QuanTB

User's Guide

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

QuanTB User's Guide

Version 5.0.0.0

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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

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CONTENTS

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. In addition, as treatment guidelines change, national programs must plan carefully for phasing in and out various regimens and 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, electronic tool that transforms simple data and assumptions and complicated calculations into a user-friendly dashboard displaying key forecasting and supply planning information. By alerting users to risks of stock outs, shortages or overstocks, QuanTB operates as an early warning mechanism.

QuanTB allows you to determine forecast and procurement requirements of tuberculosis medicines for any period of time.
Quantification can be done by:

- using multidrug or single drug regimens
- when using multidrug regimens, enrolled and expected cases by regimen can either be entered as monthly absolute numbers or as percentages of the total monthly numbers
- when using the single drug regimen, users can only enter percentages for each medicine and the total number of cases per month

For cases currently on treatment (as of the inventory date), QuanTB takes into account the month when treatment was started and the duration of regimen, in order to calculate requirements of to finish the full treatment The system also takes into account the medicines currently (as of the inventory date) in stock (stock on hand), and the medicines on order (stock on order) and expiry dates of the stock on hand and the stock on order (if entered for the stock on order) during the quantification period. This tool allows you to project your future procurement and budget needs, including freight and logistics costs.

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

Prerequisites for installation and use of QuanTB

Specific conditions need to be fulfilled for computers to be used for quantification of products using QuanTB and they include:

- CPU Intel I3 and above (it is possible to use less powerful CPU, however for own risk)
- System type shall be 64-bit operating system
- RAM 4Gb (minimum)
- HDD 10Gb free storage
- To install QuanTB, you must have the latest version of Java and the Java Development Kit (JDK) installed on your computer. Go to www.java.com to download updates if necessary. Your computer will prompt you to install the software if it is necessary.

In addition, basic knowledge/experience of using computers and excel is required to effectively use the tool and carry out a good quantification.

Note: QuanTB works with Microsoft office or MAC computers

First time Installation on a computer with Microsoft Office (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. Alternatively, the installation file link may be sent to you by another person through email.

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:

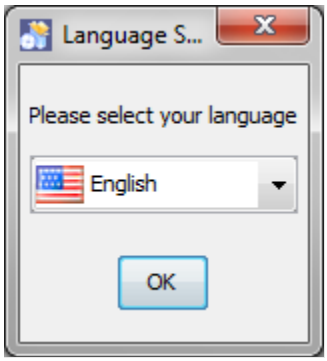


Figure 1

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.

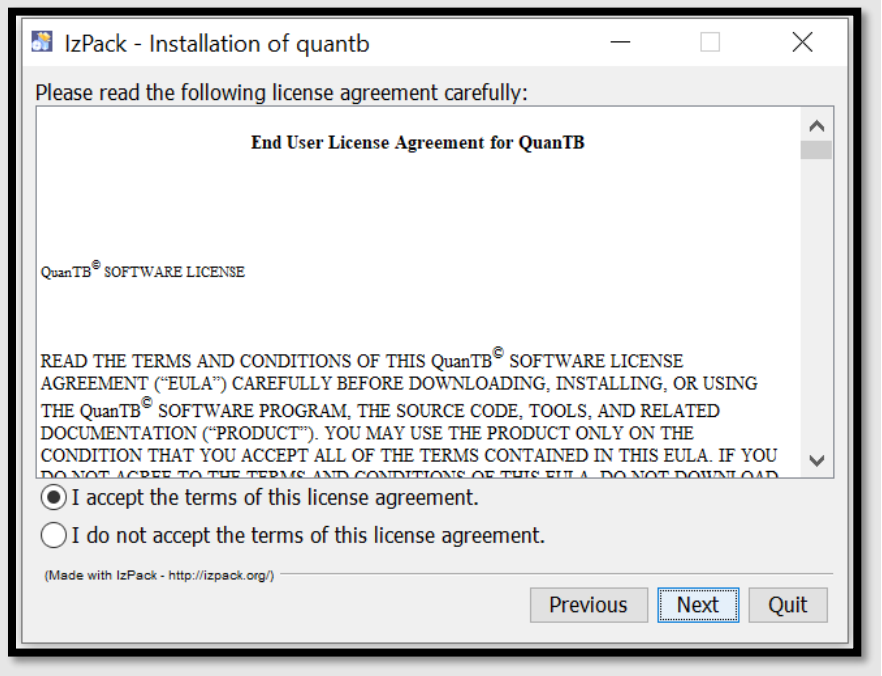


Figure 3

a) Enter an installation path for the software, as shown on the screen below and then click **Next**. You can change the directory/path if you wish to. We recommend accepting the default path that the program suggests. The major reasons to use the default directory are: a) the default directory makes is easy for anyone to identify where the files are saved – for example if the user forgets where the documents are saved
b) if users save the folder in the desktop, he/she may delete it inadvertently, installing the program in default directory can avoid accidental deletion

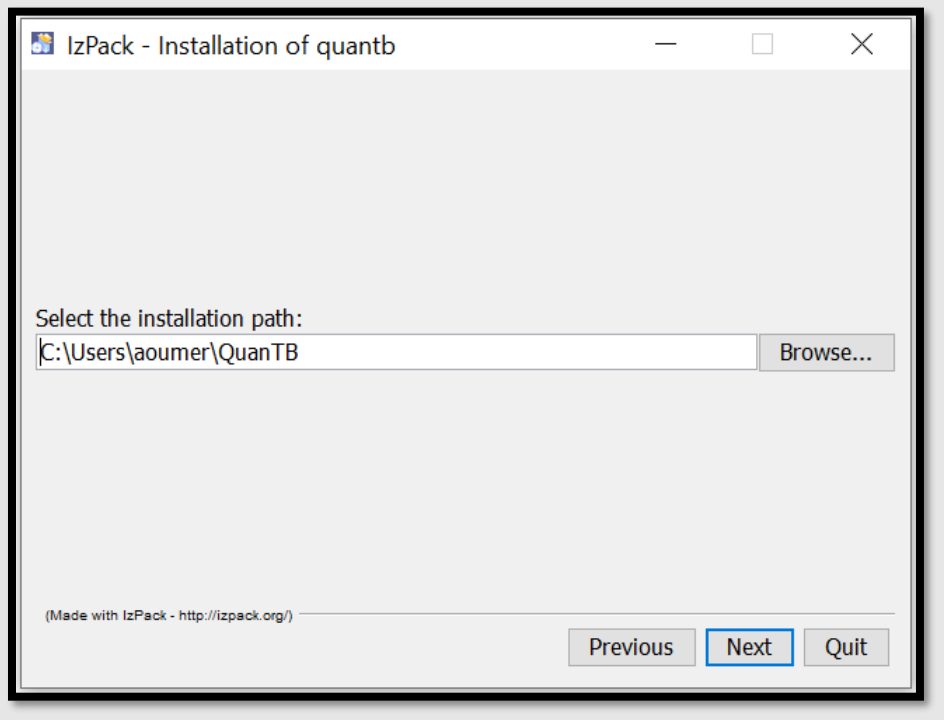


Figure 4

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

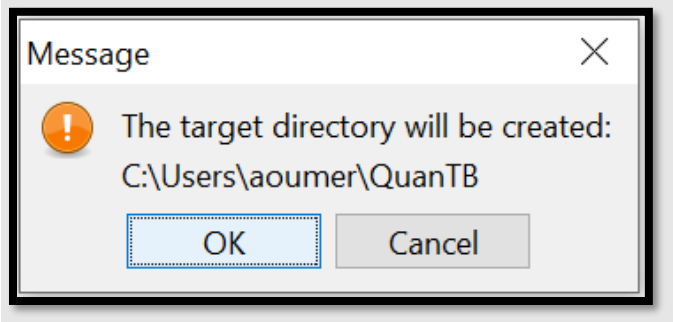


Figure 5

7. 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 and have 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 this is the first time you are installing QuanTB, we recommend keeping all of the boxes checked. Click **Next** to continue.

Note: If you are reinstalling the software after customizing the medicines, regimens, or quantifications, please read the Upgrading or Reinstalling QuanTB section of this guide to learn how to protect your existing medicines and regimens lists.

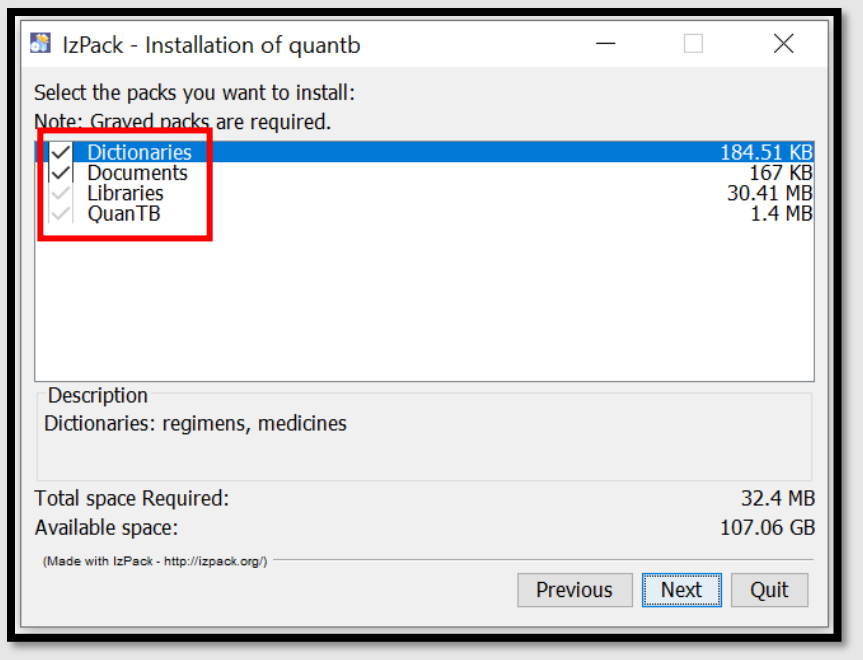


Figure 6

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

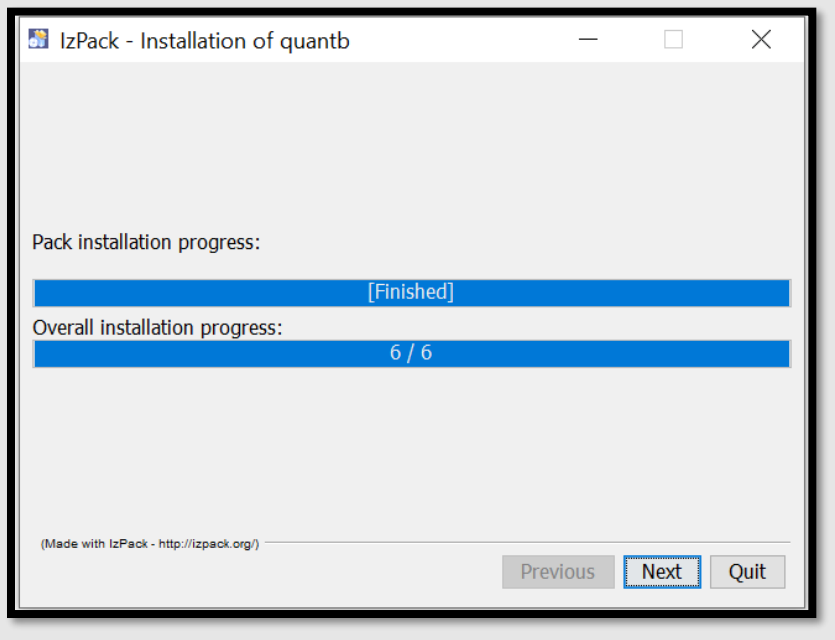


Figure 7

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

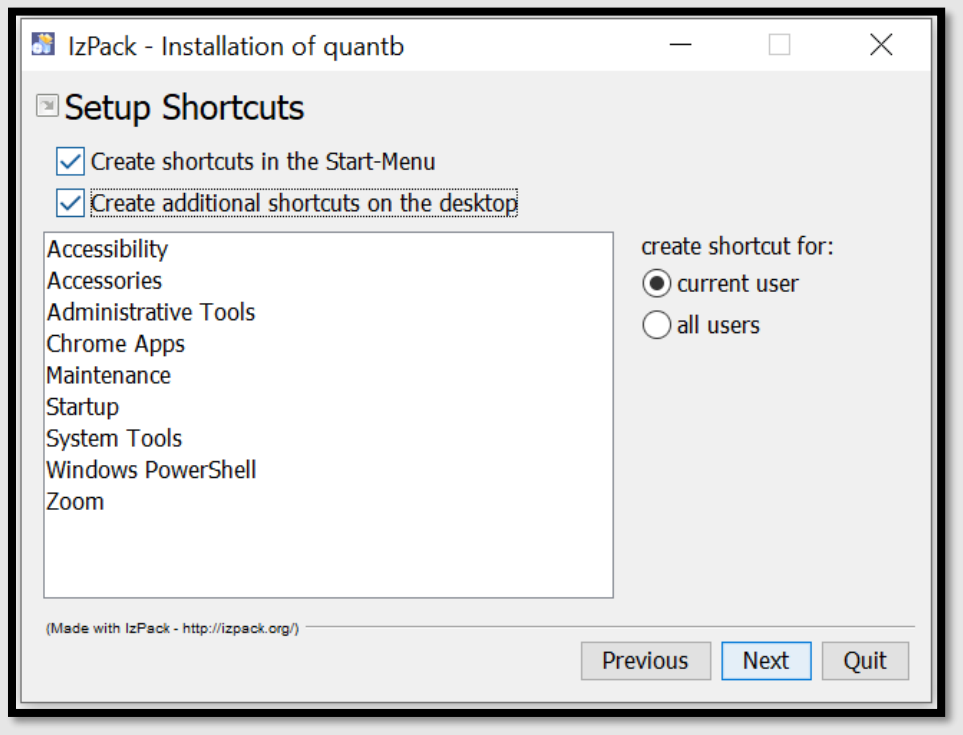
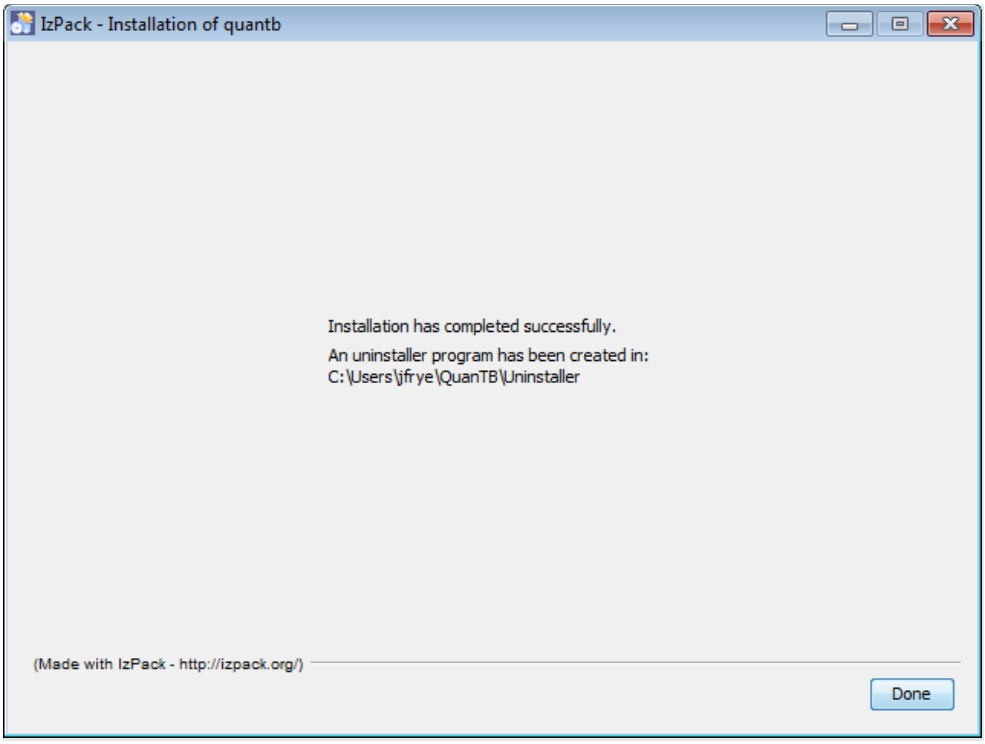


Figure 8

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



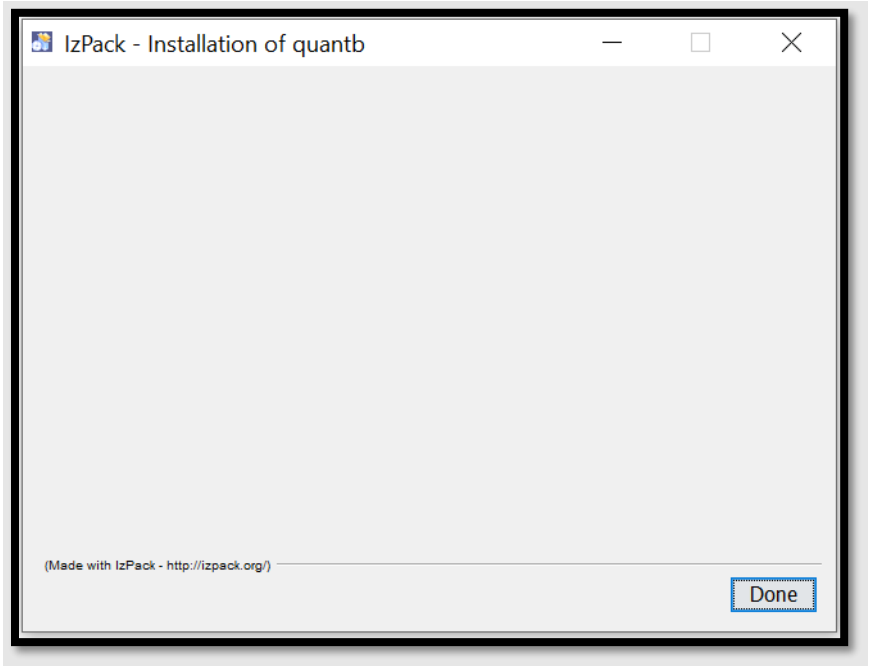


Figure 9

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.

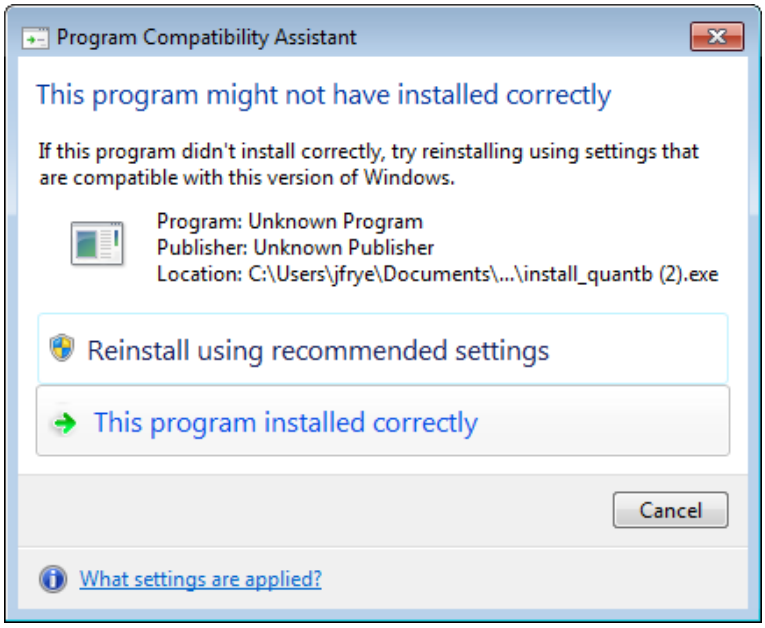


Figure 10

Note: As with any software, you should back up your data on a regular basis. If you used the default installation and QuanTB file saving 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.

First time 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. Alternatively, the installation file link may be sent to you by another person through email.

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 **QuanTBforMacintosh.jar** file to run it.

4. If you downloaded the installation file from the Website, 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.

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

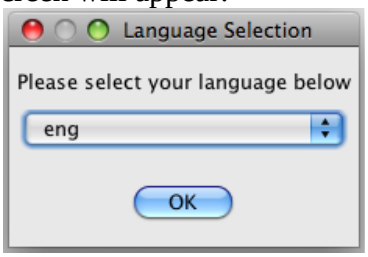


Figure 11

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

Figure 12

7. 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.

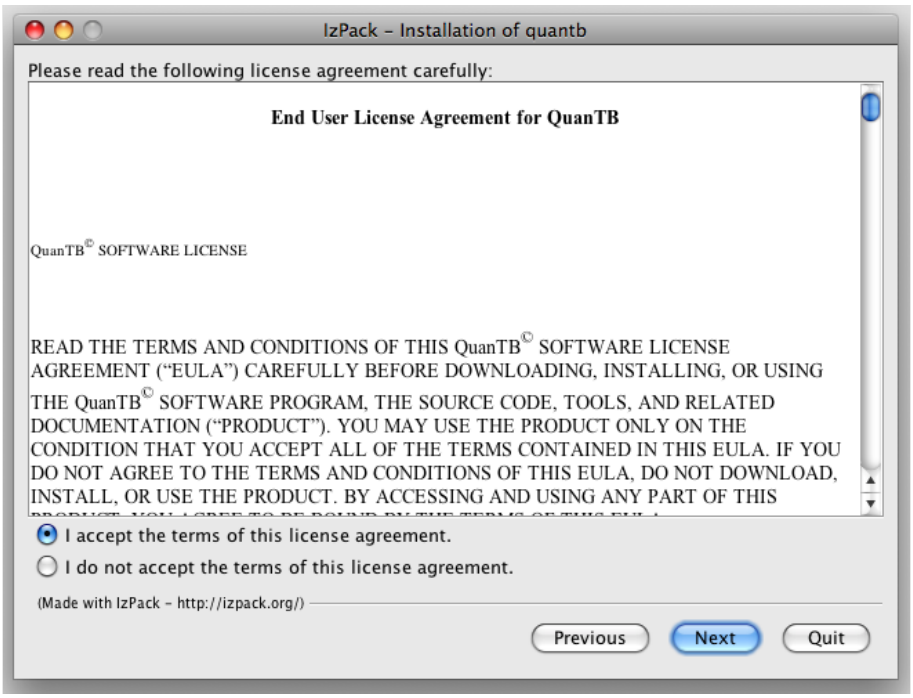


Figure 13

8. Enter an installation path for the software, as shown on the screen below and then click **Next**. You can change the directory/path if you wish to. We recommend accepting the Applications default path that the program suggests.

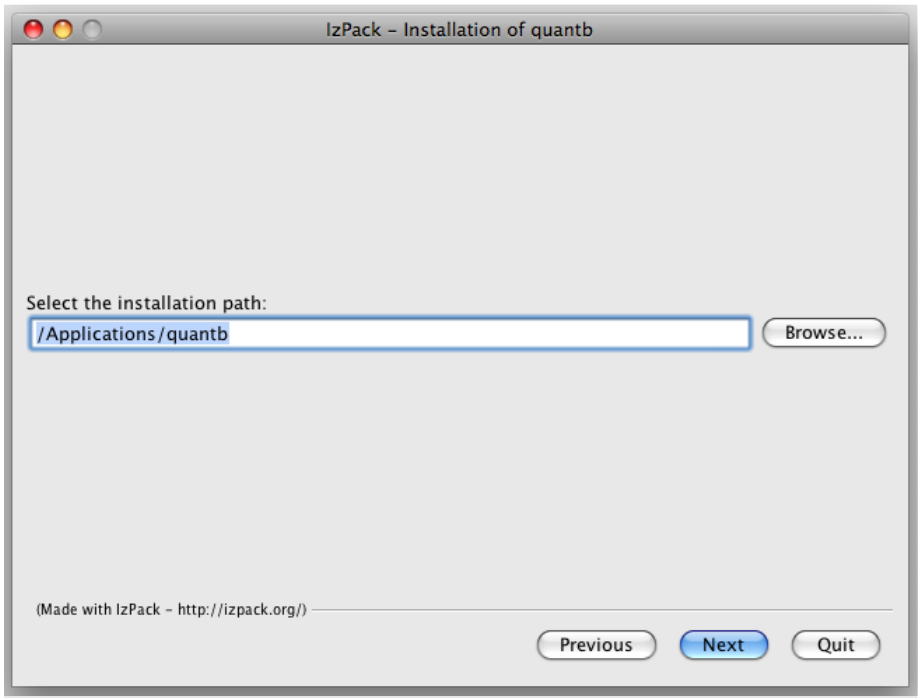


Figure 14

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

Figure 15

10. 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). QuanTB also has some "fictitious" quantifications for training/exercise purposes in the "documents" folder.

    If this is the first time you are installing QuanTB, you need to keep all of the boxes checked. Click **Next** to continue.

    Note: If you are reinstalling the software after customizing the medicines, regimens, or quantifications, please read the Upgrading or Reinstalling QuanTB section of this guide to learn how to protect your existing medicines and regimens lists.

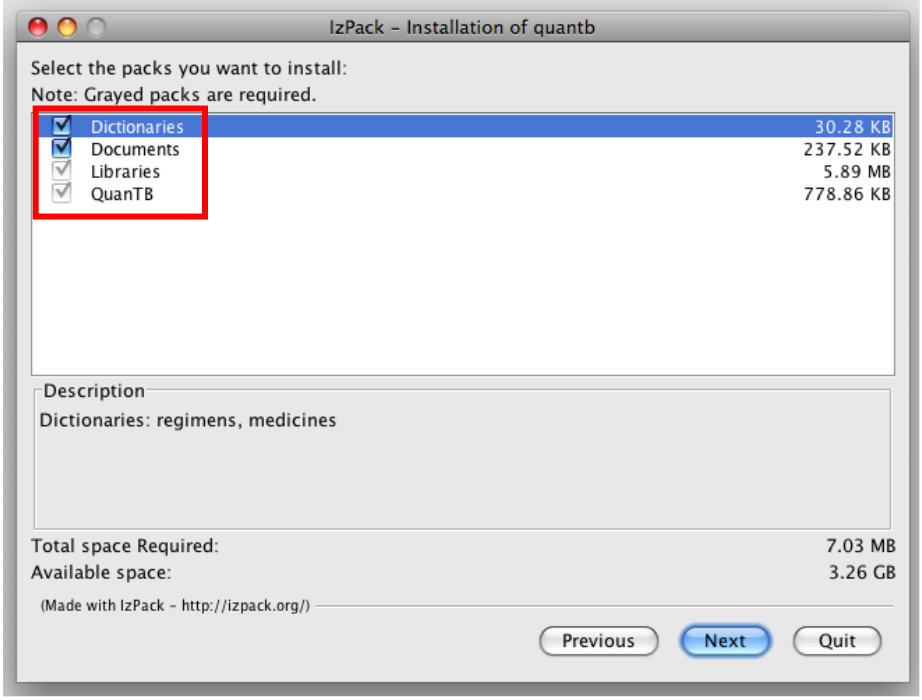


Figure 16

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

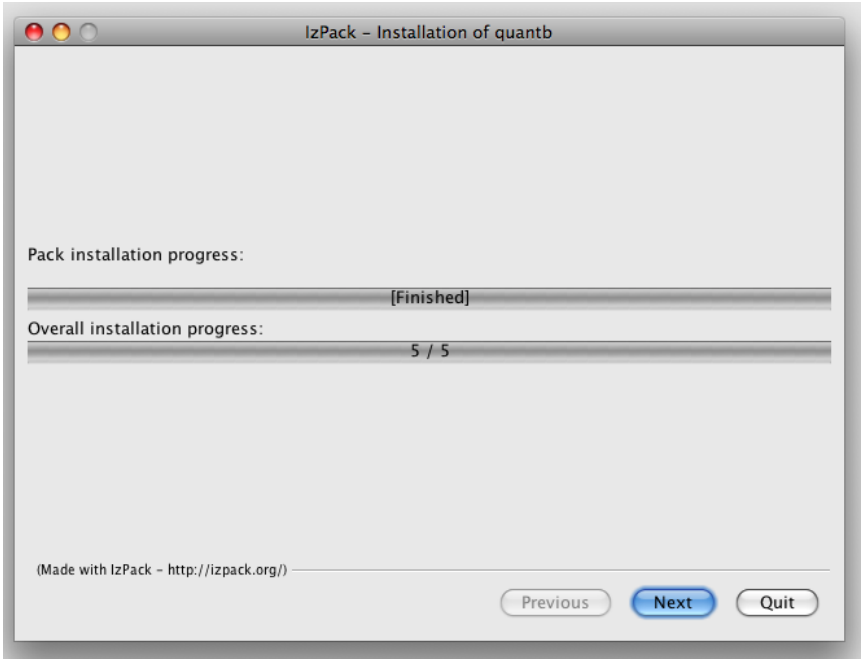


Figure 17

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

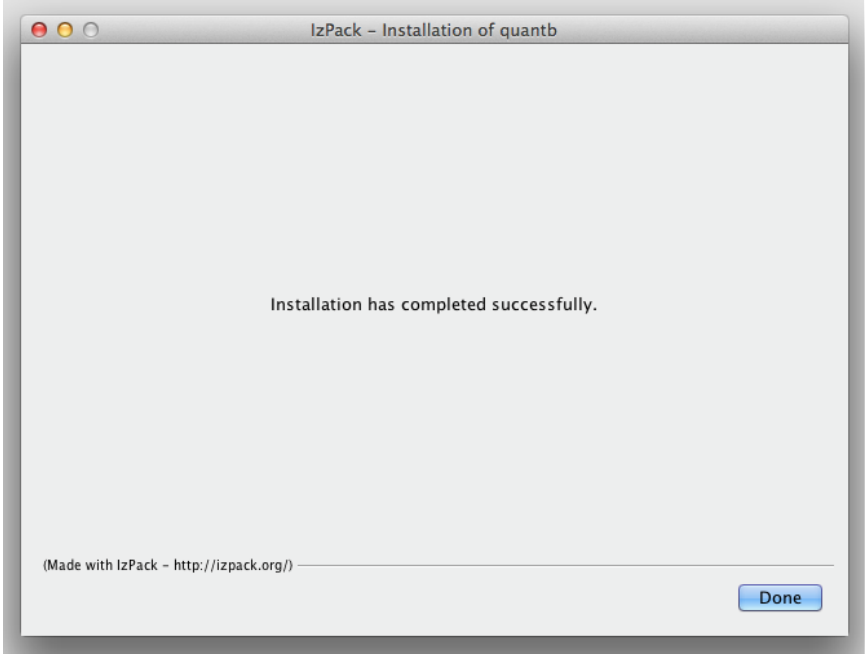


Figure 18

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

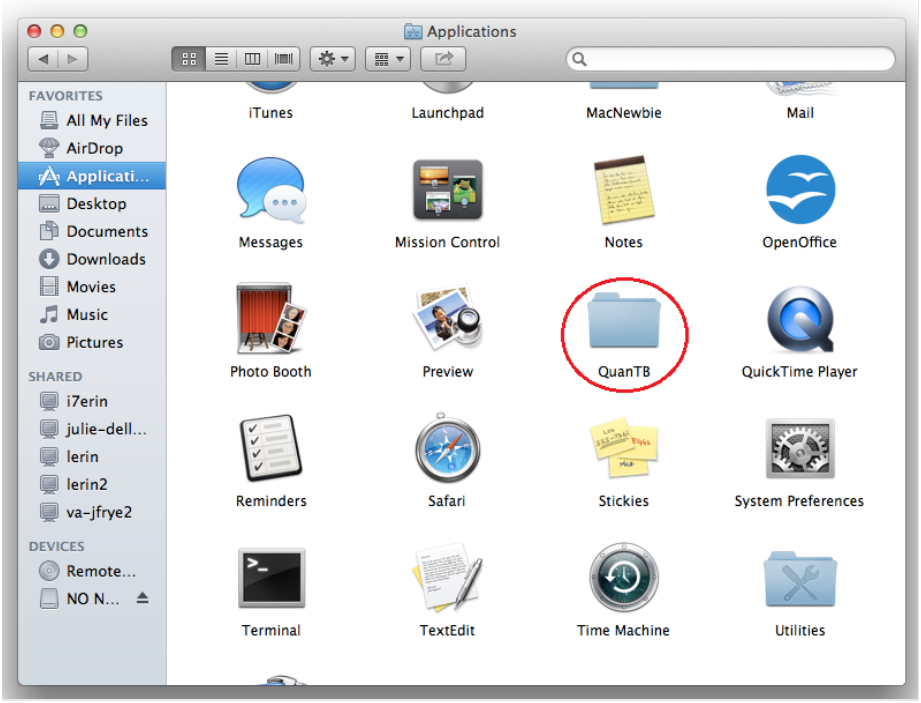


Figure 19

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

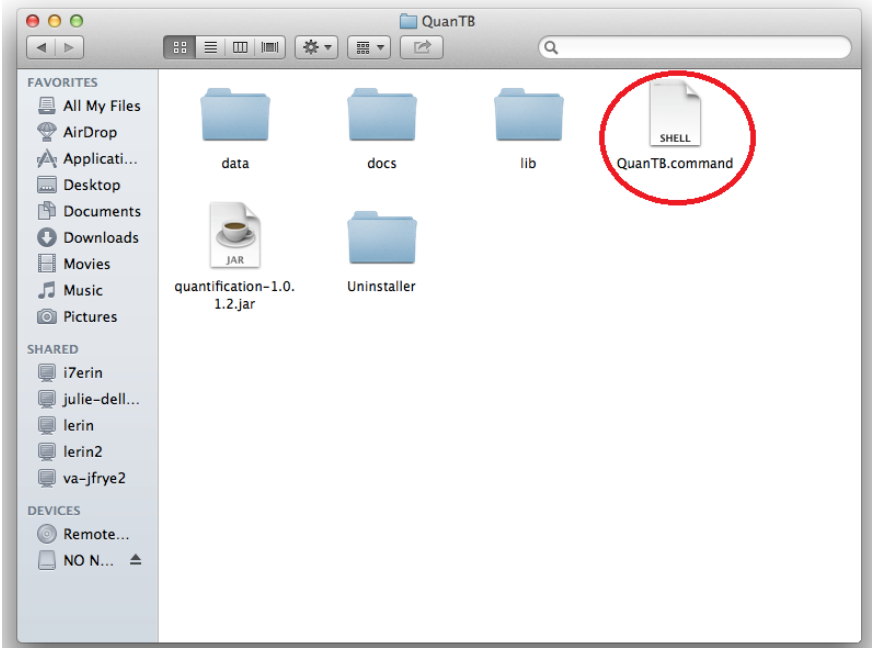


Figure 20

Note: As with any software, you should back up your data on a regular basis. If you used the default installation and QuanTB file saving 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, or after adding your own medicines and regimens, 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:

- 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 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

1. If you already have QuanTB installed on your computer with the same directory and name, and you want to update it with a new version, QuanTB will alert you that the directory already exists and if it should overwrite the old version, Click **YES** to proceed.

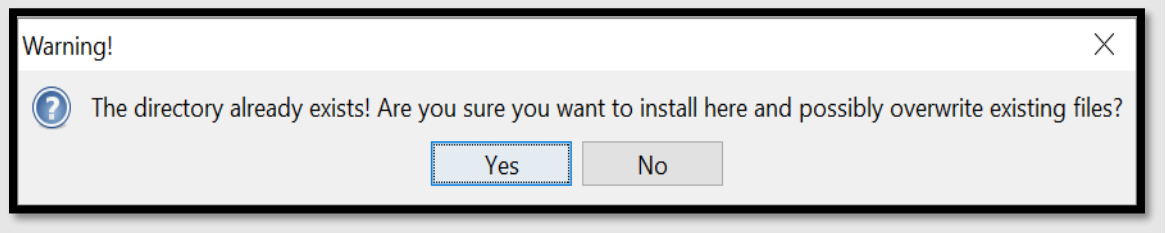


Figure 21

2. If you already have QuanTB installed in the same location and with the same name, and the dictionary and document boxes are checked, the system will warn you that you will overwrite files, the medicines and regimens dictionary and the fictitious files. Click YES to overwrite and proceed. An example for one of the files is shown below. Select NO if you want to keep dictionaries or fictitious files from the old version.

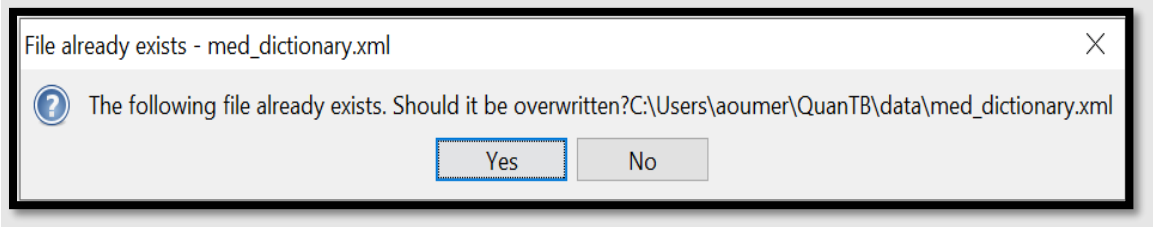


Figure 21

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

You may need to keep the medicines and regimen lists (dictionaries) that you had from the previous version of QuanTB, for example, if you have customized the dictionaries for your own context, when you are running the installation program, uncheck the dictionaries box (Figure 6 or 16) to preserve the dictionaries. 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. The updates you need to do are:

- For the medicines list, go to each medicine and select the dosage form and category 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.

In addition, QuanTB files that are created with a later version of QuanTB software may not be compatible with earlier versions of QuanTB. For example, if you have QuanTB version 4.2 on your computer and if someone that has the newer version of QuanTB (5) creates a QuanTB file and sends it to you, you may not be able to open or edit the QuanTB file. For this and other reasons related to continuous improvement of the software, it is recommended that all users of QuanTB update the software whenever a new version is released.

Note that QuanTB files that are created with earlier versions of QuanTB software, such as version 4.2, can be opened, viewed and edited using a later version such as 5.

UNINSTALLING QuanTB

If you want to remove the QuanTB software from your computer completely, you can do it in two ways:

1- Deleting the QuanTB installed folder from the C drive
   a. Locate the QuanTB folder you have installed to your computer. If you have used the default, the directory is **C:/Users/YOUR NAME/QuanTB**
   b. Select the folder "QuanTB" and delete it just like you delete any folder or file from your computer

Note: This will remove all of you QuanTB files created by you and saved in the QuanTB/docs folder. If you want to keep those, you need to make a copy and save them somewhere else before you start to uninstall QuanTB.

2- Using the uninstaller
   a. Locate the QuanTB folder you have installed to your computer. If you have used the default, the directory is **C/Users/ "YOUR NAME"/QuanTB**
   b. In the QuanTB folder, click and open the folder called "Uninstaller"

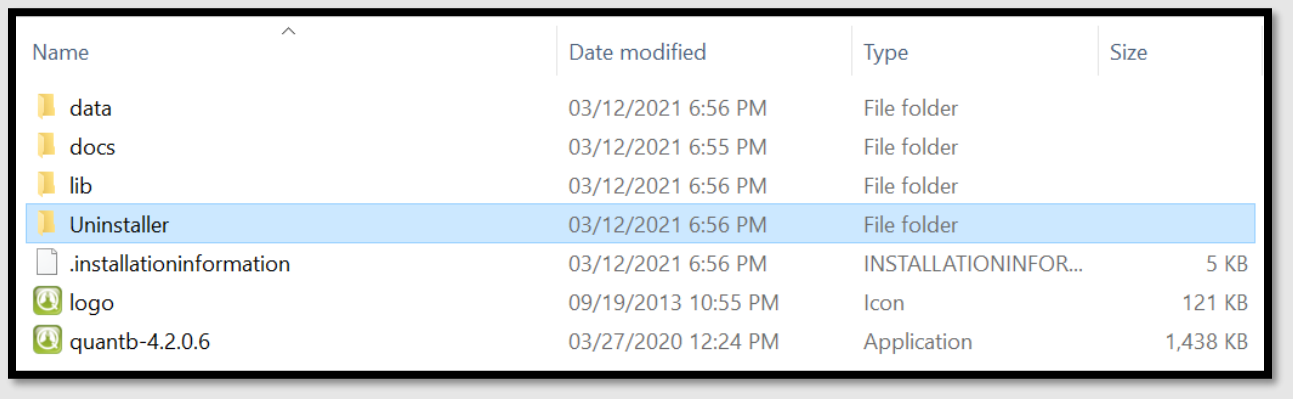


Figure 22

   c. Open the "Uninstaller" folder, and double click on the JAVA file called "Uninstaller", that is the only file in the folder

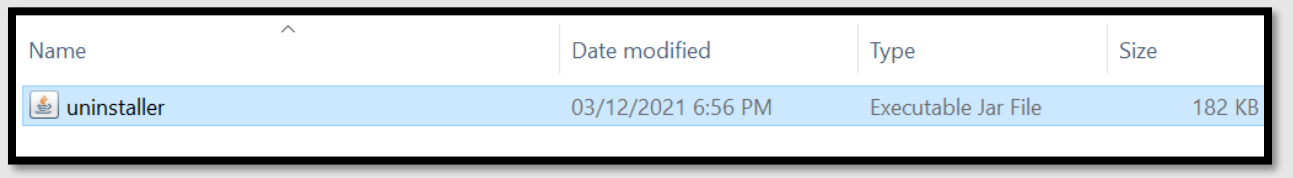


Figure 23

d. Check the box that asks to force deletion of the QuanTB folder and click on uninstall

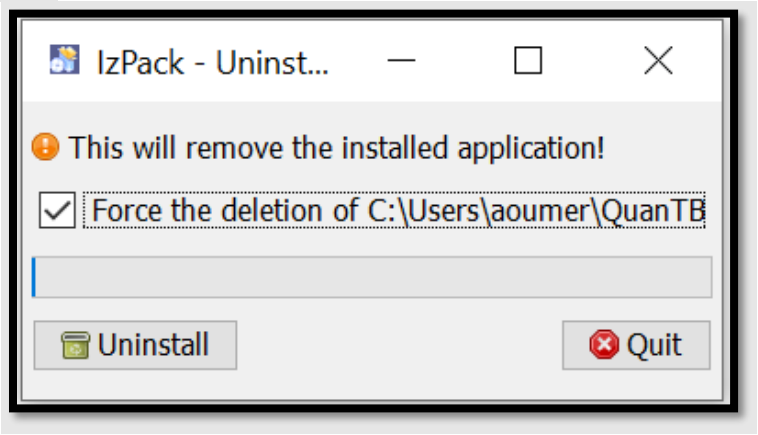


Figure 24

3- Close the window by clicking on the "X"/close window button, once the uninstallation is finished.

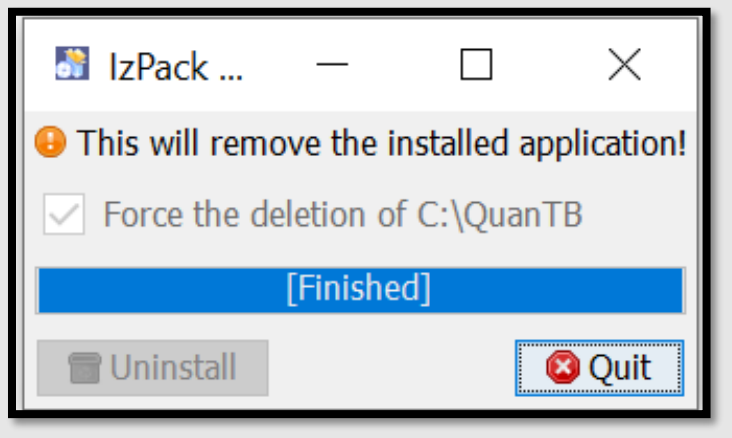


Figure 25

Note: This will remove all of your QuanTB files created by you and saved in the QuanTB/docs folder. If you want to keep those, you need to make a copy and save them somewhere else before you start to uninstall QuanTB.

CUSTOMIZING QuanTB

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 or editing the existing ones to customize them to your context.

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.

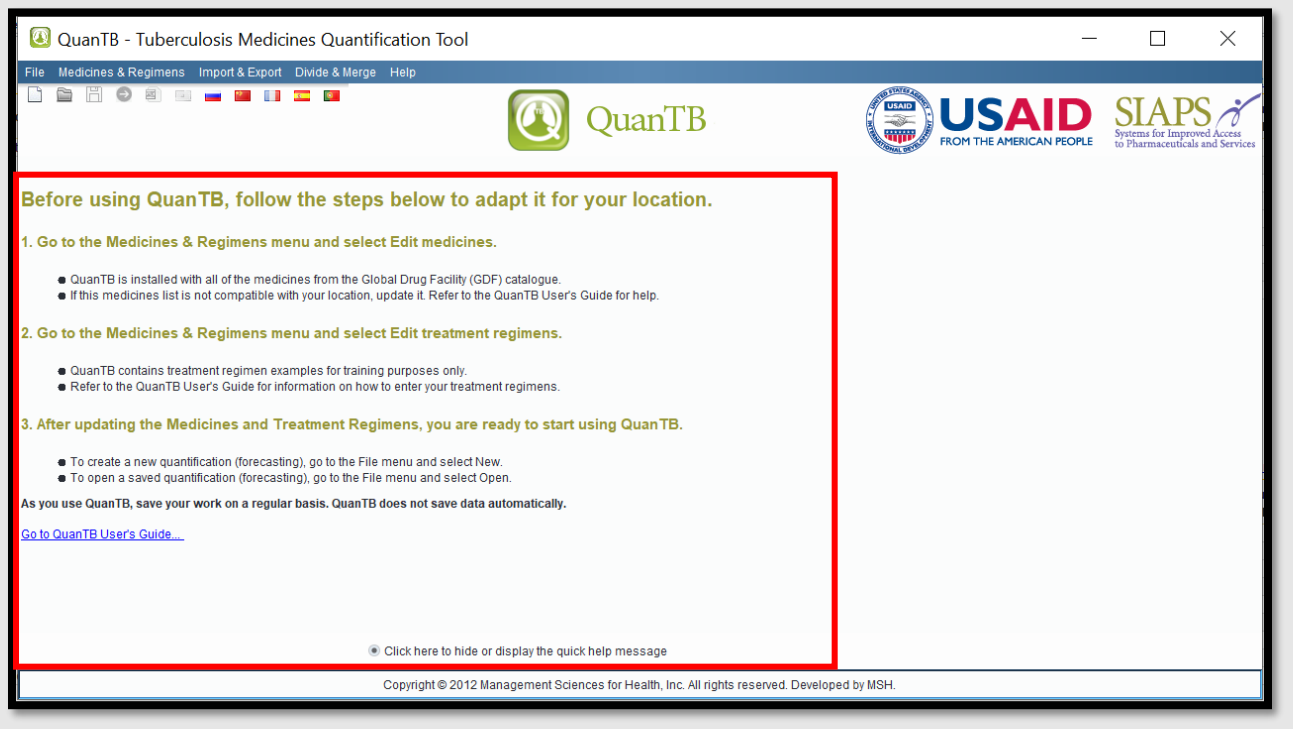


Figure 26

Modifying the medicines list

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

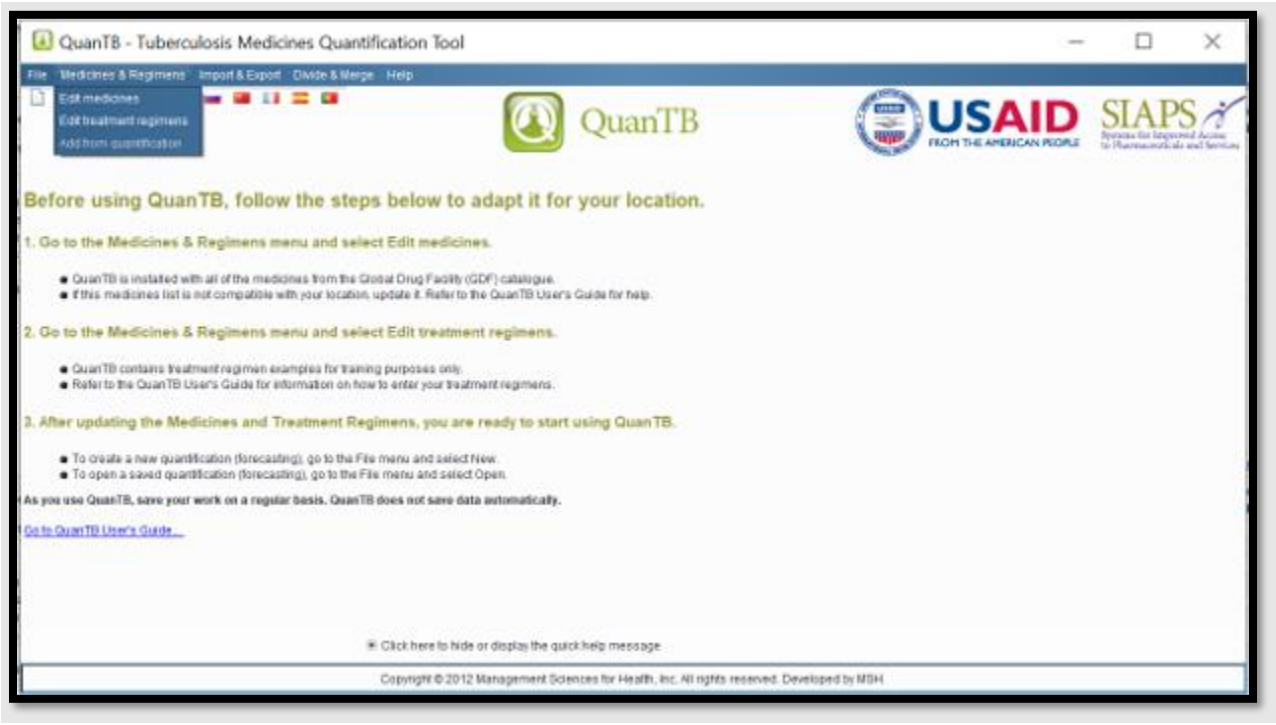


Figure 27

2. QuanTB is installed with all of the medicines from the Global Drug Facility (GDF) catalogue; however, users need to customize the medicines to their context as needed or add new ones. To add medicines to 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 could be "First-Line," "Second-Line (group A)," etc. and is selected from the dropdown window. Click on the **Save** button to confirm adding your new medicine or click on **Cancel** to undo it.

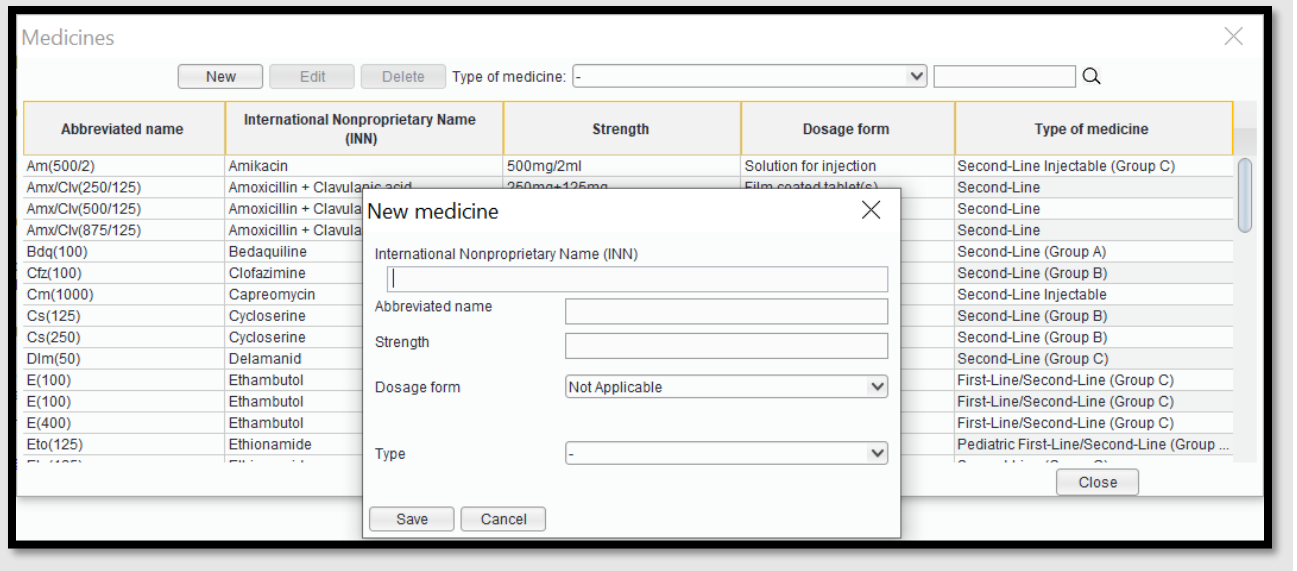


Figure 28

Note: 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 another 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/edit or delete medicines on the list, click on the medicine you want to edit or delete 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 option and select the **Edit Treatment regimens** option.

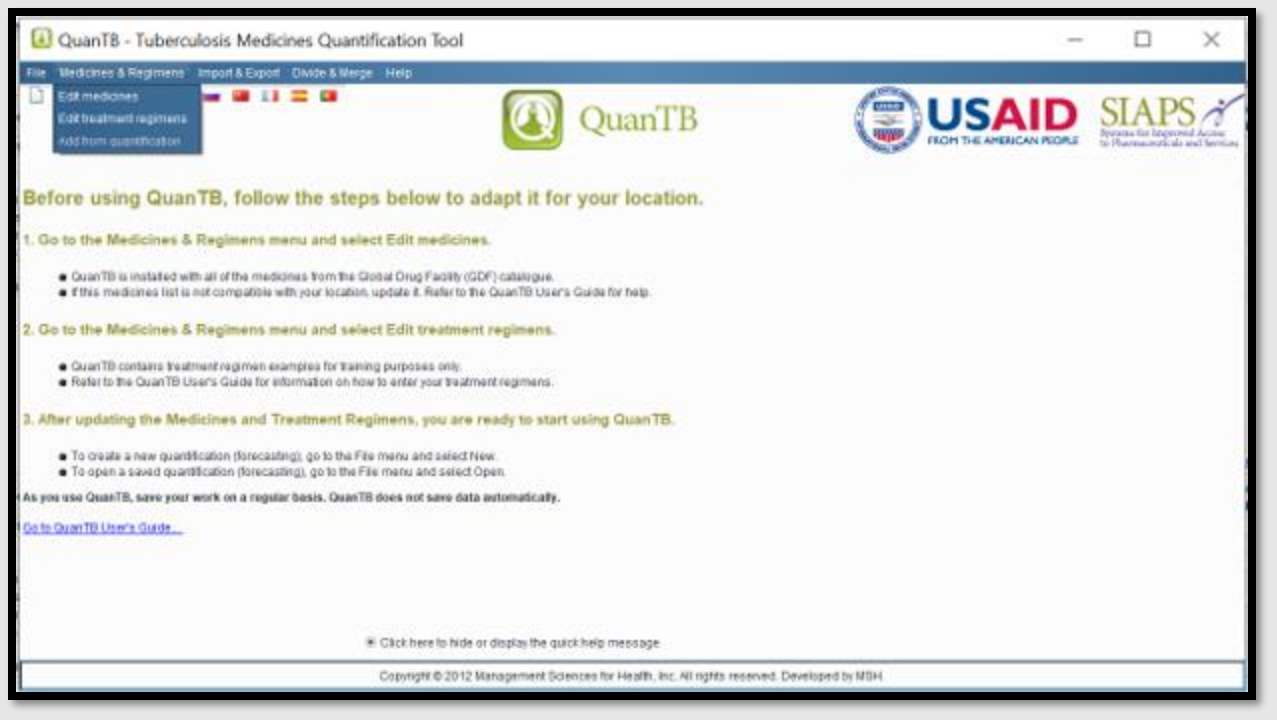


Figure 29

2. The tool already contains treatment regimens based on the latest WHO recommendations; however, users need to customize the regimens to their context as needed or add new ones. To create a regimen, select Multidrug or Single-drug in the dropdown window, and then click on the **New** button.

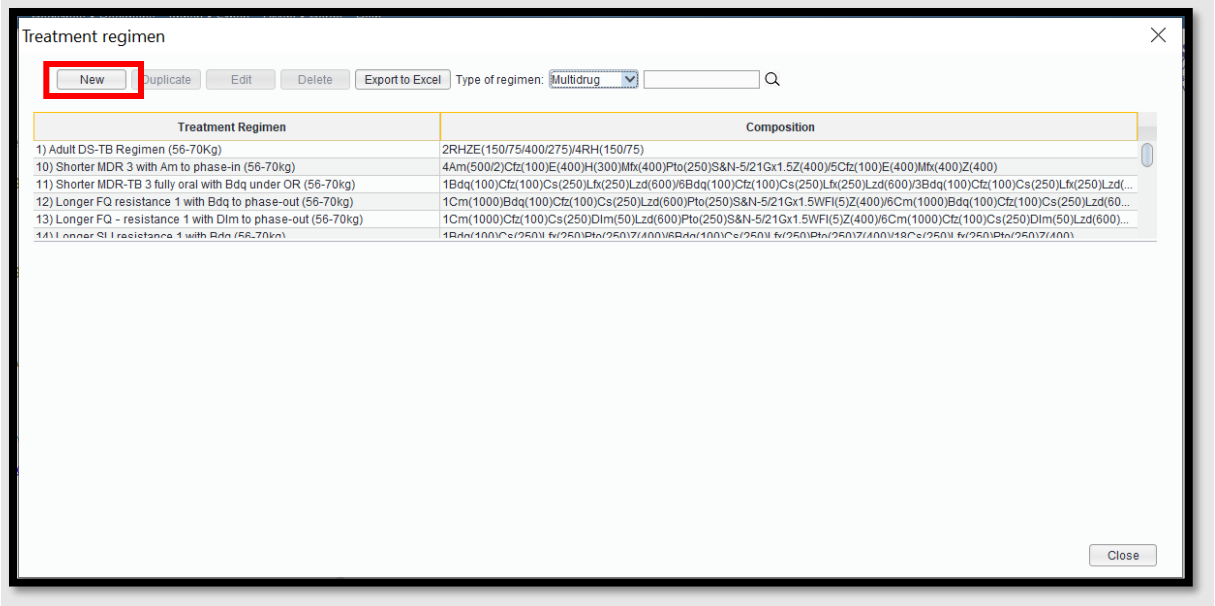


Figure 30

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: multi-drug 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.

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, later. You may modify it after the regimen is created, if you wish.

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.

You may add up to 10 phases for each regimen and have a duration of weeks or months for each phase.

While you are on 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 the duration of the phase in weeks or months.

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

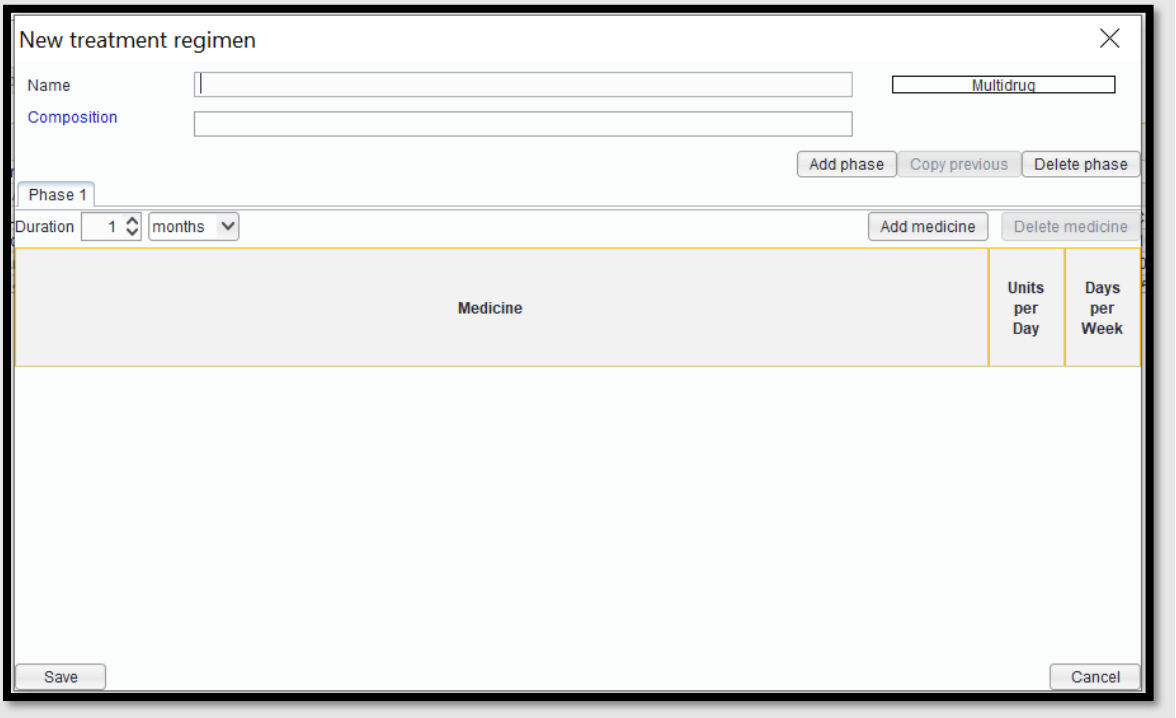


Figure 31

If you have more than one phase for the regimen you are adding, 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 medicines and dosage 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.

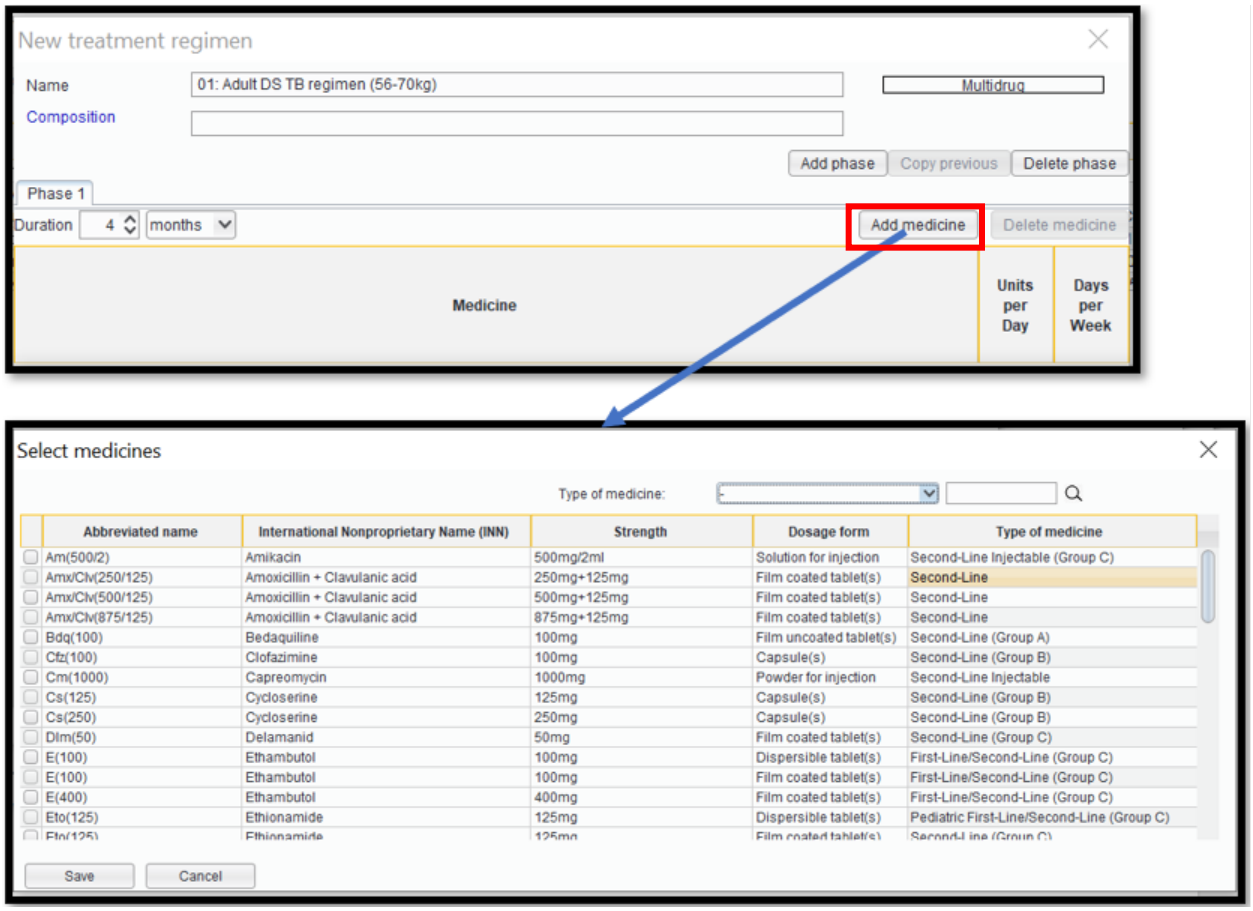


Figure 32

4. After adding medicines in the relevant number of phases and entering information on the **Phase Duration (weeks or months)**, **Units per Day**, 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, automatically, based on the information you enter.

   The first number in the Composition field displays the number of months of the first phase of the regimen. After each phase of the regimen (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, for each phase. When phases have durations in weeks, the weeks are converted to months in the Composition field.

Note: In keeping with international standards and for accurate calculations, all medicines in a phase have the same duration, i.e., durations of treatment are defined for each phase and all medicines in each phase will have the same duration.

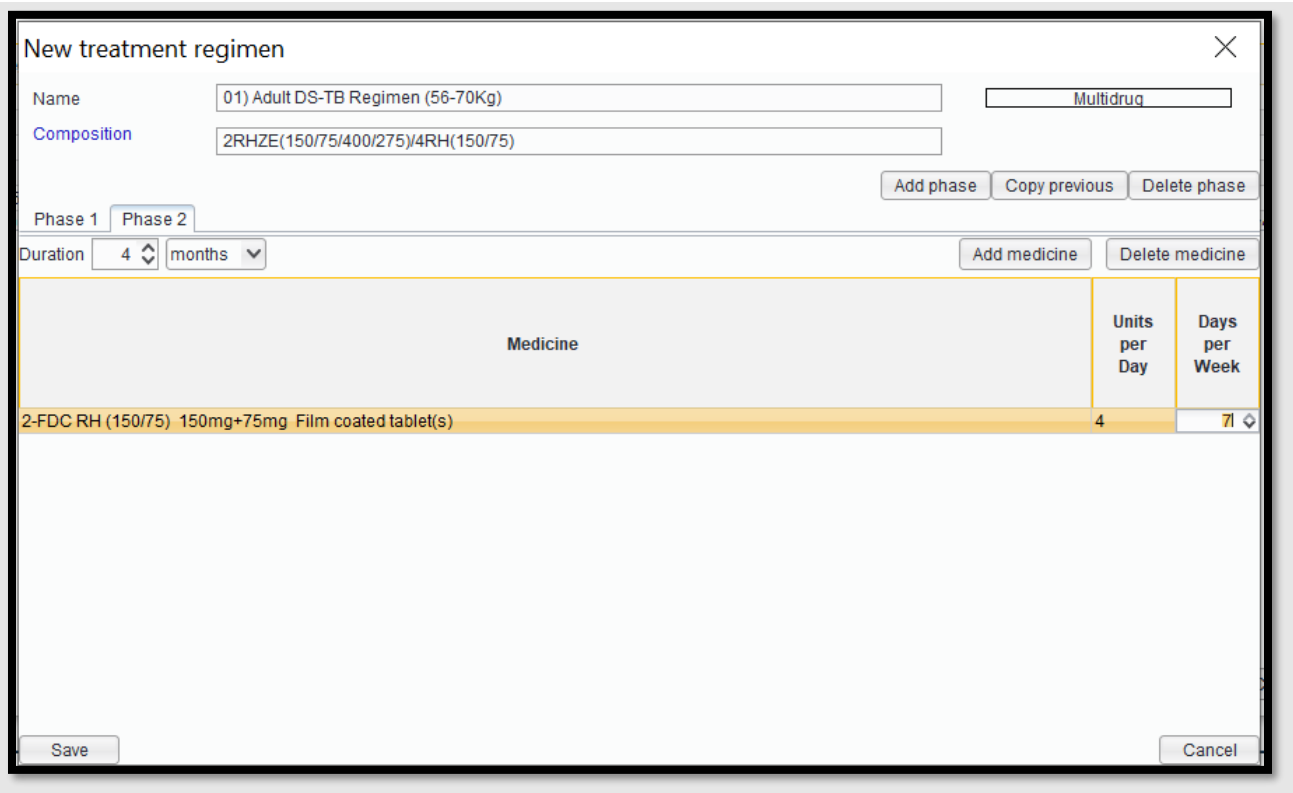


Figure 33

5. To modify/edit an existing treatment regimen, select the regimen you want to change and click on the **Edit** button. In the Edit treatment regimen screen that appears (below), you can edit name of the regimen, phase numbers and durations, and dosage of each medicine. You cannot edit medicines, if you want to change medicines, you need to delete the one you want to replace with a new one and add the correct one from the list.

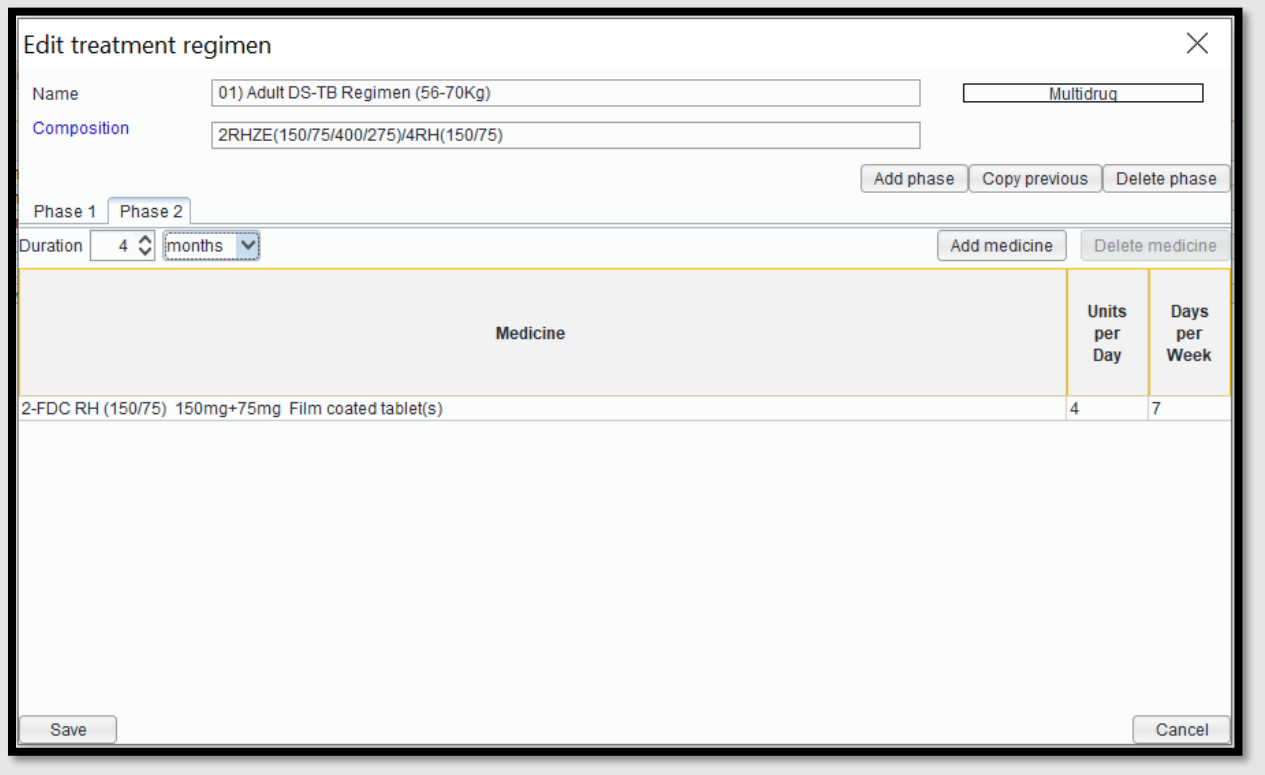


Figure 34

6. 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. When you delete a medicine, it is not only the medicine name that is deleted, information on units per day and number of treatment days per week are also deleted along with it.

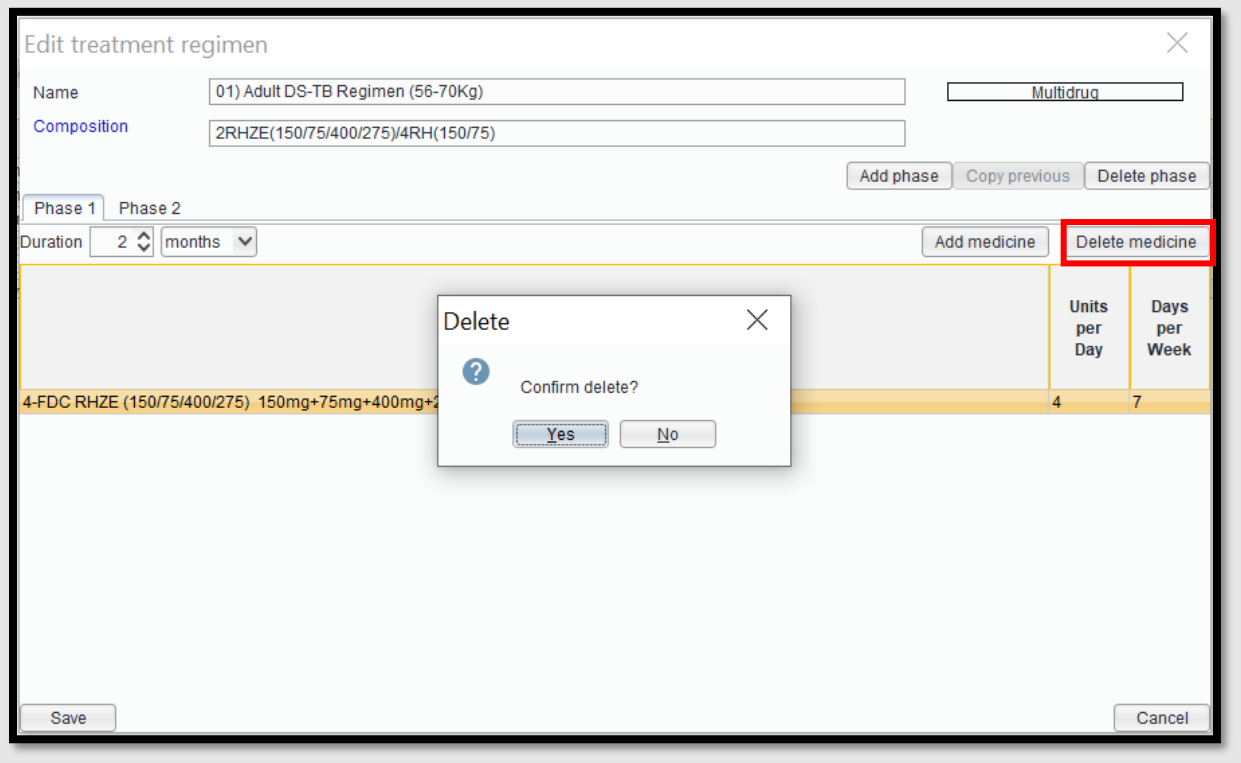


Figure 35

7. 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.

8. To delete recorded treatment regimens, select the 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.

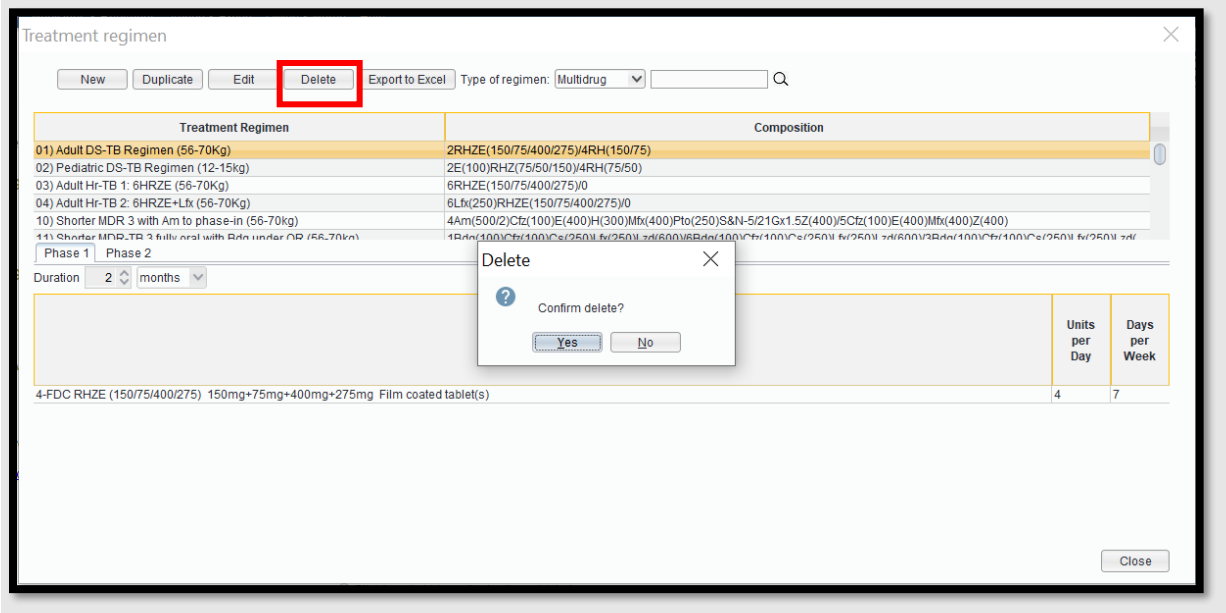


Figure 36

9. When creating new multidrug or single-drug regimens, you may duplicate an existing regimen and edit it. The regimen you want to duplicate must be selected first, then 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 or edit it as described above.

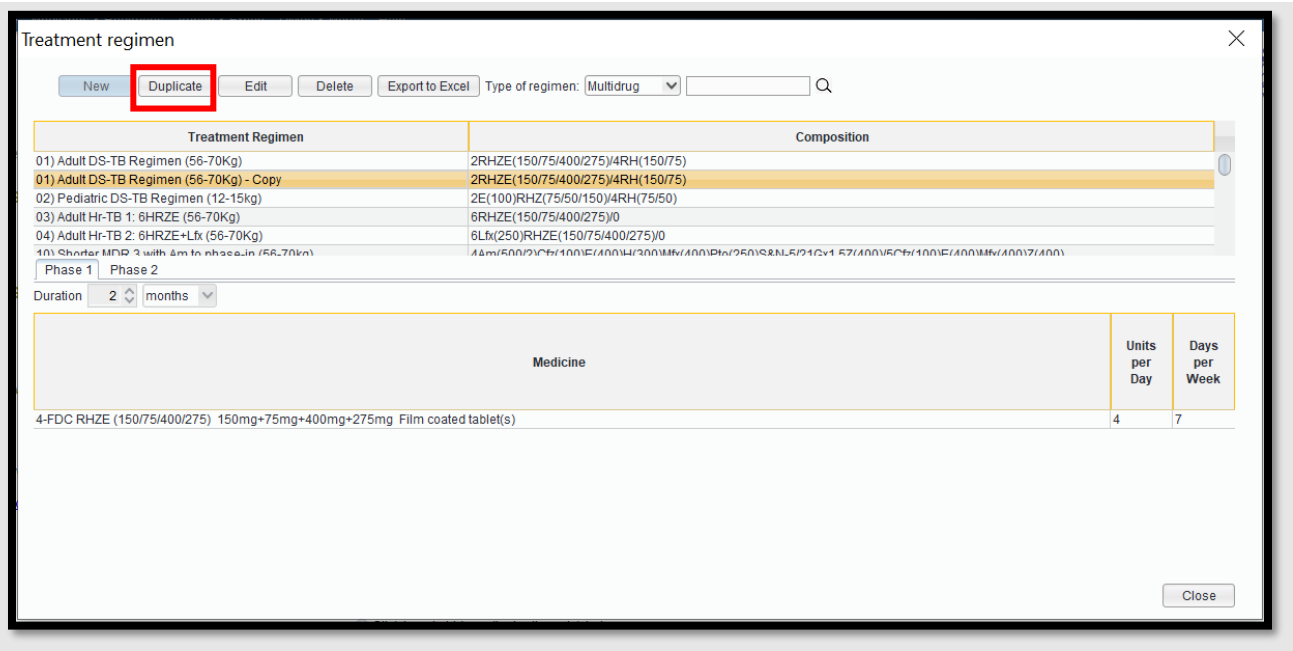


Figure 37

Note: You can generate the details of all the regimens in your QuanTB system by clicking on **Export to Excel** button in the treatment regimen window (see figure 41 above) in order to review all the regimens in your QuanTB regimens dictionary and identify any issues that may need to be changed.

10. 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**.

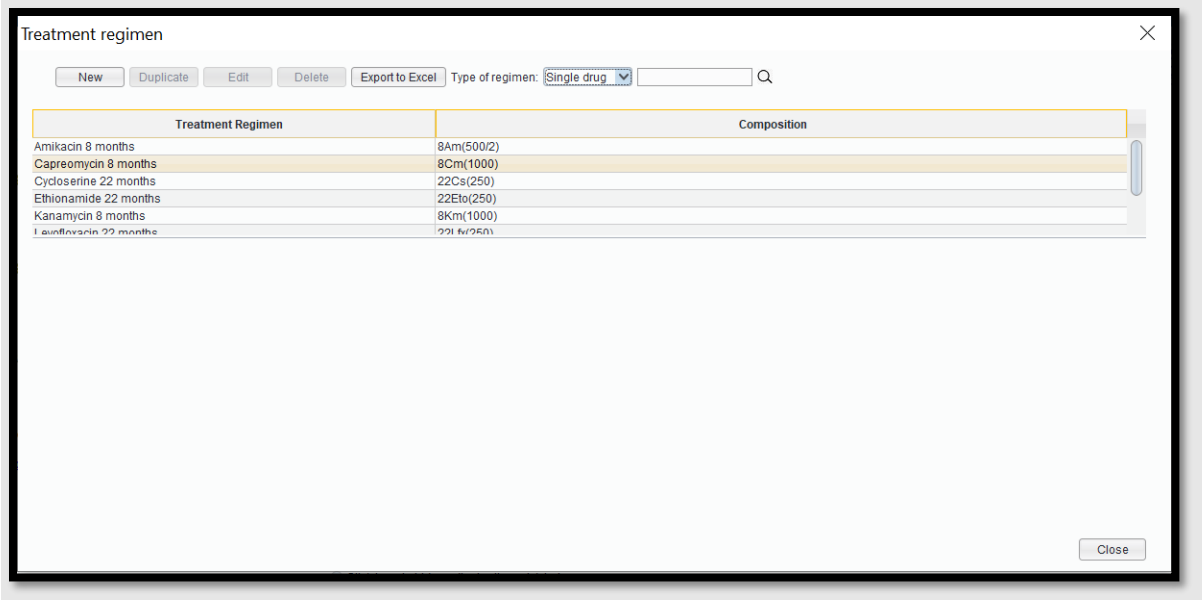


Figure 38

11. Enter the **Name** of the treatment regimen, the generic name of the medicines to be used for the regimen and duration of treatment in months or weeks, 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.

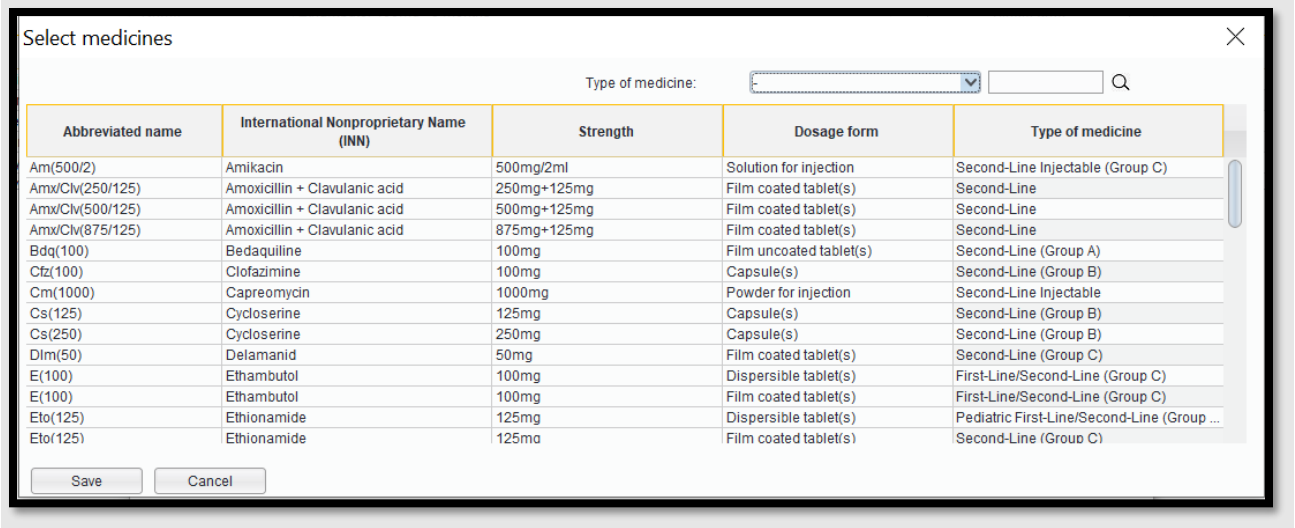


Figure 43

12. On the **New treatment regimen** screen, enter the **Duration of treatment for phases (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 composition to see the composition of the regimen, then click on the **Save** button to confirm or on the **Cancel** button to undo it.

Note: If you would like to change the medicine you have already added to the single-drug regimen, simply click on the Set Medicine button again and select the correct medicine; the medicine that you would like to replace will automatically disappear and be replaced by the new one.

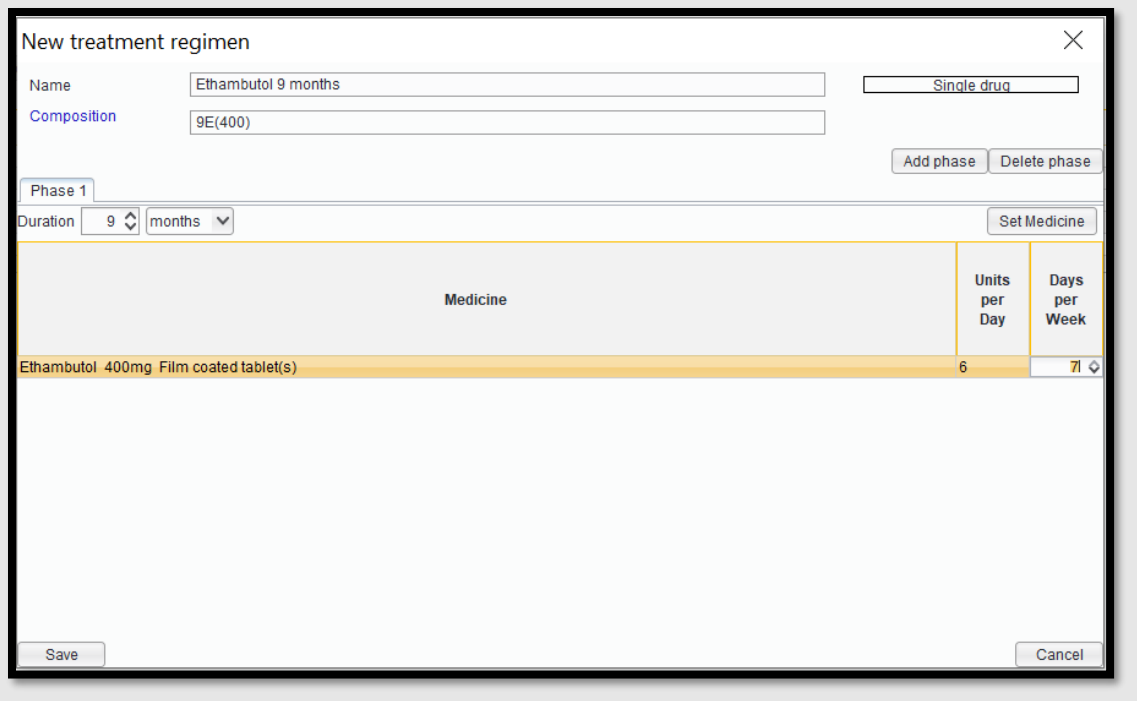


Figure 44

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 flags, you can see the name of the language that each of them represent. 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 45

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, for example comments) 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, if necessary. 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.

Adding 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 quantify for from the list. All fields must be filled out. See the explanation below about the fields in the **New quantification** dialog box.

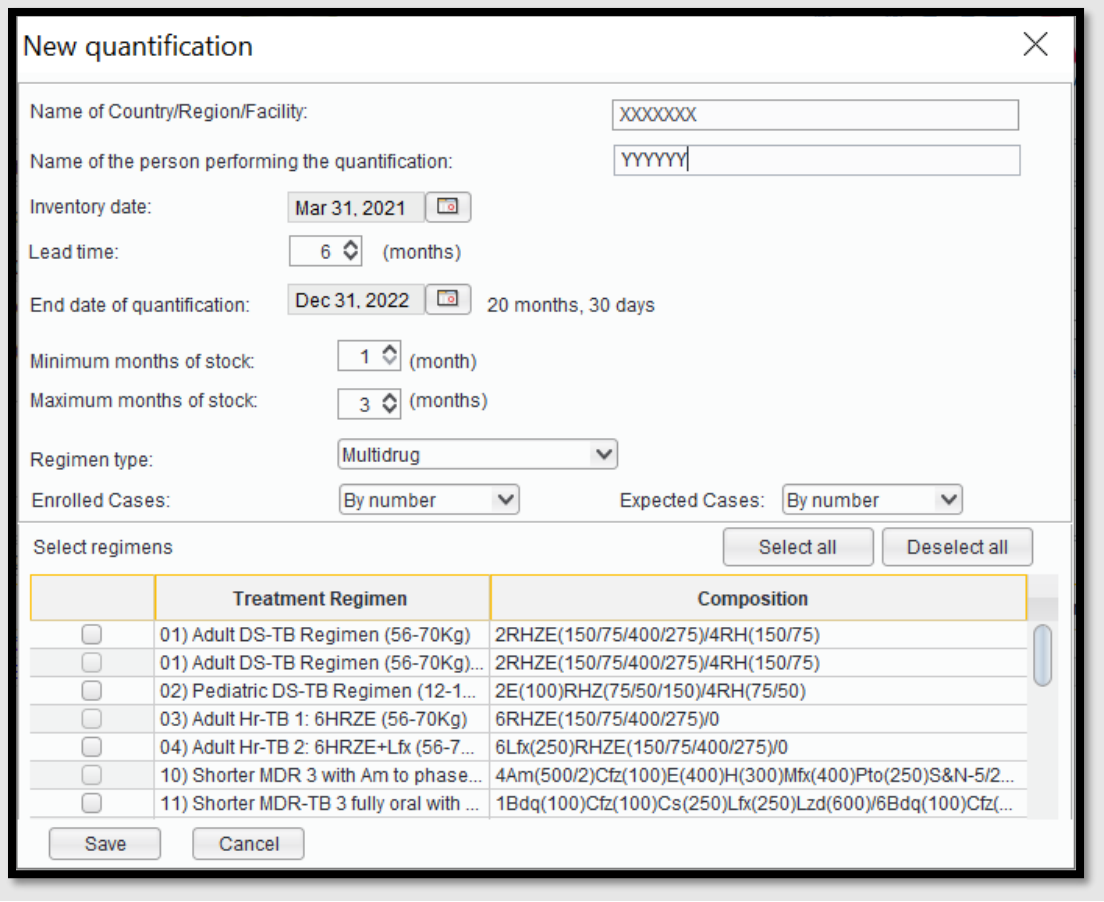


Figure 46

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. In practice, you may indicate few names

here who have been involved in the development and review of the quantification. A contact number or email address is also helpful for future reference and clarifications.

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 cannot move it forward. The inventory date should be thedate you counted the stock information you are entering, so an inventory date in the future will not have correct inventory information. The quantification begins one 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. The dates for ordering and receiving stocks of medicines are determined based on the 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.

Note: If the remaining period of time to reach the minimum months of stock is shorter than the set lead time, QuanTB recommends emergency/accelerated orders.

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. They are used to set the range of months on the dashboard. QuanTB does not allow you to make the minimum months of stock 0, it has to be at least 1 month, and the maximum stock level should be greater than the minimum stock level in months. The value you enter for the minimum stock level in months affects the quantity to order. QuanTB calculates and recommends quantities of each medicine to be received just before the stock level of the medicines goes below the minimum stock level, in so doing QuanTB helps to maintain at least the minimum stock levels at any time during the quantification period.

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 quantify for.

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, or select single-drug regimens. 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, and whenever possible, 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. If you **Click** on the **Cancel** button, you will close the dialog box and all entered information will be lost.

It is important to understand that the calculations in QuanTB assume 100% treatment adherence, that is, all patients receive all doses of all medicines and no one is lost to follow-up or no treatment interruption. 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.

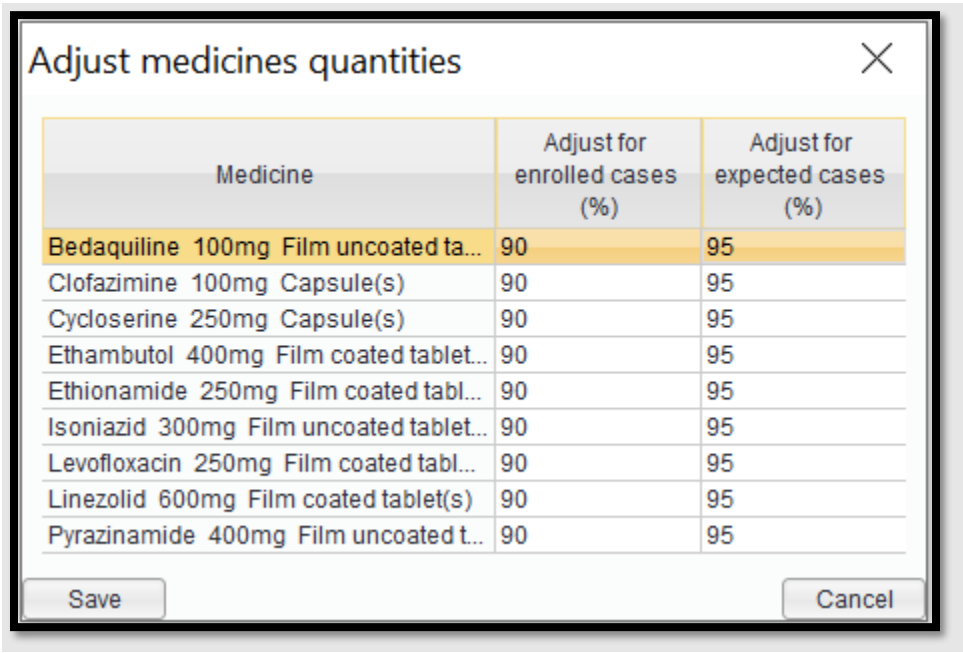


Figure 47

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, described in the section above, are displayed in the top part of the Parameters tab of the **New quantification** and can be changed as needed. The **Enrolled Cases**, **Expected Cases** and **Stock of Medicines** tabs are also displayed in the lower part of the Parameters tab and they need 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

Number of Enrolled Cases per Month by 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 as of the e inventory date and/or beyond. For example, if the duration of a selected regimen to treat MDR-TB is 12 months and the inventory date is March 31st, 2021, the system will display months starting with April 2020. Users need to enter the actual enrolled number of cases for each regimen and for each month because cases enrolled during this period could still be on treatment beyond the inventory date, and thus must be accounted for in the quantification process.

Note: All cases entered for each month are assumed to start at the beginning of the month unless the inventory date is not the last day of the previous month. The same applies for expected cases. If the inventory date is in the middle of a month, the same month will appear for both enrolled and expected cases and users need to enter the corresponding number of cases for each part of the same month. To avoid this, enter the inventory as of the end of each month, preferably. See below, under expected cases, for more details and example on this.

Note: Every time inventory date is updated users need to update enrolled cases for the past months.

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

- 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 selecting 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. Alternatively, you may copy and paste case numbers for each regimen separately.

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, divide the total by three and enter the same number of cases for each month of the quarter; if the result of the division is not a whole number, you may round it up or down and apply the difference compared to the total for the quarter to one of the months . Quantification in this case may be less precise. The same applies for expected cases

To perform "what if" scenarios, you can use the **Enable** box to mark which regimens should be included in the quantification. Unchecking 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 checking the **Enable** box and executing the quantification again. If you enable/disable stock or regimens, you must execute the quantification to apply the changes and get the updated results. The same applies to expected cases.

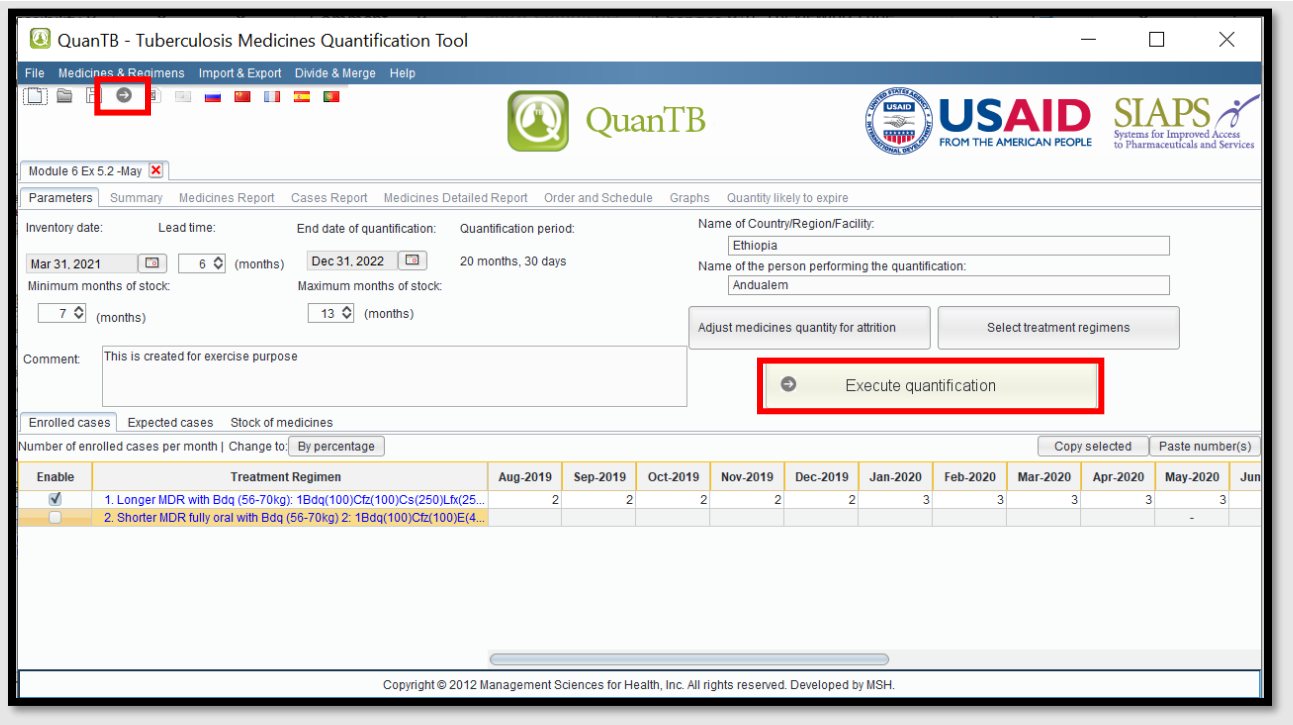


Figure 48

Percentage of Enrolled Cases per Treatment Regimen:

If you select to quantify 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 out of the total number of cases enrolled on all regimens per month. For multi-drug regimens the total percentage must be 100%. (For single-drug regimens 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. The same applies for expected cases.

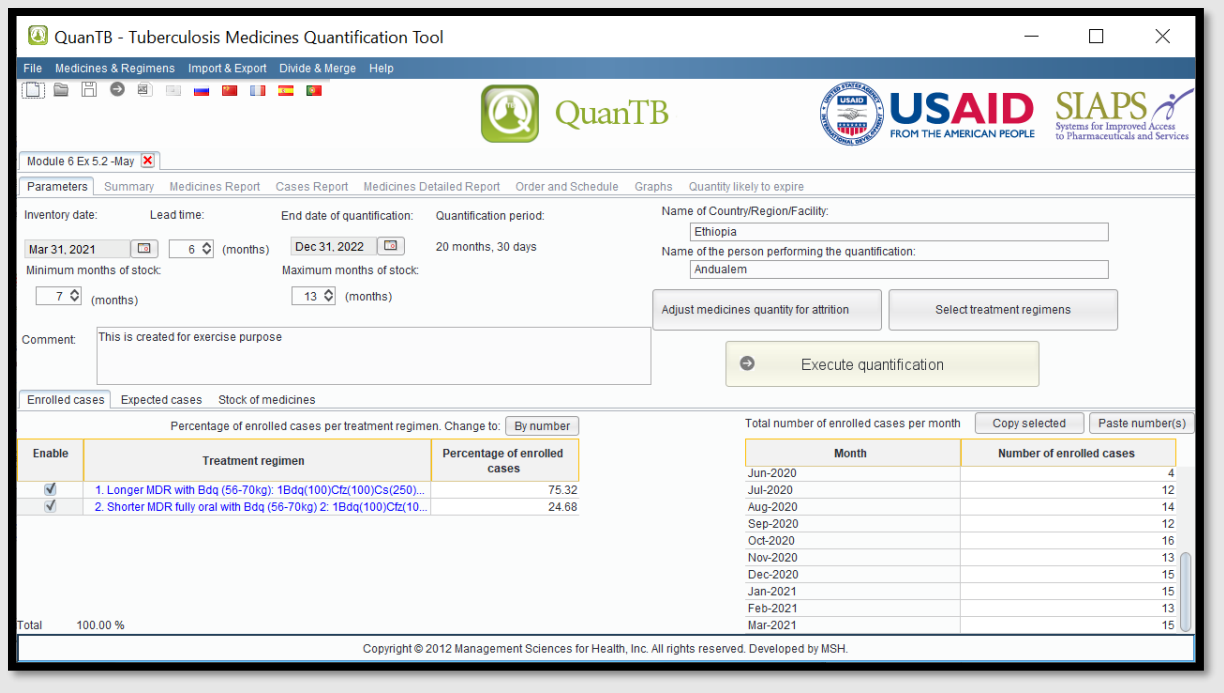


Figure 49

Expected Cases

Estimated number of expected cases per month: The period to enter expected cases starts the day after the inventory date. The system will display all of the months for the selected regimens, starting with one day after the inventory date and ending with the end of the quantification period. The inventory date divides the enrolled cases and expected cases. Enter the number of cases you expect to enroll patients on each regimen by month for 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 last day of the month. For example, if the inventory date is April 15, 2021, the enrolled cases stop on April 15, 2021 and the expected cases start on April 16, 2021; in this case, you will see April as the last month for the enrolled cases and the first month for expected cases. Enter the number of cases you have actually enrolled from April 1st to 15th for the enrolled cases and enter the estimated number of cases to be enrolled from April 16th to 30th for expected cases. Be careful not to double-count cases in that month if the inventory date is in the middle of the month.

Note: The same rules and principles described for enrolled cases apply for the expected cases for copying and pasting number of cases from another source (e.g., Excel spreadsheet, Word table, QuanTB quantification, etc.) to your QuanTB file.

Figure 50

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

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). For single-drug regimens, the only option available is "by percentage"
- You must execute the quantification to see the results of your change.
- The results of each type of quantification will be slightly different.
- If you change the quantification method, saving, executing, or exporting the quantification results 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.

Note: It is possible to shift from the percentage method to the number method and vice versa irrespective of what was used initially. You can do this by clicking on the "By percentage" if you are already working on "By number" and vice versa. The same applies for enrolled and expected cases.

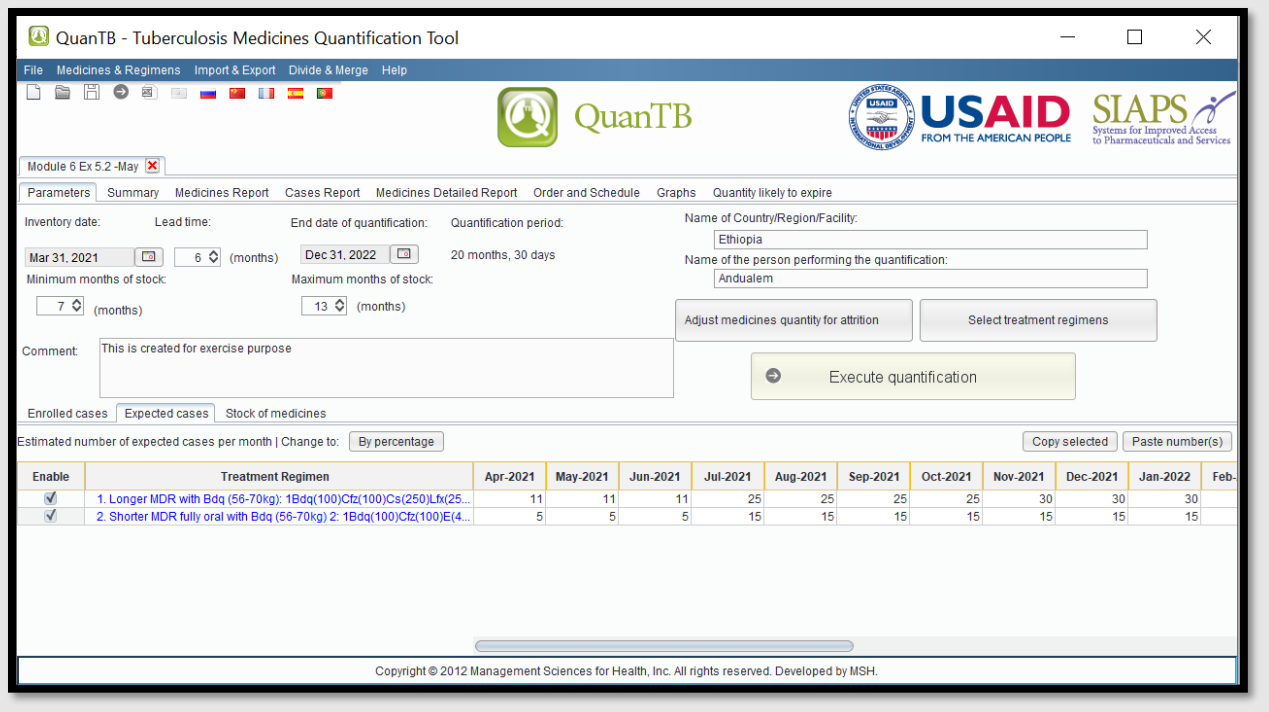


Figure 51

Figure 52

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 53

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.

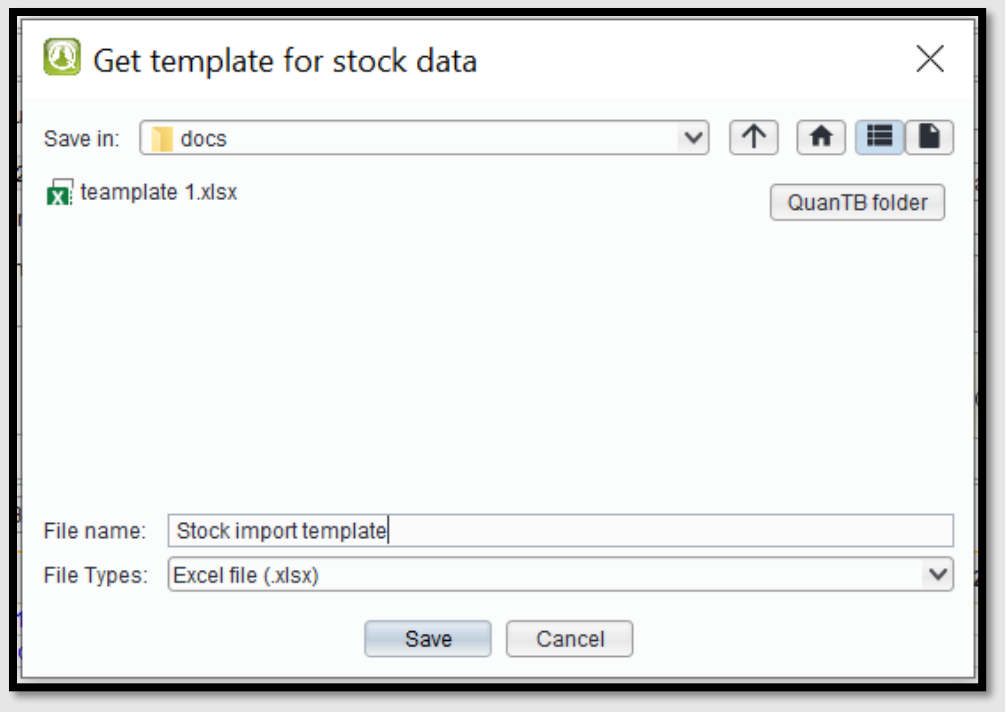


Figure 54

When the file is created, you will be asked whether you want to open it. If you click on **Yes**, the Excel file opens .

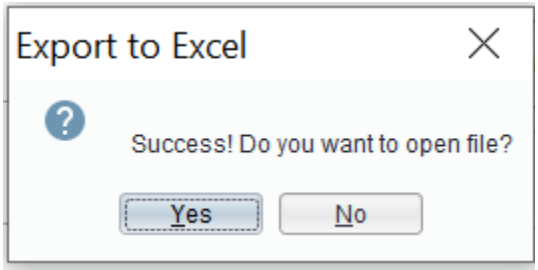


Figure 55

A sample template is shown below.

Inventory date: 03/31/2021

Medicines	Stock on hand (in basic units)	Expiration date of the stock on hand	Stock on order (in basic units)	Expected receiving date	Expiration date of the stock on order (optional)	Batch number and/or comments	Supplier

Figure 56

Fill in your inventory information, including the **Medicines, Stock on hand, Expiration date of the stock on hand, Stock on order, Expected receiving date, and Expiration date of the stock on order** (if known), **Batch number and any other comments, and Supplier**. For example, you can specify if the supplier is GDF. When done entering the stock information, Save your file.

Note: You may copy and paste date from external source (excel) to the template but ensure that you use the same formats and order of columns.

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

After selecting your file, the template with the data entered, the following screen appears so that you can match the medicines in QuanTB with the medicines in your template. Click the dropdown arrow to see the list of medicines from your template and match the two lists. When you are done matching, click on **Save**, the stock information you have entered into the template will be imported into the QuanTB file.

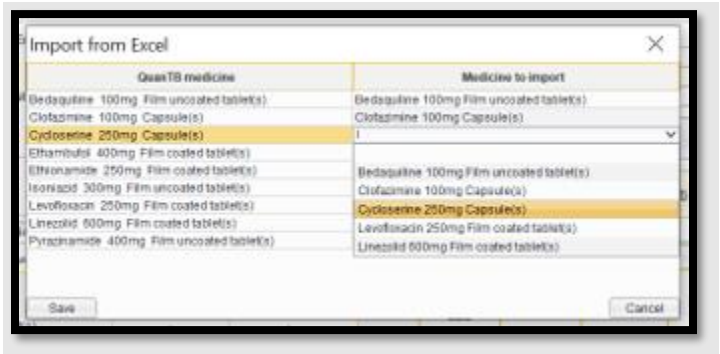


Figure 57

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

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 **Quantity** field of the Batches Details window, 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. You can also copy text and numbers from external source to the **Batch number and/or comments** filed. These apply for both stock on hand and stock on order.

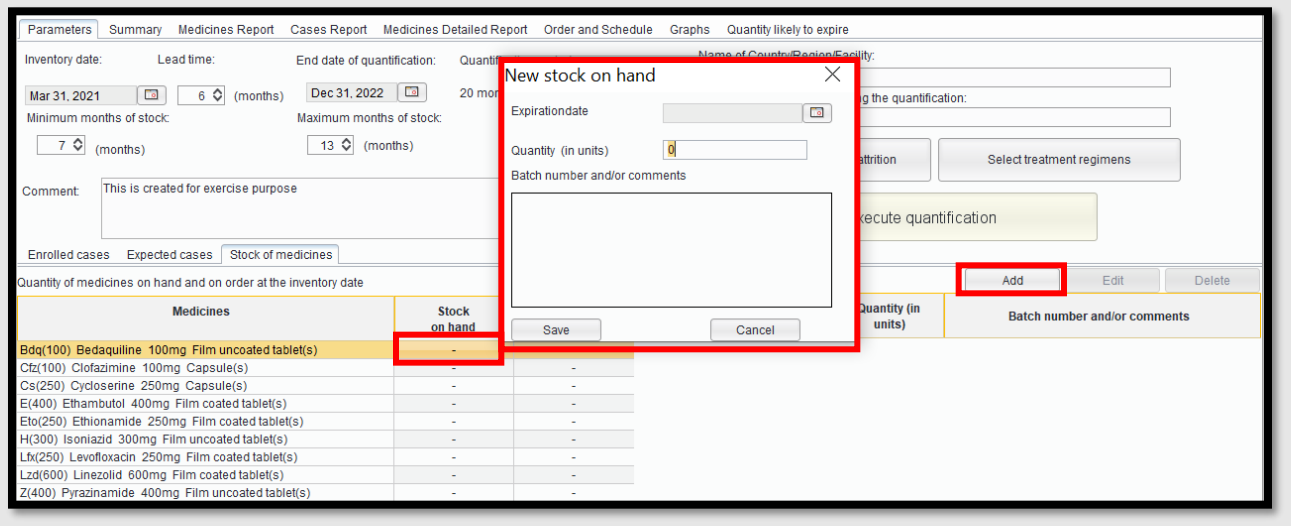


Figure 58

To enter stock data for stock on order, **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, Check the box next to "GDF" if the order is to be procured via GDF, and leave the box unchecked if it is not; enter the expected receiving date, expiration date (if known, otherwise leave blank), and the quantity of units to be received. Enter any comments on the order under "Batch number and/or comments" such as source of the product or supplier, especially if it is not GDF, order number and any other comments related to the order. 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 and orders expected to arrive during the quantification period.

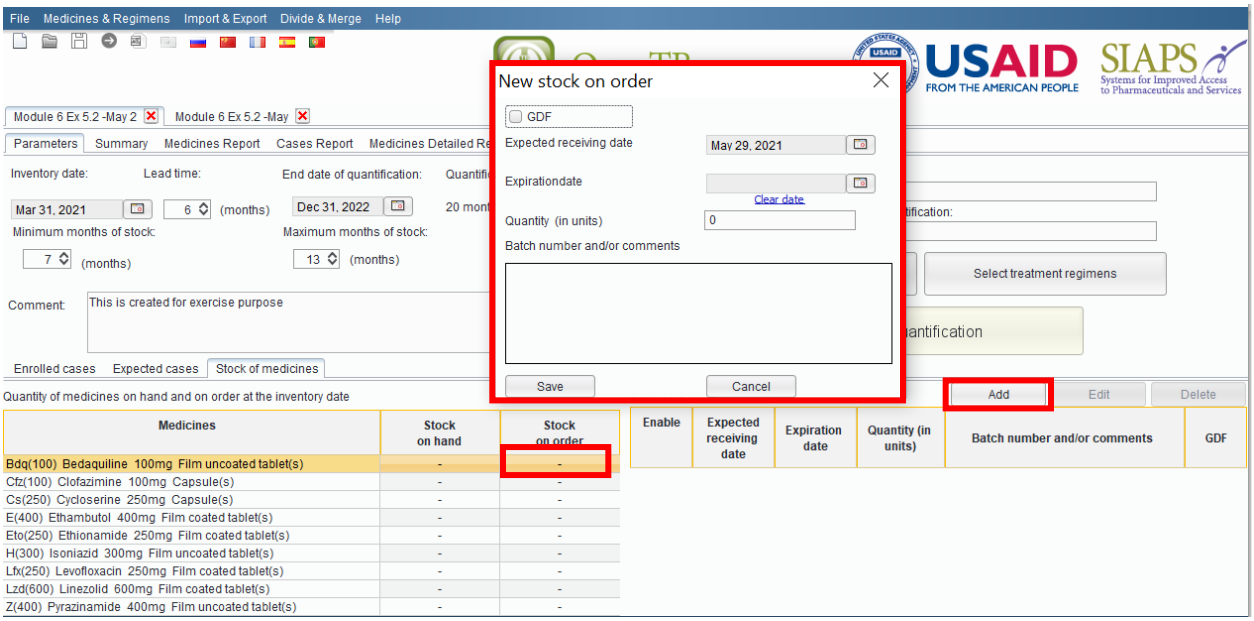


Figure 59

Note: By default, the **Expected receiving date** is the current date that you are entering the date on (based on your computers calendar), make sure that you change it to the correct expected date that the stock is estimated to be received at the central medical store.

Changing recorded information regarding stock on hand and stock on order:

To edit previously entered stock on hand or stock on order data, double click on the specific information you want to change of a specific medicine, under the **stock on hand** or the **stock on order** column, then click on the record you want to edit from the list in the **Batches details** window, then the Edit button will be enabled. Click on the **Edit** button and in the dialog box that appears change required data and click on the **Save** button to confirm or **Cancel** to undo it.

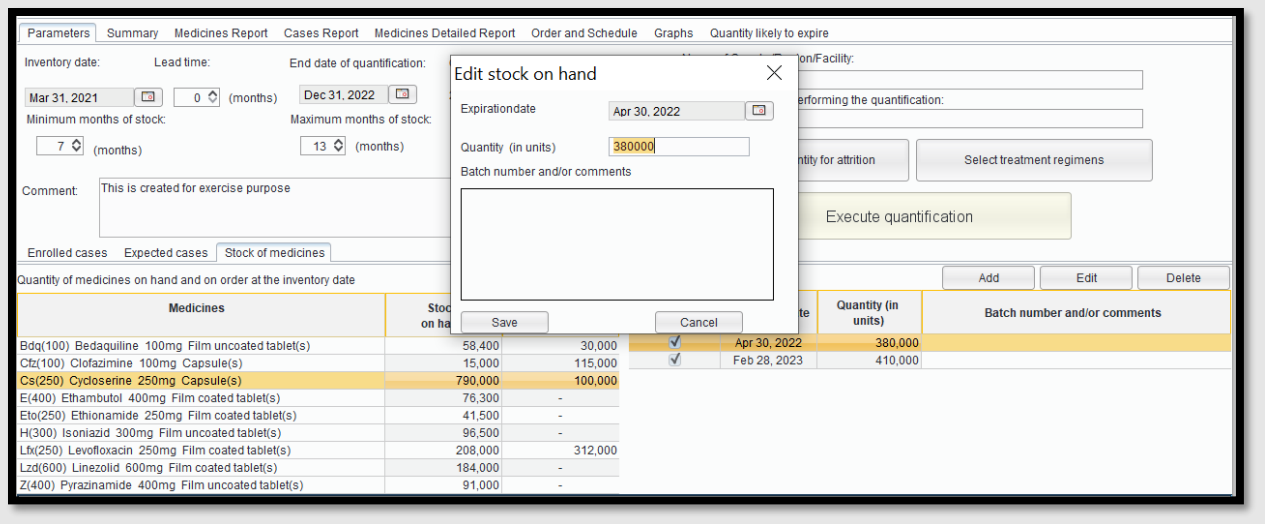


Figure 60

To delete stock information, double click on the specific information you want to change of a specific medicine, under the **stock on hand** or the **stock on order** column, then click on the record you want to edit from the list in the **Batches details** window, then 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.

Adding other treatment regimens to an existing QuanTB file:

To add other treatment regimens to be included in your existing quantification, click on the **Select Treatment Regimens** button and in the **Select Regimens** dialog box that appears check the additional regimens you want to add from the displayed list. 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. 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 numbers related to that regimen will disappear and you will have to re-enter them before executing the quantification.

In order to avoid losing case numbers and stock data and to avoid re-entry of these parameters duplicate and rename the regimen under consideration before editing the regimen, then editing the regimen, unselecting the regimen, saving the file and selecting it again to the QuanTB file and copying the number of cases from the duplicated regimen to the edited regimen. To avoid confusion, delete the duplicated and renamed regimen before completing execution.

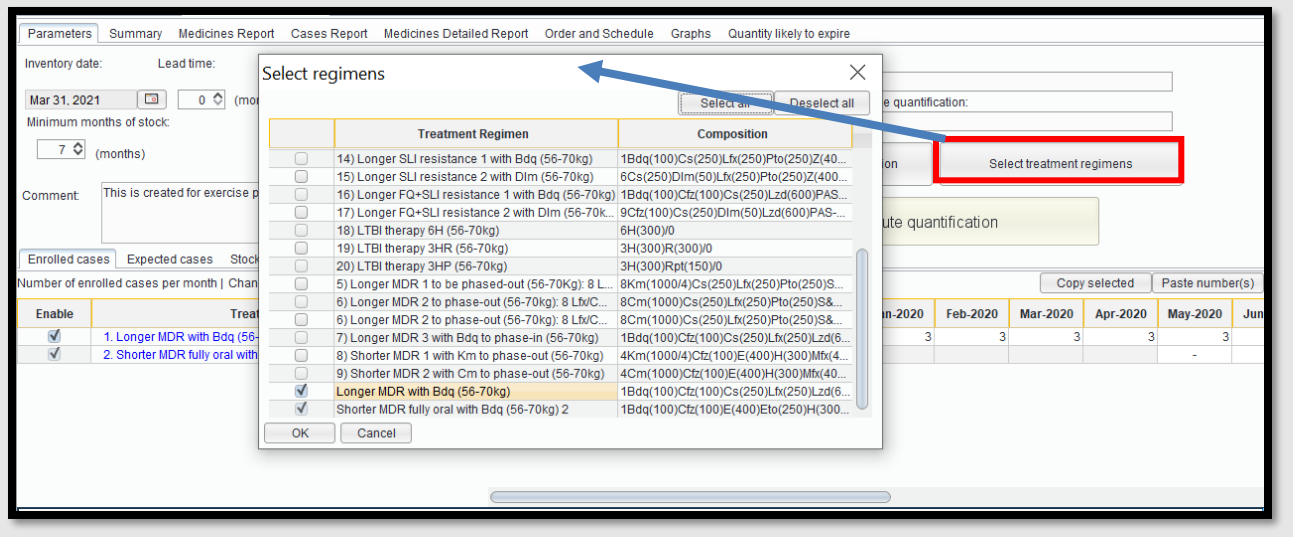


Figure 61

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.

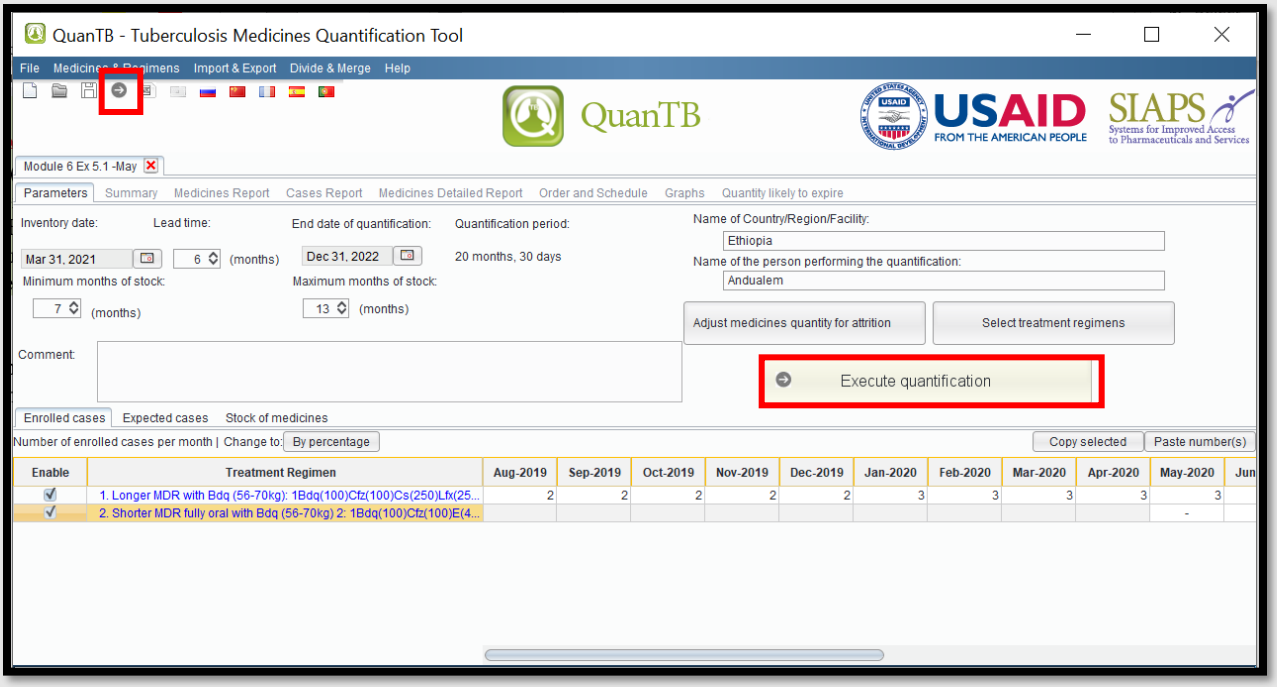


Figure 62

Note: If you re-execute the quantification after some days have 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:

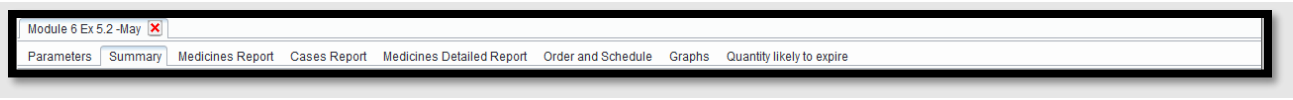


Figure 63

Parameters tab

The Parameters tab includes the information on basic parameters, enrolled cases, expected cases and stock information, that you defined when you began the quantification.

Summary tab

The Summary tab includes a list of all of the medicines in your quantification. It is a summary report. 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.

Estimated Months of Stock (excluding the stock 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 number of months that the stock on hand is estimated to last. If the stock on hand expires completely within the quantification period and before use, the months of stock will be calculated by counting the number of months from the inventory date to the date the stock expires completely. The figure appears in red if it is below/at the minimum or above/at the maximum months of stock assigned by in the parameters. This alerts you to an issue needing attention, e.g., a pending stock-out or stock at risk of expiry. 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.

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 by adding the lead time onto the inventory date. For example, if the inventory date is March 31st, 2021 and the lead time is 6 months, the accelerated order period, also called emergency order period, will be from April 1st to Sep 30th, 2021 (183 days). 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.

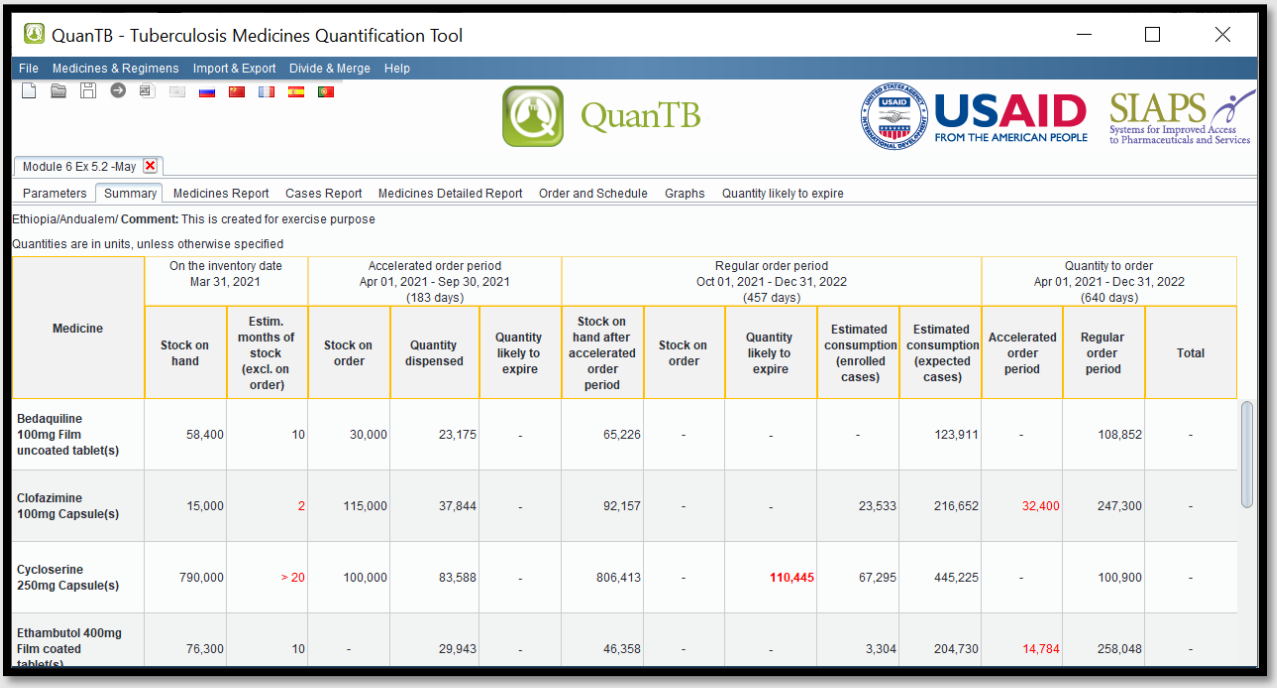
Regular order period (with date range)

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**.**

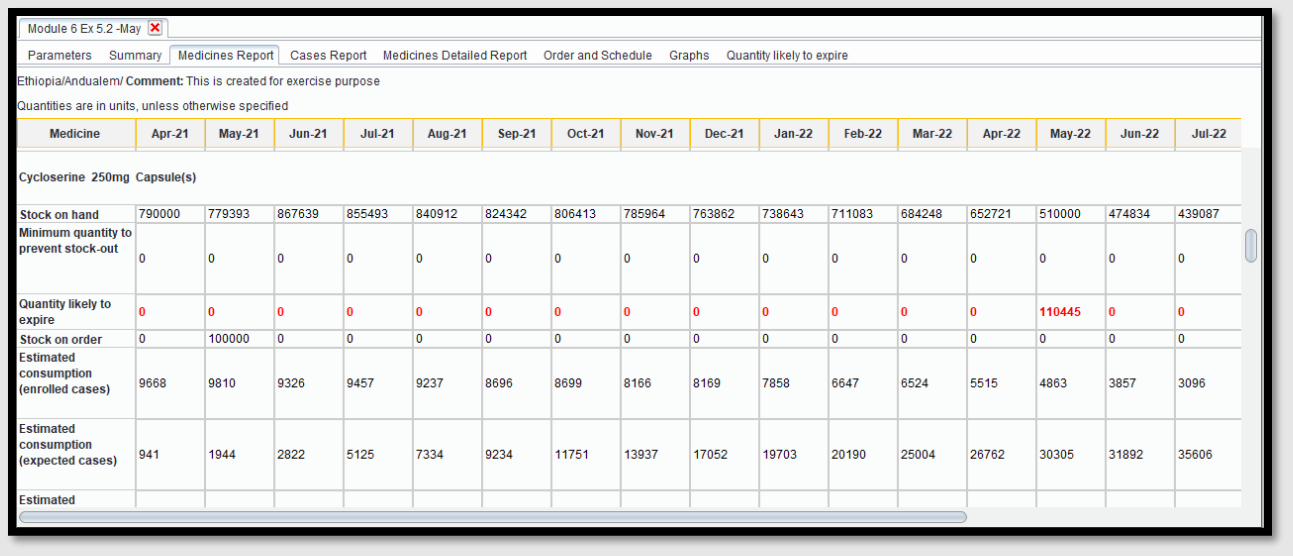


Medicine	On the inventory date Mar 31, 2021		Accelerated order period Apr 01, 2021 - Sep 30, 2021 (183 days)			Regular order period Oct 01, 2021 - Dec 31, 2022 (457 days)				Quantity to order Apr 01, 2021 - Dec 31, 2022 (640 days)		
	Stock on hand	Estim. months of stock (excl. on order)	Stock on order	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
Bedaquiline 100mg Film uncoated tablet(s)	58,400	10	30,000	23,175	-	65,226	-	-	-	123,911	-	108,852	-
Clofazimine 100mg Capsule(s)	15,000	2	115,000	37,844	-	92,157	-	-	23,533	216,652	32,400	247,300	-
Cycloserine 250mg Capsule(s)	790,000	> 20	100,000	83,588	-	806,413	-	110,445	67,295	445,225	-	100,900	-
Ethambutol 400mg Film coated tablet(s)	76,300	10	-	29,943	-	46,358	-	-	3,304	204,730	14,784	258,048	-

Figure 64

Medicines report tab

The Medicine report tab displays the following information for each medicine and 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.

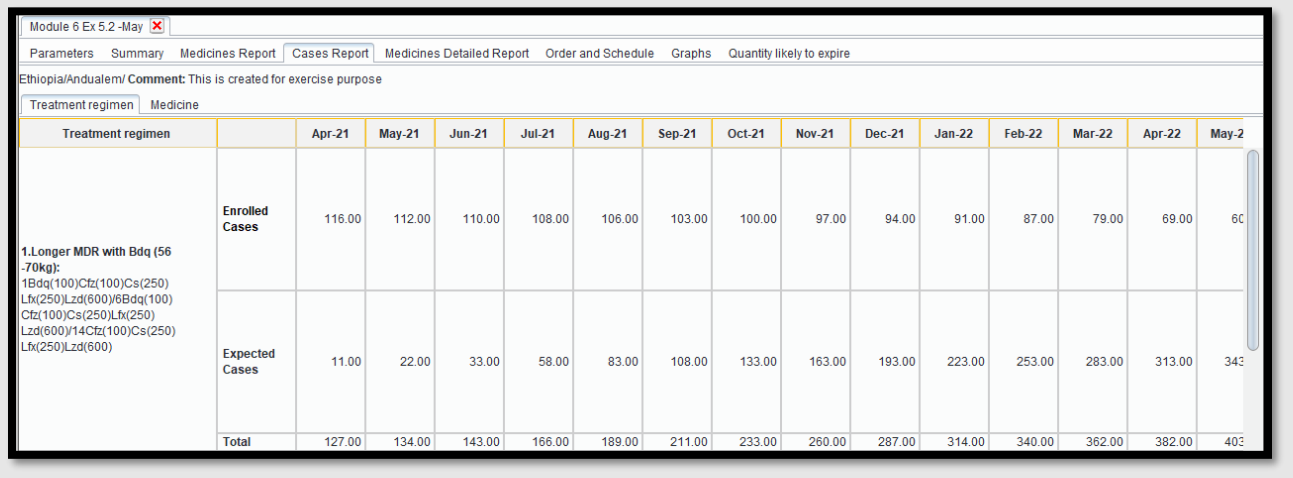


Medicine	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22
Cycloserine 250mg Capsule(s)																
Stock on hand	790000	779393	867639	855493	840912	824342	806413	785964	763862	738643	711083	684248	652721	510000	474834	439087
Minimum quantity to prevent stock-out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quantity likely to expire	0	0	0	0	0	0	0	0	0	0	0	0	0	110445	0	0
Stock on order	0	100000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated consumption (enrolled cases)	9668	9810	9326	9457	9237	8696	8699	8166	8169	7858	6647	6524	5515	4863	3857	3096
Estimated consumption (expected cases)	941	1944	2822	5125	7334	9234	11751	13937	17052	19703	20190	25004	26762	30305	31892	35606
Estimated																

Figure 65

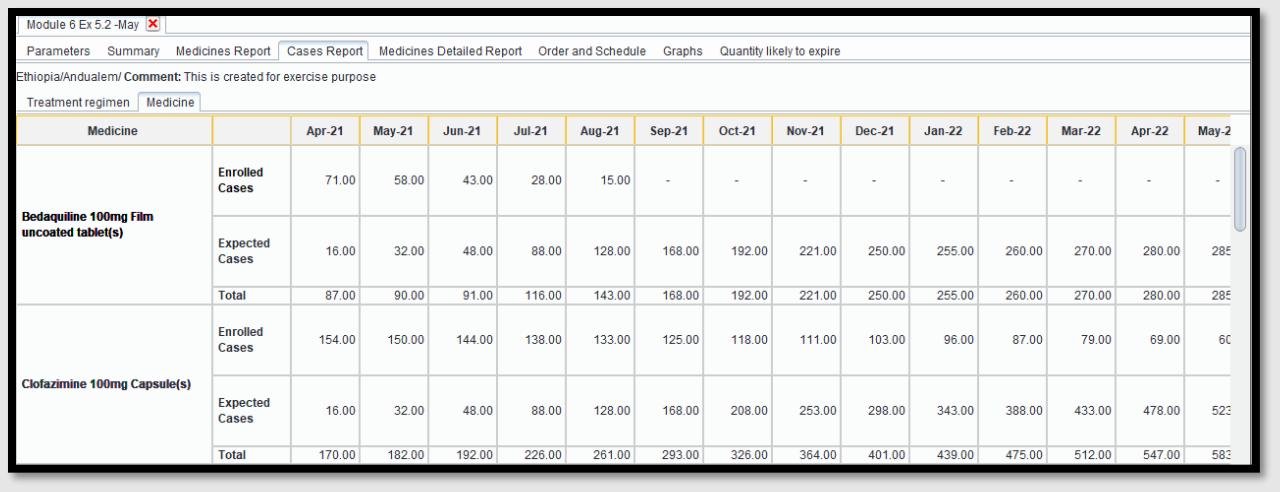
Cases report tab

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 cumulative number of cases on treatment as of each month of the quantification period.



Treatment regimen		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-2
1.Longer MDR with Bdq (56 -70kg): 1Bdq(100)Cfz(100)Cs(250) Lfx(250)Lzd(600)/6Bdq(100) Cfz(100)Cs(250)Lfx(250) Lzd(600)/14Cfz(100)Cs(250) Lfx(250)Lzd(600)	**Enrolled Cases**	116.00	112.00	110.00	108.00	106.00	103.00	100.00	97.00	94.00	91.00	87.00	79.00	69.00	60
	Expected Cases	11.00	22.00	33.00	58.00	83.00	108.00	133.00	163.00	193.00	223.00	253.00	283.00	313.00	343
	Total	127.00	134.00	143.00	166.00	189.00	211.00	233.00	260.00	287.00	314.00	340.00	362.00	382.00	403

Figure 66



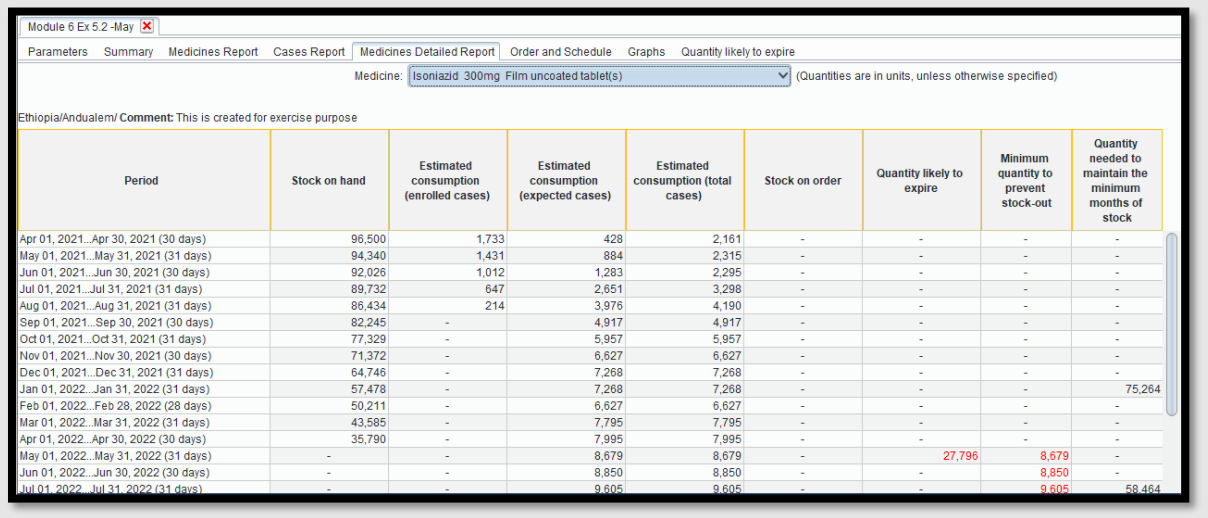
Medicine		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-2
Bedaquiline 100mg Film uncoated tablet(s)	Enrolled Cases	71.00	58.00	43.00	28.00	15.00	-	-	-	-	-	-	-	-	-
	Expected Cases	16.00	32.00	48.00	88.00	128.00	168.00	192.00	221.00	250.00	255.00	260.00	270.00	280.00	285
	Total	87.00	90.00	91.00	116.00	143.00	168.00	192.00	221.00	250.00	255.00	260.00	270.00	280.00	285
Clofazimine 100mg Capsule(s)	Enrolled Cases	154.00	150.00	144.00	138.00	133.00	125.00	118.00	111.00	103.00	96.00	87.00	79.00	69.00	60
	Expected Cases	16.00	32.00	48.00	88.00	128.00	168.00	208.00	253.00	298.00	343.00	388.00	433.00	478.00	523
	Total	170.00	182.00	192.00	226.00	261.00	293.00	326.00	364.00	401.00	439.00	475.00	512.00	547.00	583

Figure 67

Note: The **Treatment regimen** tab in the **Case reports** tab is unavailable when the quantification is only for single-drug regimens. The case report by medicine is available for both multidrug and single-drug regimen quantifications.

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 as of the inventory date, Estimated consumption (enrolled cases), Estimated consumption (expected cases), Estimated consumption (total), Stock on order**, **Quantity likely to expire**, and the **Minimum quantity to prevent stock-out, and Quantity need to maintain the minimum months of stock**. The **Quantity likely to expire** and the **Minimum quantity to prevent stock-out** will appear in red.



Period	Stock on hand	Estimated consumption (enrolled cases)	Estimated consumption (expected cases)	Estimated consumption (total cases)	Stock on order	Quantity likely to expire	Minimum quantity to prevent stock-out	Quantity needed to maintain the minimum months of stock
Apr 01, 2021...Apr 30, 2021 (30 days)	96,500	1,733	428	2,161	-	-	-	-
May 01, 2021...May 31, 2021 (31 days)	94,340	1,431	884	2,315	-	-	-	-
Jun 01, 2021...Jun 30, 2021 (30 days)	92,026	1,012	1,283	2,295	-	-	-	-
Jul 01, 2021...Jul 31, 2021 (31 days)	89,732	647	2,651	3,298	-	-	-	-
Aug 01, 2021...Aug 31, 2021 (31 days)	86,434	214	3,976	4,190	-	-	-	-
Sep 01, 2021...Sep 30, 2021 (30 days)	82,245	-	4,917	4,917	-	-	-	-
Oct 01, 2021...Oct 31, 2021 (31 days)	77,329	-	5,957	5,957	-	-	-	-
Nov 01, 2021...Nov 30, 2021 (30 days)	71,372	-	6,627	6,627	-	-	-	-
Dec 01, 2021...Dec 31, 2021 (31 days)	64,746	-	7,268	7,268	-	-	-	-
Jan 01, 2022...Jan 31, 2022 (31 days)	57,478	-	7,268	7,268	-	-	-	75,264
Feb 01, 2022...Feb 28, 2022 (28 days)	50,211	-	6,627	6,627	-	-	-	-
Mar 01, 2022...Mar 31, 2022 (31 days)	43,585	-	7,795	7,795	-	-	-	-
Apr 01, 2022...Apr 30, 2022 (30 days)	35,790	-	7,995	7,995	-	-	-	-
May 01, 2022...May 31, 2022 (31 days)	-	-	8,679	8,679	-	27,796	8,679	-
Jun 01, 2022...Jun 30, 2022 (30 days)	-	-	8,850	8,850	-	-	8,850	-
Jul 01, 2022...Jul 31, 2022 (31 days)	-	-	9,605	9,605	-	-	9,605	58,464

Figure 68

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 some adjustment factors such as potential waste rate. As an example, if you want to apply 5% as a wastage rate, you need to change the adjustment % from 100% to 105%. If you enter "0%" it means that the medicine is not required at all.
- **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 using the links provided in the Quantity and costs window at the top of each table for accelerate and regular orders.

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 and consists of:

- **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 and costs** tab.

Note: If you have not completed pack sizes and pack prices for all medicines with positive **Quantity needed (in units)** value, QuanTB cannot calculate a cost for it and therefore the **Total cost of medicines** figure will not include the cost of that medicine. In addition, the **Additional and Total costs** and the **schedule** tabs will not be active.

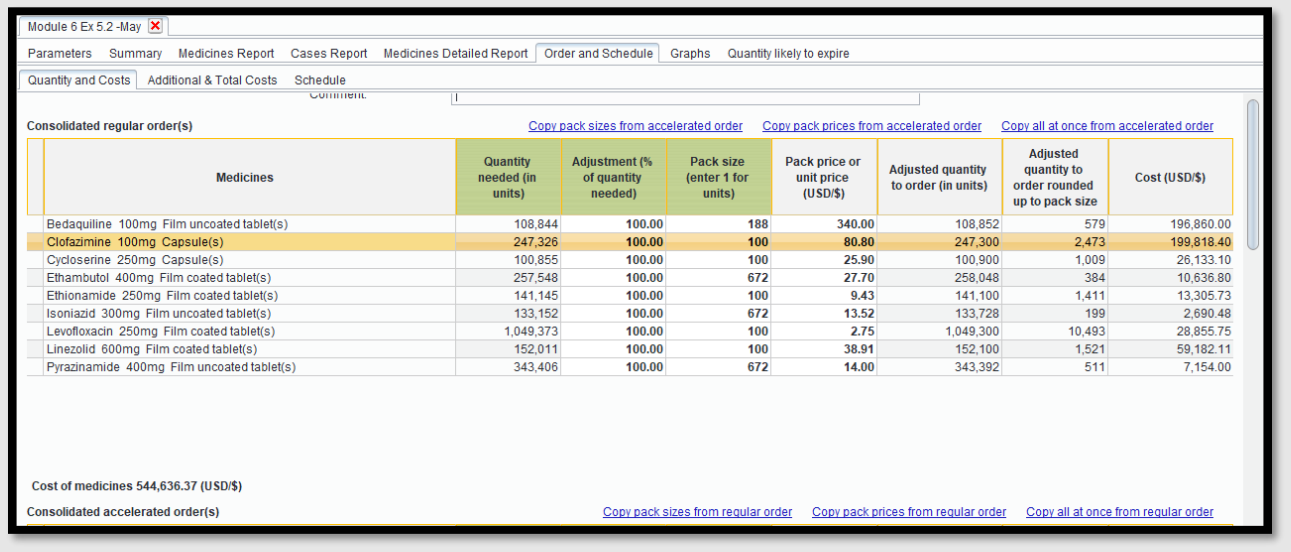


Figure 69

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/values per

shipment. 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. Additional costs should be added to both **Regular Orders** and **Accelerated Orders,** and the values may be different.

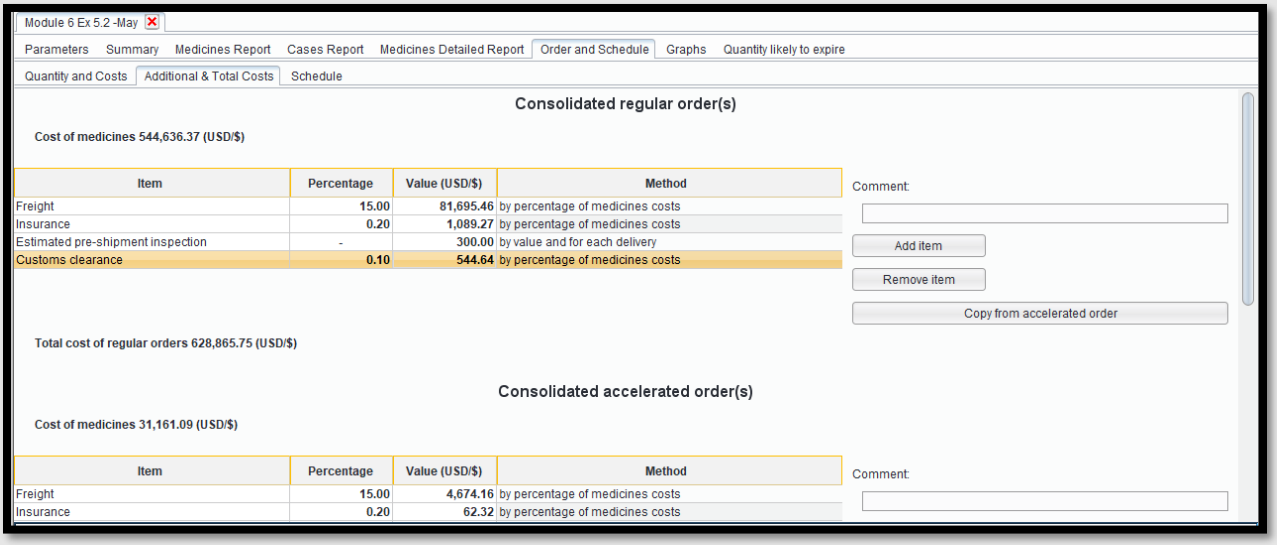


Figure 707

Schedule

The **Schedule** tab displays the accelerated and regular order quantities for the quantification. By default, QuanTB proposes a monthly schedule based on the needs and the minimum stock level you have entered. You can select a monthly, all at once, annually, bi-annually, or quarterly order schedule.

Note: In most cases it is not realistic to have a monthly shipment schedule, many countries apply bi-annually as the frequency of shipment delivery.

The frequency of the orders will determine how many regular orders are needed. Only one accelerated order is calculated for the accelerated order period and it appears 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 cost of the order.

There are certain rules for the schedules:

- The default calculation for the quantity to order is based on the "Monthly" delivery schedule. QuanTB recommends order quantities that need to be available at the beginning of each month to always maintain the minimum months of stock of each medicine. When you change the schedule to quarterly, the order quantities of each medicine for each of

the three months are summed up to make one bigger quantity to order and the delivery date for the aggregate is shifted to the beginning of the quarter.

- 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.
- The additional costs you have entered for your forecasting will be applied to each delivery.
- The schedule is calculated to ensure that the minimum stock level for each medicine is available at any point during the quantification period.
- The quantities in the schedule of deliveries are only meant to meet the needs of the quantification period and to maintain the minimum months of stock level at the end of the quantification period. If you need to buy more in order to remain above your minimum stock level at the end of the quantification period, you can to make adjustments such as extending the period, or increasing the minim stock level.
- The order date is calculated as the delivery date minus the lead time.
- When calculating needs and schedules, orders are assumed to be available for use on the first day of the month in which they are expected, therefore their delivery date is assumed to be one day earlier/end of the previous month. For example, if an order is expected to be available in April 2021, QuanTB assumes that the stock in that order will be available on April 1st, 2021 and that the stock would be delivered on March 31st, 2021.

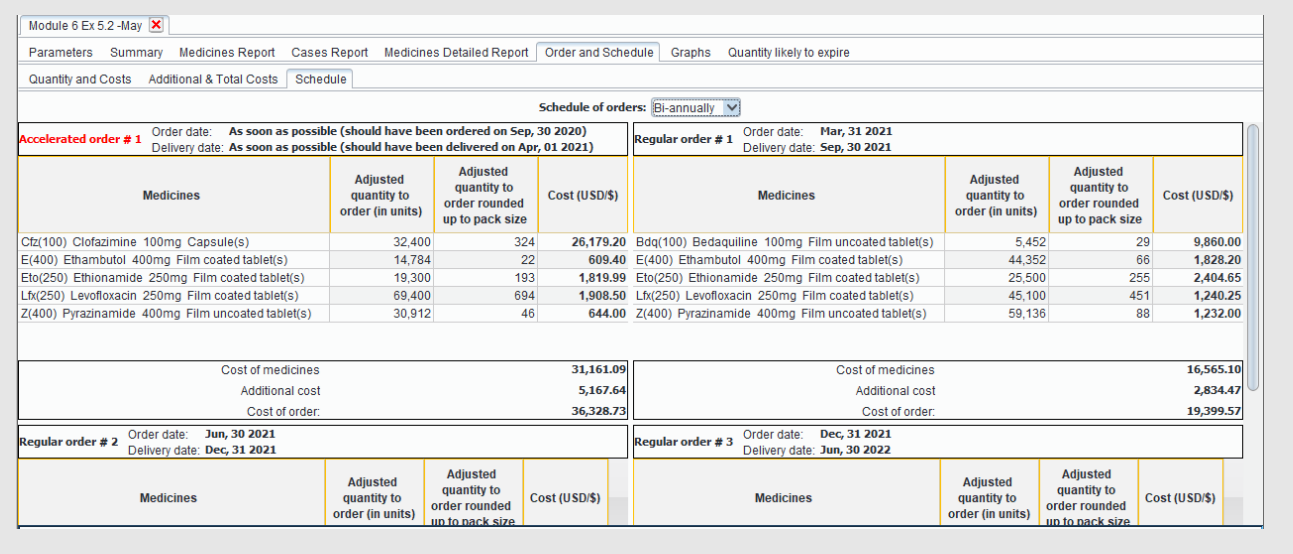


Figure 71

Graphs tab

The **Graphs** tab has two sub-tabs: **Stock Status** and **Dashboard.**

Stock Status

On this tab, you can select a medicine to see the stock movement information graphically, by each type of delivery schedule. The graph shows the effect of proposed deliveries, pending deliveries, and expiries. You can also exclude QuanTB proposed or planned deliveries from the graph to see the scenarios with and without them. 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.**

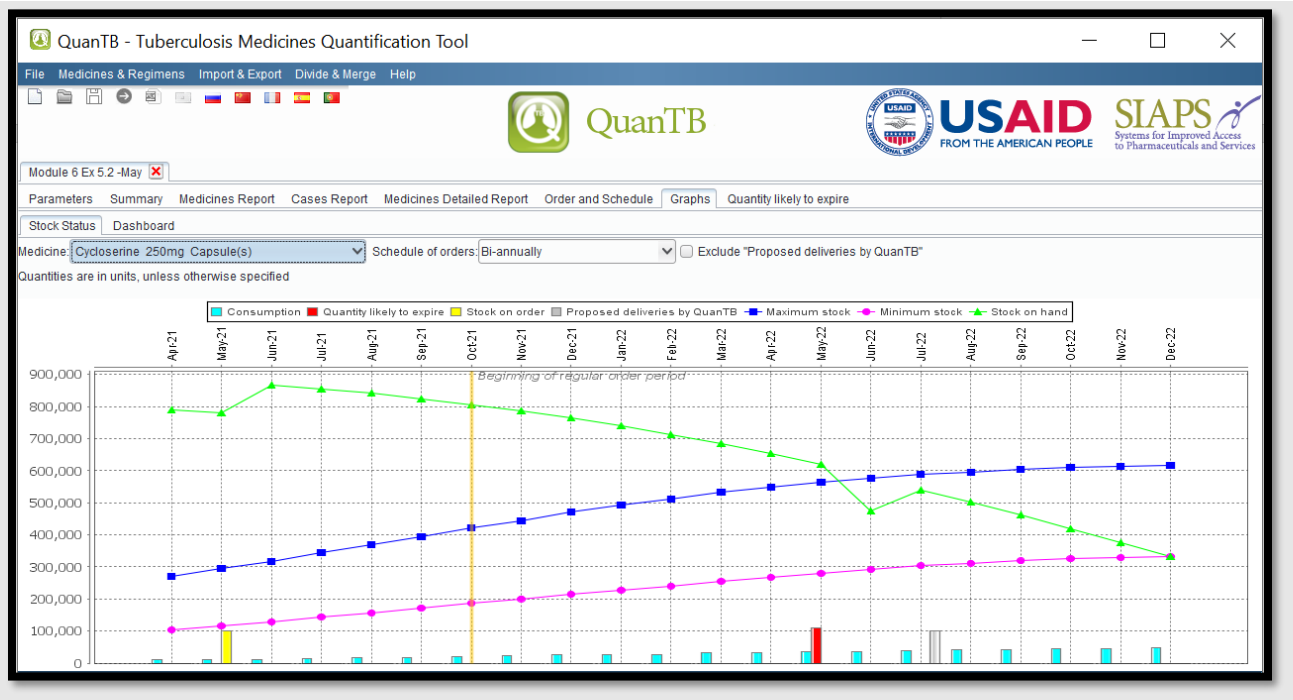


Figure 72

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

In the stock status graph, parameters are color coded: the **green** line represents the stock status of the medicine, compared to the minimum stock level which is in **rose** and the maximum stock level which is represented by a **blue** line. Monthly consumption is represented by **light blue** colored bars, while stock on order is represented by **yellow** bars. Quantity likely to expire is represented by **red** bars. Finally, QuanTB proposed shipments to maintain at least the minimum stock level are represented by the grey bars.

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 (one day after the inventory date until the end of the quantification period). If the stock on hand is not enough for at least 1 month or if it expires before one month after the inventory date you see only the red bar in dashboard, but you see the exact amount of stock in the medicines detailed report and the stock status graph.
- 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 necessarily represent when the stock is expected to arrive. The yellow bar for stock on order represents the number of months of stock to be 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.
- When a stock-out occurs, the system displays a red bar from the respective month until the end of quantification period or until a month with another planned delivery. 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. Stock is not considered as available until it is received. Users need to enter the received delivery as part of stock on hand, up on confirming receipt, to change the color to green.
- 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 mark (!) will be centered in the range. Where it appears does NOT represent precisely when the stock is likely to expire.
- If no patients are enrolled during a particular period, a grey colored bar is displayed in the dashboard until the month when patients start to be enrolled.

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, the stock level is below the minimum you want to maintain at all times. 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 and analysis of the stock, you should always consult the **Medicines Detailed Report**.

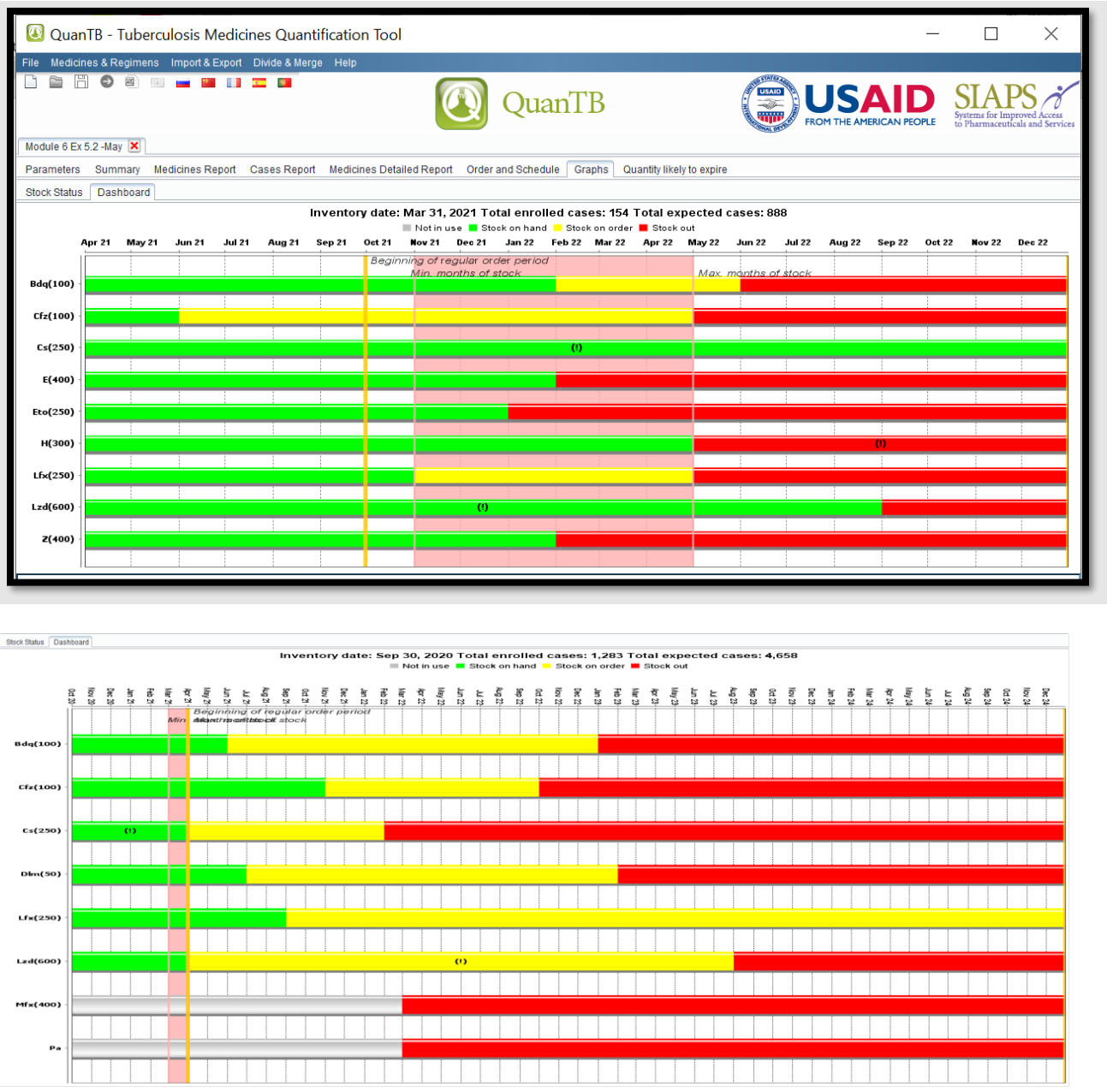


Figure 73

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

Quantity Likely to Expire

The **Quantity likely to expire** tab displays summary of medicines that are likely to expire within the quantification period by expiration date and by quantity. There are three tables summarizing such information: the first table provides expiry information on medicines that will expire within the next six months starting from the inventory date. The second table shows expiry information on medicines that will expire within the next 6 months, i.e., up to 1 year. The third table provides the summary of all periods from the inventory date until the end of the quantification period.

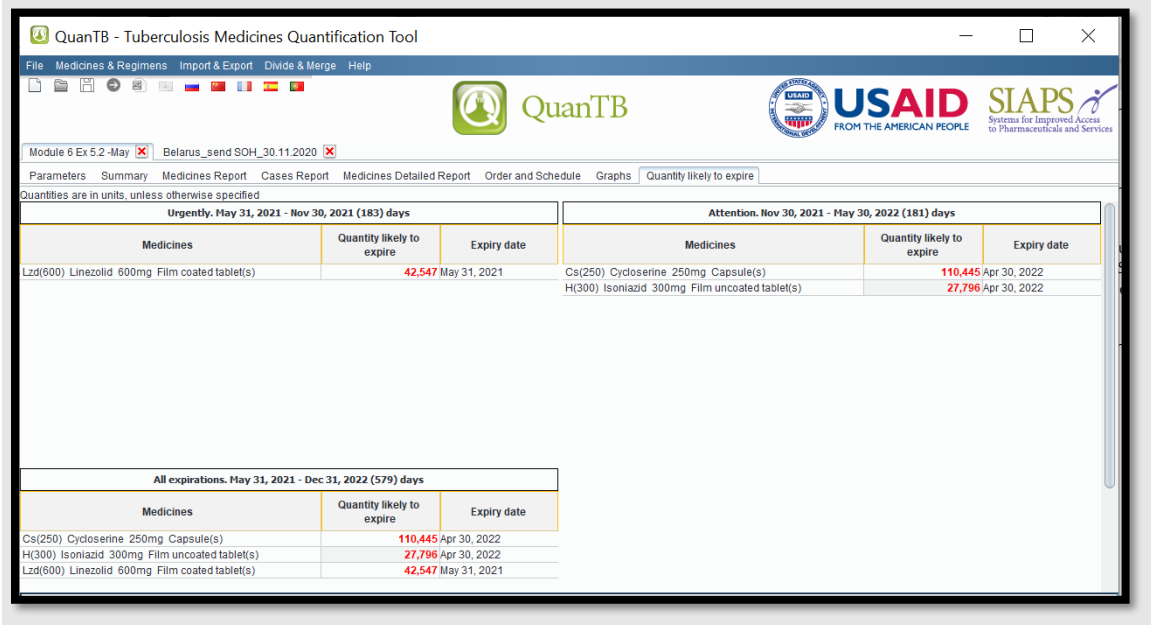


Figure 74

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.

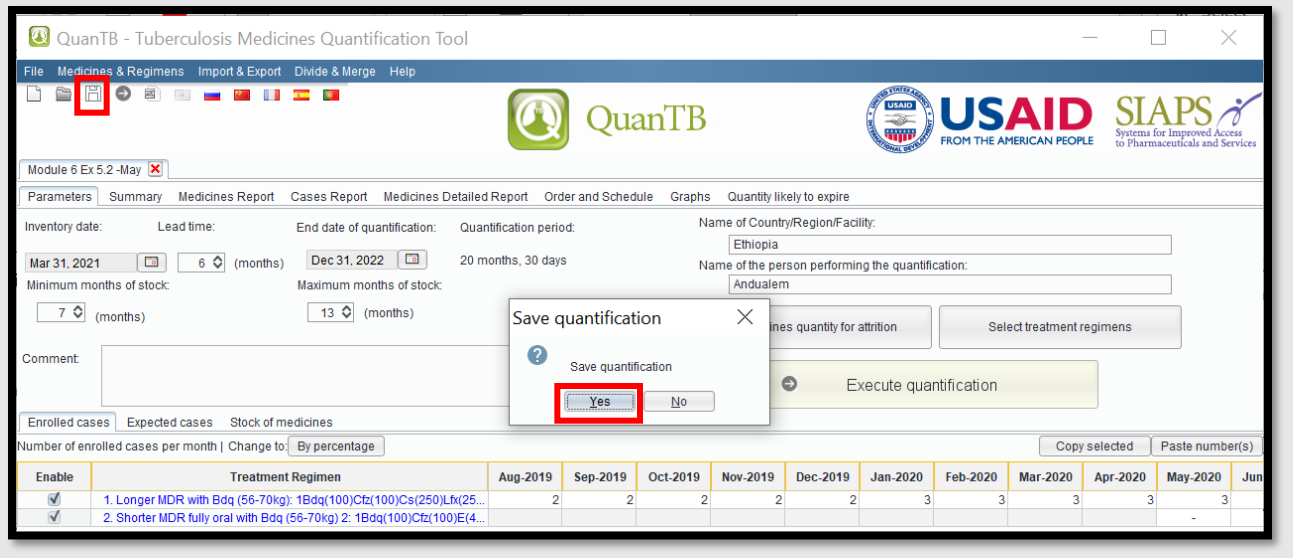


Figure 75

You need to name and save a new QuanTB file or rename and save an existing QuanTB file after modification. To do this, go to the **File** menu in the left upper corner and select the **Save as** menu option. 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 **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.

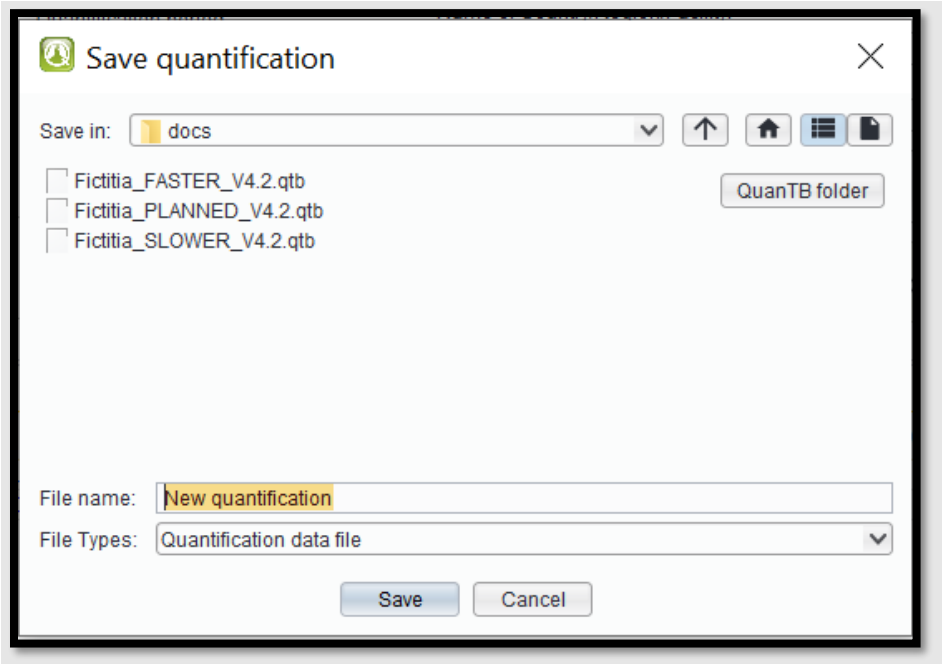


Figure 76

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. Change 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 on 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 the most recent 5 QuanTB files. If you have many files in the folder, you may need to scroll the scroll bar sideways to see more files and open the correct one.

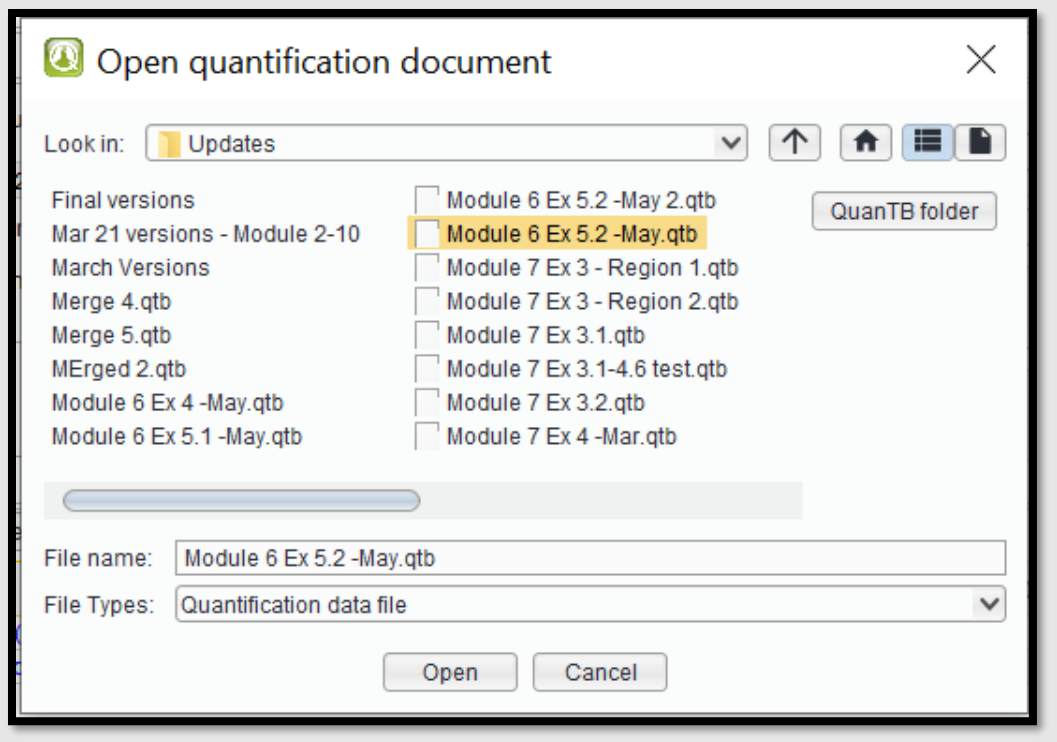


Figure 77

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.

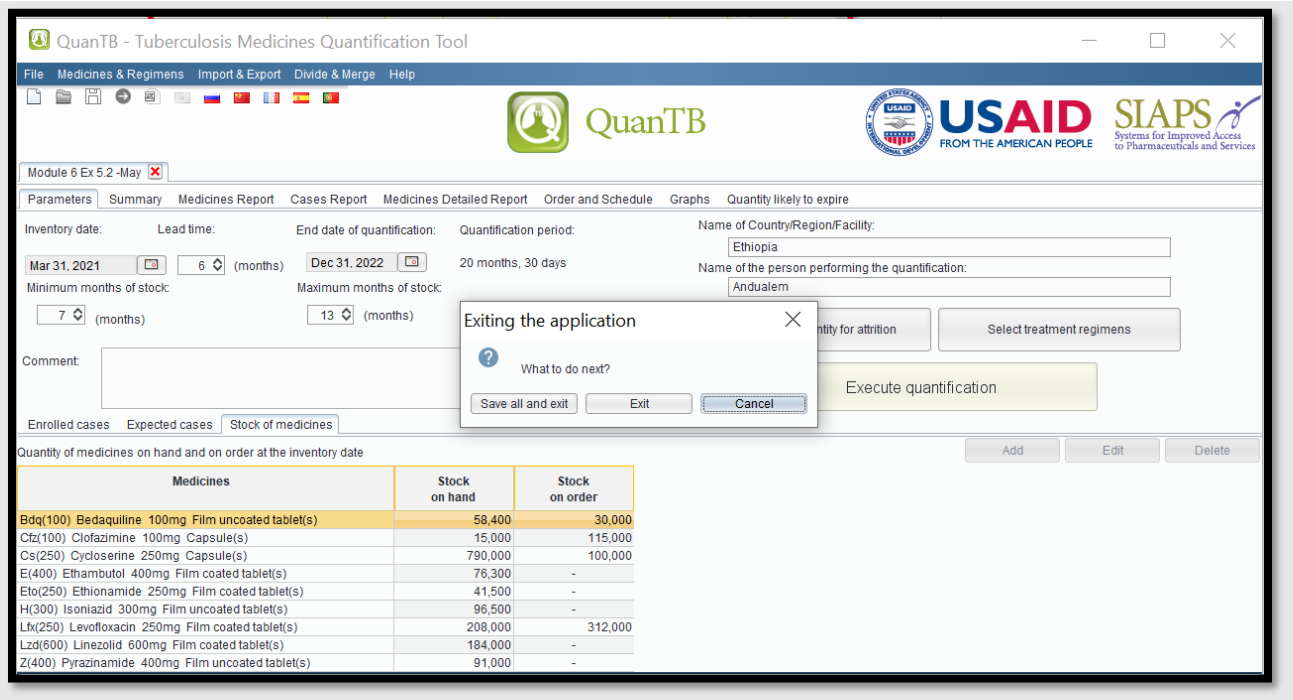


Figure 78

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 status 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.

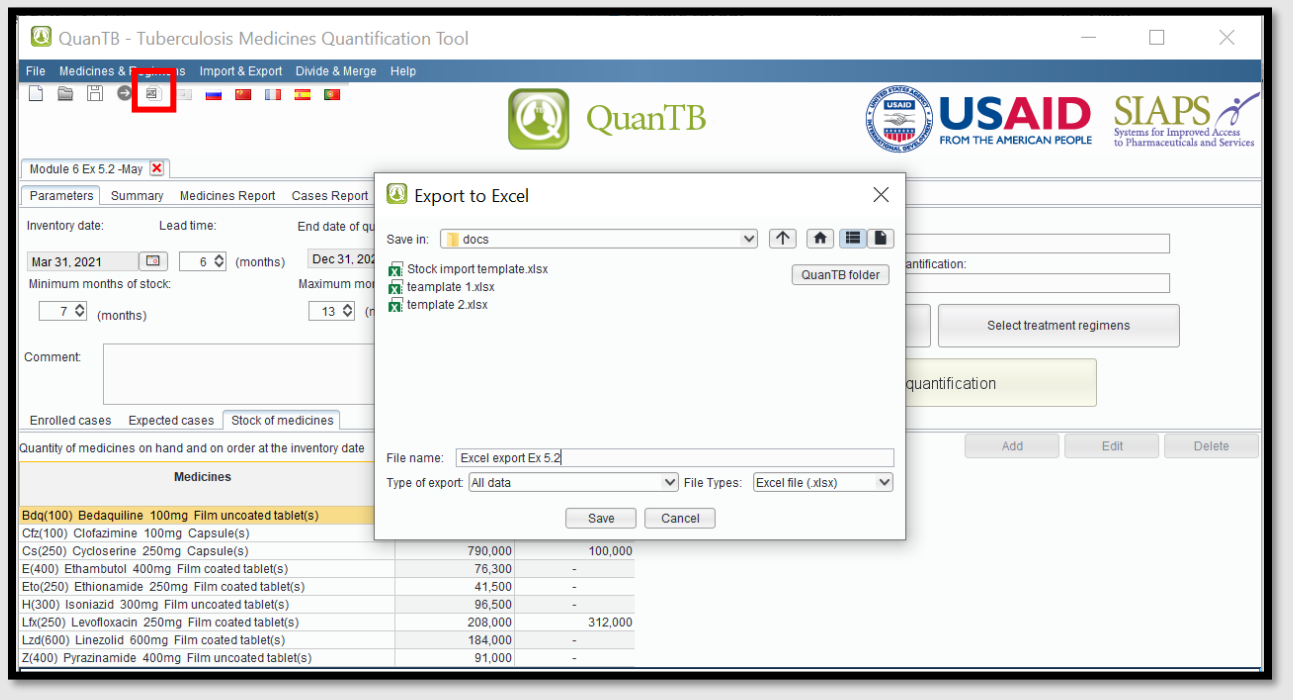
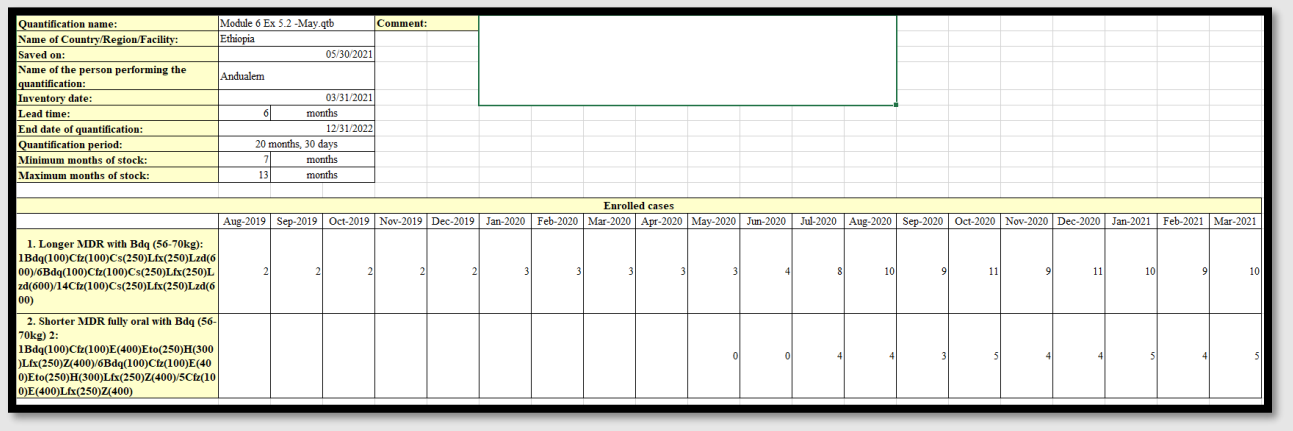


Figure 79

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 details exported Excel file is shown below, this is the parameters tab and consists of information regarding basic parameters and case numbers by regimen and by month for both enrolled and expected cases. There are multiple tabs of information, including a separate tab for each medicine as detailed medicine report. The Excel export file without the medicine details does not contain the separate tabs for each medicine.



Quantification name:	Module 6 Ex 5.2 -May.qtb	**Comment:**	
Name of Country/Region/Facility:	Ethiopia		
Saved on:	05/30/2021		
Name of the person performing the quantification:	Andualem		
Inventory date:	03/31/2021		
Lead time:	6	months	
End date of quantification:	12/31/2022		
Quantification period:	20 months, 30 days		
Minimum months of stock:	7	months	
Maximum months of stock:	13	months	

Enrolled cases

	Aug-2019	Sep-2019	Oct-2019	Nov-2019	Dec-2019	Jan-2020	Feb-2020	Mar-2020	Apr-2020	May-2020	Jun-2020	Jul-2020	Aug-2020	Sep-2020	Oct-2020	Nov-2020	Dec-2020	Jan-2021	Feb-2021	Mar-2021
1. Longer MDR with Bdq (56-70kg): 1Bdq(100)Cfz(100)Cs(250)Lfx(250)Lzd(600)/6Bdq(100)Cfz(100)Cs(250)Lfx(250)Lzd(600)/14Cfz(100)Cs(250)Lfx(250)Lzd(600)	2	2	2	2	2	3	3	3	3	3	4	8	10	9	11	9	11	10	9	10
2. Shorter MDR fully oral with Bdq (56-70kg) 2: 1Bdq(100)Cfz(100)E(400)Eto(250)H(300)Lfx(250)Z(400)/6Bdq(100)Cfz(100)E(400)Eto(250)H(300)Lfx(250)Z(400)/5Cfz(100)E(400)Lfx(250)Z(400)										0	0	4	4	3	5	4	4	5	4	5

Figure 80

DIVIDING AND MERGING QUANTIFICATION FILES

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**.

Note: This feature of the tool is no more useful since more accurate result can be obtained using easier method – producing the procurement/schedule in excel export and diving the proposed delivery quantities and values for each year or period you would like to consider. Because of this, we have removed the detailed instructions on how to divide a quantification file.

Merging multiple quantification files

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 then 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.

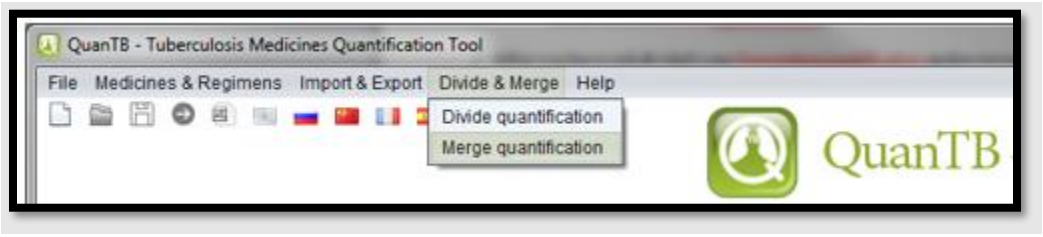


Figure 81

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

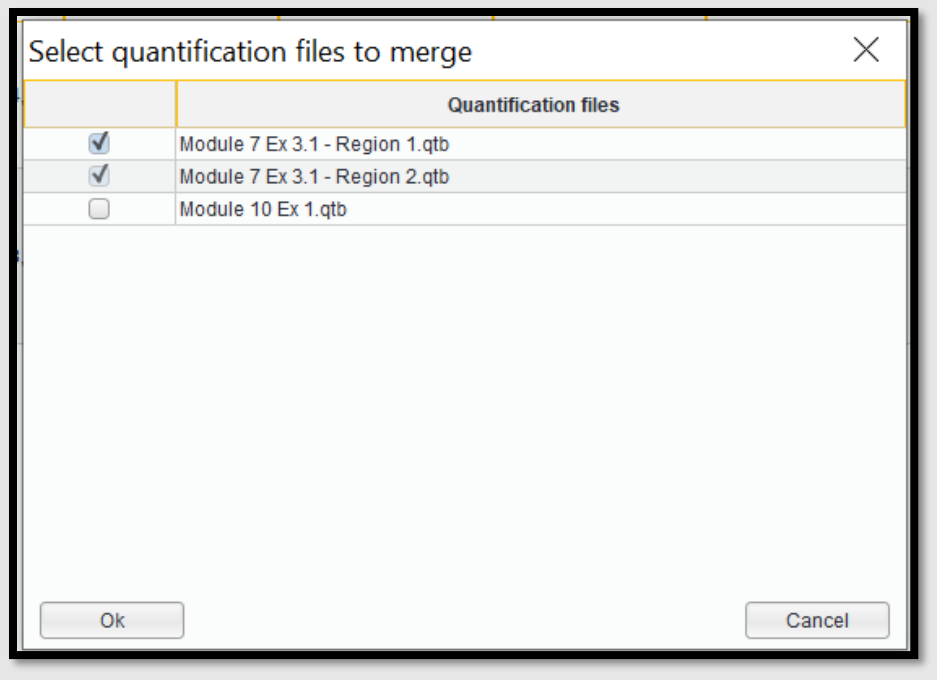


Figure 82

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.

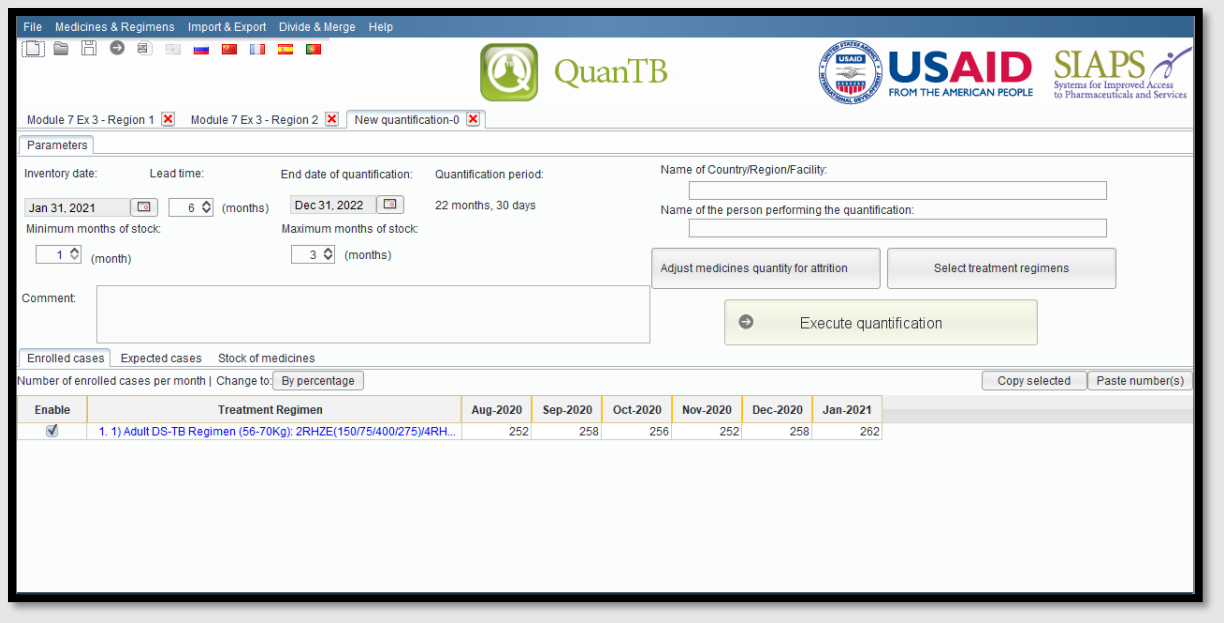


Figure 83

Considerations when merging quantifications:

- The inventory date and lead time must be the same in all of the files to be merged.
- The merged file will have 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, these need to be entered as new.
- 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 keep pack sizes and prices of the fist QuanTB file in the list, for the same product found in multiple files. If you need to use other pack sizes or prices, you need to update.

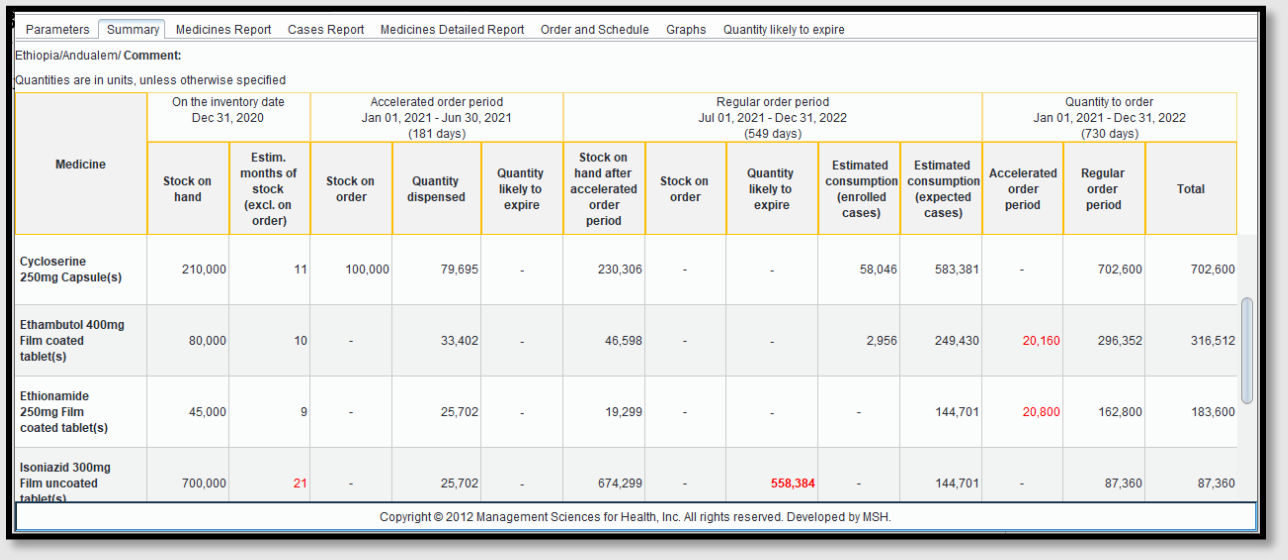
Note: Two critical conditions that need to be fulfilled for successful merging of two or more QuanTB files: the QuanTB files to be merged need to have the same inventory date and lead time.

USING QUANTB AS AN EARLY WARNING SYSTEM

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 and potential wastages. 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 stockouts 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 a year, with sufficient stock of medicines to cover current and expected cases throughout the year until the next regular procurement, with some medicines being over the maximum set level of 13 months (below):



Parameters | Summary | Medicines Report | Cases Report | Medicines Detailed Report | Order and Schedule | Graphs | Quantity likely to expire

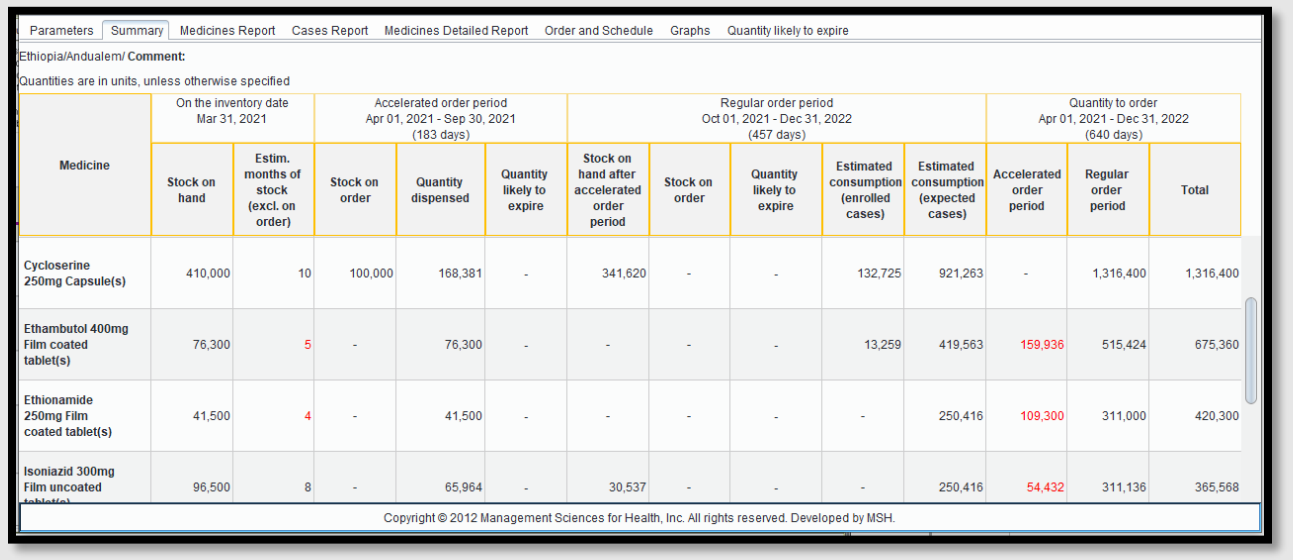
Ethiopia/Andualem/ **Comment:**

Quantities are in units, unless otherwise specified

Medicine	On the inventory date Dec 31, 2020		Accelerated order period Jan 01, 2021 - Jun 30, 2021 (181 days)			Regular order period Jul 01, 2021 - Dec 31, 2022 (549 days)				Quantity to order Jan 01, 2021 - Dec 31, 2022 (730 days)		
	Stock on hand	Estim. months of stock (excl. 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
Cycloserine 250mg Capsule(s)	210,000	11	100,000	79,695	-	230,306	-	-	58,046	583,381	-	702,600	702,600
Ethambutol 400mg Film coated tablet(s)	80,000	10	-	33,402	-	46,598	-	-	2,956	249,430	20,160	296,352	316,512
Ethionamide 250mg Film coated tablet(s)	45,000	9	-	25,702	-	19,299	-	-	-	144,701	20,800	162,800	183,600
Isoniazid 300mg Film uncoated tablet(s)	700,000	21	-	25,702	-	674,299	-	558,384	-	144,701	-	87,360	87,360

Figure 81

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:



Parameters | Summary | Medicines Report | Cases Report | Medicines Detailed Report | Order and Schedule | Graphs | Quantity likely to expire

Ethiopia/Andualem/ **Comment:**

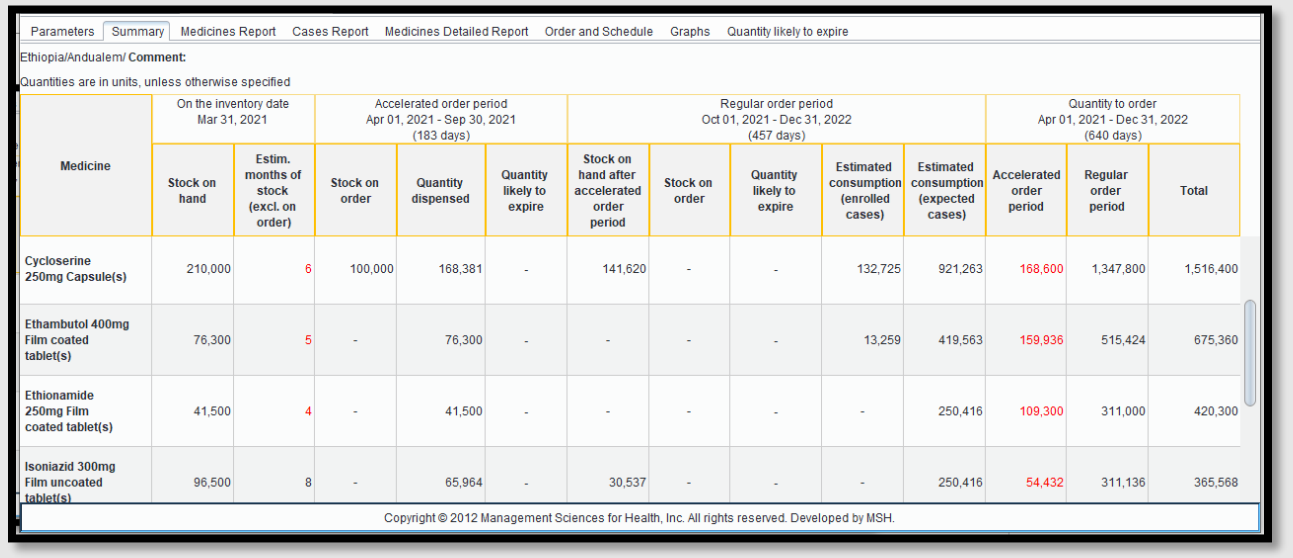
Quantities are in units, unless otherwise specified

Medicine	On the inventory date Mar 31, 2021		Accelerated order period Apr 01, 2021 - Sep 30, 2021 (183 days)			Regular order period Oct 01, 2021 - Dec 31, 2022 (457 days)					Quantity to order Apr 01, 2021 - Dec 31, 2022 (640 days)		
	Stock on hand	Estim. months of stock (excl. 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
Cycloserine 250mg Capsule(s)	410,000	10	100,000	168,381	-	341,620	-	-	132,725	921,263	-	1,316,400	1,316,400
Ethambutol 400mg Film coated tablet(s)	76,300	5	-	76,300	-	-	-	-	13,259	419,563	159,936	515,424	675,360
Ethionamide 250mg Film coated tablet(s)	41,500	4	-	41,500	-	-	-	-	-	250,416	109,300	311,000	420,300
Isoniazid 300mg Film uncoated	96,500	8	-	65,964	-	30,537	-	-	-	250,416	54,432	311,136	365,568

Figure 82

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:

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 | Quantity likely to expire

Ethiopia/Andualem/ **Comment:**

Quantities are in units, unless otherwise specified

Medicine	On the inventory date Mar 31, 2021		Accelerated order period Apr 01, 2021 - Sep 30, 2021 (183 days)			Regular order period Oct 01, 2021 - Dec 31, 2022 (457 days)					Quantity to order Apr 01, 2021 - Dec 31, 2022 (640 days)		
	Stock on hand	Estim. months of stock (excl. 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
Cycloserine 250mg Capsule(s)	210,000	6	100,000	168,381	-	141,620	-	-	132,725	921,263	168,600	1,347,800	1,516,400
Ethambutol 400mg Film coated tablet(s)	76,300	5	-	76,300	-	-	-	-	13,259	419,563	159,936	515,424	675,360
Ethionamide 250mg Film coated tablet(s)	41,500	4	-	41,500	-	-	-	-	-	250,416	109,300	311,000	420,300
Isoniazid 300mg Film uncoated tablet(s)	96,500	8	-	65,964	-	30,537	-	-	-	250,416	54,432	311,136	365,568

Figure 83

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 addition, it may be a requirement to quantify for the next certain number of months (for example 24 months) every time you update your quantification and that will require extending the quantification period and entering expected number of cases for the extension.
- 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 quantification with current information every three months and execute it again.

Viewing QuanTB files created by others

QuanTB 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 folder when you have saved your QuanTB files (e.g., Docs folder located at C:\Users*yourname*\QuanTB\docs, if you have used the default) to select the QuanTB file you want to email to your colleague.
Upon receipt of your QuanTB 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, your colleague needs to open the QuanTB file sent by you, go to the **Medicines & Regimens** menu, and then click **Add from quantification.**

Figure 85

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.

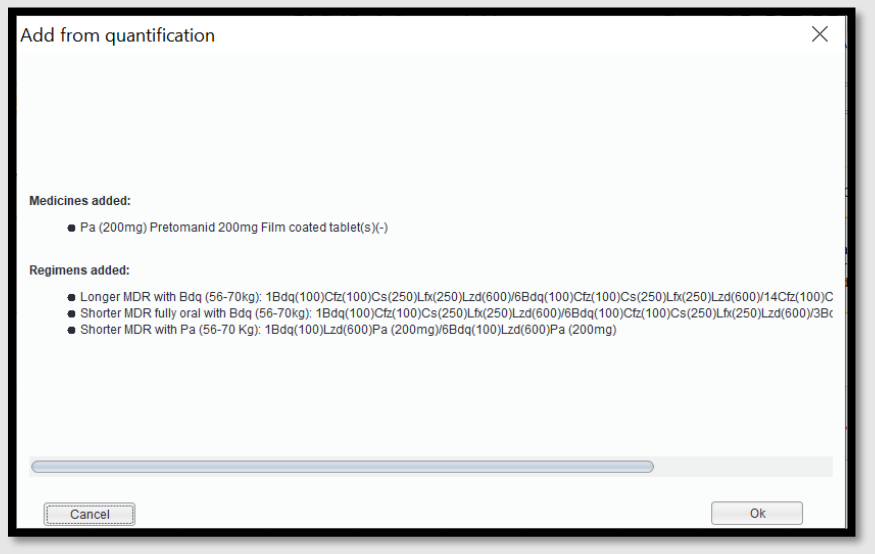


Figure 86

ANNEX 1: 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 quantify for ancillary medicines, you should use the **Single-drug** option. 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.

ANNEX 2: QUANTIFYING FOR PATIENT KITS

QuanTB does not have a specific feature to quantify 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 quantification period. Wastages can be adjusted in the order tab, though.

Consider the following in quantifying ffor patient kits:

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. Do not number of cases for enrolled cases as every patient that has stated the treatment has already has the full treatment course allocated for him/her. But make sure that these allocated stocks are not considered as part of the stock on hand either.

4. **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.

5. 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 there are differences in when a patient starts and stops components of the kit. For example RHZE is taken during the first 2 months followed by 4 months of treatment with RH. Use the product quantity requirement of the component with higher quantity as the total kit quantity to procure.

ANNEX 3: REPORTING AN ERROR

If you receive an error message with an "Exception caught:" error or any other issues that prevents you from using the tool, please let us know so that we can continuously improve QuanTB.

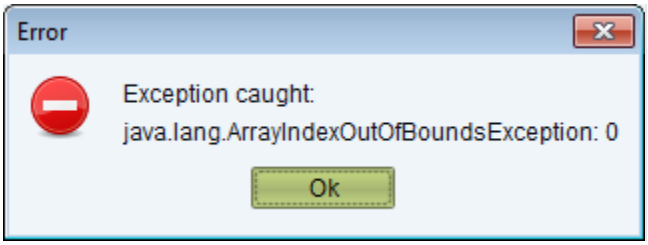


Figure 87

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.

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