**User guide for the WHO   
Vaccine Volume Calculator**

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# Technical terms and acronyms

The following technical terms and acronyms are used in the tool:

|  |  |
| --- | --- |
| Equipment utilization factor | The percentage of the net storage volume that can effectively be used for storing vaccine. This is always less than the published net storage volume. |
| FIC | Fully Immunized Child. |
| FOB | Free On Board (Incoterm). A standard way of expressing price information, used in the equipment data tables. |
| Primary store | A store which receives some or all of its vaccine directly from a national or international vaccine manufacturer. Example: a national vaccine store. |
| MaxiStock | The maximum volume of a product or mix of products that will be held in stock or transported based on a defined delivery frequency. |
| Maximum storage volume | The volume of vaccine or safe injection supplies for a specified number of recipients and a specified MaxiStock. |
| Maxi supply interval | The Maxi supply interval is the longest supply period that is established for each vaccine received at primary store level. This figure is expressed as the period in months between each vaccine delivery. |
| Net storage volume | For a freezer room, cold room, vaccine freezer, vaccine refrigerator or cold box: the total volume inside the appliance where vaccine can safely be stored. |
| Passive container | A cold box, vaccine carrier or other device which is used to transport vaccine at the correct temperature without use of a power source to maintain cooling. |
| Pre-qualified | Vaccines or cold chain equipment which has been pre-qualified by WHO for purchase by UN agencies. |
| Recipient | An individual member of the target group for a specific vaccine. |
| Safety stock | Safety stock level is the level established for each vaccine at primary store level. This figure is expressed in months. |
| Service point | A health facility or health post where vaccine is administered. |
| SIA | Supplementary Immunization Activity |
| Sub-national store | A store which receives vaccine from a primary store or a higher level sub-national store and supplies one or more lower level sub-national store and/or one or more lowest delivery level stores. For example, a provincial store supplying one or more district stores. |
| Target group | Subset of the country population which is the target for receiving each of the vaccines in the immunization schedule. This can be expressed either in terms of the total number of Fully Immunized Children or as a percentage of the total population. |
| Total population | The total population of the country. |
| Unit of Population (UP) | A notional single member of the population used as a basis for calculating the average vaccine requirements of the country using the percentage of total population method. |
| Wastage factor | 1/wastage rate. |
| Wastage rate | Expected percentage of a vaccine vial that is wasted. In this application it includes both unopened and opened vial wastage. |

# Introduction

The WHO Vaccine Volume Calculator (VVC) is designed to help cold chain logisticians prepare a preliminary estimate of national cold chain equipment needs and dry store requirements. It can be used to assess **current needs** based on the existing vaccine schedule and also to forecast **future needs** based on up to four alternative vaccine schedules. In addition, it provides vaccine volume data to help with the planning of **supplementary immunization activities** (SIAs). Up to four alternative SIAs can be evaluated.

The tool includes a database of WHO pre-qualified vaccines. It also includes databases listing the range of WHO pre-qualified vaccine refrigerators and freezers and passive containers that are likely to be encountered in the field.

## Related tools

The [EVM Assistant](http://www.who.int/entity/immunization_delivery/systems_policy/EVM_Assistant_Tool.xls) tool should be used to carry out the volume calculations required in the course of an Effective Vaccine Management (EVM) assessment. The Vaccine Store Sizing Tool (VSST) is designed to be used for the detailed sizing of cold rooms, freezer rooms and dry stores as part of a site-specific equipment procurement exercise. Both these tools use the same vaccine volume calculation methodology and the same databases as the VVC.

# Organization of the VVC

VVC is supplied as a ‘read-only’ Excel 2003 workbook. All worksheets are ‘protected’, but no password is used.

This section outlines the components of the VVC. The tool is an Excel workbook divided into 29 visible colour-coded worksheets[[1]](#footnote-1).

The ***Index*** worksheetprovides basic instructions and includes a hyperlinked index to the individual worksheets. These worksheets are divided into three categories:

1. Data input sheets: Mandatory data entry is only required on the three worksheets named ***Cover, Vaccine\_Select*** and ***Abacus\_Tables****.*  Cells that require mandatory data entry are coloured white and cells that allow optional data entry are coloured pale yellow. All other cells are protected. Protected cells containing formulae are generally coloured pale green, pale blue or grey.
2. Output data sheets: These make use of the input data to generate lookup material for use by the cold chain logistician. These data are presented as four summary tables, three sheets of bar charts and eleven graphs; how these are used is explained below.
3. Reference data sheets: The tool uses these worksheets for lookup purposes; they also provide the user with a ready reference guide.

In addition to the guidance on the ***Index*** worksheet the input data sheets include step-by-step notes to guide users through the data entry process.

Worksheets tags are colour-coded by type: The index sheet tag is coloured dark grey; data entry sheets are coloured pale yellow; output data sheets are coloured indigo; bar charts and graphs are coloured dark green and database sheets are coloured dark blue. Subsidiary worksheets are coloured pale grey

Sample screen shots, graphs and charts are shown in the following sections to explain the use of the tool and how its output can be used.

# User instructions

This section describes the layout and intended purpose of each of the worksheets.

## How to start the tool

Open the ‘read-only’ tool and save it with the country name – for example: VVC\_Afghanistan\_2011.This will allow you to save your data and avoids overwriting the master version that you have downloaded. Click on the **Cover** tag. Enter the country name, language choice and date. Currently the tool is available in English, French and Russian; other language versions will be developed in the future.

**Figure 1 – Cover worksheet**



Next click on the **Index** tag; use this worksheet to familiarize yourself with the contents of the workbook and to navigate to the individual worksheets via the hyperlinks provided – see Figure 2. Note that there are no hyperlinks to the graph worksheets.

**Figure 2 – Index worksheet**.



## How to use the data input worksheets

The next two sections describe how to use the active worksheets to generate the graphs. These graphs are the principal output from the tool. Provided the catchment population for each facility is known, the logistician can use the graphs to estimate cold chain and dry store requirements and costs on a facility by facility basis.

### Vaccine\_Selection worksheet

The first step is to collect all necessary data on the existing national immunization schedule and any proposed new vaccine introductions. Table 1 describes the data required; Table 2 gives an example.

**Table 1 – Immunization schedule data for the net storage volume estimates**

| Name | Description |
| --- | --- |
| Vaccine type | List of all vaccines in the current immunization schedule. If the assessment is also going to review the introduction of new vaccine(s), list the new vaccine(s) and identify which, if any, of the existing vaccines will be replaced. |
| Vaccine presentation | Number of doses per vial, Uniject™, pre-filled syringe, etc. |
| Packed volume per dose based on national figure | **Optional:** Indicate the packed volumes as per national figures if these exist. If left blank, the Maxi packed volume will be generated automatically using figures from the database in the tool. |
| Vaccine wastage rate | **Optional:** Indicate the national expected vaccine wastage rates. This will override the WHO/GAVI indicative figure. If no national figures are available, leave blank; the WHO/GAVI indicative figure will be generated automatically from the database in the tool. |
| Target group | Expressed either as a Fully Immunized Child(FIC) or as a notional Unit of Population (UP). UP is based on the percentage of the total population which receives each of the vaccines in the schedule. |
| Number of doses per recipient | As set out in the national immunization schedule. |
| Maxi supply interval established for primary level | The Maxi supply interval is the longest supply period that is established for each vaccine received at primary store level. This figure is expressed as the period in months between each vaccine delivery. |
| Safety stock at primary level | Safety stock level is the level established for each vaccine at primary store level. This figure is expressed in months. |

**Table 2 – Example of an immunization schedule data table**

| Vaccine type | Presentation (doses/vial or pre-filled) | Packed volume per dose/cm3 | Wastage rate (%) | Recipient group  (% of population) | Doses per target group | Maxi supply interval at primary level in months | Safety stock at primary level in months |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Existing schedule* | | | | | | |  |
| BCG | 20 | database | 50 | 4.0 | 1 | 6 | 1.5 |
| OPV | 10 | database | 25 | 3.7 | 4 | 6 | 1.5 |
| DTP | 10 | database | 25 | 3.7 | 3 | 6 | 1.5 |
| HepB | 10 | database | 25 | 3.7 | 3 | 6 | 1.5 |
| Measles | 10 | database | 40 | 3.7 | 1 | 6 | 1.5 |
| TT | 10 | database | 25 | 4.2 | 2 | 6 | 1.5 |
| YF | 5 | database | 10 | 3.7 | 1 | 6 | 1.5 |
| *New schedule* | | | | | | |  |
| BCG | 20 | database | 50 | 4.0 | 1 | 6 | 1.5 |
| OPV | 10 | database | 25 | 3.7 | 4 | 6 | 1.5 |
| Measles | 10 | database | 40 | 3.7 | 1 | 6 | 1.5 |
| HepB (2) | Uniject | database | 5 | 4.0 | 1 | 6 | 1.5 |
| DTP-HepB-Hib (3) | Pre-filled (1) | 25.0 | 5 | 3.7 | 3 | 6 | 1.5 |
| TT | 10 | database | 25 | 4.2 | 2 | 6 | 1.5 |
| YF | 5 | database | 10 | 3.7 | 1 | 6 | 1.5 |
| Rota (3) | Pre-filled | database | 5 | 3.7 | 1 | 3 | 0.75 |

(1) This gives an example of a vaccine that is not recorded in the database.  
(2) Existing vaccine in new presentation for birth dose.  
(3) New vaccine added to the schedule

Click on the **Vaccine\_Selection** worksheet. Take the immunization schedule data you have already collected and proceed as follows. Refer also to Figure 3:

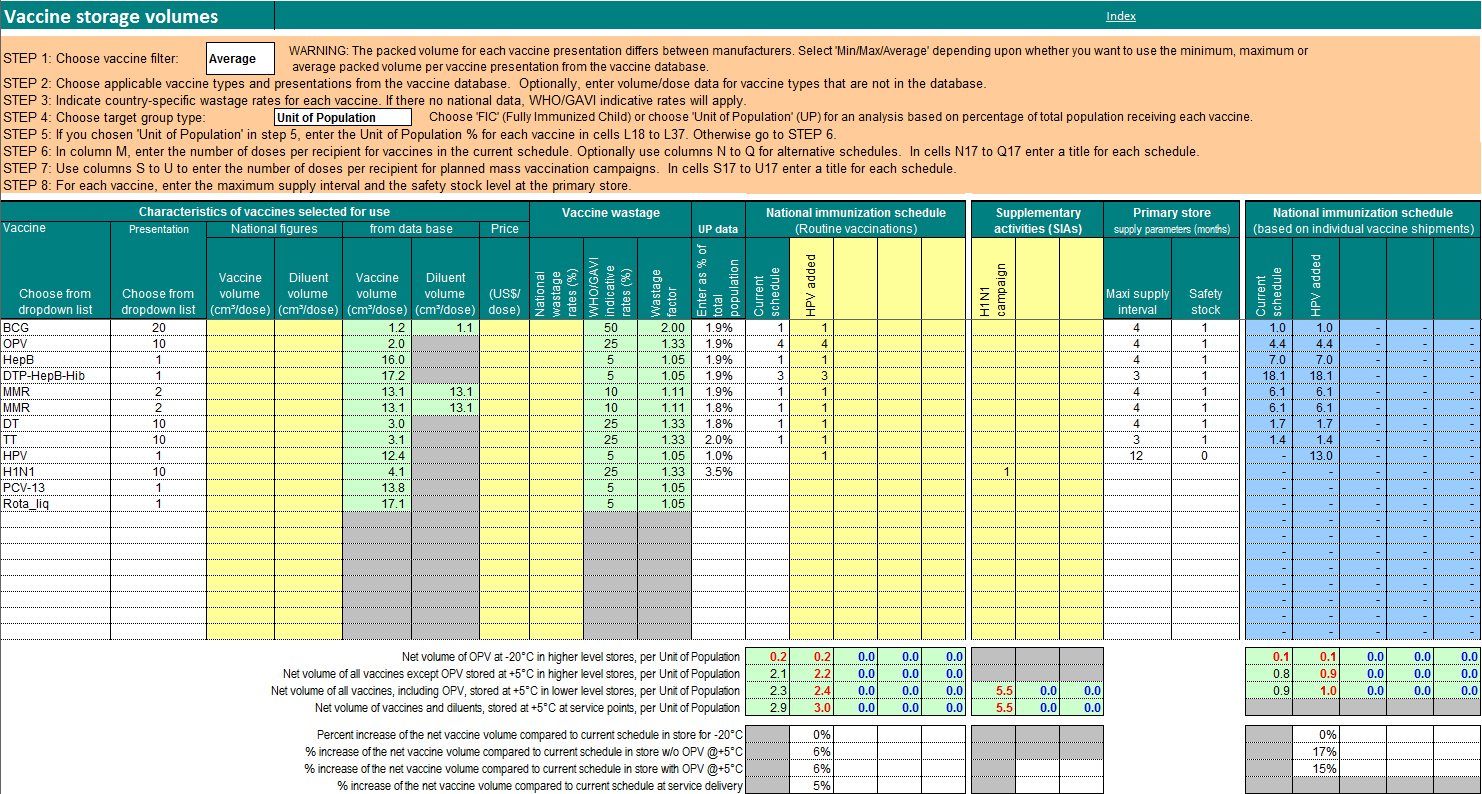
1. Select the vaccine database filter you want to use in cell E5. You can either choose ‘Min’, ‘Max’ or ‘Average’. The ‘Min’ choice gives you access to the minimum packed volumes figures from the vaccine database. The second choice ‘Max’ offers data on the maximum packed volumes figures for each vaccine presentation. Since vaccines may be supplied to the country from different manufacturers, the ‘max’ or ‘average’ choices are preferable.
2. In cell E8, select the type of target group to be used for estimating vaccine demand. There are two options: FIC, which refers to the requirement for each Fully Immunized Child, or Unit of Population. Choosing Unit of population opens up the cells in column L for data entry. If the FIC option is selected, column L is blanked out. The Unit of Population option provides more flexibility, especially where the schedule includes vaccines such as HPV whose target population does not specifically relate to the annual birth cohort.
3. Use the drop-down lists in the column B data entry cells to enter each of the vaccines in the current schedule. Optionally, you may also enter any additional vaccines that will be present in a new vaccine schedule. You will want to do this if you are investigating the effect on storage capacity of adding or subtracting vaccines from the existing schedule.
4. Use the drop-down lists in column C to specify the vaccine presentations.
5. Optionally, you can use the cells in column D and E to enter packed volume-per-dose data for vaccines or diluents using actual national figures[[2]](#footnote-2). This will override the maximum packed volume data from the database. If left blank, the maximum packed volume for each vaccine will be extracted from the database.
6. Optionally, you can enter price-per-dose figures for each vaccine in column H. These data are used in the **Routine\_illustration** and **SIAs\_illustration** bar charts to estimate vaccine cost per recipient.
7. Optionally use the cells in column I to enter vaccine wastage rates taken from national figures, if these exist. This will override the WHO/GAVI indicative figures from the data base. If the cells in column I are left blank, the WHO/GAVI indicative figures will automatically be used.
8. If the choice in cell E8 is Unit of Population, enter data for each vaccine in column L. The target group for each vaccine should be expressed as the relevant percentage of the total population – for example, 3.9%.
9. In column M, enter the number of doses per individual recipient for each of the vaccines in the current schedule.
10. Optionally, in cells O16 to Q16, you can enter the name of up to four proposed new routine immunization schedules. For each of these, enter the number of doses per recipient for each of the vaccines in the new schedule in the appropriate column. Note that you *must* repeat the column O figures for any existing vaccines that are retained in this new schedule. *Do not* enter a figure if one or more of the existing vaccines is being replaced by the new vaccine. For example if DTP-HepB-Hib is replacing DTP and HepB, only enter doses per recipient for the new pentavalent vaccine, *not* for DTP and HepB.
11. Optionally use cells S16 to U16 to name up to three alternative supplementary immunization activities. For each of these, enter the number of doses per recipient for each of the vaccines in the new schedule in the appropriate column. **Note:**  Make sure that the vaccine you want to use for the SIA is fully specified in the manner previously described. However, you *do not* need to specify Maxi supply interval or safety stock levels for SIA vaccines.
12. In column V, enter the Maxi supply interval established at primary level, in months, for each vaccine.
13. In column W, enter the Safety stock level established at primary level, in months, for each vaccine.

The calculated volumes per recipient for routine vaccines are accumulated in cells M38-M41 for current immunization schedule and in cells O38-Q41 for the new immunization schedule(s) (if any). Similarly, SIA volumes per recipient are accumulated in cells S40-U41. These figures are used in the **Abacus\_Tables** worksheet to produce graphs based on one or more standardized delivery intervals.

Note that the volumes per recipient are largest when the FIC option is chosen. This is because the calculation is based on the requirements of a single Fully Immunized Child (0-11 months). When the Unit of Population (UP) option is selected the calculation is based on the notional vaccine needs of an average individual member of the population regardless of age or sex. For example, if 2% of the population are in the 0-11 month age group, the UP will notionally receive this percentage of all the infant vaccines. If 1% of the population are adolescent girls in the HPV target group, the UP will notionally receive this proportion of HPV vaccine.

In the example shown in **Figure 3** the UP target group type has been chosen. The vaccines entered include BCG and HepB birth doses, OPV given at birth and 2, 3 and 4 months, DTP-HepB-Hib given at 2, 3 and 4 months, MMR given at 12 months and 6 years, DT given at 6 years and TT give to pregnant women. A new schedule with the addition of HPV is also added. Finally, data for an H1N1 SIA campaign are also included. The ‘UP data’ column shows the percentage of the total population that are planned to receive each of these vaccines.

**Figure 3 – Vaccine\_select worksheet**



### Abacus\_Tables worksheet

Click on the **Abacus\_Tables** worksheet to enter the remaining data that are needed to generate the graphs. There are five separate tables on the worksheet. These can be shown or hidden using the grouping bar in the left hand margin[[3]](#footnote-3).

#### Storage capacity tables:

The first three tables are used to estimate cold chain and dry storage requirements at fixed storage locations as follows:

* Analysis of national and sub-national storage (Figure 4).
* Analysis of district level storage (Figure 5).
* Analysis of service delivery level (health facility) storage (Figure 6).

Within these tables, the user is able to define alternative vaccine and dry store maximum stock levels, select suitable cold chain equipment, define equipment utilization factors, and specify the immunization schedules specified in **Vaccine\_select** is to be used for the analysis. At national, sub-national and district levels, the user can specify different maximum stock levels for vaccines and dry stores. At service delivery level it is assumed that vaccines and dry stores follow the same delivery schedule.

**Figure 4 – Analysis of national and sub-national storage**



**Figure 5 – Analysis of district level storage**



**Figure 6 – Analysis of service delivery level storage**



#### Using the storage capacity tables

Figure 7 shows the procedure for completing the data entry cells; these are common across all the storage capacity tables and similar in the transport at cost tables (see below).

* STEP 1: The first step in all these tables is to specify a minimum and maximum target population size for the table and associated graphs based on the number of fully immunized children or the total population as appropriate. For example, in the first table, if the smallest sub-national store serves a total population of 600,000 and the total population of the country is 9,000,000, choose minimum and maximum figures that cover this range – say 500,000 to 10,000,000. This will enable data for all the national and sub-national stores in the country to be read off the relevant graphs[[4]](#footnote-4).
* STEP 2: Choose a MaxiStock option to generate a Type 1 chart (see below). Choosing the ‘per individual vaccine’ option in the header tables of the national and sub-national storage table generates storage capacity data based on the supply interval and safety stock data you have entered in columns V and W of the **Vaccine\_Selection worksheet**. These data are only relevant at national (primary**)** store level where individual vaccines in the schedule may be received from the vaccine supplier at different intervals. In the example shown in Figure 3, most vaccines are on a 4 month supply interval, DTP-HepB-Hib and HPV are supplied 3-monthly and H1N1 is supplied once a year as a campaign vaccine. When calculating maximum stock levels (MaxiStock), the ‘per individual vaccine’ data in the table and on the associated graphs takes account of these variable supply intervals.
* STEP 3: Choose MaxiStock options to generate a Type 2 chart (see below). The data entry table allows you to enter up to four separate MaxiStock levels for both vaccines and safe injection supplies.
* STEP 4: Choose appropriate cold chain equipment from the drop down equipment lists.
* STEP 5: Enter an appropriate utilization factor for the cold chain equipment.
* STEP 6: Choose the immunization schedule you want to use to generate the Type 2 graph.

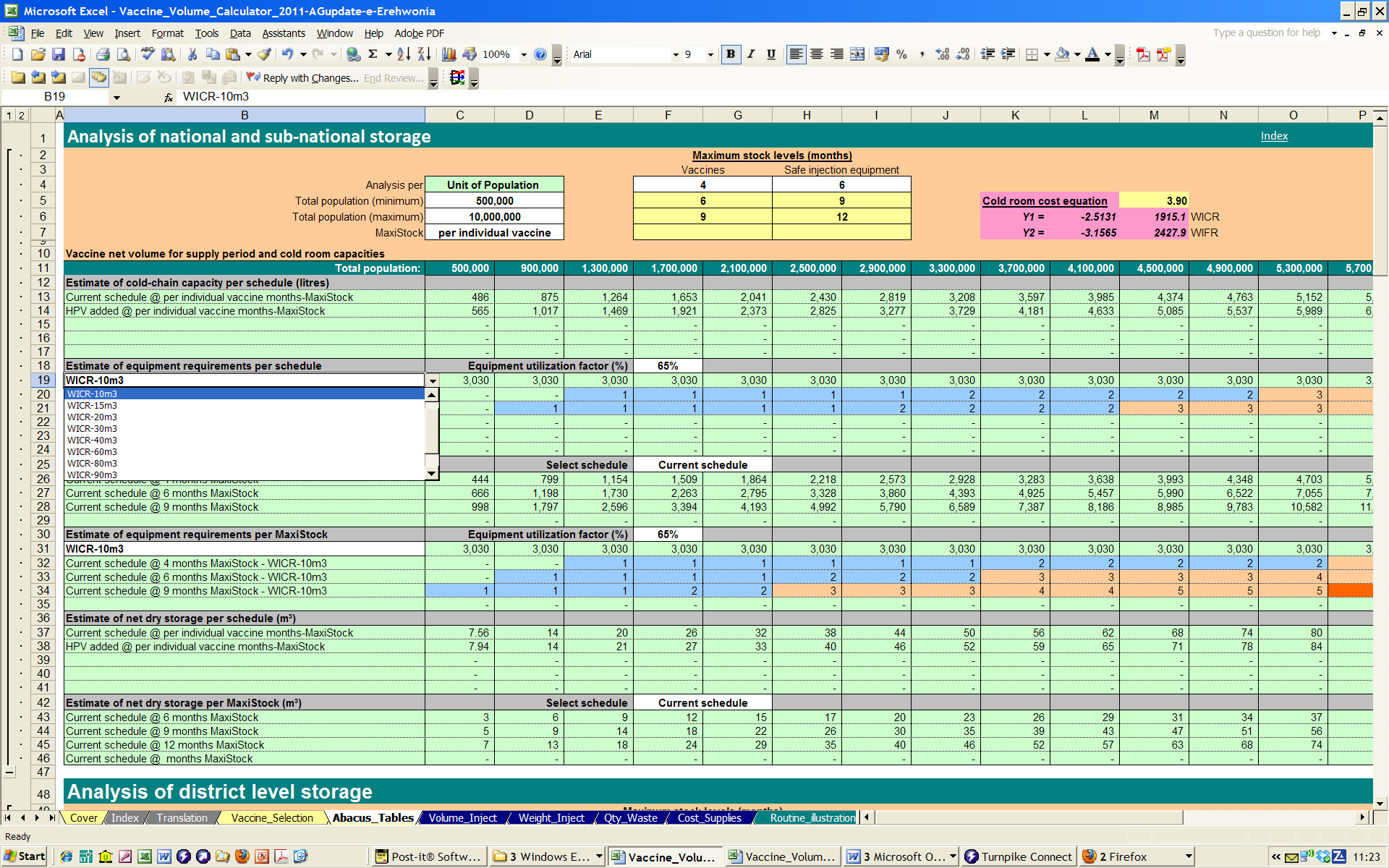
**Figure 7 – Using the data entry cells (similar for all charts)**

Target group type from Vaccine\_Selection

STEP 2: Select MaxiStock option for Chart Type 1

STEP 1: Enter min and max population

STEP 3: Select MaxiStock options for Chart Type 2



STEP 6: Choose schedule for Chart Type 2

STEP 5: Specify equipment utilization factor

STEP 4: Choose cold chain equipment from drop-down list

Colour coding on the chart gives an indication of viable cold chain equipment choices for a particular target population range. Pale blue is clearly viable, pink merits a second look and red indicates an uneconomic choice – for example large number of ice-lined refrigerators when a cold room might be more suitable.

#### Analysis of transport and in-country distribution

The fourth table in the series covers analysis of transport and in-country distribution. The user specifies the type of cold box used for vaccine distribution. Currently there is no option covering the use of refrigerated vehicles. Figure 8 shows an example. There is no graph associated with this table.

**Figure 8 - Analysis of transport and in-country distribution**



#### Analysis of cold chain cost

The final table covers analysis of cold chain cost. There are no data entry options for this table. Figure 9 shows and example. Figure 8 shows an example. There is no graph associated with this table.

**Figure 9 – Analysis of cold chain cost**



## Data output sheets – results per recipient

### Volume\_inject worksheet

Clicking on **Volume\_inject** to will show the volume of diluents and injection equipment per recipient which are required for the schedule(s) specified on the Vaccine\_Selection worksheet. The worksheet uses default values for the AD syringe reconstitution syringe and safety box unit volumes. You can over-ride any one of these figures by entering a value in the relevant pale yellow cell.

**Figure 10 – Volume\_inject worksheet**



### Weight\_inject worksheet

Click on the **Weight\_inject** tab and you will see a table showing the weight of injection equipment and safety boxes per recipient relating to the schedule(s) specified on the Vaccine\_Selection worksheet. The worksheet uses default values for the AD syringe reconstitution syringe and safety box unit weights. You can over-ride any one of these figures by entering a value in the relevant pale yellow cell.

**Figure 11 – Weight\_inject worksheet**



### Qty\_waste worksheet

Click on the **Qty\_waste** tab to show a table containing an estimate of the volume of empty vials and used syringes generated per recipient, for each of the chosen schedules. There are no over-ride options on this worksheet.

**Figure 12 – Qty\_waste worksheet**



### Cost\_supplies worksheet

The **Cost\_supplies** worksheet is the final one in this sequence. It sets out the cost of the vaccines, injection equipment and safety boxes for each of the chosen schedules. An over-ride option is available for syringe and safety box unit costs.

**Figure 13 – Cost\_supplies worksheet**



## Data output sheet – graphical illustration of results

Click on the **Routine\_illustration** tab to display four bar charts showing key data which has been calculated on a ‘per recipient’ basis: vaccine storage volumes, volume of diluents and injection equipment, cost of vaccines and injection equipment and the volume of waste generated.

**Figure 14 – Routine\_illustration charts**



Click on the **SIAs\_illustration** tab to display the same four bar charts for SIA activities.

**Figure 15 – SIAs\_illustration charts**



## How to use the graphs

This section describes how to use the graphs. There are a total of 12 graphs, arranged in six pairs.

The first set of six graphs covers vaccine storage at primary and sub-national level, district level and service delivery level. At each of these three levels one chart in the pair (Type 1) compares the effect of different schedule with a common delivery interval (designated *different schedules with same Maximum stock* on the charts). The other graph in the pair (Type 2) covers the condition where a common schedule is used, but different delivery intervals are modelled (designated *same schedule with different Maximum stocks* on the charts). Refer to section 3.2.2b for a more detailed description of the data entry requirements of the two graph types.

The second set of six graphs covers dry storage at primary and sub-national level, district level and service delivery level. The graphs are arranged in the same three pairs (Type I and Type 2) as described in the previous paragraph.

If you know the population of a specific facility, you can use the graphs to read off the net vaccine or dry store volumes for that facility directly from the relevant chart for any one of the scenarios you have chosen to model. Representative examples of the two graph types are shown in Figures 16 and 17. Both charts show vaccine storage capacity requirements at national and sub-national levels for the population range entered in the **Abacus\_Tables** worksheet. At these two upper levels in the supply chain, polio vaccine is kept separately in a -20°C freezer or freezer room. The charts show the capacity needed at +5°C only[[5]](#footnote-5). The figures on the vertical y-axis show the net volume of vaccines in litres.

**Figure 16 – Type 1 graph: different schedules with same Maximum Stock**



Legend

Target population type

Figure 16 shows the relationship between net storage capacity and population for the existing schedule and for a proposed new schedule with HPV vaccine added. In the example, the underlying calculation is on a ‘per individual vaccine basis’, as described in section 3.2.2b STEP 2.

**Figure 17 – Type 2 graph: same schedule with different Maximum Stocks**



Legend shows which schedule is used

Target population type

In this example we see the effect of different maximum stock levels (4, 6 and 9 months) for a single chosen schedule – in this case the current schedule defined in **Vaccine\_Selection**.

Figure 18 shows how to read a typical graph. Here we have taken the Figure 16 example and decided that we want to establish the required net capacity of the cold room(s) at the national vaccine store for our fictional country with a population of 9 million people.We do this by drawing a vertical line from the 9,000,000 population figure on the x-axis and extending horizontal lines from the intersection with the two schedule lines to the y-axis. By interpolation, this gives us a required net storage capacity of about 8,700 litres for the current schedule and about 10,200 litres for the new schedule with HPV added. Similar principles apply to the use of all the other graphs.

**Figure 18 – Reading a graph**



## Reference data worksheets

In addition to the ‘active’ worksheets, there are five further worksheets which contain database information; these data are either used dynamically in the tool or by the user in the field to identify equipment.

### Passive\_containers sheet:

This sheet provides data on WHO pre-qualified cold boxes and vaccine carriers currently or historically available from all WHO pre-qualified manufacturers. This worksheet is used as a look-up table to establish the net vaccine storage capacity, icepack size and icepack numbers that are needed to complete the transport capacity table in the **Abacus\_Tables** worksheet.

### PQEquipment sheet:

This sheet provides up-to-date information on refrigerators and freezers currently or historically available from all WHO pre-qualified manufacturers. This worksheet is used as a look-up table to extract the relevant equipment parameters needed to calculate refrigerator and freezer needs once an equipment choice is made in the **Abacus\_Tables** worksheet.

### Supplies

This sheet includes six tables which provide lookup data on the following:

* Table 1: Characteristics of safe injection equipment
* Table 2: Characteristics of supplies for other child survival interventions *Note:* this table is for information only – it is not directly used by the tool.
* Table 3: Characteristics of walk in cold/freezer rooms
* Table 4: Characteristics of icepack freezers
* Table 5: Characteristics of vaccine shipping containers
* Table 6: Purchase and running cost of cold chain equipment

### CR\_FR\_cost\_chart

This chart plots the purchase cost of walk-in freezer rooms and cold rooms using data provided by UNICEF Supply Division. Regression lines have been fitted to the two datasets. The associated formulae are used by the **Abacus\_Tables** worksheet to establish cold chain equipment costs in the *Analysis of cold chain cost* table. Refer back Figure 4, mauve box.

### Vaccine\_database sheet:

This sheet provides all necessary information on the vaccines currently available from WHO pre-qualified manufacturers. The table include type; presentation; trade name; mode of administration; packed volume per dose; availability of VVM, source of data, etc. A link is also given to the relevant WHO webpage describing the vaccine.

Users can update the database to include vaccines from other manufacturers, including locally produced vaccines that may be used in individual countries. **Warning:**  Be very careful if you make additions and proceed as follows:

* Unprotect the sheet
* Insert a row where you want to add a vaccine. Make sure it is in the correct place, e.g. Measles with other measles; JE with other JEs.
* Make sure that you enter the correct vaccine initials in column C. *Do not* create new initials. If you do, the vaccine will not appear on the drop-down list in the Vaccine\_Select worksheet. Enter all the necessary data specifying volume per dose, diluent volume per dose, etc.
* Protect the worksheet again when you have finished.

### Translation

The **Translation** data sheet contains the data used for the available language versions of the tool (English, French and Russian[[6]](#footnote-6)). Follow the guidance notes if you want to create a new language version. If you intend to do this, contact [kones@who.int](mailto:kones@who.int) for further advice, to share the translation, and to avoid duplicated effort.

### Revision history

The **Revision\_history** worksheet records a history of changes made to the tool.

# Revision history

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Change summary | Reason for change | Approved |
| 20.02.2012 | New document |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. There is a hidden worksheet containing a database of country names. [↑](#footnote-ref-1)
2. This option may be used for locally produced vaccines and for other vaccines which are not included in the vaccine database. Alternatively, you can add the figures to the database and then use the drop-down list. [↑](#footnote-ref-2)
3. Click on the - box to hide a table. Click on the + box to show it. [↑](#footnote-ref-3)
4. The worksheet automatically rounds up the population intervals in the 25 column headers. Depending on the minimum and maximum figures which you entered in the data entry cells, the maximum population in the column headings to the right of the table may exceed the maximum figure that you entered. [↑](#footnote-ref-4)
5. Only OPV is now routinely stored at -20°C at national and sub-national levels. No vaccines are routinely stored at -20°C at lower levels. Required freezer room or freezer capacity at can be estimated using data generated by the **Vaccine\_Selection** worksheet, multiplied by the relevant target population. [↑](#footnote-ref-5)
6. At the time of writing, the Russian version was incomplete. [↑](#footnote-ref-6)