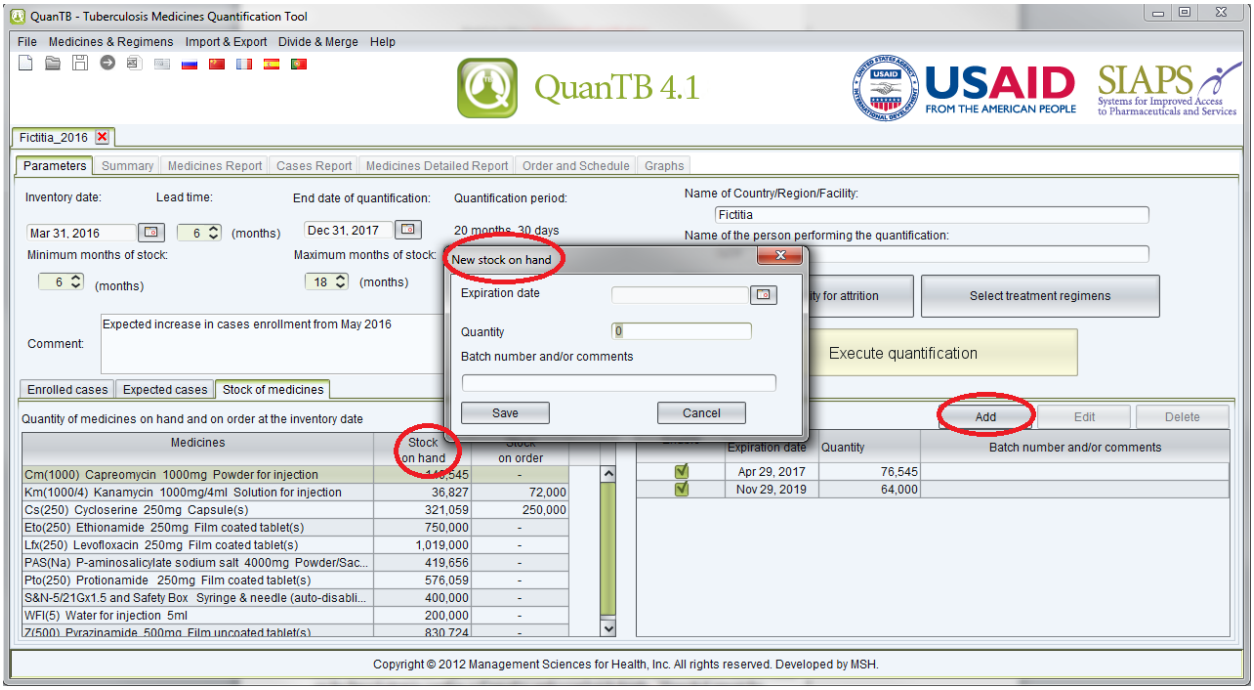


Figure 52

Click on the cell value of **Stock on Order** for one medicine. Then, in the **Batches Details** box click on the **Add** button**.** In the dialog box that appears, enter the expected receiving date, expiration date (if known, otherwise leave blank), and the quantity of units to be received. If you make a mistake with the expiration date, click the Clear date link to delete it and re-enter it. Click on the **Save** button to confirm or **Cancel** to undo your batch details. If needed, repeat the process for all products expected to arrive.

Note: You may copy and paste numbers into the Stock on Order Batches Details **Quantity** field from another source (e.g., Excel file, Word table, QuanTB quantification, etc.) by copying a number using Ctrl C and pasting it with Ctrl V.

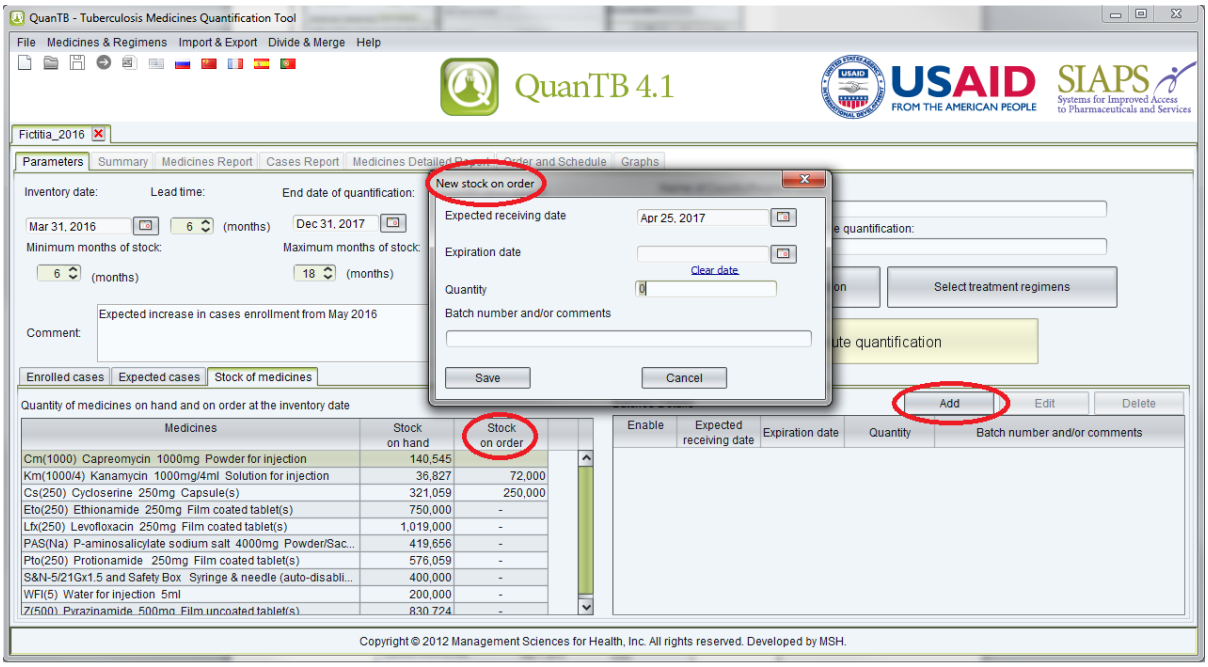


Figure 53

Changing recorded information regarding stock on hand and stock on order:
To edit, double click on the specific information you want to change or click on the batch, then click the **Edit** button. In the dialog box that appears change required data and click on the **Save** button to confirm or **Cancel** to undo it.

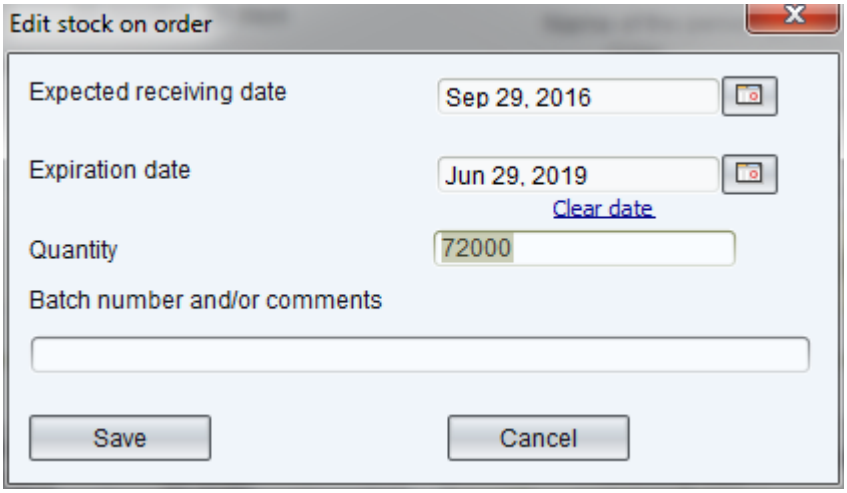


Figure 54

To delete, click on the specific information and the **Delete** button will be enabled. Click on the **Delete** button and in the confirmation dialog box that appears click on the **Yes** button to confirm or **No** to undo it.

For your reference, the system uses the following date-related rules:

- The expiration date of stock on hand can be the same as or after the inventory date, but cannot be earlier.
- The expected receiving date of the stock on order can be the same as or after the inventory date, but cannot be earlier.
- The expiration date of the stock on order can be the same as or after the expected receiving date, but cannot be earlier.

Selecting other treatment regimens:
To select other treatment regimens to be included in the quantification, click on the **Select Treatment Regimens** button and in the **Select Regimens** dialog box that appears check or uncheck the regimens displayed. Click on the **OK** button to confirm or **Cancel** to undo it. If you have changed the selection of regimens done initially (in the **New quantification** dialog box), you will need to repeat processes described above for entering data on Enrolled Cases, Expected Cases, and Stock of Medicines (stock on hand and stock on order).

Note: If you execute the quantification, then edit any regimen information (e.g., dosages, duration or medicines) that is included in this quantification, you must remove and re-insert the regimen from the quantification for the regimen changes to register in the quantification. Do this at the parameters tab by unchecking the box at the "Select regimen" dialog box and clicking the OK button, then insert the regimen again by checking the box and clicking the OK button. When you do this, the cases related to that regimen will disappear and you will have to re-enter them before executing the quantification. You can save time by copying and pasting the case information.

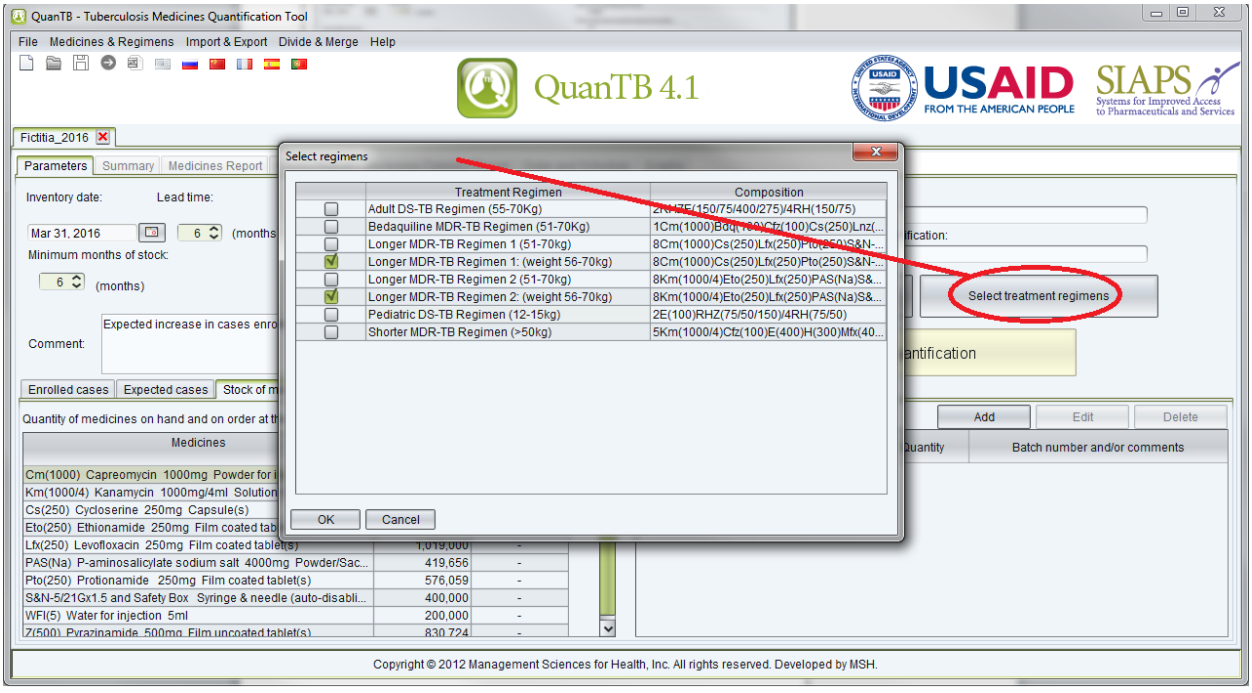


Figure 55

Once all parameters have been entered, **SAVE** them, then click on the **Execute Quantification** button or click on the **Arrow** icon in the left upper corner.

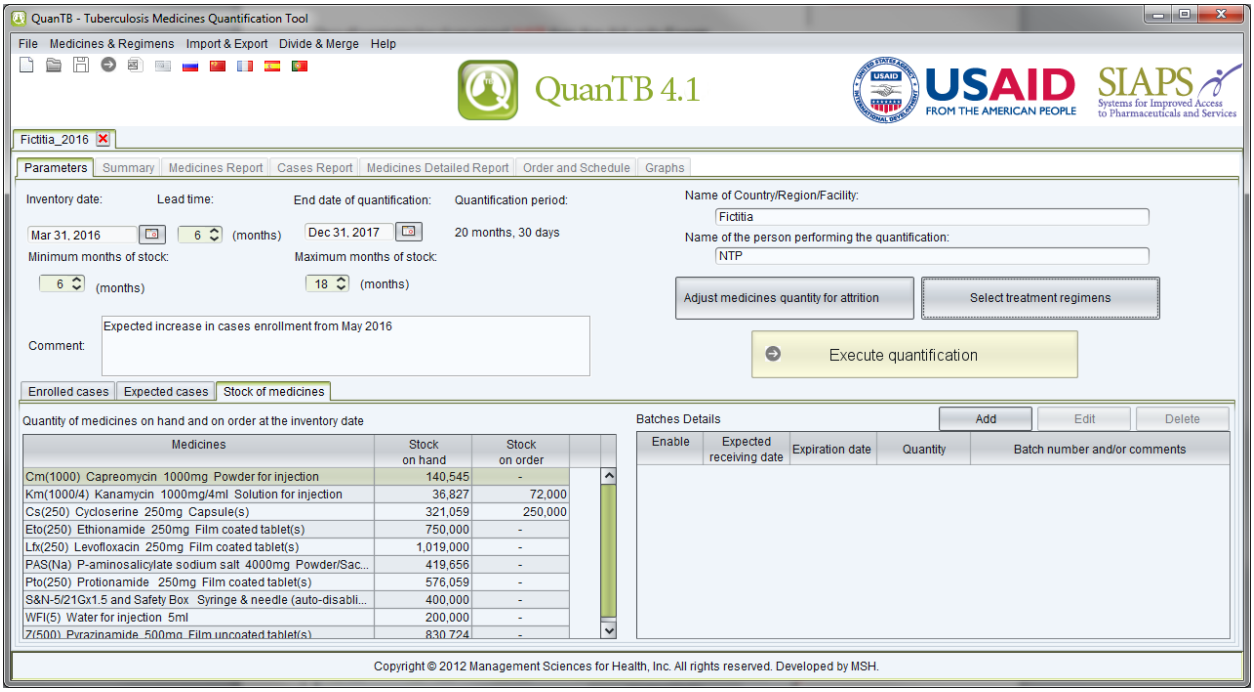


Figure 56

Note: If you re-execute the quantification after some time has passed (e.g., because you have updated case information) but you have not updated your inventory information, stock may have expired since you entered the inventory information. QuanTB will compare stock expiration dates to the inventory date and will prevent you from re-executing the quantification until you have adjusted expiration dates, expected receiving dates, and/or quantities, to ensure an accurate forecast.

If you need additional information on quantifying for multiple years, ancillary medicines, or patient kits, please see Annexes 1, 2, or 3, respectively.

QUANTIFICATION RESULTS

After you execute the quantification, the following **tabs** with quantification results will appear:

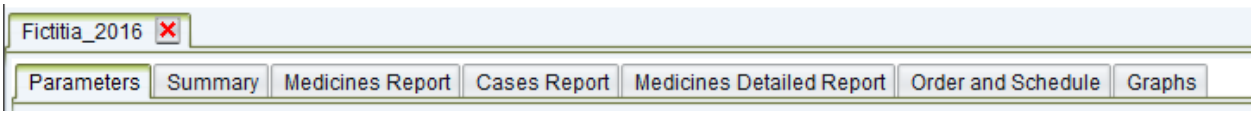


Figure 57

Parameters tab

The Parameters tab includes the information you defined when you began the quantification.

Summary tab

The Summary tab includes a list of all of the medicines in your quantification. For each product, it lists the following information:

On the inventory date
Stock on hand: Quantity of units of medicines available on the inventory date, according to the stock on hand entered in the Parameters tab.

Estim. Months of Stock (excl. on order): This is the estimated number of months of stock on hand as of the inventory date until the day before a stock-out. It doesn't include stock on order. The estimated months of stock on hand equals the stock on hand divided by the monthly consumption. The consumption is based on regimens used and number of cases each month and assumes 100% adherence. The figure appears in red if it is below/at the minimum or above/at the maximum months of stock assigned by you in the parameters. This alerts you to an issue needing attention, e.g., a pending stock-out or stock at risk of expiry due to overstock. If stock on hand at the inventory date is zero, the estimated months of stock will be zero because stock is not counted as available until it has actually arrived. If there is a stock-out, then an order is received, then there is another stock-out during the period being considered, only the first stock-out date is used.

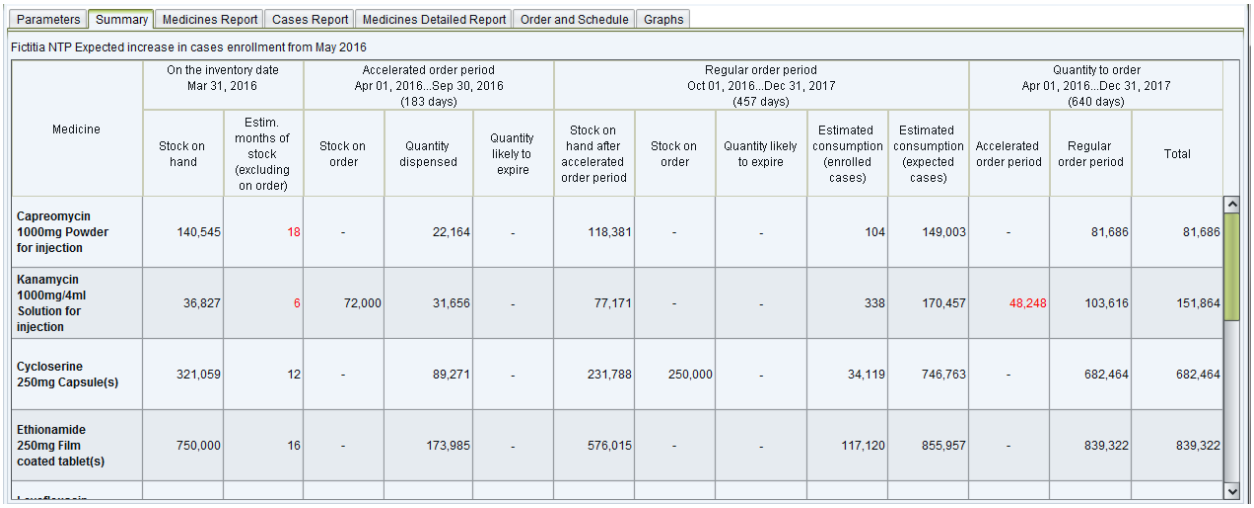
Accelerated order period (with date range)
The **Stock on order**, **Quantity dispensed, and Quantity likely to expire** during the accelerated order period are displayed. The Stock on order and quantity likely to expire figures may be blank if they don't occur during accelerated order period. The accelerated order period dates are determined when the system calculates the expected needs, combined with the lead time, stock on hand, and minimum stock level. They are meant to cover consumption during the lead time period. If the accelerated order period ends in the middle of a month, the entire quantity to order for that month is included as an accelerated order.

Regular order period (with date range)

The **Stock on hand after accelerated order period, Stock on order, Quantity likely to expire, Estimated consumption (enrolled cases),** and **Estimated consumption (expected cases)** are shown for the regular order period. The regular order period begins the day after the accelerated order period ends and ends on the last day of the quantification period.

Quantity to order (entire date range)

The quantities to order during the **Accelerated order period** and **Regular order period** are shown, along with the **Total** quantity**.**



Medicine	On the inventory date Mar 31, 2016		Accelerated order period Apr 01, 2016...Sep 30, 2016 (183 days)			Regular order period Oct 01, 2016...Dec 31, 2017 (457 days)					Quantity to order Apr 01, 2016...Dec 31, 2017 (640 days)		
	Stock on hand	Estim. months of stock (excluding on order)	Stock on order	Quantity dispensed	Quantity likely to expire	Stock on hand after accelerated order period	Stock on order	Quantity likely to expire	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Accelerated order period	Regular order period	Total
Capreomycin 1000mg Powder for injection	140,545	18	-	22,164	-	118,381	-	-	104	149,003	-	81,686	81,686
Kanamycin 1000mg/4ml Solution for injection	36,827	6	72,000	31,656	-	77,171	-	-	338	170,457	48,248	103,616	151,864
Cycloserine 250mg Capsule(s)	321,059	12	-	89,271	-	231,788	250,000	-	34,119	746,763	-	682,464	682,464
Ethionamide 250mg Film coated tablet(s)	750,000	16	-	173,985	-	576,015	-	-	117,120	855,957	-	839,322	839,322

Figure 58

Medicines report tab

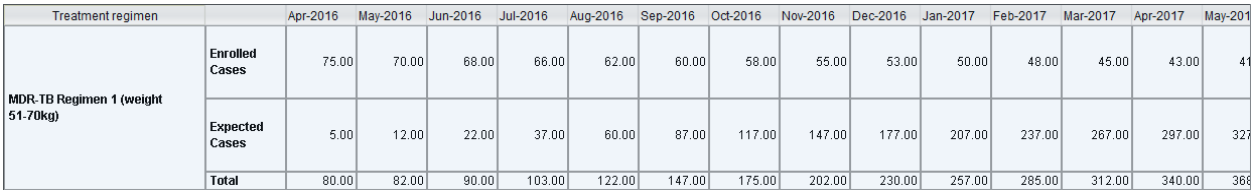
The Medicine reports tab displays the following information for each medicine for each month of the quantification period: **Stock on hand, Quantity needed**, **Quantity likely to expire**, **Stock on order, Estimated consumption (enrolled cases), Estimated consumption (expected cases),** and **Estimated consumption (total cases).** The **Quantity likely to expire** will appear in red. If you hover over a cell, you will see the medicine and row name.

Medicine	Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-2017	Jun-2017	Jul-2017	Aug-2017	Sep-2017	Oct-2017	Nov-2017	Dec-2017
Capreomycin 1000mg Powder for injection																					
Stock on hand	140,545	139,495	138,307	137,033	135,525	133,473	130,925	127,753	123,931	119,459	114,194	109,034	102,824	63,763	57,283	51,043	44,803	38,323	32,323	25,843	19,603
Quantity needed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quantity likely to expire	-	-	-	-	-	-	-	-	-	-	-	-	33,136	-	-	-	-	-	-	-	-
Stock on order	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estimated consumption (enrolled cases)	925	864	702	546	432	286	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estimated consumption (expected cases)	125	324	572	962	1,620	2,262	3,042	3,822	4,472	5,265	5,160	6,210	5,925	6,480	6,240	6,240	6,480	6,000	6,480	6,240	6,240
Estimated consumption (total cases)	1,050	1,188	1,274	1,508	2,052	2,548	3,172	3,822	4,472	5,265	5,160	6,210	5,925	6,480	6,240	6,240	6,480	6,000	6,480	6,240	6,240
Kanamycin 1000mg/4ml Solution for injection																					
Stock on hand	36,827	34,477	31,831	28,971	25,539	21,246	88,306	82,508	75,852	68,416	59,965	51,925	42,529	33,629	23,909	14,549	5,189	-	-	-	-

Figure 59

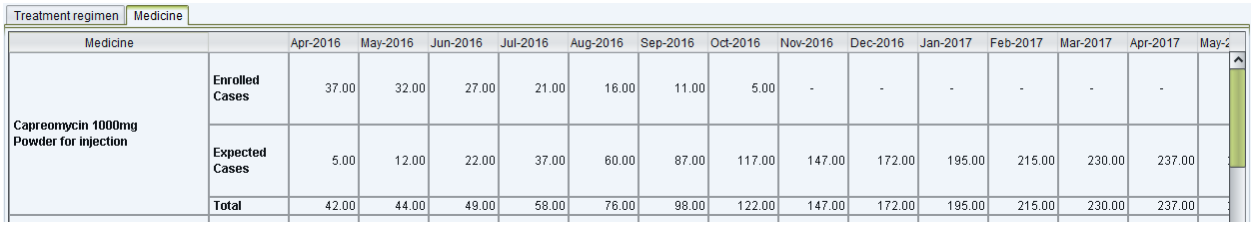
Cases report tab

The Cases report tab displays the number of **Enrolled Cases**, **Expected Cases,** and **Total** cases by treatment regimen and by medicine (on a separate tab) for each month of the quantification period. The number of cases displayed is the maximum number of cases of any day in the entire month.



Treatment regimen		Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-201
MDR-TB Regimen 1 (weight 51-70kg)	**Enrolled Cases**	75.00	70.00	68.00	66.00	62.00	60.00	58.00	55.00	53.00	50.00	48.00	45.00	43.00	41
	Expected Cases	5.00	12.00	22.00	37.00	60.00	87.00	117.00	147.00	177.00	207.00	237.00	267.00	297.00	327
	Total	80.00	82.00	90.00	103.00	122.00	147.00	175.00	202.00	230.00	257.00	285.00	312.00	340.00	368

Figure 60



Treatment regimen | Medicine

Medicine		Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-2
Capreomycin 1000mg Powder for injection	**Enrolled Cases**	37.00	32.00	27.00	21.00	16.00	11.00	5.00	-	-	-	-	-	-	
	Expected Cases	5.00	12.00	22.00	37.00	60.00	87.00	117.00	147.00	172.00	195.00	215.00	230.00	237.00	
	Total	42.00	44.00	49.00	58.00	76.00	98.00	122.00	147.00	172.00	195.00	215.00	230.00	237.00	

Figure 61

Note: The **Treatment regimen** tab on the **Case reports** tab is unavailable when the quantification is only for single-drug regimens.

Medicines detailed report tab

The Medicines detailed report tab allows you to select a medicine from the dropdown and see detailed information about that product's stock during the quantification period. The screen

shows **Stock on hand, Estimated consumption (enrolled cases), Estimated consumption (expected cases), Estimated consumption (total), Stock on order**, **Quantity likely to expire**, and the **Minimum quantity to prevent treatment interruption**. The **Quantity likely to expire** will appear in red. The **Minimum quantity to prevent treatment interruption** will appear in red in the months when an accelerated order is needed.

Parameters | Summary | Medicines Report | Cases Report | Medicines Detailed Report | Order and Schedule | Graphs

Medicine: Protionamide - 250mg, Film coated tablet(s)

Fictitia NTP Slower enrollment than expected

Period	Stock on hand	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Estimated consumption (total cases)	Stock on order	Quantity likely to expire	Min. qty. to prevent treatment interruption
Apr 01, 2016...Apr 30, 2016 (30 days)	576,059	5,481	375	5,856	-	-	-
May 01, 2016...May 31, 2016 (31 days)	570,203	5,670	972	6,642	-	-	-
Jun 01, 2016...Jun 30, 2016 (30 days)	563,561	5,304	1,716	7,020	-	-	-
Jul 01, 2016...Jul 31, 2016 (31 days)	556,541	5,148	2,886	8,034	-	-	-
Aug 01, 2016...Aug 31, 2016 (31 days)	548,507	5,022	4,860	9,882	-	-	-
Sep 01, 2016...Sep 30, 2016 (30 days)	538,625	4,680	6,786	11,466	-	-	-
Oct 01, 2016...Oct 31, 2016 (31 days)	527,159	4,524	9,126	13,650	-	-	-
Nov 01, 2016...Nov 30, 2016 (30 days)	513,509	4,290	11,466	15,756	-	-	-
Dec 01, 2016...Dec 31, 2016 (31 days)	497,753	4,134	13,806	17,940	-	-	-
Jan 01, 2017...Jan 31, 2017 (31 days)	479,813	4,050	16,767	20,817	-	-	-
Feb 01, 2017...Feb 28, 2017 (28 days)	458,996	3,456	17,064	20,520	-	-	-
Mar 01, 2017...Mar 31, 2017 (31 days)	438,476	3,645	21,627	25,272	-	-	-
Apr 01, 2017...Apr 30, 2017 (30 days)	413,204	3,225	22,275	25,500	-	-	-
May 01, 2017...May 31, 2017 (31 days)	387,704	3,321	26,487	29,808	-	-	-
Jun 01, 2017...Jun 30, 2017 (30 days)	357,896	2,886	27,846	30,732	-	-	-
Jul 01, 2017...Jul 31, 2017 (31 days)	327,164	2,496	30,186	32,682	-	-	-
Aug 01, 2017...Aug 31, 2017 (31 days)	294,482	2,187	33,777	35,964	-	-	-
Sep 01, 2017...Sep 30, 2017 (30 days)	258,518	1,575	33,525	35,100	-	223,418	-
Oct 01, 2017...Oct 31, 2017 (31 days)	-	1,296	38,637	39,933	-	-	39,933
Nov 01, 2017...Nov 30, 2017 (30 days)	-	858	39,546	40,404	-	-	40,404
Dec 01, 2017...Dec 31, 2017 (31 days)	-	390	41,886	42,276	-	-	42,276

Figure 62

Order and schedule tab

The Order and schedule tab has three sub-tabs: **Quantity and Costs, Additional Costs,** and **Schedule**.

Quantity and Costs

The **Quantity and Costs** tab shows detailed information on the quantities needed for each medicine, separated in tables for **Consolidated regular orders**, **Consolidated accelerated orders,** and **Consolidated total orders** (the sum of regular and accelerated). The accelerated procurement is meant to ensure that you have enough stock before you receive your regular order. The tables are labeled "Consolidated" because there may be multiple accelerated and regular orders. The **Regular order** and **Accelerated order** tables display the:

- **Medicines**
- **Quantity needed (in units)**
  Adjustment (% of quantity needed): This is customizable by the user. It is "100" by default, meaning no adjustment is needed. By entering other numbers and based on statistics or experience, the order may be adjusted for mortality or loss for follow-up rates, or other trends in the program. If you enter "0" it means that the medicine is not required at all. As an example, if you want to reduce the quantity by 5%, enter 95% to reflect that you want to order 95% of the suggested quantity.
- **Pack size:** This is customizable by the user. Enter the desired or known pack size here; the final quantities of units will be rounded up to a full pack size.
- **Pack price or unit price:** This is customizable by the user and is helpful for estimating budget needs. When using the unit price instead of pack price, enter "1" in Pack Size.
- **Adjusted quantity to order (in units)**
- **Adjusted quantity to order rounded up to pack size**
- **Cost of the order**

Note: You may copy and paste numbers into the **Adjustment (% of quantity needed), Pack size,** and **Pack price or unit price** fields from another source (e.g., Excel file, Word table, QuanTB quantification, etc.) by copying a number using Ctrl C, double-clicking into the target field, then pasting by hitting Ctrl V. You may also copy the pack sizes and prices of the regular order to the accelerated order and vice versa.

The **Regular order** and **Accelerated order** adjustments can be entered separately, since they may differ.

Note: You must **SAVE** the quantification after entering or changing data in the Adjustment Pack Size and Pack Price columns **BEFORE** executing the quantification. If you do not save the data you enter, this information will be lost.

The **Total order** table displays the sum of the **Regular order** and **Accelerated order** tables:

- **Medicines**
- **Quantity needed (in units)**
- **Adjusted quantity to order (in units)**
- **Cost of the order** (The cost column is not displayed until you enter a pack price for each quantity needed.)

The **Total cost of medicines** is shown at the bottom of the **Quantity** tab.

Note: If you have not entered a pack price or unit price for a medicine, QuanTB cannot calculate a cost for it and therefore the **Total cost of medicines** figure will not include the cost of that medicine.

Figure 63

Additional Costs

The **Additional Costs** tab displays the total cost of medicines for regular and accelerated orders, along with line items for additional costs specific to each TB program procurement, such as **Freight, Insurance , Pre-shipment inspection (PSI), Procurement agent, Customs clearance, etc.** These additional costs can be entered as percentage of order value or as flat fees. You can enter your own types of costs and can add or delete the ones listed in the program. Any text you enter will not change if you change the language of the program.. All additional costs are added to get the **Cost of Regular Order** and **Cost of Accelerated Order.**

Figure 64

Schedule

The **Schedule** tab displays the accelerated and regular order quantities for the quantification. QuanTB will propose a monthly schedule based on the needs and the maximum and minimum

levels of stock you have entered. You can select a monthly, all at once, annually, bi-annually, or quarterly order schedule.

The frequency of the orders will determine how many accelerated and regular orders are needed. The accelerated orders appear first. Each order includes the following information: order date, delivery date, medicines, adjusted quantity to order (in units), adjusted quantity to order rounded up to pack size, and costs of medicines, additional costs, and the total for the order.

There are certain rules for the schedules:

- Choosing the "Monthly" delivery order means that an order will be recommended to prevent the stock of any medicine falling below the minimum months of stock and will be for a quantity sufficient to reach the minimum as of the first day of the order month. Please note that the minimum months of stock DOES NOT include stock that may expire.
- Choosing the "All at Once" delivery order means that the date of the order will be calculated based on the day that at least one of the medicines in the forecasting reaches the minimum stock level in the defined period.
- Accelerated orders will appear first on the schedule of deliveries.
- The additional costs you have entered for your forecasting will be applied to each delivery.
- The total number of packs in all orders may vary from the forecasted quantity because of rounding to whole packs for each order.
- The schedule is calculated to ensure that the minimum stock level for each medicine is available on the first day of the month (even if the forecasting period doesn't start on the first day of the month).
- The quantities in the schedule of deliveries are only meant to meet the needs of the forecasting period. If you want or need to buy more in order to remain above your minimum stock level, you can extend the forecasting period, do a new forecasting, or update the current forecasting with new data every three months.
- The order date is calculated as the delivery date minus the lead time.
- When calculating needs and schedules, orders are assumed to be available on the first day of the month in which they are expected, therefore their delivery date is assumed to be one day earlier. For example, if an order is expected to be received in April 2017, QuanTB assumes that the stock in that order will be available on 1 April 2017 and that the stock was delivered on 31 March 2017.

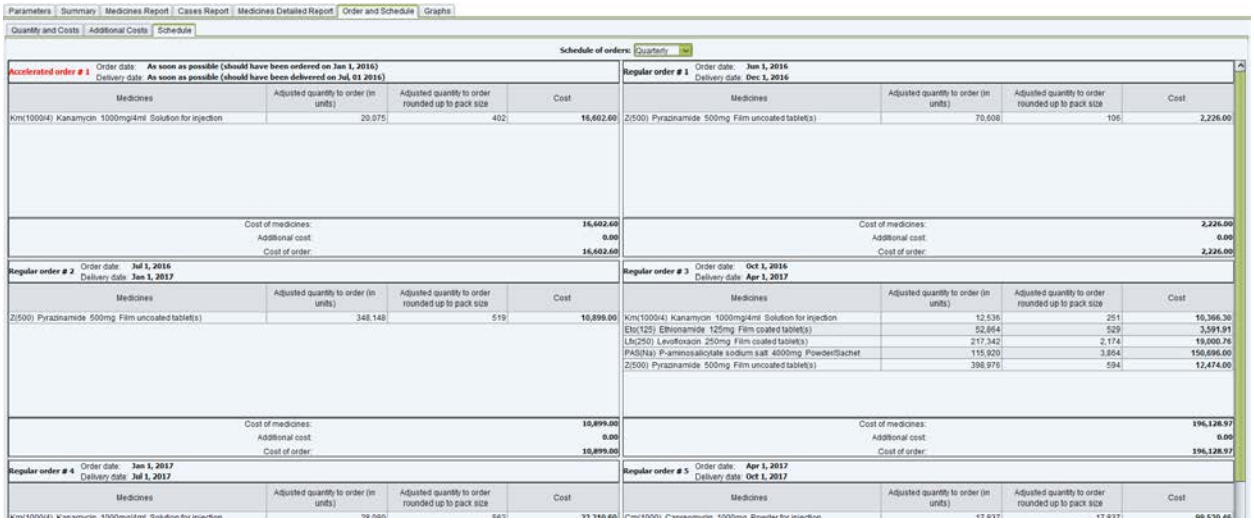


Figure 65

Graphs tab

The **Graphs** tab has two sub-tabs: **Stock Status** and **Dashboard.** You should not rely on these graphs to make decisions—they are simply to depict the highlights of a quantification.

Stock Status

On this tab, you can select a medicine to see the stock movement information graphically, by each type of delivery schedule. You can also exclude planned deliveries from the graph. The line graph shows the following information about the medicine: **Consumption, Quantity likely to expire, Stock on order, Planned delivery, Maximum stock, Minimum stock, and Stock on hand.**

If you have a planned shipment, you should make the delivery date for it one day earlier than the scheduled date so that the **Stock on order** and **Planned delivery** bars in the graph will appear correctly. If you don't adjust the date like this, you will see both a grey bar and a yellow bar on the graph in the same month.

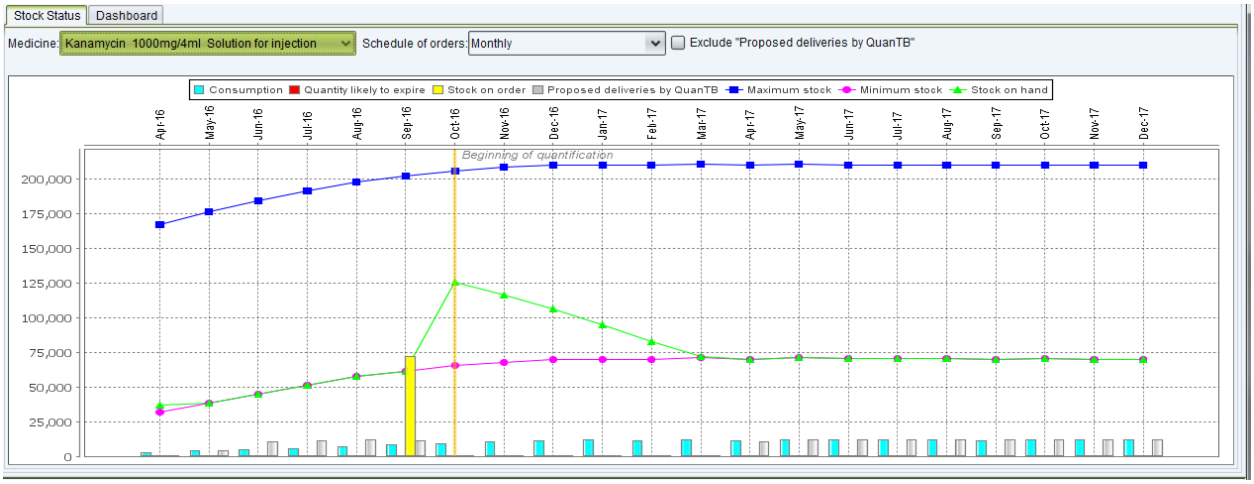


Figure 66

Note: The **Stock Status graph** only provides an overview of the stock situation. For a more accurate view of the stock, you should always consult the **Medicines Detailed Report**.

To copy, save, or print the graph, right click anywhere in it and use the **Copy, Save As,** or **Print** options. The name of the medicine will not be included so please make a note of it.

Dashboard

The dashboard displays each medicine's status graphically on a timeline that begins with the inventory date and ends with the quantification period end date. The green color represents stock on hand. The yellow color is displayed for stock on order. The red color indicates a stock-out. The pink background on the chart is for the time in between the minimum and maximum months of stock that you have set. The gray color indicates that there was no stock and no planned consumption of the item during that period. The vertical orange bars mark the beginning and end of the quantification period. Information is displayed according to these rules:

- If stock on hand is zero, the system displays a red bar for the entire period (inventory date until the end of the quantification period).
- When stock is on order, the estimated receiving date for the stock is displayed when you hover over the yellow bar. Where the bar is displayed does NOT represent when the stock is expected to arrive. The yellow bar for stock on order represents the number of months added to your stock on hand based on the quantity to be received. It is displayed at the end of the green stock on hand bar to show this.
- Stock is not considered as available until it is actually received, so the color on the dashboard will still show as red even after the date when the stock is expected to be received.
- After a stock-out occurs, the system displays a red bar from the respective month until the end of quantification period. The system displays stock on order that will arrive later as a yellow bar inside the red bar. However, the system doesn't display a green bar after a red bar even if consumption occurred with enough quantity in stock on order to cover all patients in the future.
- Regardless of the date when stock on order will be received, the system displays a yellow bar for the entire month of receiving in case no consumption is planned to use that specific quantity. If the stock on order arrives when there is enough stock on hand to cover all patients in certain months, the system display the yellow bar only in months when the cases start consuming the stock on order (this is the reason a message with the month and year the stock on order will arrive is necessary).
- If you hover the mouse over the colored bars, the program will show the estimated consumption figure, estimated enrolled, expected, and total cases for that time period.
- If stock is likely to expire in a period, an exclamation point (!) will be centered in the range. Where it appears does NOT represent precisely when the stock is likely to expire.

When reviewing the dashboard, a good guideline to use is that you want to see green bars for each medicine extending into the pink area on the chart. If the green bar for a medicine doesn't reach the

pink area, you are in danger of a stock-out and should take action. If the green bar extends past the pink area, you may be overstocked and at risk of medicines expiring on the shelf.

Note: The **Dashboard** only provides an overview of the stock situation. For a more accurate view of the stock, you should always consult the **Medicines Detailed Report**.

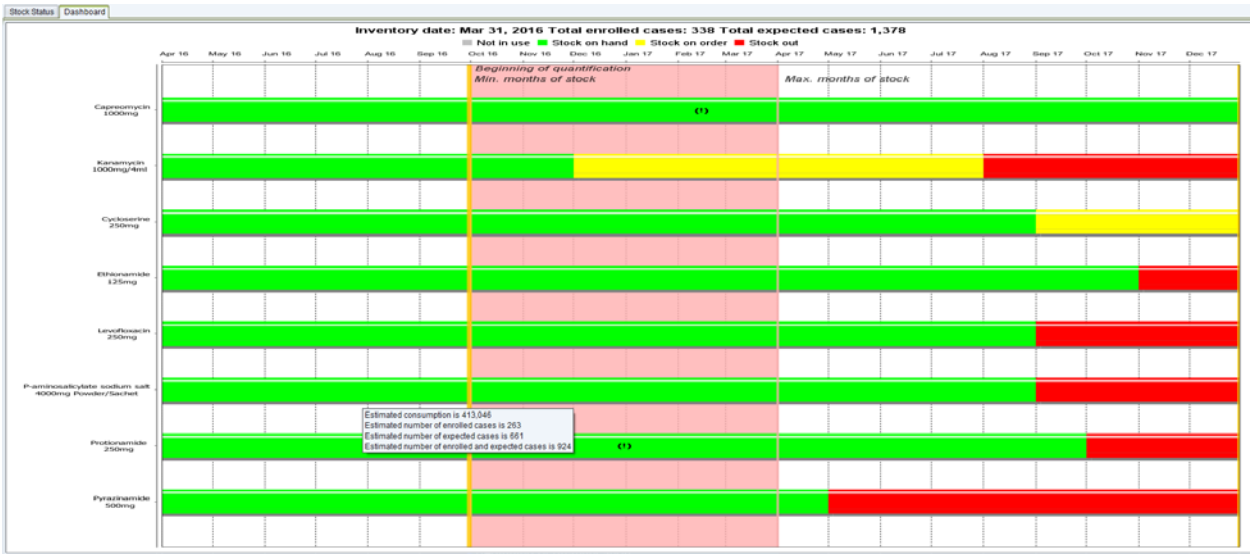


Figure 67

To copy, save, or print the dashboard, right click anywhere in it and use the **Copy, Save As,** or **Print** options.

Saving quantifications

A quantification can be saved at any time, even before execution. Each quantification must be saved manually.

QuanTB does not save data automatically.

Go to the **File** menu and select the **Save** menu option or click on the **Disk** icon in the left upper corner. In the confirmation dialog box that appears, click on the **Yes** button to confirm or **No** to undo it.

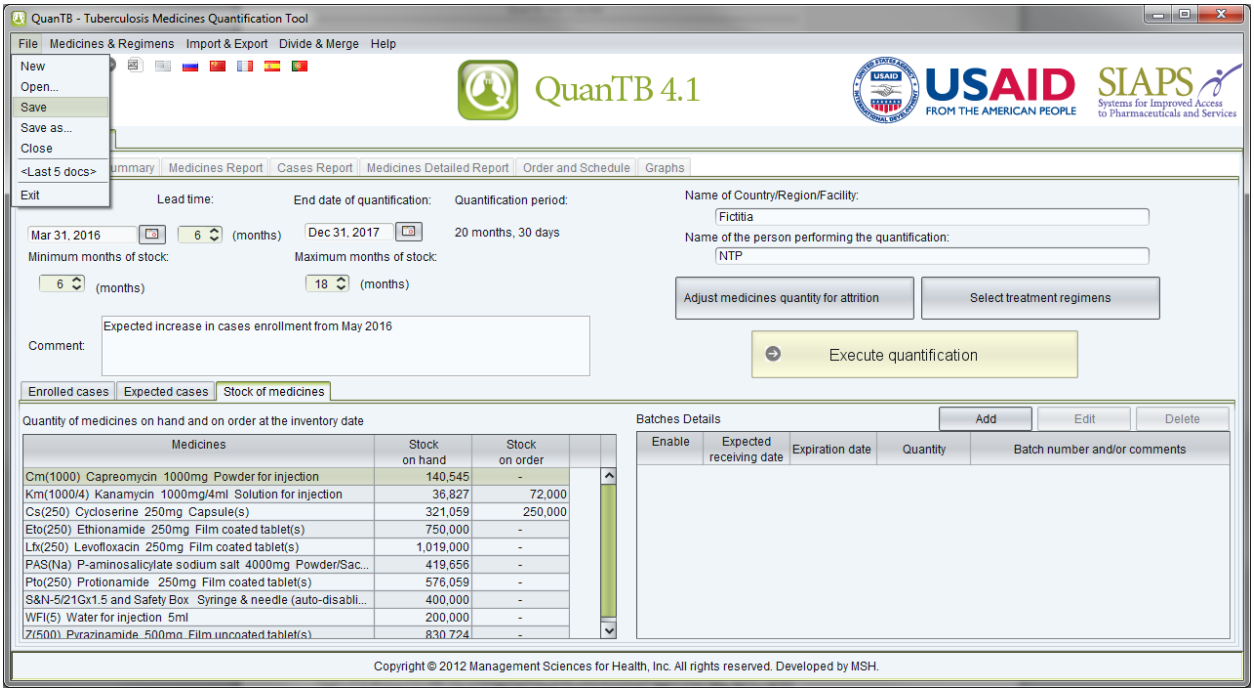


Figure 68

In the dialog box that appears when you click "Yes," the system directs you to the "Docs" folder of the system but you can select another location on your computer. Fill out the **File Name** field and click on the **Save** button to confirm or **Cancel** to undo it. The **QuanTB** folder button is a shortcut to return you to the docs folder location in the QuanTB program with one click, if you have navigated away from it.

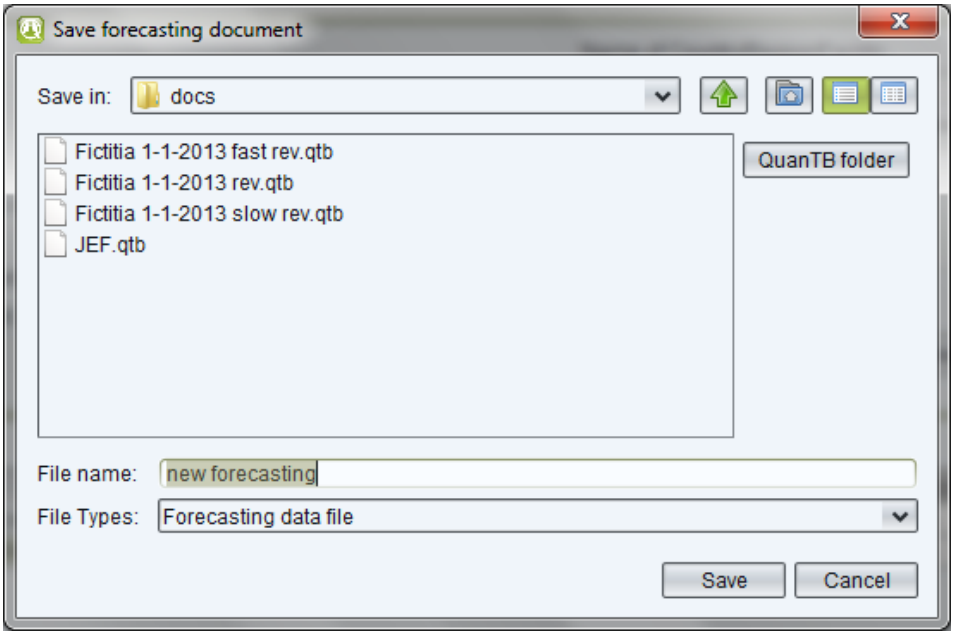


Figure 69

For saving a previously saved quantification, go to the **File** menu and select the **Save as …** menu option. The same dialog boxes will appear to save the quantification in a selected folder. Fill out the **File Name** field and click on the **Save** button to confirm or **Cancel** to undo it.

Opening saved quantifications

Saved files can be retrieved later for further work. Go to **File** menu and select the **Open** menu option or click on the **Folder** icon in the left upper corner. In the dialog box that appears, select the location where the file was saved and then double click in the specific file to open or click on the **Open** button. Click on the **Cancel** button to undo it. The **QuanTB** folder button is a shortcut to return you to the docs folder location in the QuanTB program with one click, if you have navigated away from it. The **<Last 5 docs>** option in the **File** menu is also a convenient way to find recent files.

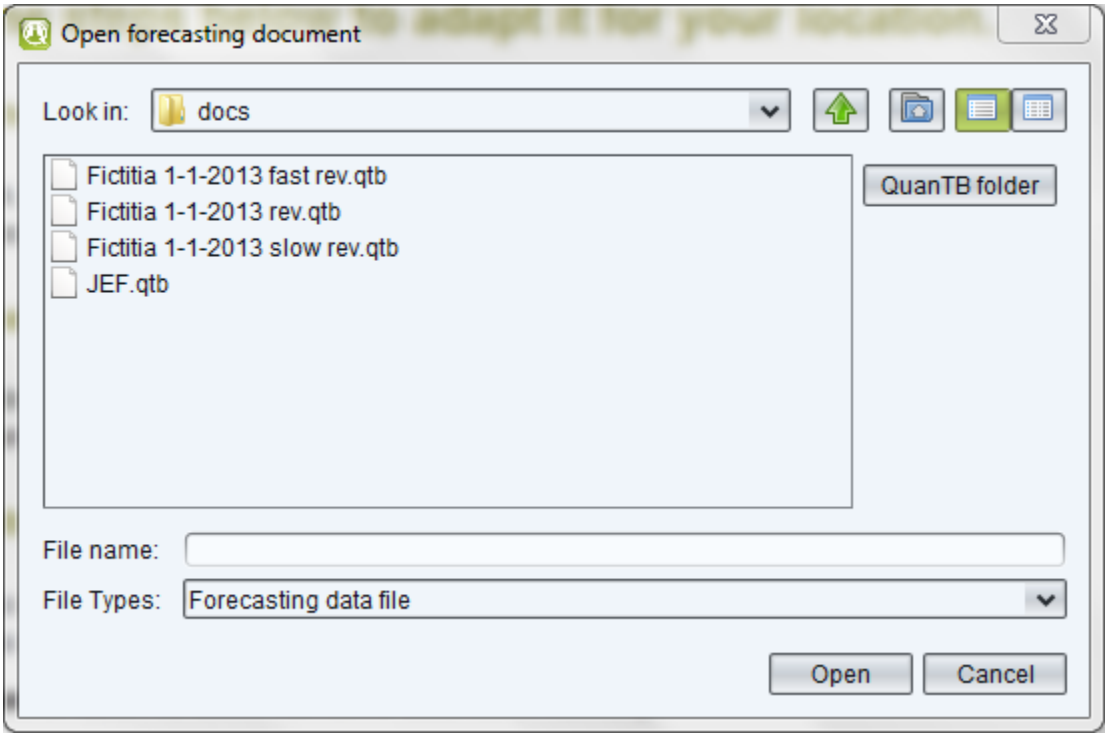


Figure 70

Note: If you erase cases and/or percentages data in an executed quantification, then execute the quantification again, QuanTB will generate an error message. The system will disable the existing tabs (except Parameters tab) until adequate data is entered to execute the quantification properly.

Exiting the system

Go to the **File** menu and select the **Exit** menu option or click on the **"X"** in the right upper corner. In the confirmation dialog box that appears, click on the **Save all and exit** button to save your work before exiting or **Exit** to exit. Click **Cancel** if you do not want to exit. All unsaved information will be lost if you exit the system.

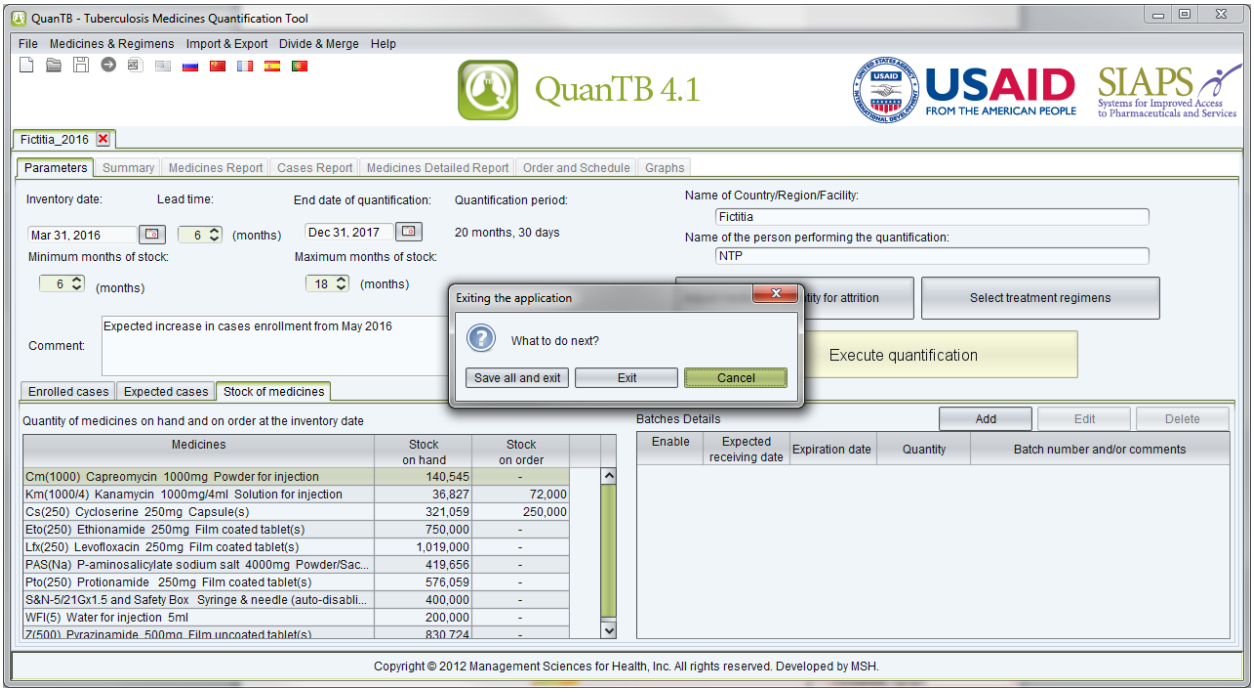


Figure 71

EXPORTING QUANTIFICATIONS TO EXCEL AND PRINTING

Quantifications can be exported into an Excel file (values only) at any stage of the process and saved for references, comparison, or further analysis in Excel, or via Excel in other programs.

Export to Excel

Go to the **Import & Export** menu and select **Export to Excel** or click on the **Excel** icon in the left upper corner. In the dialog box that appears, the system directs you to the "Docs" folder of the system but you can select another location on your computer. Fill out the **File Name** field and click on the **Save** button to confirm or **Cancel** to undo it.

The dashboard and stock quantity graphs will not be exported with the Excel file. You can copy and paste those to another document, save them to another location, or print them. By right clicking on your mouse, you can see the different options, including the option to zoom in and out.

The quantification data can be printed as an Excel file. This is the only print option.

When you export to Excel, you can choose your type of export: **All data** or **Without medicine details**. Exporting without the medicine details is faster.

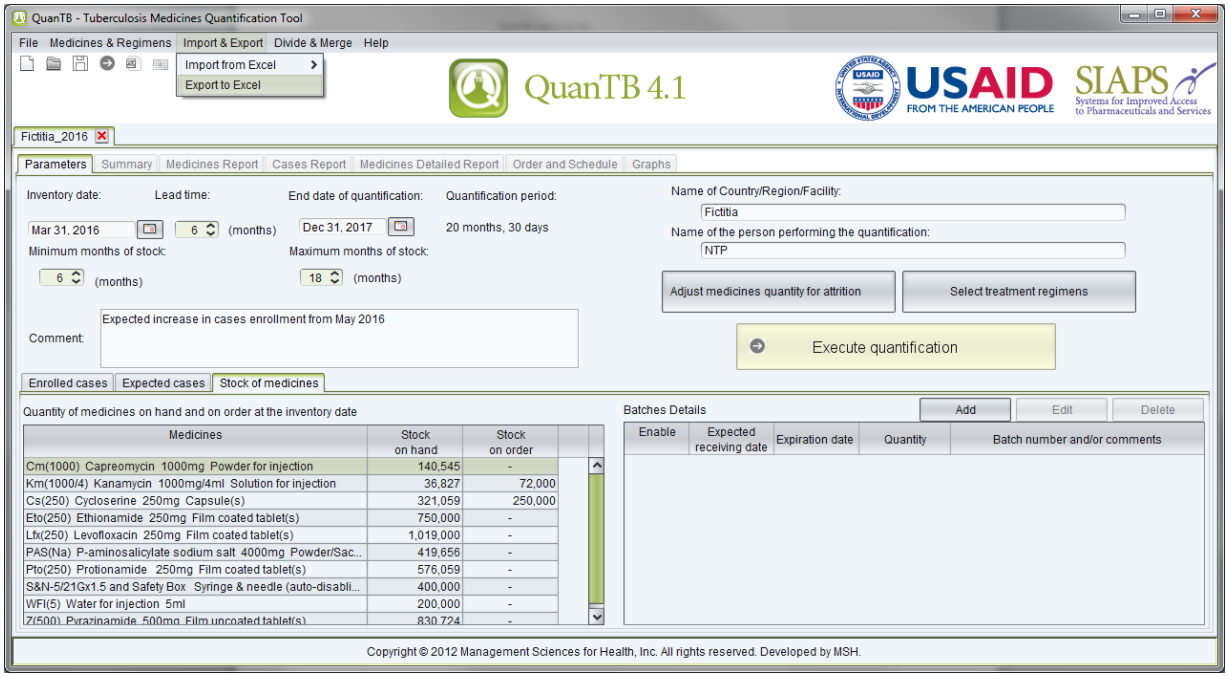
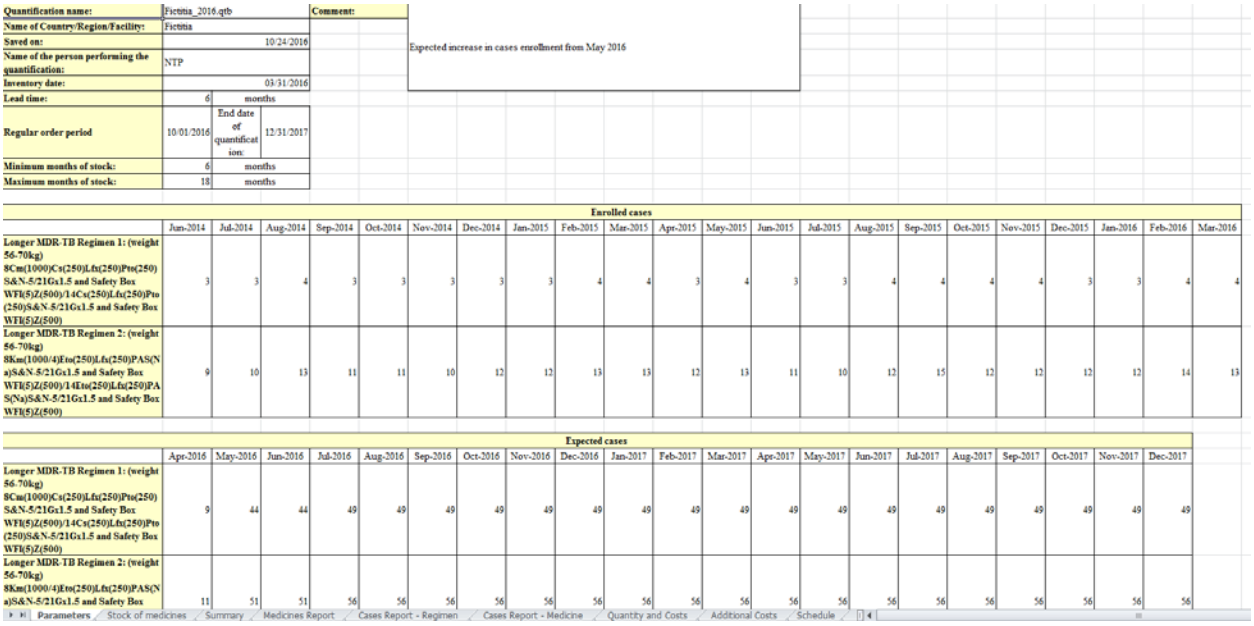


Figure 72

Note: The format of the Excel file is controlled by the user's Windows configuration. For example, if you are using the Russian version of QuanTB and your computer's Windows configuration is English (United States), the QuanTB Excel file date and number formats will be in English (United States).

An example of the All details exported Excel file is shown below. There are multiple tabs of information, including a separate tab for each medicine. The Excel export file without the medicine details does not contain the separate tabs for each medicine.



Quantification name:	Fictitia_2016.qtb		Comment:	
Name of Country/Region/Facility:	Fictitia			
Saved on:	10/24/2016			
Name of the person performing the quantification:	NTP			
Inventory date:	03/31/2016			
Lead time:	6	months		
Regular order period	10/01/2016	End date of quantification:	12/31/2017	
Minimum months of stock:	6	months		
Maximum months of stock:	18	months		

Expected increase in cases enrollment from May 2016

Enrolled cases

	Jun-2014	Jul-2014	Aug-2014	Sep-2014	Oct-2014	Nov-2014	Dec-2014	Jan-2015	Feb-2015	Mar-2015	Apr-2015	May-2015	Jun-2015	Jul-2015	Aug-2015	Sep-2015	Oct-2015	Nov-2015	Dec-2015	Jan-2016	Feb-2016	Mar-2016
Longer MDR-TB Regimen 1: (weight 56-70kg) 8Cm(1000)Cs(250)Lfx(250)Pto(250) S&N-5/21Gx1.5 and Safety Box WFl(5)Z(500)/14Cs(250)Lfx(250)Pto (250)S&N-5/21Gx1.5 and Safety Box WFl(5)Z(500)	3	3	4	3	3	3	3	3	4	4	3	4	3	3	4	4	4	4	3	3	4	4
Longer MDR-TB Regimen 2: (weight 56-70kg) 8Km(1000/4)Eto(250)Lfx(250)PAS(Na)S&N-5/21Gx1.5 and Safety Box WFl(5)Z(500)/14Eto(250)Lfx(250)PAS(Na)S&N-5/21Gx1.5 and Safety Box WFl(5)Z(500)	9	10	13	11	11	10	12	12	13	13	12	13	11	10	12	15	12	12	12	12	14	13

Expected cases

	Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-2017	Jun-2017	Jul-2017	Aug-2017	Sep-2017	Oct-2017	Nov-2017	Dec-2017
Longer MDR-TB Regimen 1: (weight 56-70kg) 8Cm(1000)Cs(250)Lfx(250)Pto(250) S&N-5/21Gx1.5 and Safety Box WFl(5)Z(500)/14Cs(250)Lfx(250)Pto (250)S&N-5/21Gx1.5 and Safety Box WFl(5)Z(800)	9	44	44	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Longer MDR-TB Regimen 2: (weight 56-70kg) 8Km(1000/4)Eto(250)Lfx(250)PAS(Na)S&N-5/21Gx1.5 and Safety Box	11	51	51	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56

Parameters / Stock of medicines / Summary / Medicines Report / Cases Report - Regimen / Cases Report - Medicine / Quantity and Costs / Additional Costs / Schedule

Figure 73

Dividing a quantification

QuanTB has an option to divide a quantification. This may be useful, for example, if you create a multi-year quantification and you want to divide it by year for procurement planning purposes. To divide a quantification, open the quantification file, click the **Divide & Merge** menu, and then click **Divide quantification**.

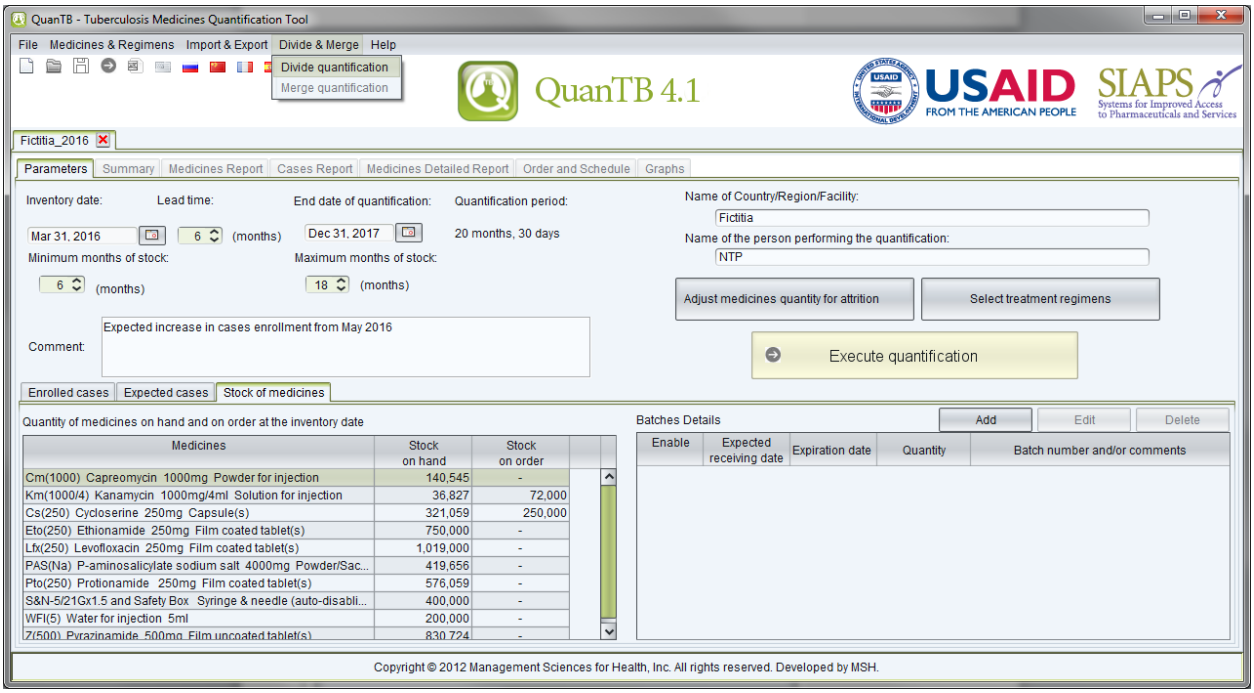


Figure 74

A screen will appear so that you can enter the parameters of the subdivided forecasting. After it is saved, the subdivided quantification will function like a regular quantification. The new quantification only has information in the parameters tab, so you must execute it to see the results, after you have reviewed the parameters.

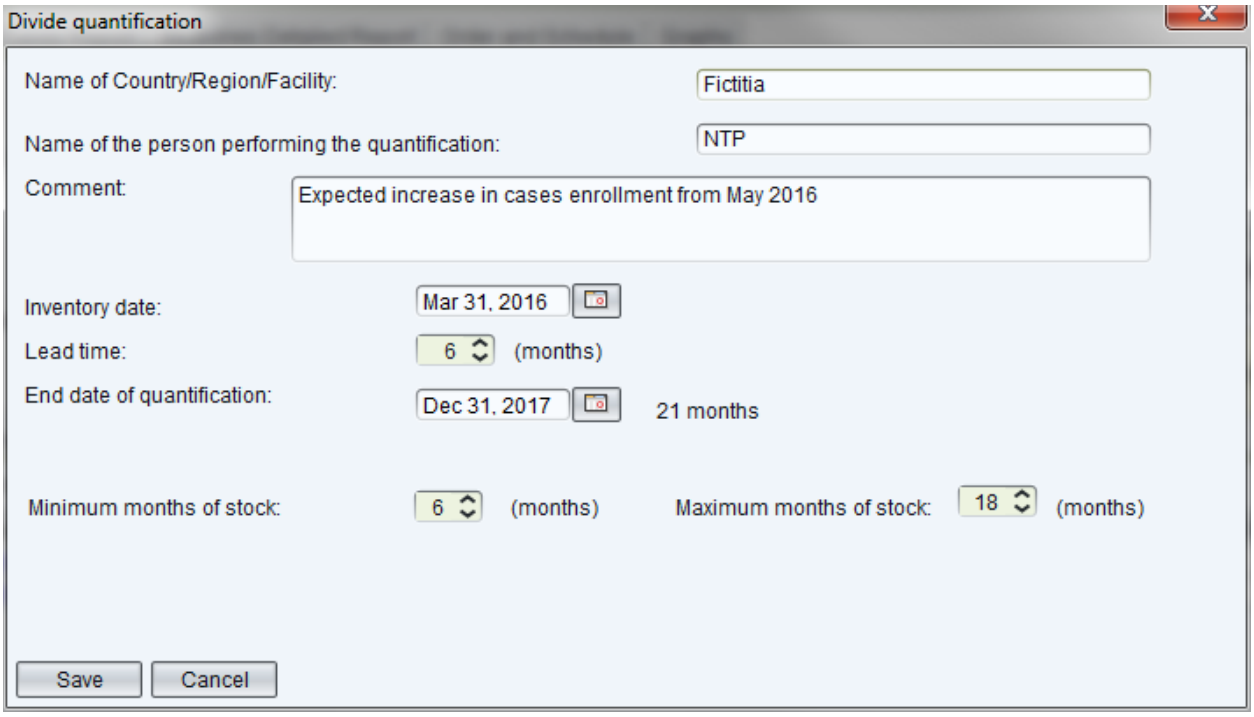


Figure 75

Certain rules must be understood when dividing a quantification:

- Your inventory date in the subdivided quantification cannot be earlier than the inventory date of the original quantification.
- The start and end dates of the subdivided quantification cannot be earlier than the inventory date of the original quantification or after the end of the original quantification.
- If you move the inventory date later than the inventory date of the original quantification, expected cases from the original quantification will become enrolled cases. Also, stock on order will become stock on hand and some stock may expire. If the inventory date is in the future, the stock information becomes an estimate.
- If there was no expiration date entered for the stock on order, it will not have an expiration date when it becomes stock on hand. QuanTB will consider the expiration date to be the end of the quantification period. The system will allow you to leave the expiration date blank. For greater accuracy in your new subdivided quantification, enter an estimated expiration date for the stock on hand before you save, execute the quantification, or export it to Excel.
- If the stock on order from the original quantification has an expected date after the inventory date of the subdivided quantification, it will still be stock on order in the subdivided quantification.
- If the stock on order from the original quantification has an expected receiving date at or earlier than the inventory date of the subdivided quantification, it becomes stock on hand in the subdivided quantification.
- If your original quantification was done by percentage (rather than by number), the percentages in the subdivided quantification may be different.

- When you divide a quantification, you will lose the pack size and price information from the original quantification.
- If you add up the total quantities from your subdivided quantifications, they may not match the total of the original quantification. This is because of how the inventory date can interact with the days medicines are consumed (frequency), when the regimen does not specify that the patient take a medicine every day. Another reason for a mismatch is because of how the lead time can overlap different quantification periods defined in consecutive subdivided quantifications.

After you have subdivided your quantification and reviewed the parameters, save it and execute it as you would a normal quantification. You will be prompted to enter an expiration date for the medicines if they don't have one.

Merging a quantification

QuanTB has an option to merge multiple quantification files. This is helpful, for example, if you have quantifications done at the regional level of a country and want to combine them at the central level. To merge two or more quantification files, open the relevant quantification files, then go to the **Divide & Merge** menu and click the **Merge quantifications** option. Ensure that you have saved the quantification files before merging them, because any changes made since the last time you saved the files will not be merged.

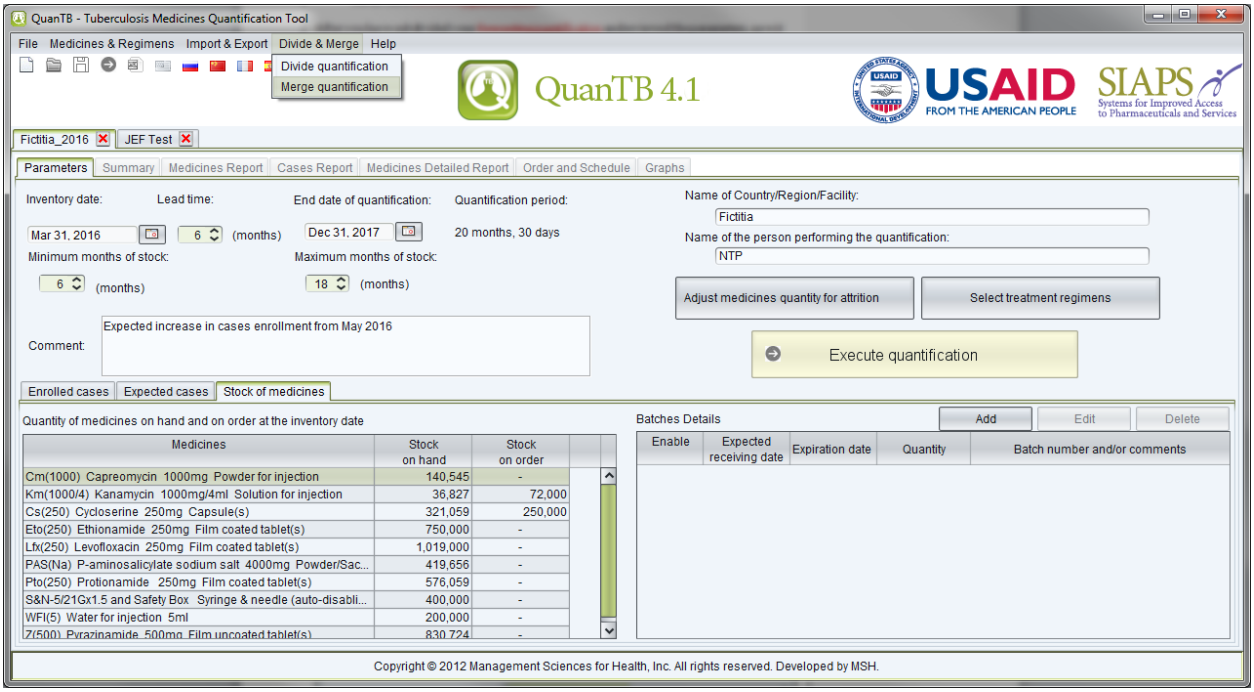


Figure 76

A screen will appear for you to select which quantifications you want to merge. Tick the boxes to select the quantifications, then click **OK** to continue or **Cancel** to cancel. A new quantification

will be created from the quantifications you selected. The new quantification is only merging the parameters of the component quantifications, so you must execute it to see results, after you have reviewed the parameters.

When you merge quantifications, the system checks the inventory date, quantification start date, type of regimen, whether the quantification was done by numbers or percentages, then the regimens themselves to ensure that these values are the same in all quantifications. The order in which the files are checked is the order that the quantifications appear on the selection list for the merge. This means that the second file is compared to the first and if the second one doesn't match, you will get an error. If the first and second match, the third is the next to be compared, and so on. The order the quantifications appear on the list is determined by the order in which you opened the quantification files in the program before you selected the Merge option.

Note: We recommend that all parameters of component files be the same when merging files.

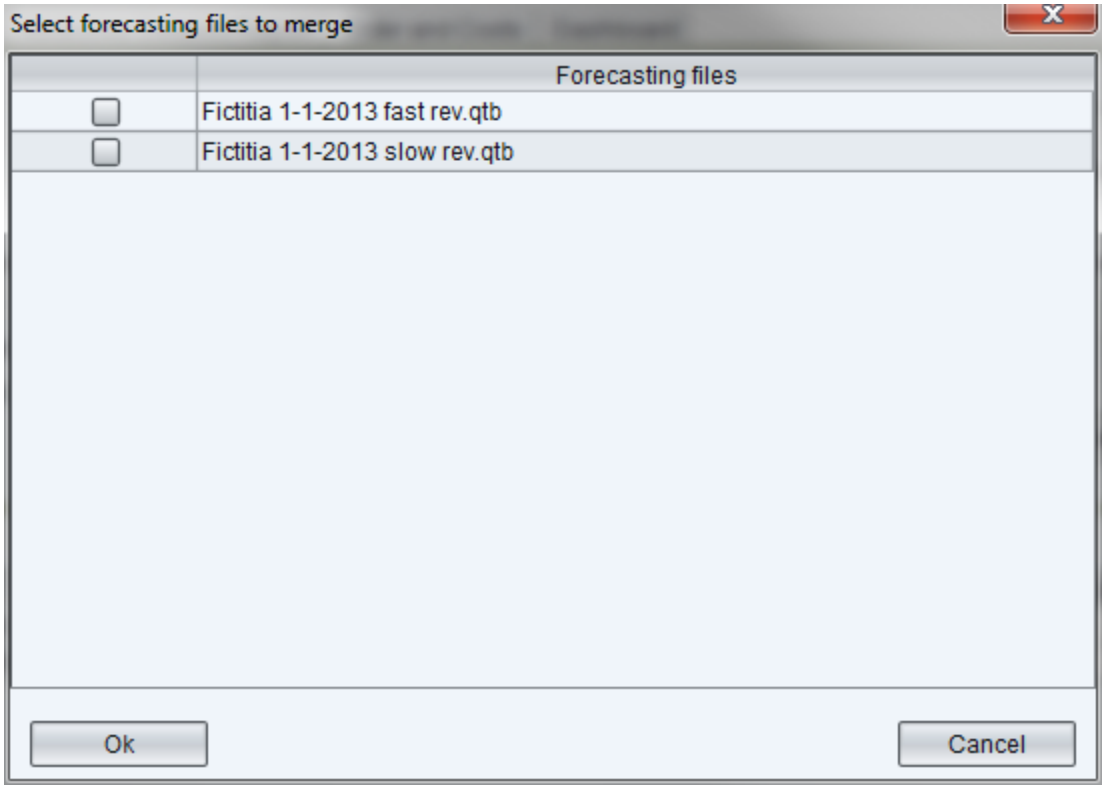


Figure 77

Certain things must be understood when merging quantifications:

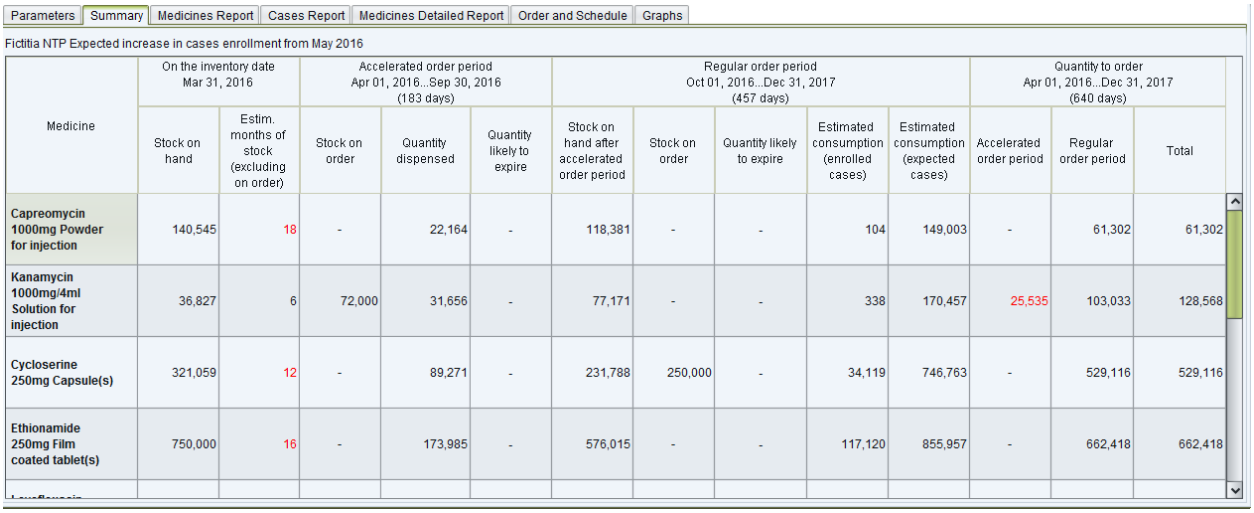
- The inventory date must be the same in all of the files to be merged.
- The merged file will have the longest lead time and the longest quantification period of the component files.

- The merged file will not have the maximum and minimum months of stock, the name of the country/region/facility or the name of the person performing the quantification.
- You can only merge quantifications if they were done by the same method, i.e., by number or by percentage. You cannot merge a quantification done by number with a quantification done by percentage.
- You can only merge quantifications if they were done for the same regimen type, i.e., multidrug or single-drug. You cannot merge a quantification using multidrug regimens with a quantification using single-drug regimens.
- You can merge quantifications done by percentage if the enrolled and expected cases are both done by percentage, if the composition of the regimens is the same, and if each quantification's regimens have the same percentage.
    - If the component quantifications done by percentage have multidrug regimens, the enrolled and expected cases for each regimen must have the same percentage in each quantification. (The percentage for enrolled and the percentage for expected can be different from each other.)
    - If the component quantifications done by percentage have single-drug regimens, you can have different regimens as long as the percentages for the regimens that exist in more than one quantification are the same. Each regimen of the enrolled and expected cases can have different percentages as long as they are the same in the other quantifications to be merged.
- When you merge quantifications, the merged file will not have pack prices or sizes.

Regular monitoring

When used regularly (e.g., quarterly or monthly), QuanTB can serve as an effective early warning system to monitor the availability of medicines. This is especially important for rapidly expanding programs, or programs phasing-in/phasing-out TB medicines or regimens. A previously developed quantification file can be opened a month or a quarter later, saved as a new forecast, and edited for actual cases versus planned for the elapsed period, stock of medicines on hand updated to reflect the consumption, stock on order turned into stock on hand with expiration dates, etc. QuanTB will then alert you to possible issues that may lead to treatment interruptions or waste of medicines. If the stock of a medicine is below the minimum level or above the maximum level, it will appear in red in the Estimated months of stock column.

For example, a TB program may appear to be quite balanced in the beginning of year, with sufficient stock of medicines to cover current and expected cases through the year until the next regular procurement, with some medicines being over the maximum set level of 12 months (below):



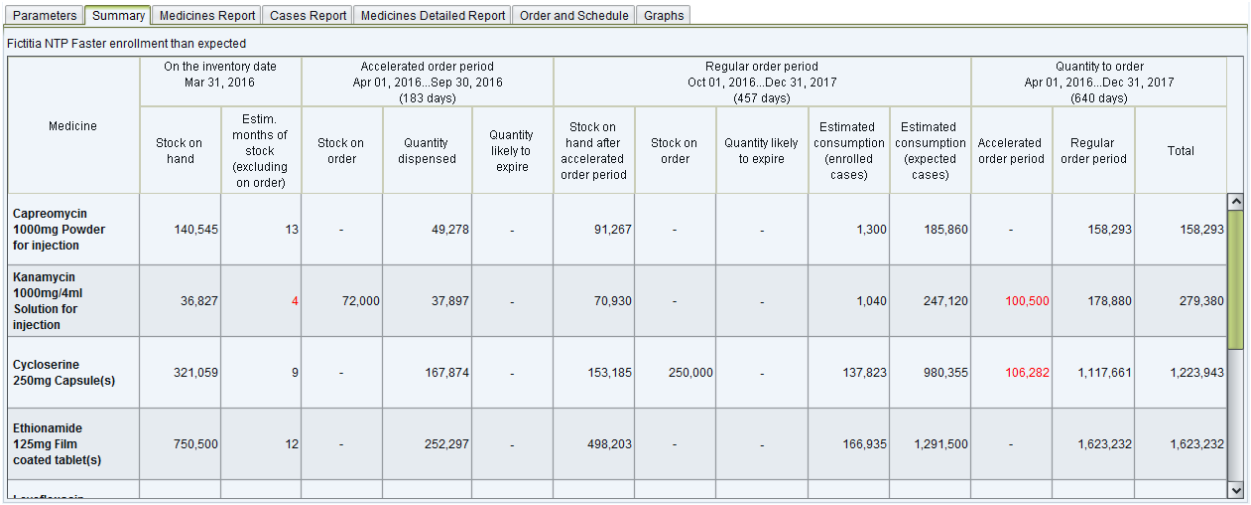
Parameters | Summary | Medicines Report | Cases Report | Medicines Detailed Report | Order and Schedule | Graphs

Fictitia NTP Expected increase in cases enrollment from May 2016

Medicine	On the inventory date Mar 31, 2016		Accelerated order period Apr 01, 2016..Sep 30, 2016 (183 days)			Regular order period Oct 01, 2016..Dec 31, 2017 (457 days)					Quantity to order Apr 01, 2016..Dec 31, 2017 (640 days)		
	Stock on hand	Estim. months of stock (excluding on order)	Stock on order	Quantity dispensed	Quantity likely to expire	Stock on hand after accelerated order period	Stock on order	Quantity likely to expire	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Accelerated order period	Regular order period	Total
Capreomycin 1000mg Powder for injection	140,545	18	-	22,164	-	118,381	-	-	104	149,003	-	61,302	61,302
Kanamycin 1000mg/4ml Solution for injection	36,827	6	72,000	31,656	-	77,171	-	-	338	170,457	25,535	103,033	128,568
Cycloserine 250mg Capsule(s)	321,059	12	-	89,271	-	231,788	250,000	-	34,119	746,763	-	529,116	529,116
Ethionamide 250mg Film coated tablet(s)	750,000	16	-	173,985	-	576,015	-	-	117,120	855,957	-	662,418	662,418

Figure 78

The situation in that same TB program may look very different three months later when it becomes clear that the number of actually enrolled cases during the previous quarter exceeds the planned numbers, and so will the expected number (e.g., due to successful implementation of new diagnostic technology). Some medicines (with estimated months of stock shown in red) are now at the critical level of availability and will require accelerated procurement:



Medicine	On the inventory date Mar 31, 2016		Accelerated order period Apr 01, 2016...Sep 30, 2016 (183 days)			Regular order period Oct 01, 2016...Dec 31, 2017 (457 days)					Quantity to order Apr 01, 2016...Dec 31, 2017 (640 days)		
	Stock on hand	Estim. months of stock (excluding on order)	Stock on order	Quantity dispensed	Quantity likely to expire	Stock on hand after accelerated order period	Stock on order	Quantity likely to expire	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Accelerated order period	Regular order period	Total
Capreomycin 1000mg Powder for injection	140,545	13	-	49,278	-	91,267	-	-	1,300	185,860	-	158,293	158,293
Kanamycin 1000mg/4ml Solution for injection	36,827	4	72,000	37,897	-	70,930	-	-	1,040	247,120	100,500	178,880	279,380
Cycloserine 250mg Capsule(s)	321,059	9	-	167,874	-	153,185	250,000	-	137,823	980,355	106,282	1,117,661	1,223,943
Ethionamide 125mg Film coated tablet(s)	750,500	12	-	252,297	-	498,203	-	-	166,935	1,291,500	-	1,623,232	1,623,232

Figure 79

The details for every medicine by month can be found in the **Reports** tabs and the whole situation will also be reflected on the graphs:

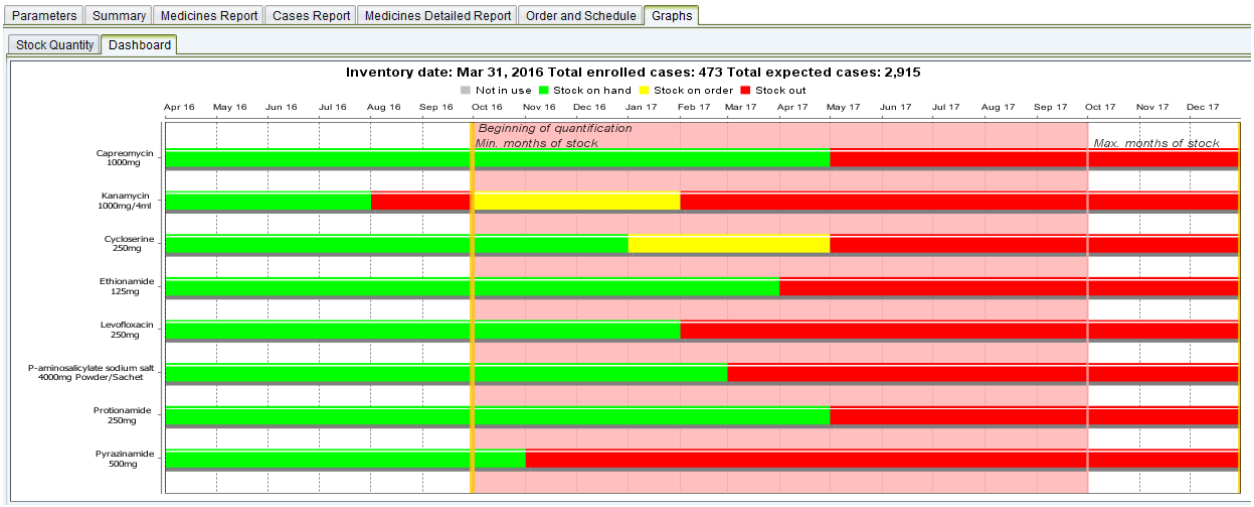
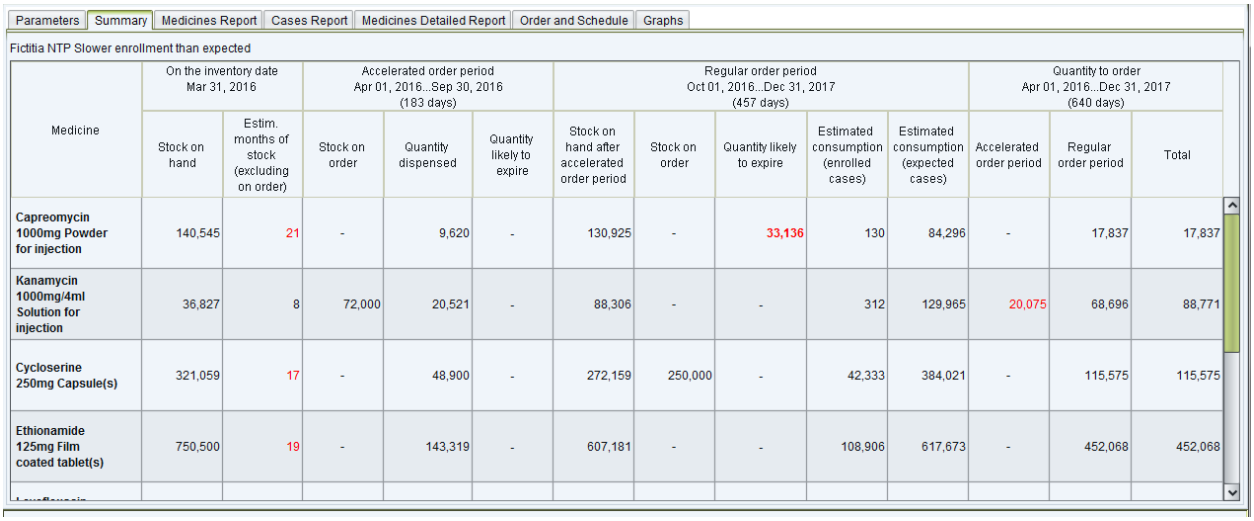


Figure 80

In yet a different scenario, that same program three months later may be failing to enroll the planned number of cases, e.g., due to slower than planned uptake of diagnostic technology, or lack of funding for patient care. In this case, it will be alert to the impending expiration of some medicines:



Parameters | Summary | Medicines Report | Cases Report | Medicines Detailed Report | Order and Schedule | Graphs

Fictitia NTP Slower enrollment than expected

Medicine	On the inventory date Mar 31, 2016		Accelerated order period Apr 01, 2016...Sep 30, 2016 (183 days)			Regular order period Oct 01, 2016...Dec 31, 2017 (457 days)					Quantity to order Apr 01, 2016...Dec 31, 2017 (640 days)		
	Stock on hand	Estim. months of stock (excluding on order)	Stock on order	Quantity dispensed	Quantity likely to expire	Stock on hand after accelerated order period	Stock on order	Quantity likely to expire	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Accelerated order period	Regular order period	Total
Capreomycin 1000mg Powder for injection	140,545	21	-	9,620	-	130,925	-	33,136	130	84,296	-	17,837	17,837
Kanamycin 1000mg/4ml Solution for injection	36,827	8	72,000	20,521	-	88,306	-	-	312	129,965	20,075	68,696	88,771
Cycloserine 250mg Capsule(s)	321,059	17	-	48,900	-	272,159	250,000	-	42,333	384,021	-	115,575	115,575
Ethionamide 125mg Film coated tablet(s)	750,500	19	-	143,319	-	607,181	-	-	108,906	617,673	-	452,068	452,068

Figure 81

When using QuanTB files for early warning system monitoring, you must update the following parameters:

- Inventory date
- Quantification period, if the time period for the quantification period is below the sum of inventory date plus the lead-time date. In this situation, you must extend your quantification period but you do not need to include additional cases in the expected cases tab.
- Expected cases
- Stock of medicines (stock on hand and stock on order). If stock is expired, you must delete that stock from the system, or the system will display an error message. If you have received a stock previously on order, make sure it is deleted from the system and included as stock on hand.

For example, if you have to update every three months, you need to ensure that you collect the current total number of enrolled cases per month in the previous three months and enter in the enrolled case field. For expected cases, review the patient trend to make sure it is the same based on current enrolled cases collected. If the trend is not the same, make adjustments as needed.

We strongly recommend that you update your forecast with current information every three months and execute it again.

Viewing QuanTB files created by others

QuanTB quantification files can be e-mailed to others for review. Files can be accessed in the locations where QuanTB was saved after installation. Go to the Docs folder (e.g., C:\Users*yourname*\QuanTB\docs) to select the QuanTB quantification file you want to email to your colleague.

Upon receipt of your QuanTB quantification file, your colleague can save the file in a location where it can be accessed. The QuanTB quantification file can be opened and your colleague can view or make certain changes in the file received. However, he or she will not have access to the medicines and regimens lists (dictionaries) for that quantification in the system unless they are added to the colleague's copy of QuanTB. To do this, open the other person's quantification file, go to the **Medicines & Regimens** menu, and then click **Add from quantification.**

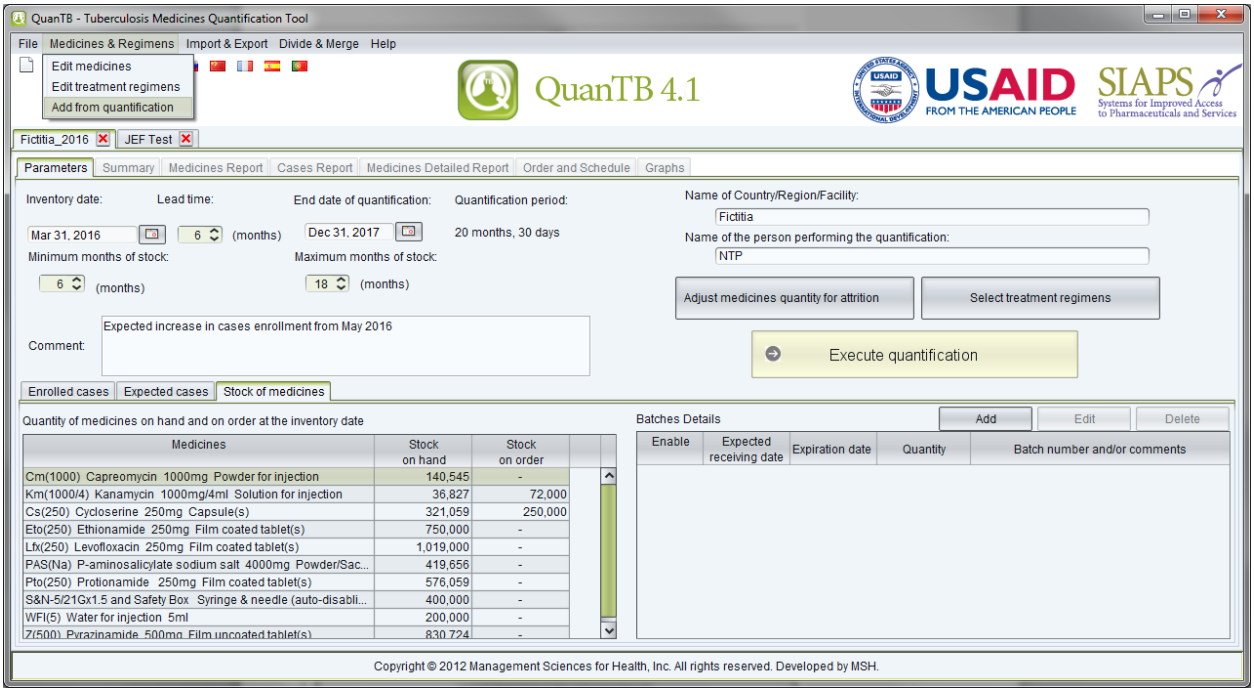


Figure 82

QuanTB will then automatically compare the medicines and regimens in the quantification file to the medicines and regimens in your copy of QuanTB and will add any new ones to your dictionary files (lists).

It is important to note the following about the adding process:

- When QuanTB compares the medicines in the quantification to the medicines in your dictionary, it will not import a medicine with an identical name, strength, form, etc. It will import the medicine if there are any differences, even if the difference is only slight.
- When QuanTB compares the regimens in the quantification to the regimens in your dictionary, it will not add regimens with identical compositions to your regimens. If there are any differences between a quantification's regimen and your regimen—even only a space or a period—it will add the regimen to your dictionary.

After QuanTB compares the medicines and regimens in the quantification file to those in your dictionary and adds the ones that you are missing, it will display a screen summarizing the medicines and regimens that were imported.

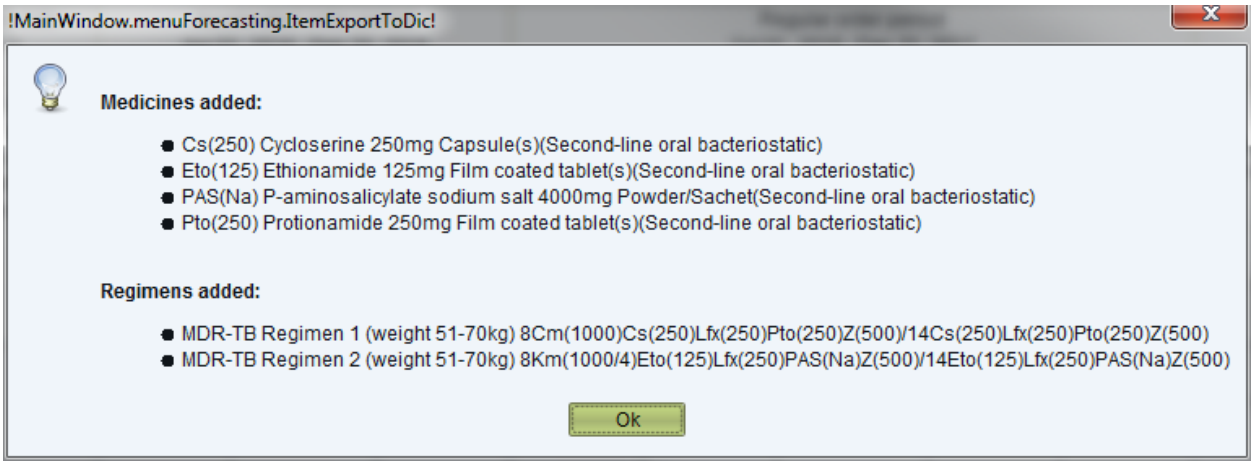

!MainWindow.menuForecasting.ItemExportToDic!
Medicines added:
Cs(250) Cycloserine 250mg Capsule(s)(Second-line oral bacteriostatic)
Eto(125) Ethionamide 125mg Film coated tablet(s)(Second-line oral bacteriostatic)
PAS(Na) P-aminosalicylate sodium salt 4000mg Powder/Sachet(Second-line oral bacteriostatic)
Pto(250) Protionamide 250mg Film coated tablet(s)(Second-line oral bacteriostatic)
Regimens added:
MDR-TB Regimen 1 (weight 51-70kg) 8Cm(1000)Cs(250)Lfx(250)Pto(250)Z(500)/14Cs(250)Lfx(250)Pto(250)Z(500)
MDR-TB Regimen 2 (weight 51-70kg) 8Km(1000/4)Eto(125)Lfx(250)PAS(Na)Z(500)/14Eto(125)Lfx(250)PAS(Na)Z(500)
Ok

Figure 83

ANNEX 1: QUANTIFYING FOR MULTIPLE YEARS

QuanTB can be used for multiple year forecasts to determine budget requirements for procurement and planning purposes. Follow the steps below for a multiyear forecast. If you later want to divide a multi-year forecast, e.g., to determine annual procurement quantities, use the **Divide Quantification** option.

1. Customize the **medicines** and **treatment regimens** as required to match your situation.

2. Click **File,** then **New** to begin a new quantification.

3. **Inventory date:** Since no stock information is required for this forecast, you can enter a date one month before your quantification period. Recall that your quantification period should be a date greater than the inventory date and the lead-time in months.

4. **Lead time in months:** Since this exercise is not for procurement, but just to determine the budget, you can simply enter the number 1 in this field.

5. **End date of quantification:** This should be set to create a two- to five- year forecast, or longer as required.

6. **Minimum months of stock:** Enter the number 1.

7. **Maximum months of stock:** Enter the number 1.

8. **Regimen type:** Select Multidrug or Single drug, as appropriate.

9. **Enrolled cases:** Use the option of **By number**.

10. **Expected cases:** Use the option of **By number**.

11. Select the regimens or single medicines for the forecast, then click **Save**.

12. **Enrolled cases:** Leave this field blank since we are estimating needs for future cases. You will receive a warning message informing you that at least one enrolled case should be entered for each regimen or medicine. Select “yes” and continue.

13. **Expected cases:** There are two options to input cases in this field:

    a. *Option 1*: Enter the total number of cases expected by **month** for each regimen or medicine starting from the first month of your quantification period. Example, if you have a total of 1260 cases to enroll in two regimens with a regimen split of 80% and 20% for a quantification period between Jan. 1 2014 to Dec. 31, 2016; you have to enter 28 cases for regimen A and 7 cases for regimen B each month.

After entering data in the last month (Dec. 31, 2016), go back and change your forecast period from Dec. 2016 to Dec. 2018. DO NOT ENTER ADDITIONAL DATA from Jan. 2017. Because QuanTB computes patient needs as they are enrolled, patients enrolled in Dec. 2016 would only have received one month of treatment, in Nov. 2016, 2 months of treatment and so on. For complete treatment quantities, you have to extend the quantification period without adding additional data to allow patients complete their treatment. When planning for procurement, and considering enrolled cases and stock information is considered, you do not need to do this because with regular planning and updating of QuanTB, medicines will be purchased and consumed as patients are enrolled.

b. *Option 2*: Enter the total number of cases expected for each regimen or medicine for the *total duration of the forecast* in the field for the first month of the quantification period. Using the same example above, enter 1008 cases for regimen A and 252 cases for regimen B in Jan. 1, 2014. For this option, make sure that the quantification period is equal to or longer than the duration of treatment. If not, follow instructions for option 1 above.

14. **Stock of medicines:** Leave this field blank. The forecast is for budget purposes only.

15. **Execute quantification**.

16. Save your result.

ANNEX 2: QUANTIFYING FOR ANCILLARY MEDICINES

The main challenge with quantifying ancillary medicines is making sure you have the right data. Most countries do not collect and compile data on adverse events and some countries do not have standardized guidelines for managing adverse events. In such situations, you need to use proxy data that would provide the most accurate estimate for your forecast. As data becomes available, later forecasts should be more evidence-based.

Some key data requirements are:

- List of recommended ancillary medicines for TB adverse events treatment.
- Ancillary medicine specifications (medicine name, strength, unit/pack price, etc.)
- Recommended quantity, duration, and frequency for each condition treated.
- Historic data on number or percentage of TB cases that will be treated with ancillary medicines.
- Data on total number or percentage of patients enrolled to receive ancillary medicine for the most recent 6 months (if the program is long-running).
- Previous quantification assumptions used for ancillary medicine quantification (if previously done).
- Country targets, expansion plans, planned interventions, etc. for TB ancillary treatment in the country.
- Total quantity of stock on hand for each ancillary medicine, with:
    - Expiration dates for each ancillary medicine by batch
    - Total quantity of stock on order (order placed but not yet received) for each ancillary medicine and date order is expected for delivery
    - Total lead time for procurement (consider total lead time from planning, to ordering, to shipment, to actual receipt in central warehouse for distribution
    - Total minimum stock level (consider all health care levels)

To forecast for ancillary medicines, you should use the **Single Drug** option for this forecast. You cannot use the single drug option and the regimen option at the same time. If you quantify other medicines by regimen, you must perform a separate quantification for single drugs.

To forecast using QuanTB, follow the steps below:

1. Select your **medicines** and **treatment regimens**. For each medicine, include the total duration of time for treatment per case for the entire period of treatment. (Some adverse events may be treated two or three times during the course of a TB treatment; ensure you agree on an average to use for the forecast.)

2. Click **File,** then **New** to begin a new quantification.

3. **Inventory date:** Enter the date you took your stock status information. If no previous stock information is available, then ensure the quantification period is equal to or greater than the sum of the inventory date and the lead time in months.

4. **Lead time in months:** Enter the total time required from planning until medicine is received in the store.

5. **Quantification period:** Enter the period for which you are quantifying.

6. **Minimum months of stock:** Enter the minimum stock level agreed on for the medicines.

7. **Maximum months of stock:** Enter the maximum stock level agreed on for the medicines.

8. **Regimen type:** Select the **Single drug** option and select to forecast either by number or by percent depending on the data available.

9. **Select regimens:** Select the regimens you want to include in the forecast.

10. Click **Save**.

11. **Enrolled cases:** Enter the percentage of enrolled cases for each medicine. Then enter the total number of enrolled cases per month.

12. **Expected Cases:** Enter the percentage of expected cases for each medicine. Then enter the total number of expected cases per month.

13. **Stock of medicines:** Leave these fields blank if no data is available (that is, if medicines have not been purchased by the program in the past).

14. Click **Execute quantification**.

15. Save your results.

ANNEX 3: QUANTIFYING FOR PATIENT KITS

QuanTB does not have a specific feature to forecast patient kits, i.e., the complete medicine requirement for the duration of treatment in one box for one patient. QuanTB considers patient needs based on their enrollment date and calculates their needs (number of tablets per day, number of days per week, and duration in months) for the complete month (28, 30, or 31 days depending on the calendar month) until the quantification period ends. This means that if you assume that each case will receive 3 tablets daily for 7 days, QuanTB calculates that until treatment is complete and does not take into account wastages and weight adjustments during the forecasted period. Wastages can be adjusted in the order tab.

To forecast for patient kits, follow the steps below:

1. Create the kits as medicines in the **Medicines list**. If the kit contains two or more different products, you must enter each under separate names in the INN field. To differentiate regular medicines from patient kit medicines, set your medicine INN name as "patient kit" including any other identifiers if you have multiple kits in use. For example, "patient kit new adult cases - intensive phase". Use an abbreviated identifier in the abbreviated name field example, "PK-Int (RHZE)". Enter medicines strength and dosage form and select type of medicines. Follow the same procedure for continuation phase medicines and save.

2. Create your **regimen** for the patent kit, including any other identifiers if you have multiple kits in use, for example, "patient kit new cases". Then click on or enter the composition of the regimen.

3. Click **File,** then **New** to begin a new quantification.

4. **Inventory date:** Enter the date you took your stock status information.

5. **Lead time in months:** Enter the total time required from planning until medicine is received in the store.

6. **Quantification period:** Enter the period for which you are quantifying. Ensure the forecasting period is equal to or greater than the sum of inventory date and lead time in months.

7. **Minimum months of stock:** Enter the minimum stock level agreed on for the medicines.

8. **Maximum months of stock:** Enter the maximum stock level agreed on for the medicines.

9. **Regimen type:** Select the ***Multidrug*** option for this forecast.

10. **Enrolled cases:** Use the option of **By number**.

11. **Expected cases:** Use the option of **By number**.

12. Select the regimens for the forecast, then click **Save**.

13. **Enrolled cases:** Enter the number of cases enrolled in treatment by month for each regimen.

14. **Expected cases:** Enter the number of cases expected for treatment by month for each regimen.

15. **Stock of medicines:** Convert each patient kit contents into units. For example, a kit may contain 168 tablets of RHZE and 336 tablets of RH. Multiply these totals by the total number of patient kits to get the overall total units for each medicine. Enter each medicine's expiration date by batch. Follow the same steps for stock on order.

16. **Execute quantification**.

17. Click on the **Order** tab. On the **Quantity** tab, in the **Pack Size** column, enter 168 for RHZE and 336 for RH for the patient kits medicines (based on the example above; adjust your figures as necessary). Notice that quantities may vary slightly because QuanTB does not adjust for wastages and calculates needs until patient stops treatment. Use the higher number as the total pack size to procure.

18. Make additional upward or downward adjustments in the **Adjustment (% of quantity needed)** column.

19. Enter the **Pack price** for procurement.

20. Click on the **Final cost** tab to enter additional costs, such as shipping, insurance, etc.

ANNEX 4: REPORTING AN ERROR

If you receive an error message with an “Exception caught:” error, please let us know so that we can continuously improve QuanTB.

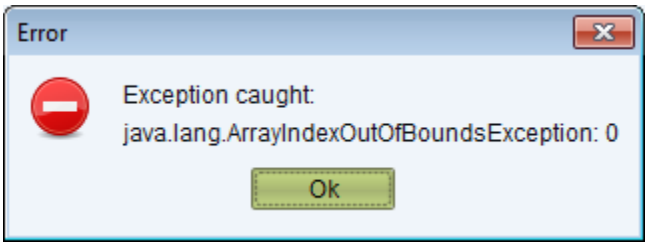


Figure 84

Report problems to quantb@msh.org with the following information:

1. A step-by-step list of what you were doing in QuanTB when you got the error.
2. A screen capture of the error message itself.
3. The log file that QuanTB creates automatically about the error. If you installed the software in the default location, the error file will be in C:\users*yourname*\QuanTB\data\log. The file name will contain the date of the error, e.g., 2014-02-20err.qtb.

Systems for Improved Access to Pharmaceuticals and Services
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA

Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Website: www.siapsprogram.org