



CLINTON HEALTH ACCESS INITIATIVE
(CHAI)

User Manual for v2021 of the
CHAI Simple Tool for the quantification of
adult and pediatric ARVs

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This quantification user manual was created to assist Ministry of Health HIV programs in their procurement planning for HIV medicines. This manual can be used by site-level, regional, and national-level personnel to assist in their quantification efforts as needed.

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Introduction

The basic goals of national medicines policies and public sector pharmaceutical supply systems are to provide access and promote the rational use of medicines. Various strategies exist to achieve these goals through different combinations of public and private sector involvement in the procurement and supply management (PSM) cycle.

The purpose of this documentation is to:

- Describe basic principles of quantification of ARVs
- Document the use of the CHAI Simple Tool for quantification of adult and pediatric ARVs

Basic principles of quantification

Overview

Quantification is an exercise that involves estimating supply needs for a public health program. A robust and accurate forecast ensures that sufficient quantities of commodities, including ARVs, are procured according to patient scale-up targets, taking into consideration assumptions for service delivery and other programmatic factors. A good quantification can help avoid stock-outs and wastages due to excess stock.

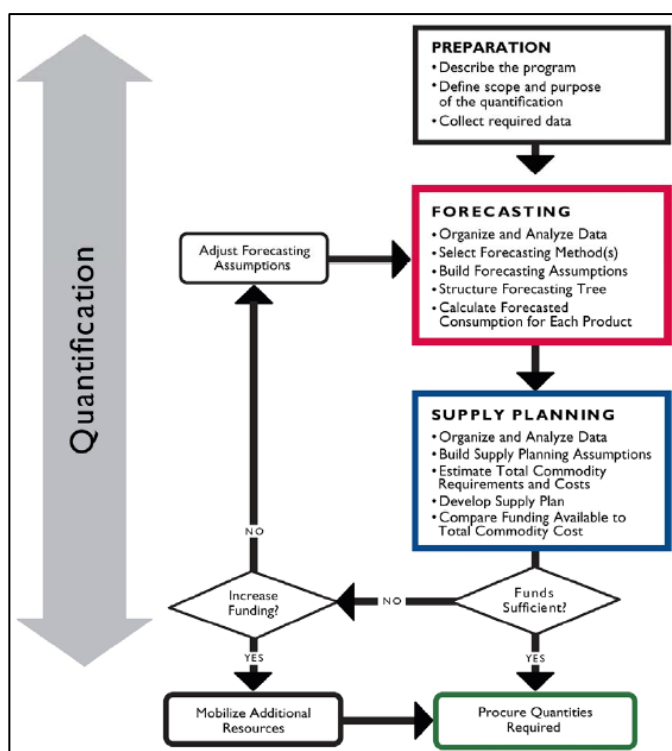


Figure 1 Flowchart of quantification process for public health commodities¹

¹ http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/QuantHealthComm.pdf

Methods of forecasting

There are two main methods for forecasting ARVs: forecasting by consumption or by morbidity. The main difference being the basis in which the forecast starts with.

The *consumption method* estimates the number of products expected to be consumed based on historical or past consumption trends.

The *morbidity method* first estimates the number of patients expected to be treated, and then calculates the number of products to be consumed.

Types of data required:

Consumption Method	Morbidity Method
<u>Historical Consumption Data</u> <ul style="list-style-type: none">Quantity of each product dispensed or used during past 12-month period (when data are available or can be estimated)	<u>Morbidity Data</u> <ul style="list-style-type: none">Number of patients per ART regimen treated in the past 12 month period (when data are available or can be estimated)Estimated incidence or prevalence rates of HIV/AIDS occurring within a defined population group such as pregnant women and most-at-risk groups

Often, it may be necessary to compare the results from both consumption and morbidity methods of quantification.

CHAI Simple Tool for forecasting of adult and pediatric ARVs

Overview

The CHAI Simple Tool is a *morbidity-based* forecasting tool that allows for the quantification of ARV needs for a period of three years for a HIV/AIDS treatment program.

Configuration

No special configuration is required to use the tool on personal computers. Both files are small (< 3,000KB), easy to download and do not take up much space on your computer. The user can copy and paste it as a regular file in any location on his/her computer. For proper management of data and quantification for easier budgeting, it is best to put the tools of quantification of adults and children in the same folder.

Content

Each quantification tool uses several interconnected Excel sheets that link to user input from one former Excel sheet to populate automatic calculations in a subsequent sheet. Use of this tool does not require extensive Excel knowledge, although some basic understanding of the software would facilitate full comprehension of the tool.

There are two separate Excel files for the quantification of ARVs for adults and for pediatric patients, comprising of 11 worksheets for the adult quantification tool and 10 for the pediatric tool. Each file contains spreadsheets for user input (pink colored cells) and automatically generated outputs or results (white colored cells).

On every worksheet, certain backend calculations needed to create the final outputs in the tool will be in hidden or in protected tables. **Users will therefore be unable to update such cells.**

General Instructions

1. Users must only fill in input cells that are highlighted in pink
2. There should not be any modification of any other cells, unless customization of the tool is required and where possible, a proficient user of Excel should be responsible for modification of any formulas and cells.

Required Inputs and Outputs by Section

Prior to using the CHAI Simple Tool, please review the data required for the tool to generate an ARV quantification, as per the sections specified below:

Instructions:

This first tab gives some high-level instructions for using the tool, links to this manual, and includes contact information for any questions or troubleshooting.

1st Section: General ART Inputs

This section asks the user for the following general ART inputs:

- Current number of patients on ART in country and scale-up targets over the next 3 years
- Percentages related to patient movement within therapeutic line (i.e. migration from first line to second line, loss to follow-up, attrition, etc.)
- NVP induction
- Number of months of needed national security (buffer) stock to supplement ARV order

2nd Section: Breakdown by regimen

This section asks the user to specify regimen breakdowns related to the first two sets of general inputs stated above, as per the below:

- Regimen breakdown of existing patients on ART
- Regimen breakdown for new patients on ART in next 3 years
- Regimen breakdown for existing patients on ART switching to 2L, or 3L

3rd Section: Proactive substitution of regimens

This section asks the user to specify any proactive regimen substitutions (i.e. when voluntarily switching a group of patients *showing no signs of treatment failure* from one regimen to another *within the same therapeutic line of treatment*) due to a therapeutic revision of national guidelines over the next 3 years. In most cases, proactive substitution occurs due to a national phase-out of a certain molecule or formulation (e.g., TLE600 to TLD)

4th Section: Breakdown by form and formulation

This section asks the user to select the form of each regimen identified in section 2. *This selection should be based on what formulations can be procured in country.* This is done by selecting the form of each regimen: whether it uses three single molecules (S+S+S), a dual + single molecule (D+S), or a triple (T) fixed dose combination (FDC). The user will therefore need to specify the following form breakdowns for each regimen:

- Year 1: triple, dual + single, singles
- Year 2: triple, dual + single, singles
- Year 3: triple, dual + single, singles

5th Section: Dosage by formulation

This section provides the user with dosage per day of each ARV formulation. This is a useful reference tool and provides additional clarity on consumption of each molecule based on

formulation choices identified in the previous section. This is the last user input section of the tool related to morbidity.

6th Section: Monthly number of patients by regimen

Based on previous inputs, this section generates the monthly number of patients by regimen over 3 years. It requires no user input as this is generated with automatic calculations, and is a good way to verify the validity of previous inputs based on how this section calculates projected monthly patient growth.

7th Section: Theoretical monthly consumption by formulation (Output 1)

Based on previous inputs, this section generates the theoretical monthly consumption for each formulation. **The sum of monthly consumption over 3 years represents the theoretical ARV demand of your quantification.** This is the first output of the tool.

***Note:** A table at the end of this section also calculates additional consumption based on implementation of Nevirapine induction implementation for new ART initiates. Implementation of this practice is specified in the first section of the tool, under general inputs.*

8th Section: Current stock and pipeline (Output 2)

This section asks the user to input current and pipeline stock levels, along with expiries, by month. Based on this and calculated consumption in the previous section, **the tool automatically generates a current stock supply plan, for the user to assess current monthly stock levels prior to placing the quantified ARV order.** This is the second output of the tool.

***Note:** This stock information will then be deducted from the theoretical demand calculated in the previous section to determine the actual quantification needs.*

9th Section: Quantification needs to order (Output 3)

This section provides the main outputs of this quantification tool, indicating the amount of each formulation to order based on current/projected morbidity and stock levels. This is done with the following two output tables:

- **Procurement supply plan:** monthly number of packs to order by formulation
- **Projected monthly stock supply plan after placing the quantified ARV order:** a revised supply plan based on the newly quantified orders

10th Section: Cost or ARV order (Output 4)

If the user specifies previous pricing obtained for each formulation, this section then outputs the cost over three years of the quantified ARV order. This is the last output of the tool.

11th Section: Partner allocation of orders (Output 5)

This tab allows the user to allocate responsibility for quantified products to various partners (e.g., PEPFAR, Global Fund, MoH, others) on either a cost or volume basis for each product.

CHAI Simple tool for forecasting Adult ARVs

Navigating the tool: Quantification steps by Excel worksheet

The updated version of this tool contains 10 Excel worksheets with several calculation tables. Each worksheet represents one quantification step needed to build the three-year forecast. The overall forecast is completed by following each quantification step, as per the worksheet order below:

Note: all screenshots displayed in this section of the manual will be referred to in examples provided below

First worksheet (General Inputs): Enter general baseline quantification inputs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S										
1																													
2	1. General Inputs																												
3																													
4	Quantification start (MM/YYYY)				Jan-18				Forecast through				Dec-20																
5	Number of patients currently on ART (Y0)				1L 10,000				2L 500				3L 10				Year 0 - total 10,510												
6	Annual inclusions (new patients only!)				Year 1 2,000				Year 2 3,000				Year 3 4,000																
7	Annual 1L -> 2L migration (%)				Year 1 5.0%				Year 2 5.0%				Year 3 5.0%																
8	Annual 2L -> 3L migration (%)				Year 1 1.0%				Year 2 1.0%				Year 3 1.0%																
9	Annual attrition rate (%)				1L 3.0%				2L 3.0%				3L 3.0%																
10	NVP lead-in dosing?				Yes				(see '7. Consumption' tab - row 58 - for NVP dual-FDC induction calculations)																				
11	Percentage of a bottle required for each induction (%)				50%																								
12	Required months of security stock				6																								
13																													
14																													
15																													
16																													
17																													
18																													
19																													
20																													
21																													
22																													
23																													
24	Projected Annual Patient Totals																												
25	<table border="1"><thead><tr><th>Year 1 - total</th><th>Year 2 - total</th><th>Year 3 - total</th></tr></thead><tbody><tr><td>12,510</td><td>15,510</td><td>19,510</td></tr><tr><td>12,165</td><td>14,759</td><td>18,261</td></tr></tbody></table>																				Year 1 - total	Year 2 - total	Year 3 - total	12,510	15,510	19,510	12,165	14,759	18,261
Year 1 - total	Year 2 - total	Year 3 - total																											
12,510	15,510	19,510																											
12,165	14,759	18,261																											
26	before applying attrition and migration rates																												
27	after applying attrition and migration rates																												
28	Note: above table updates after '2. Protocols' tab is filled out																												

Screenshot example of first worksheet of tool - General Inputs

- Beginning of quantification period: Please enter a start date from which you will start the quantification. The period should preferably be prospective from the date of year being forecasted and must be consistent with latest available stock data.

Example: In July 2017, you use the tool to quantify ARV needs for Y2018-2020, so the beginning of the forecast period will start in January 2018 and the baseline data (current stock and morbidity) from which the forecast will be projected is July 2017.

CAVEAT: It is important to start the quantification process far enough in advance to receive your future ARV order without causing interruptions to patients' drug supply (i.e., taking lead times into account). It is also important to note that each "year" is defined as the 12 months following the quantification start date. As such, new yearly annual inclusions must be reflective of that 12 month period, which may or may not line up to the calendar year.

-Number of patients currently on ART: Please enter the number of patients at the end of the period preceding the beginning of the quantification.

Example: At the end of Dec. 2017 = 10,510 adult patients.

-Annual Inclusions (new patients per year): Please enter the *additional* number of patients expected to be on ARVs within the first, second, and third forecasting year. Only new patients should be entered so make sure to subtract current ART patients when referring to annual ART targets

Example: If Y2018 ART target is 12,510 patients on ART → $12,510 - 10,510 = 2,000$ new patients

-Annual migration rate (1L to 2L and 2L to 3L): Please enter the rate representing the current percentage of patients being switched second-line ART, and (if applicable) the percentage of second-line patients switching to third-line. There are various reasons why patients do not respond to their first-line ART regimen (e.g., poor adherence, treatment failure), all of which should be considered when calculating 1L to 2L migration rate. This percentage can be kept the same for Y1, Y2, and Y3 of the forecast, unless a national program foresees major therapeutic adjustments for their ART cohort, which would impact this migration percentage from one year to the next.

Example: Current data availability indicates 5% of 1L patients switch to 2L annually, and 1% of 2L patients switch to 3L annually

→ Y1 1Lto2L = Y2 1Lto2L = Y3 1Lto2L = 5%

→ Y1 2Lto3L = Y2 2Lto3L = Y3 2Lto3L = 1%

CAVEAT: Second- to third-line migration rates should be kept at 0% if no national treatment protocol for third-line has been rolled out for a given country.

-Annual attrition rate: Please enter the attrition rate as a percentage of patients lost during treatment due to death or voluntary discontinuation (lost to follow up) in the previous year. It is expressed as a percentage of the total number of patients on ART. If the difference in attrition rates for first line vs second line patients is unknown, enter the same rate for both treatment lines. **If no national treatment protocol exists for 3L patients, keep 3L attrition rate blank.**

Example: 1L attrition rate = 2L attrition rate = 3%.

-NVP lead-in dosing (Dual induction): Please enter “Yes” or “No” if national treatment guidelines recommend induction of Nevirapine (NVP) when patients are starting ART regimens that include NVP. Dual Induction means new ART initiates starting a NVP-based regimen will receive half the NVP dose for 14 days in order to minimize the side effects of the drug. This therefore requires quantification adjustments when a NVP-based regimen is available as a triple FDC

Example: Given that 5% of new ART initiates will use AZT/3TC/NVP and a triple FDC formulation is selected for that regimen → entering “yes” for NVP lead-in dosing means new initiates will receive dual FDC AZT/3TC 300/150mg + single NVP 200mg for 14 days to allow for administration of single dose NVP, and AZT/3TC/NVP 300/150/200mg FDC for the remainder of the month and all subsequent months.

-Percentage of bottle for each induction: Please specify the percentage of the bottle of the dual FDC required for each patient induced during the 14 day period. This is typically linked to dispensing practice of pharmacists – whether in bottles or pills when the full bottle amount will not be consumed in the first month of treatment. *The percentage will typically be either 100% or 50%, depending on #pills/bottle (bottle size) procured in-country*

Example: for each new patient taking AZT/3TC 300/150mg, NVP induction dosing for the dual FDC AZT/3TC 300/150mg (with 60pills/bottle packaging) in the first month of treatment:

Month1(M1) consumption= 2 pills/day * 14 days = 28 pills ~ 50% of a bottle

-Number of months of security (buffer) stock: Please enter the number of months of safety stock to be kept in central warehousing during your forecasting period. This depends on your budget for ARV procurement and central warehousing storage capacity, with 2 months being a recommended absolute minimum as emergency security stock.

CAVEAT: A minimum of 2 months of security stock is suggested as an absolute minimum to serve as an emergency supply in central warehousing. Do NOT enter 0 months or the Simple Tool will not generate a supply plan

Second worksheet (Protocols): Enter breakdown by regimen (Protocols)

2. Protocol Breakdown																											
Regimens										Breakdown by Protocol																	
										Step 1. Existing Patients						Step 2. Projected New Patients (% of Total Inclusions)						Step 3. Patients switching 1L -> 2L					
1st Line										Y0 (Baseline)		Y0%		Y1		Y2		Y3									
TDF	+	3TC	+	EFV600						8,000		80%		15.0%		5.0%		0.0%									
TDF	+	3TC	+	DTG						0		0%		80.0%		90.0%		95.0%									
TDF	+	3TC	+	NVP						400		4%															
AZT	+	3TC	+	NVP						1,500		15%		5.0%		5.0%		5.0%									
AZT	+	3TC	+	EFV600						100		1%															
												0%															
												0%															
												0%															
												0%															
												0%															
												0%															
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												0%															
												0%															
4th drug suppl		ABC								2																	
4th drug suppl																											
										Sub-total		10,000	100%	100.0%		100.0%		100.0%									
2nd Line														Y1		Y2		Y3									
AZT	+	3TC	+	ATV/r						250		50%		90.0%		90.0%		90.0%									
AZT	+	3TC	+	LPV/r						100		20%		5.0%		5.0%		5.0%									
TDF	+	3TC	+	ATV/r						100		20%		5.0%		5.0%		5.0%									
TDF	+	3TC	+	LPV/r						50		10%															

Screenshot example of second worksheet of tool - Protocols

In this section, the user is requested to provide information on the detailed breakdown of patients by regimens in a series of 4 steps described below:

-Step 1: Define all combinations of all first-line and second-line regimens currently in use by your existing patients. This is done by entering the regimens in-use in columns C, E, and G, and entering a patient number next to each.

Example: If 8,000 adults are using TDF+3TC+EFV600 in July 2017 (when you are quantifying), please enter this patient total in cell I9.

After patient totals are specified for all 1L and 2L regimens currently in use, proceed to complete the next three steps in this section.

CAVEAT: To avoid a calculation error in the tool, an automatic reminder is generated if your subtotal in cell I39 - representing your current total of 1L patients at the start of the quantification

-Step 2: Define the regimen breakdown for new ART patients in the coming 3 years (Y1, Y2, Y3). This is done by entering a percentage next to each regimen recommended for new ART initiates in columns K,L,M for 1L patients, columns O, P,Q for 2L patients, and (if applicable) columns S, T, U for 3L patients. *This should be done as per the national guidelines of your country.* Unless a national guidelines revision is planned in the upcoming three years, regimen breakdowns should be the same from one year to the next.

CAVEAT: To avoid a calculation error in the tool, your annual percentage totals for 1L, 2L, and 3L regimen breakdowns should *each* equal 100%. Percentage totals will be green if this is done correctly.

-Step 4: Define the regimen breakdown for current 2L ART patients migrating to 3L in the coming 3 years (Y1, Y2, Y3). *If national treatment guidelines exist for 3L patients in your country, enter a percentage next to each regimen recommended as per your treatment guidelines in columns S, T, and U for current 2L patients that will be migrating to 3L in the coming 3 years.*

[illegible]

Screenshot example of third worksheet of tool - Switching

This feature in the simple tool is meant to address all major patient protocol switches resulting from a change in national guideline protocol recommendations within first line regimens (e.g., NVP demotion requiring all patients on TDF/3TC/NVP to switch to TDF/3TC/DTG) or within second line regimens (e.g., ATV/r uptake requiring all patients on LPV/r to switch to ATV/r) that will occur in the middle of a forecasting year. This feature is NOT to be used for switching cases due to treatment failure, toxicities, or on a per-patient basis, but rather for a significant group size of your patient cohort.

-Identify all proactive switches within a forecasting year in columns B to G. This is done by selecting initial and new regimens in each row, the starting and ending months of the proactive switching period, and the percentage of patients using the initial regimen that will be switched onto the new one. Once all proactive switches are entered, a second table starting row 30 titled “NET monthly switches” automatically aggregates the monthly increase/decrease of patients for each regimen.

*-Example: For full EFV demotion to DTG of first line patients over a 1 year period starting in January 2018: select all 1L EFV regimens, then insert “1” for start month and “12” for end to indicate a 1-year switching period, and **enter 99.999% (rather than 100% -to avoid a calculation error in the Simple tool in a backend calculation)** to indicate a full switch of all EFV patients on first line to DTG*

Note: The same “from” regimen cannot be used to switch to multiple “to” regimens (e.g., 50% of pediatric ZLN patients to ABC/3TC/LPV/r and 50% to ABC/3TC + DTG). If you require this type of switching please reach out to the market intelligence team

Fourth worksheet (Formulations): Enter formulation/form breakdown by regimen

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1																								
2																								
3																								
4																								
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Screenshot example of fourth worksheet of tool - Formulations

-Specify the form breakdown for each regimen currently in use: This is done by selecting a percentage under each type of form that can make up a regimen. This will either comprise of 3

single molecules (S+S+S), a dual + single molecule (D+S) - indicating a regimen administered via dual fixed dose combination + a single molecule, or a triple (T) fixed dose combination molecule.

Example: For the 8,000 adult patients taking TDF/3TC/EFV600 in July 2017, the user must specify what percentage of these patients will receive this regimen using either:

- 1) 3 single molecules $\rightarrow S+S+S = \text{TDF } 300\text{mg} + \text{3TC } 300\text{mg} + \text{EFV } 600\text{mg}$
- 2) 2 molecules $\rightarrow \text{TDF/3TC } 300/300\text{mg} + \text{EFV } 600\text{mg}$
- 3) 1 molecule $\rightarrow \text{TDF/3TC/EFV } 300/200/600\text{mg}$ fixed dose combination

Note that a combination is possible if pharmacists prescribe both the D+S and T for a regimen where both formulations are procured in-country (e.g. 25% D+S and 75% T). It is usually recommended, however, that the national HIV/AIDS program consider the selection and procurement of triple fixed dose combinations over single drugs whenever possible due to its significant ease of administration for better patient adherence and simplification of supply chain.

Depending on the country's situation, it is also possible to customize a shift from one type of formulation combination in Year 1 to another combination in Year 2. In all cases, each row in this table should add up to 100%.

CAVEAT: If the user selects a form that does not exist for a given regimen (based on formulation availability in the market), the tool will issue a warning message "irregular regimen choice" to correct this entry error (e.g., AZT/3TC/EFV is not available as a triple formulation)

Fifth worksheet (Dosing): Formulation dosing

	A	B	C	D	E	F	G	H	K
1									
2		5. Formulation Dosing							
3									
4			Please specify which formulation is being used (by % split of molecule) for 3TC, DRV, and ETV						
5			Please specify the pack size for DRV (300 mg), RTV, and TDF+3TC+EFV600						
6									
7			Product List						
8									
9			ARV	Strength	Form	Units/Pack	Units/Day	% of Molecule	
10			Singles						
11			3TC	150	tab	60	2	100%	
12			3TC	300	tab	30	1		
13			ABC	300	tab	60	2	100%	
14			ATV/r	300/100	tab	30	1	100%	
15			AZT	300	tab	60	2	100%	
16			DRV	300	tab	240	4		
17			DRV	400	tab	60	2		
18			DRV	600	tab	60	2	100%	
19			DRV	800	tab	60	1		
20			DTG	50	tab	30	1	100%	
21			EFV600	600	tab	30	1	100%	
22			EFV400	400	tab	30	1	100%	
23			FTC	200	tab	30	1	100%	
24			ETV	100	tab	120	4	100%	
25			ETV	200	tab	60	2		
26			LPV/r	200/50	tab	120	4	100%	
27			NVP	200	tab	60	2	100%	
28			RAL	400	tab	60	2	100%	
29			RTV	100	tab	60	1	100%	
30			TDF	300	tab	30	1	100%	
33			Duals						
34			3TC 3TC	300/150	tab	60	2	100%	

Screenshot example of fifth worksheet of tool - Dosing

This worksheet is principally a reference table indicating the dosages for all formulations that can be selected using the tool. User input is required if a molecule is available on market in 2 different doses (e.g., adult 3TC), **making sure that any percentage breakdown between the 2 different doses sums up to 100% to avoid a warning message in the tool**. This can be used to support multi-month scripting where relevant.

Example: To include 3TC 300mg in your quantification (vs 3TC 150mg) - Enter the percentage breakdown of patients using the 300mg molecule vs the 150mg in cell H12

Sixth worksheet (Patients): Projected patient growth by regimen by month

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
1	6. Patients by Protocol by Month and Quarter																					
2																						
3																						
4	Patients on each regimen at the end of:																					
5																						
6	Patients per Regimen		Y0	Q1			Q2			Q3			Q4			Q5						
7			Start	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	
8	1st Line																					
9	TDF+3TC+EFV600		8,000	7,863	7,729	7,597	7,468	7,342	7,218	7,097	6,978	6,862	6,748	6,637	6,527	6,495	6,464	6,432	6,400	6,368	6,336	
10	TDF+3TC+DTG			241	478	712	943	1,171	1,395	1,616	1,833	2,048	2,260	2,469	2,674	2,881	3,087	3,291	3,495	3,699	3,903	
11	TDF+3TC+NVP		400	397	395	392	389	387	384	381	379	376	374	371	369	366	364	361	359	357	354	
12	AZT+3TC+NVP		1,500	1,498	1,496	1,494	1,493	1,491	1,489	1,487	1,485	1,484	1,482	1,480	1,478	1,481	1,483	1,486	1,488	1,490	1,492	
13	AZT+3TC+EFV600		100	99	99	98	97	97	96	95	95	94	93	93	92	92	91	90	89	88	87	
14																						
15																						
16																						
17																						
18																						
19																						
20																						
21																						
22																						
23																						
24																						
25																						
26																						
27																						
28																						
29	ABC++		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
30																						
31	Sub-total		10,002	10,101	10,199	10,296	10,393	10,489	10,584	10,679	10,773	10,866	10,959	11,051	11,143	11,317	11,490	11,662	11,834	12,006	12,178	
32	% of total Population		95.1%	94.8%	94.5%	94.2%	93.9%	93.6%	93.3%	93.0%	92.7%	92.4%	92.1%	91.8%	91.6%	91.4%	91.1%	90.9%	90.6%	90.3%	90.0%	
33																						
34	2nd Line																					
35	AZT+3TC+ATV/r		250	289	328	368	408	448	488	528	569	610	651	693	734	776	818	861	903	945	987	
36	AZT+3TC+LPV/r		100	100	101	101	101	102	102	103	103	103	104	104	105	105	106	106	106	106	106	
37	TDF+3TC+ATV/r		100	102	104	105	107	109	111	113	115	117	119	121	122	124	126	128	129	130	131	
38	TDF+3TC+LPV/r		50	50	50	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	
39																						
40																						
41																						
42																						
43																						
44																						
45																						
46																						
47																						
48																						
49																						
50																						
51																						
52																						

Screenshot example of sixth worksheet of tool – Patients

If the input data has been entered correctly in the previous worksheets, the first output table showing 3-year (36 month) patient growth by regimen will be automatically populated, with patient numbers appearing only for regimens in current or projected use. NO USER INPUT IS REQUIRED IN THIS WORKSHEET – IT SHOULD NOT BE MODIFIED.

CAVEAT: If cells next to a regimen actually used by patients do not populate and remain grey, this indicates an omission in a previous worksheet that needs to be re-verified by the user. It is equally important to verify that the total patient growth of your entire patient cohort - appearing in row 146 for 1L patients and row 180 for 2L patients – makes sense and aligns with patient targets indicated in the first worksheet of the tool.

Seventh worksheet (Consumption): Projected patient consumption by formulation (theoretical demand)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1																			
2			7. Consumption Forecast																
3																			
4																			
5			Monthly Consumption of Formulations																
6																			
7			Formulation	API	% of API	BtIs/mth													
8			3TC (150) - 60 tab	3TC	100%	1.0													
9			3TC (300) - 30 tab	3TC	0%	1.0													
10			ABC (300) - 60 tab	ABC	100%	1.0													
11			ABC+3TC (600/300) - 30 tab	ABC+3TC	100%	1.0													
12			ATV/r (300/100) - 30 tab	ATV/r	100%	1.0													
13			AZT (300) - 60 tab	AZT	100%	1.0													
14			AZT+3TC (300/150) - 60 tab	AZT+3TC	100%	1.0													
15			AZT+3TC+ABC (300/150/300) - 60 tab	AZT+3TC+ABC	100%	1.0													
16			AZT+3TC+ATV/r ((300/150)+(300/100)) - 30 co-pack	AZT+3TC+ATV/r	100%	1.0													
17			AZT+3TC+NVP (300/150/200) - 60 tab	AZT+3TC+NVP	100%	1.0													
18			DRV (300) - 240 tab	DRV	0%	0.5													
19			DRV (400) - 60 tab	DRV	0%	1.0													
20			DRV (600) - 60 tab	DRV	100%	1.0													
21			DRV (800) - 60 tab	DRV	0%	0.5													
22			DTG (50) - 30 tab	DTG	100%	1.0													
23			EFV400 (400) - 30 tab	EFV400	100%	1.0													
24			EFV600 (600) - 30 tab	EFV600	100%	1.0													
25			ETV (100) - 120 tab	ETV	100%	1.0													
26			ETV (200) - 60 tab	ETV	0%	1.0													
27			ETC (200) - 30 tab	ETC	100%	1.0													
28			LPV/r (200/50) - 120 tab	LPV/r	100%	1.0													
29			NVP (200) - 60 tab	NVP	100%	1.0													
30			RAL (400) - 60 tab	RAL	100%	1.0													
31			RTV (100) - 60 tab	RTV	100%	0.5													
32			TDF (300) - 30 tab	TDF	100%	1.0													
33			TDF+3TC (300/300) - 30 tab	TDF+3TC	100%	1.0													
34																			

Packs consumed during:

	Q1			Q2			Q3			Q4		
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
	6	6	6	6	7	7	7	7	8	8	8	
	8	8	8	8	8	9	9	9	10	10	10	1
	371	412	453	495	536	578	621	663	706	749	792	83
	474	513	552	591	631	671	711	751	792	833	874	91
	1,500	1,498	1,496	1,494	1,492	1,490	1,489	1,487	1,485	1,483	1,482	1,48
	6	6	6	6	7	7	7	7	8	8	8	
	100	99	99	98	97	97	96	96	95	94	94	9
	6	6	6	6	7	7	7	7	8	8	8	
	151	151	151	151	151	152	152	152	152	153	153	15
	399	396	394	391	388	386	383	381	378	375	373	37
	6	6	6	6	7	7	7	7	8	8	8	
	6	6	6	6	7	7	7	7	8	8	8	
	550	549	548	547	546	545	544	543	542	541	541	54

Screenshot example of seventh worksheet of tool – Consumption

If the input data has been entered correctly in the previous sections, an output table showing the monthly number of packs by formulation needed for your forecasted patient cohort will auto-populate. THIS TABLE REQUIRES NO USER INPUT – IT SHOULD NOT BE MODIFIED.

This output table represents the projected monthly theoretical demand of your patient cohort over 3 years.

Below this output table is a second output table showing the annual number of new patients on triple FDC impacted by NVP induction, and therefore requiring dual formulations for 14 days. *Patient numbers in this table and the percentage inserted in “General inputs – Percentage of a bottle required for each induction” are then applied to top-up monthly consumption calculations of relevant dual FDC. DO NOT MODIFY THIS TABLE*

A final output table showing minimum security stock necessary (in packs) is available when scrolling to the right of the worksheet. This calculation is based on monthly consumption projections and number of months of security stock specified in the “General Inputs” tab.

Eighth worksheet (SOH & Pipeline): Enter Stock on Hand (SOH) and Orders in pipeline

Once the tool has generated the 3-year theoretical demand for the patient cohort, users must now provide current and pipeline stock levels to generate a supply plan. This is done in 2 steps:

-Step 1 – Enter stock on hand in table below:

	AB	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
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35																			
36																			
37																			
38																			
39																			
40																			
41																			
42																			
43																			
44																			

Screenshot example of first input table in eighth worksheet of tool –SOH & Pipeline

For each formulation, enter the current stock-on-hand- *in packs*- available at central warehousing in the cells corresponding to the expiry dates of each batch.

Example: If July 2017 central inventory indicates that 100 packs of ATV/r will expire in March 2018 and another 5,200 packs in October 2018, enter these stock levels under the corresponding month in the stock table.

NB: If you do not have stock for a given formulation, do not enter anything. The formulation will still be included in subsequent calculations of the tool if it is one currently being used by patients.

CAVEAT: For all formulations shared with pediatric ART patients, please disregard a percentage of stock (e.g. 10 - 20% of SOH for each relevant formulation) that will then be entered into the Pediatric Simple Tool. This is needed to avoid a double calculation of needed security (buffer) stock to order when two supply plans are generated in the Adult and then Pediatric Simple tools respectively.

-Step 2 – Enter orders in the pipeline in the table starting at row 56:

Expected Deliveries	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Formulation													
3TC (150) - 60 tab													
3TC (300) - 30 tab													
ABC (300) - 60 tab													
ABC+3TC (600/300) - 30 tab													
ATV/r (300/100) - 30 tab													
AZT (300) - 60 tab													
AZT+3TC (300/150) - 60 tab													
AZT+3TC+ABC (300/150/300) - 60 tab													
AZT+3TC+ATV/r ([300/150]+[300/100]) - 30 co-pck													
AZT+3TC+NVP (300/150/200) - 60 tab													
DRV (300) - 120 tab													
DRV (600) - 60 tab													
DTG (50) - 30 tab													
EFV (600) - 30 tab													
ETV (100) - 120 tab													

Screenshot example of second input table in eighth worksheet of tool – SOH & Pipeline

For each formulation, enter the anticipated pipeline stock volumes (i.e. stocks that have been procured and processed but not yet arrived in country) in packs, *according to the date of their expected availability for consumption at OI/ART site. Users should therefore consider additional lead time between estimated time of shipment arrival at port and estimated time to conduct port/custom clearance, delivery to central warehouses and delivery to OI/ART sites.*

Example: If a pipeline order is expected at customs in April 2018, enter the stock arrivals under May 2018, to factor in sufficient lead-time to have the stock ready for consumption

NB: If you do not have pipeline stock for a given formulation, do not enter anything.

-Output table: Current supply plan prior to placement of quantified ARV order

Stocks without additional orders		Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Formulation														
3TC (150) - 60 tab														
3TC (300) - 30 tab														
ABC (300) - 60 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
ABC+3TC (600/300) - 30 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
ATVr (300/100) - 30 tab		126	0	0	4,770	4,534	4,294	4,050	3,803	3,452	3,197	2,939	2,677	2,411
A2T (300) - 60 tab														
A2T+3TC (300/150) - 60 tab		0	0	9,677	9,345	9,004	8,654	8,295	7,927	7,550	7,164	6,769	6,365	5,952
A2T+3TC+ABC (300/150/300) - 60 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
A2T+3TC+ATVr ((300/150)+(300/100)) - 30 co-pck		0	0	0	0	0	0	0	0	0	0	0	0	0
A2T+3TC+NVP (300/150/200) - 60 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
DRV (300) - 120 tab														
DRV (600) - 60 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
DTG (50) - 30 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
EFV (600) - 30 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
ETV (100) - 120 tab		0	0	0	0	0	0	0	0	0	0	0	0	0
ETV (200) - 60 tab														
FTC (200) - 30 tab														
LPVr (200/50) - 120 tab		0	0	4,452	3,936	3,444	2,972	2,516	2,073	1,640	1,214	794	378	0

Screenshot example of output table in eighth worksheet of tool – SOH & Pipeline

If the input data has been entered correctly in the stock-on-hand and orders in the pipeline, the next output data table, showing monthly number of packs currently available for consumption will be automatically presented, starting from row 108 on this worksheet. **This output is meant to help the user understand how long the existing stock (including any planned deliveries) will last.**

The cells are automatically color-shaded according to the stock levels set by:

- **Green means OK:** Stock levels are above security stock (buffer stock)
- **Yellow means TENSION:** Stock levels are dipping into security (buffer) stocks
- **Red means STOCK-OUT:** stock levels are zero

This current supply plan is generated calculated automatically based on expected consumption, stock-on-hand, orders in the pipeline, and monthly security stock levels required (as per calculations in the output table of the “Consumption” tab). It can be a good tool for a comparative analysis of inventory and consumption after implementing the PSM plan of the previous forecasting cycle. **DO NOT MODIFY THIS TABLE**

Ninth worksheet (Ordering): Quantities to order by month and final supply plan

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1																
2			9. Orders													
3																
4			<i>When will the first orders be delivered to ART sites?</i>													
5			Mar-18													
6																
7																
8			Formulation													
9			3TC (150) - 60 tab				46	8	9	8	9	9	11	10	10	1
10			3TC (300) - 30 tab													
11			ABC (300) - 60 tab									72	12	12	13	1
12			ABC+3TC (600/300) - 30 tab													
13			ATV/r (300/100) - 30 tab				4,052	749	792	835	879	923	968	1,012	1,057	1,10
14			AZT (300) - 60 tab													
15			AZT+3TC (300/150) - 60 tab				4,699	833	874	915	959	1,001	1,043	1,086	1,130	1,17
16			AZT+3TC+ABC (300/150/300) - 60 tab													
17			AZT+3TC+ATV/r ((300/150)+(300/100)) - 30 co-pack													
18			AZT+3TC+NVP (300/150/200) - 60 tab				10,433	1,483	1,482	1,480	1,480	1,483	1,485	1,487	1,490	1,49
19			DRV (300) - 240 tab													
20			DRV (400) - 60 tab													
21			DRV (600) - 60 tab				48	8	8	9	9	10	10	10	11	1
22			DRV (800) - 60 tab													
23			DTG (50) - 30 tab													
24			EFV400 (400) - 30 tab													
25			EFV600 (600) - 30 tab						669	93	92	92	91	90	90	8
26			ETV (100) - 120 tab				40	8	8	9	9	10	10	10	11	1
27			ETV (200) - 60 tab													
28			ETC (200) - 30 tab													
29			LPV/r (200/50) - 120 tab				1,061	153	153	153	153	154	154	155	157	15
30			NVP (200) - 60 tab				2,701	375	373	370	368	365	363	360	358	35
31			RAL (400) - 60 tab				48	8	8	9	9	10	10	10	11	1
32			RTV (100) - 60 tab													
33			TDF (300) - 30 tab				48	8	8	9	9	10	10	10	11	1
34			TDF+3TC (300/300) - 30 tab				3,815	541	541	540	539	539	538	537	537	53
35			TDF+3TC+ATV/r ((300/300)+(300/100)) - 60 co-pack													
36			TDF+3TC+DTG (300/300/50) - 30 tab				8,936	2,155	2,365	2,572	2,778	2,984	3,189	3,392	3,594	3,79
37			TDF+3TC+EFV400 (300/300/400) - 30 tab													
38			TDF+3TC+EFV600 (300/300/600) - 30 tab						49,303	6,582	6,512	6,480	6,448	6,417	6,386	6,35

Screenshot example of ninth worksheet of tool – Ordering

For this output table to automatically populate, the user need to specify in cell C5 the start date of the supply plan. This is usually the month in which the first orders would be expected to be delivered to ART sites (not the month of arrival in-country). All previous months, starting from quantification start month to supply plan start date will be greyed out to indicate that no order needs to be placed during that time period.

Each cell in the monthly order table indicates the quantity (in packs) to be ordered to cover the expected demand and meet the security stock requirements for a given month. To minimize the likelihood that security stock will be used while awaiting an order, any required top-ups to a country's security stock levels is added to the first month of the overall order – which is reflected with the larger first month order seen in the supply plan. Depending on the ordering cycle (i.e. the number of months to procure for each time), the user should then sum up the needed order quantities accordingly.

Example: If a one-year order needs to be placed to cover ARV needs from January 2018 to December 2019, it will be necessary to sum up quantities from columns O to Z for each respective drug.

NOTE: Order projections are available up to 3 years after the quantification start month, but a three year order should NOT be placed with suppliers as a one-time lump quantity to avoid running out of available central warehousing space.

Factoring in the suggested monthly order quantities, the simple tool then generates a second output table showing a final supply plan AFTER the suggested ARV order has been placed. This shows the

monthly number of packs available for consumption AFTER placing the suggested ARV order, using the same color shading than in the supply plan generated in the previous worksheet. **This final supply plan is for adult patients ART ONLY and should be merged with pediatric ART supply plan for a complete picture. Please plan sufficient lead-time to procure the order so it arrives on the desired month specified in your supply plan (e.g. for high volume ARVs, the average lead-time from order placement with suppliers to in-country arrival is typically 3 months; further attention must be given to low volume and/or special circumstances ARV that typically require longer lead times.)**

Tenth worksheet (Cost): Cost of order

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZI	ZJ	ZK	ZL	ZM	ZN	ZO	ZP	ZQ	ZR	ZS	ZT	ZU	ZV	ZW	ZX	ZY	ZZ	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
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[illegible]

This first tab gives some high-level instructions for using the tool, links to this manual, and includes contact information for any questions or troubleshooting.

1. General Inputs

Quantification start (MM/YYYY)

Jan-18

Forecast through

Dec-20

Number of patients currently on ART

1L 1,100

2L 500

3L

Annual inclusions (new patients only!)

Year 1 200

Year 2 200

Year 3 200

Annual 1L -> 2L migration (%)

Year 1 2.0%

Year 2 2.0%

Year 3 2.0%

Annual 2L -> 3L migration (%)

Year 1 1.0%

Year 2 1.0%

Year 3 1.0%

Annual attrition rate (%)

1L 3.0%

2L 3.0%

3L 3.0%

NVP lead-in dosing

Yes

(see '7. Consumption' tab - row 115 - for NVP dual-FDC induction calculations)

Percentage of a bottle required for each induction (%)

50%

National ART Coverage rate (select range)

Low: 40% - 64%

(see "Protocols" tab for reference pediatric weight distributions)

Required months of security stock

6

Projected Annual Patient Totals

Year 1 - total	Year 2 - total	Year 3 - total
1,800	2,000	2,200
1,744	1,884	2,020

before applying attrition and migration rates
after applying attrition and migration rates

Note: above table updates after '2. Protocols' tab is filled out

Note: Each "year" is defined as the 12 months following the quantification start in cell J4. As such, ensure that the "Annual Inclusions" are reflective of that 12 month period, which may or may not match the calendar year.

Instructions

1. General Inputs

2. Protocols

3. ARV Substitutions

4. Formulations

5. Form and Dose

6. Patients

7. Consumption

8. SOH & Pipeline

9. Ordering

10. Costs

As with the Adult Simple Tool, this worksheet asks the user for the same general inputs of the ART patient – but isolating only pediatric patients (i.e. typically those under 15 years old) cohort as per the below:

- Total number of pediatric patients on ART in-country
- Annual migration rates from one therapeutic line of treatment to another (1L→2L→3L)
- Current attrition rates for each therapeutic line of treatment (1L, 2L, 3L)
- National ART coverage rates

[illegible]

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Steps 1 – 4 in this worksheet are the same as the Adult tool, but an additional fifth step is then required to detail the weight breakdown of the pediatric cohort, since different formulations of varying dosages are available to pediatric patients based on their weights.

N.B – if this data is not available at the national level, it can be estimated by using data from the largest OI/ART site providing pediatric HIV/AIDS treatment. If this is also not available, enter the estimated age breakdown of the pediatric cohort into the optional age table, which will convert to weightbands using standard tables

Third worksheet (ARV Substitutions): Enter Proactive Switching of Protocols

[illegible]

As with the Adult Simple tool, this worksheet is meant to address all major patient protocol switches resulting from a change in national guideline protocol recommendations within first line regimens (e.g. NVP demotion requiring all pediatric patients on AZT/3TC/NVP to switch to ABC/3TC/LPV/r)

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Fourth worksheet (Formulations): Enter formulation/form breakdown by regimen

[illegible]

Screenshot example of fourth worksheet of pediatric tool - Formulations

As with the Adult Simple tool, this worksheet asks users for the annual breakdown of each regimen by form of molecule – isolating which combination type of ARV will be used to administer the regimen (single formulations only- S+S+S, one double FDC – D+S, or one triple FDC – T).

Fifth worksheet (Form Breakdown): Enter Breakdown by formulation and weightband

5. Form Breakdown																			
1) Please enter the percentage breakdown of patients by weightband for each formulation. FDCs can be found at bottom of table.									The sum of percentages in each column/weightband should add up to 100% for each molecule.										
2) Please input the correct Units/Pack for the formulations your country consumes, as some formations have multiple pack sizes.																			
						Product List													
						Breakdown of patients by weightband					Dose per day for weightband								
ANV	Strength	Description	Form	Units/Pack	IATT Status (September 2016)	0 - 5.9 kg	6 - 9.9 kg	10 - 13.9 kg	14 - 19.9 kg	20 - 24.5 kg	25 - 34.9 kg	0 - 5.9 kg	6 - 9.9 kg	10 - 13.9 kg	14 - 19.9 kg	20 - 24.5 kg	25 - 34.9 kg	% of patient this mole	
Single Drug Formulations																			
ZTC	0	dose in ml	susp	100	Limited Use	100%	100%	100%	-	-	-	6.0	8.0	12.0	-	2.0	2.0	27%	
JTC	150	tab	60	Adult	-	-	-	-	100%	100%	50%	-	-	-	10	-	-	18%	
JTC	200	tab	30	Adult	-	-	-	-	-	-	50%	-	-	-	-	-	10	12%	
ABC	0	dose in ml	susp	240	Non-Essential	-	-	-	-	-	-	6.0	8.0	12.0	-	-	-	-	
ABC	200	tab	60	Adult	-	-	-	-	-	-	-	-	10	10	15	15	2.0	-	
ABC	150	dispensible	tab	60	Limited Use	-	-	-	-	-	-	2.0	3.0	4.0	5.0	6.0	-	-	
ATV	100	caps	60	Capsule	Limited Use	-	-	-	-	-	-	-	18	2.0	2.0	-	2.0	-	
ATV	200	caps	60	Non-Essential	-	-	-	-	-	-	-	-	-	10	10	-	-	-	
ATV	300	caps	30	Adult	-	-	-	-	-	-	-	-	-	-	-	-	10	-	
ATV & B	330/110	tab	30	Adult	-	-	-	-	-	-	-	-	-	-	-	-	19	100%	
AZT	0	dose in ml	susp	100	Limited Use	100%	100%	100%	-	-	-	12.0	10.0	24.0	-	-	-	27%	
AZT	100	tab	60	Non-Essential	-	-	-	-	100%	100%	-	-	2.0	2.0	3.0	4.0	-	48%	
AZT	300	tab	60	Non-Essential	-	-	-	-	-	-	100%	-	-	-	-	-	2.0	25%	
AZT	60	dispensible	tab	60	Limited Use	-	-	-	-	-	-	2.0	3.0	4.0	5.0	6.0	-	-	
DRV	0	dose in ml	susp	200	Non-Essential	-	-	-	-	-	-	5.0	7.0	-	-	-	-	-	
DRV	150	tab	240	Non-Essential	-	-	-	-	-	-	-	3.0	5.0	5.0	6.0	-	-	-	
DRV	75	tab	480	Limited Use	-	-	-	-	-	-	-	6.0	10.0	10.0	12.0	-	-	-	
DITG	50	tab	30	Adult	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	
EPU	0	susp	100	Non-Essential	-	-	-	-	-	-	-	12.0	10.0	15.0	17.0	-	-	-	
EPF	200	caps	90	Non-Essential	-	-	-	-	-	-	-	-	10	15	15	2.0	-	-	
EPV	200	tab	30	Non-Essential	-	-	-	-	-	-	-	-	10	15	15	2.0	-	-	
EPV	50	scored	tab	90	Optimal	-	-	100%	100%	100%	-	-	10	15	15	2.0	73%	-	
EPV	50	caps	30	Non-Essential	-	-	-	-	-	-	-	4.0	6.0	6.0	8.0	-	-	-	
EPV	50	tab	30	Non-Essential	-	-	-	-	-	-	100%	-	-	4.0	6.0	6.0	8.0	-	-
EPV	600	tab	30	Adult	-	-	-	-	-	-	-	-	-	-	-	2.0	10	27%	
ETV	100	tab	120	Adult	-	-	-	-	-	-	-	-	-	-	2.0	25	3.0	-	
TTC	200	tab	30	Adult	-	-	-	-	-	-	-	-	-	-	18	-	18	-	

Screenshot example of fifth worksheet of pediatric tool – Form Breakdown

In this section, the user needs to specify the distribution of patients by dosage and form for each ARV drug (i.e. molecule family).

*Example: If half of pediatric patients over 25kg that receive single 3TC are prescribed the new adult dose 3TC 300mg, enter 50% for both the 300mg and 150mg dose in that weightband- as indicated by the **purple circle** above*

CAVEAT: To avoid a calculation error in the tool, the sum for *each* weight band within the *same* family of a molecule must equal 100%. As indicated by the red circle – a reminder in red will appear if this percentage does not equal 100%.

This worksheet is principally a reference table indicating the dosages for all formulations that can be selected using the Simple tool, and now includes status of use in Column J, aligned with current recommendations by the IATT (Inter-Agency Task Team on prevention and treatment of HIV infection

Seventh worksheet (Consumption): Projected patient consumption by formulation (theoretical demand)

7. Consumption forecast

NO INPUTS IN THIS TAB!

Monthly Consumption of Formulations

Formulations in white have been forecasted for in '5. Form Breakdown'

Formulation	Molecule	% of Molecule	Btts/mth
3TC 0 - susp - dose in ml	3TC	27%	3.2
3TC 150 - tab -	3TC	61%	0.8
3TC 300 - tab -	3TC	13%	1.0
ABC 0 - susp - dose in ml	ABC		0.0
ABC 300 - tab -	ABC		0.0
ABC 60 - tab - dispersible	ABC		0.0
ABC+3TC 120/60 - tab - dispersible & scored	ABC+3TC	75%	2.4
ABC+3TC 60/30 - tab -	ABC+3TC	0%	0.0
ABC+3TC 60/30 - tab - dispersible	ABC+3TC	0%	0.0
ABC+3TC 600/300 - tab -	ABC+3TC	25%	1.0
ABC+3TC+AZT 300/150/300 - tab -	ABC+3TC+AZT	100%	1.0
ABC+3TC+AZT 60/30/60 - tab -	ABC+3TC+AZT	0%	0.0
ATV 100 - caps -	ATV		0.0
ATV 200 - caps -	ATV		0.0
ATV 300 - caps -	ATV		0.0
ATV/r 300/100 - tab -	ATV/r	100%	0.0
AZT 0 - susp - dose in ml	AZT	27%	6.6
AZT 100 - caps -	AZT	48%	1.0
AZT 300 - tab -	AZT	25%	1.0
AZT 60 - tab - dispersible	AZT	0%	0.0
AZT+3TC 300/150 - tab -	AZT+3TC	25%	1.0
AZT+3TC 60/30 - tab -	AZT+3TC	0%	0.0
AZT+3TC 60/30 - tab - dispersible	AZT+3TC	75%	2.4
AZT+3TC+NVP 300/150/200 - tab -	AZT+3TC+NVP		0.0
AZT+3TC+NVP 60/30/50 - tab - dispersible	AZT+3TC+NVP		0.0
DRV 0 - susp - dose in ml	DRV		0.0
DRV 150 - tab -	DRV		0.0
DRV 75 - tab -	DRV		0.0
DTG 50 - tab -	DTG		0.0

Packs consumed during:

Q1			Q2			Q3			Q4			Q5			Q6		
Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19
703	712	722	731	740	750	759	768	777	786	795	804	813	822	831	840	849	857
369	374	379	384	389	393	398	403	408	413	417	422	427	431	436	441	445	450
103	104	106	107	108	110	111	112	114	115	116	118	119	120	121	123	124	125

Screenshot example of seventh worksheet of pediatric tool – Consumption

As with the Adult Simple tool, a 3-year monthly consumption is automatically calculated based on all formulations selected in previous sections. A second table starting row 113 shows the regimens impacted by new ART initiates on triple FDC that temporarily will use dual FDC formulations during NVP induction. A consumption top-up of all dual FDC formulations will automatically be tabulated for these instances.

Guidance on the use and administration of LPV/r oral pellets has been included starting in cell P113.

Eighth worksheet (SOH & Pipeline): Enter Stock on Hand (SOH) and Order in Pipeline

8. Current Stock and Pipeline																					
<p>For each formulation, input the stock currently on-hand in the cells corresponding to the expiry dates of each batch.</p> <p>To the best of your ability, ensure that the date of the stock data below matches the patient data on the '1. General Inputs' tab</p> <p>Only include stock that is allocated for pediatric patients (e.g. only input packs of AZT/3TC/NVP 300/150/200 allocated to pediatrics; rest of packs should be in the adult tool)</p>																					
Stock On-Hand (in packs)																					
Formulation		Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19				
3TC 0 - susp - dose in ml																					
3TC 150 - tab -						1,000															
3TC 300 - tab -																					
ABC 0 - susp - dose in ml																					
ABC 300 - tab -																					
ABC 60 - tab - dispersible																					
ABC+3TC 120/60 - tab - dispersible & scored			900																		
ABC+3TC 60/30 - tab -																					
ABC+3TC 60/30 - tab - dispersible																					
ABC+3TC 600/300 - tab -																					
ABC+3TC+AZT 300/150/300 - tab -																					
ABC+3TC+AZT 60/30/60 - tab -																					
ATV 100 - caps -																					
ATV 200 - caps -																					
ATV 300 - caps -																					
ATV/r 300/100 - tab -																					
AZT 0 - susp - dose in ml																					
AZT 100 - caps -																					
AZT 300 - tab -																					
AZT 60 - tab - dispersible																					
AZT+3TC 300/150 - tab -																					
AZT+3TC 60/30 - tab -																					
AZT+3TC 60/30 - tab - dispersible																					
AZT+3TC+NVP 300/150/200 - tab -																					
AZT+3TC+NVP 60/30/50 - tab - dispersible																					
DRV 0 - susp - dose in ml																					
DRV 150 - tab -																					
DRV 75 - tab -																					
DTG 50 - tab -																					
Instructions		1. General Inputs		2. Protocols		3. ARV Substitutions		4. Formulations		5. Form and Dose		6. Patients		7. Consumption		8. SOH & Pipeline		9. Ordering		10. Cost	

CAVEAT: As mentioned in the Adult Simple tool walkthrough the stock tally of all shared formulations for adult and pediatric patients must be split between the Adult and Pediatric simple tools (e.g., 80% vs 20%) to avoid the tool generating double the needed demand of security (buffer) stock in your supply plan, and overstocking your central warehousing.

A third table starting row 226 shows the current supply plan over three years, *prior* to placing an ARV order.

Ninth worksheet (Ordering): Quantities to order by month and final supply plan

9. Orders														
When will the first orders be delivered?														
Mar-18														
Quantity to be delivered to cover the expected demand and meet the security stock requirements for a given month are below - and then summed														
Formulation	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19
3TC 0 - susp - dose in ml			5,192	786	795	805	813	822	831	840	849	858	866	875
3TC 150 - tab -			2,497	413	417	422	427	431	436	441	445	450	455	460
3TC 300 - tab -			768	115	116	118	119	120	121	123	124	125	127	128
ABC 0 - susp - dose in ml														
ABC 300 - tab -														
ABC 60 - tab - dispersible														
ABC+3TC 120/60 - tab - dispersible & scored			5,684	812	812	812	812	812	812	812	812	812	812	812
ABC+3TC 60/30 - tab -														
ABC+3TC 60/30 - tab - dispersible														
ABC+3TC 600/300 - tab -			805	115	115	115	115	115	115	115	115	115	115	115
ABC+3TC+AZT 300/150/300 - tab -														
ABC+3TC+AZT 60/30/60 - tab -														
ATV 100 - caps -														
ATV 200 - caps -														
ATV 300 - caps -														
ATV/r 300/100 - tab -														
AZT 0 - susp - dose in ml			3,741	531	531	530	529	528	528	527	526	525	525	525
AZT 100 - caps -			1,026	146	146	145	145	145	145	145	144	144	144	144
AZT 300 - tab -			532	76	76	76	75	75	75	75	75	75	75	75
AZT 60 - tab - dispersible														
AZT+3TC 300/150 - tab -			459	67	67	67	68	68	68	68	69	69	69	69
AZT+3TC 60/30 - tab -														
AZT+3TC 60/30 - tab - dispersible			3,234	470	472	474	476	479	481	483	485	488	490	492
AZT+3TC+NVP 300/150/200 - tab -														

Screenshot example of ninth worksheet of pediatric tool – Ordering

As with the Adult Simple tool, the user must enter the desired month of order arrival in cell C5 to populate the monthly suggested ARV order. Greyed out cells from quantification start to order arrival month indicate consumption based on current stock still available in country. The first order month has higher order quantities to top up security stock levels in central warehousing. A final 3-year supply plan AFTER placement of the ARV order is then displayed starting row 112.

Tenth worksheet (Cost): Cost of pediatric ARV order

10. Order Summary			E. Note that Reference Prices* are included to provide a basis of comparison but are not used to calculate the cost of incoming stocks. Note: If you DON'T enter a 'Price Paid', the product will not be costed below and remain greyed out. Reference pricing comes from CHAI 2016 reference price list and current GPRM prices									
Quarterly Volume and Cost of Stocks (Ex-Works)			Cost of incoming stocks:									
Formulation	Reference Price*	Price Paid	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
3TC 0 - susp - dose in ml	\$1.20											
3TC 150 - tab	\$2.25											
3TC 300 - tab												
ABC 0 - susp - dose in ml	\$8.00											
ABC 300 - tab	\$11.50											
ABC 60 - tab - dispersible	\$3.80											
ABC+3TC 120/60 - tab - dispersible & scored	\$3.50	\$4.00	\$0	\$0	\$0	\$6,620	\$2,940	\$3,192	\$3,436	\$3,676	\$3,908	
ABC+3TC 60/30 - tab	--											
ABC+3TC 60/30 - tab - dispersible	\$3.50	\$3.50	\$0	\$0	\$0	\$168	\$74	\$81	\$84	\$91	\$95	
ABC+3TC 600/300 - tab	\$12.75	\$13.00	\$0	\$0	\$0	\$4,537	\$2,002	\$2,171	\$2,340	\$2,496	\$2,665	
ABC+3TC+AZT 300/150/300 - tab	\$20.00											
ABC+3TC+AZT 60/30/60 - tab	\$7.50											
ATV 100 - caps												
ATV 200 - caps	\$20.00											
ATV 300 - caps	\$17.00											
ATV/r 300/100 - tab	\$16.00	\$16.50	\$0	\$0	\$0	\$99	\$462	\$512	\$561	\$594	\$644	
AZT 0 - susp - dose in ml	\$1.20											
AZT 100 - caps	--											
AZT 300 - tab	\$6.25											
AZT 60 - tab - dispersible	--											
AZT+3TC 300/150 - tab	\$6.60	\$6.50	\$0	\$0	\$0	\$1,040	\$390	\$390	\$390	\$390	\$390	
AZT+3TC 60/30 - tab	--											
AZT+3TC 60/30 - tab - dispersible	\$2.00	\$2.00	\$0	\$0	\$0	\$1,564	\$588	\$588	\$588	\$588	\$588	
AZT+3TC+NVP 300/150/200 - tab	\$8.20	\$8.20	\$0	\$0	\$0	\$7,241	\$2,665	\$2,640	\$2,608	\$2,582	\$2,558	
AZT+3TC+NVP 60/30/50 - tab - dispersible	\$3.50	\$3.50	\$0	\$0	\$0	\$15,197	\$5,586	\$5,534	\$5,478	\$5,425	\$5,369	
DRV 0 - susp - dose in ml	--											
DRV 150 - tab	--											
DRV 75 - tab	--	\$54.00	\$0	\$0	\$0	\$1,296	\$486	\$486	\$486	\$486	\$486	

1. General Inputs / 2. Protocols / 3. ARV Substitutions / 4. Formulations / 5. Form Breakdown / 5a. Dosing / 6. Patients / 7. Consumption / 8. SOH & Pipeline / 9. Ordering / 10. Cost

Screenshot example of tenth worksheet of pediatric tool – Cost

As with the Adult simple tool, this worksheet tabulates the cost of your ARV order, provided that the user enters a price previously paid for each formulation that is an active (white) cell, and therefore a used formulation by your pediatric cohort.

THE USER MUST ADD THIS PEDIATRIC ARV COST TO THE ARV COST IN THE ADULT TOOL TO OBTAIN AN OVERALL QUANTIFICATION COST THAT CAN BE COMPARED AGAINST AVAILABLE BUDGET IN-COUNTRY.

Eleventh Worksheet (Partner Allocation): Allocate products across various partners

11. Partner Allocation					For every year, enter the percentage of each product that each partner is responsible for. Summary allocations can be found in the final table and displayed by year or for the 3-year total. Relevant partners in row 7 can be changed below							
Display orders in volume (# packs) or cost (total) →		Volume					Year 1 Partner Allocation					
Formulation	Price/Pack	Y1	Y2	Y3	TOTAL	PEPFAR	Global Fund	MoH	Other 1	Other 2	Other 3	
3TC 0 - susp - dose in ml	\$1.20	28,311	24,842	27,361	80,514	50%	1%	24%	1%	23%	1%	
3TC 300 - tab	\$0.00											
ABC 0 - susp - dose in ml	\$0.00											
ABC 300 - tab	\$0.00											
ABC 60 - tab - dispersible	\$0.00											
ABC+3TC 120/60 - tab - dispersible & scored	\$3.50	12,875	9,605	9,567	32,047	50%	1%	24%	1%	23%	1%	
ABC+3TC 60/30 - tab	\$0.00											
ABC+3TC 60/30 - tab - dispersible	\$0.00											
ABC+3TC 600/300 - tab	\$0.00											
ABC+3TC+AZT 300/150/300 - tab	\$0.00											
ATV 100 - caps	\$0.00											
ATV 200 - caps	\$0.00											
ATV 300 - caps	\$0.00											
ATV/r 300/100 - tab	\$0.00											
AZT 0 - susp - dose in ml	\$1.20	1,986	1,050	1,164	4,200	50%	1%	24%	1%	23%	1%	
AZT 100 - caps	\$0.00											
AZT 300 - tab	\$5.60	151	82	92	325	50%	1%	24%	1%	23%	1%	
AZT 60 - tab - dispersible	\$0.00											
AZT+3TC 300/150 - tab	\$0.00											
AZT+3TC 60/30 - tab	\$0.00											
AZT+3TC 60/30 - tab - dispersible	\$1.90	11,266	10,288	11,724	33,278	50%	1%	24%	1%	23%	1%	
AZT+3TC+NVP 300/150/200 - tab	\$0.00											
AZT+3TC+NVP 60/30/50 - tab - dispersible	\$0.00											
DRV 0 - susp - dose in ml	\$0.00											
DRV 150 - tab	\$0.00											

Screenshot example of eleventh worksheet of pediatric tool – Partner Allocation

As with the adult tool, this worksheet allows the user to allocate product responsibility across various partners (on a # packs or cost basis). The user fills in percent allocation for each product, year, and partner, and the summary table on the far right aggregates each partner's responsibility.

--THIS COMPLETES THE WALKTHROUGH OF THE PEDIATRIC SIMPLE TOOL--

CHAI Simple Tool Training Data Exercise

The data below can be used to practice using the CHAI Simple Tool for ARV Forecasting. All the data required for a successful quantification can be found below. First-time users should consider reviewing the user manual and training slides along with the below data to practice using the tool ahead of formal quantification exercises.

At the end of this exercise is a series of questions to test whether the below data was entered into the Simple Tool correctly. Answers to the questions are provided at the end as well.

The example data below is for a hypothetical country that is phasing in dolutegravir (in the form of TLD), and phasing out other regimens.

Baseline Information

- Quantification starts on January 2020
- Current patients on ART
 - 150,000 on first-line
 - 45,000 on second-line
 - 0 on third-line
- New patients added each year
 - Y1: 10,000
 - Y2: 10,000
 - Y3: 7,000
- 1L to 2L migration rate
 - Y1: 5%
 - Y2: 5%
 - Y3: 5%
- 2L to 3L migration rate
 - Y1: 2%
 - Y2: 2%
 - Y3: 2%
- Attrition rate: 5% for both first- and second-line
- Yes NVP lead-in dosing with 50% of each bottle required
- Buffer stock: 6 months

Current Regimen Splits

- First-line
 - 100,000 patients on TDF+3TC+EFV600
 - 40,000 patients on AZT+3TC+NVP
 - 5,000 patients on TDF+3TC+NVP
 - 5,000 patients on AZT+3TC+EFV600
 - 0 patients on TDF+3TC+DTG
- Second-line
 - 20,000 patients on AZT+3TC+ATV/r
 - 10,000 patients on AZT+3TC+LPV/r
 - 10,000 patients on TDF+3TC+LPV/r

- 5,000 patients on ABC+3TC+LPV/r
- Third-line
 - No patients on third-line

Future Regimen Splits

- First-line
 - In year 1
 - 90% of new patients on TDF+3TC+DTG
 - 5% on TDF+3TC+EFV600
 - 5% on AZT+3TC+NVP
 - In years 2 and 3
 - 95% of new patients on TDF+3TC+DTG
 - 5% of new patients on TDF+3TC+EFV600
- Second-line
 - In years 1, 2, and 3
 - 90% of new patients on AZT+3TC+ATV/r
 - 10% on TDF+3TC+LPV/r

ARV Substitutions

- 1L: From month 1 to 12, 100% of TDF+3TC+NVP patients will be transitioned to TDF+3TC+DTG
- 2L: From month 1 to 12, 100% of ABC+3TC+LPV/r patients will be transitioned to AZT+3TC+ATV/r

Formulations in-use in Country

- Triple fixed-dose combinations (FDCs)
 - TDF+3TC+DTG
 - TDF+3TC+EFV600
 - AZT+3TC+NVP
- Duals + single
 - TDF+3TC+NVP
 - AZT+3TC+EFV600
 - AZT+3TC+ATV/r
 - AZT+3TC+LPV/r
 - ABC+3TC+LPV/r
 - TDF+3TC+LPV/r
- Three single tablets
 - None

Dosing Considerations

- TDF+3TC+EFV600 is procured in a 30 pack (30 pills per pack)
- 100% of TLD procured will be in a 30 pack (30 pills per pack)

Current Stock-on-Hand and Pipeline Orders

- Existing stock-on-hand
 - ABC/3TC (600/300 mg)
 - 30,000 packs expiring December 2020
 - ATV/r (300/100 mg)
 - 65,000 packs expiring September 2020
 - 170,000 packs expiring June 2021
 - AZT/3TC (300/150 mg)
 - 75,000 packs expiring September 2020
 - 300,000 packs expiring June 2021
 - AZT/3TC/NVP (300/150/200 mg)
 - 450,000 packs expiring March 2021
 - EFV (600 mg)
 - 42,000 packs expiring April 2021
 - LPV/r (200/50 mg)
 - 15,000 packs expiring May 2020
 - 103,000 packs expiring July 2021
 - NVP (200 mg)
 - 10,000 packs expiring October 2020
 - TDF/3TC (300/300 mg)
 - 25,000 packs expiring August 2020
 - 100,000 packs expiring December 2020
 - TDF/3TC/DTG (300/300/50 mg)
 - 100,000 packs expiring October 2020
 - TDF/3TC/EFV (300/300/600 mg)
 - 900,000 packs expiring May 2021
- Existing orders already in pipeline
 - LPV/r (200/50 mg)
 - 100,000 packs to be delivered June 2020
 - TDF/3TC/DTG (300/300/50 mg)
 - 50,000 packs to be delivered October 2020

Order Timing

- Orders are set to arrive at ART sites in March 2020 ('9. Ordering' tab)

Product Costs

Formulation	Price per Pack
TDF/3TC/DTG (300/300/50 mg)	\$6.00
TDF/3TC/EFV (300/300/600 mg)	\$6.00
AZT/3TC/NVP (300/150/200 mg)	\$6.05
TDF/3TC (300/300 mg)	\$3.75
NVP (200 mg)	\$2.20
AZT/3TC (300/150 mg)	\$5.10
ATV/r (300/100 mg)	\$13.25
LPV/r (200/50 mg)	\$16.90
EFV (600 mg)	\$2.75
ABC/3TC (600/300 mg)	\$9.20

Partner Allocation

- Partners and ARV procurement responsibilities
 - PEPFAR is responsible for 100% of TDF-containing products
 - Global Fund is responsible for 50% of everything else
 - MoH is responsible for 50% of everything else
-

Questions (answers can be found below)

- How many total patients are on TDF+3TC+DTG in December 2022?
- How many packs of ATV/r (300/100 mg) tablets are consumed in April 2021?
- How many packs of EFV (600 mg) tablets should be ordered in Q6?
- What is the three-year total cost of this sample quantification?
- How many packs of TDF/3TC/EFV (300/300/600 mg) tablets is PEPFAR responsible for procuring in year 3?

Answers to above questions

- How many total patients are on TDF+3TC+DTG in December 2022?
 - **25,406**
- How many packs of ATV/r (300/100 mg) tablets are consumed in April 2021?
 - **31,869**
- How many packs of EFV (600 mg) tablets should be ordered in Q6?
 - **12,579**
- What is the three-year total cost of this sample quantification?
 - **\$61,423,433**
- How many packs of TDF/3TC/EFV (300/300/600 mg) tablets is PEPFAR responsible for procuring in year 3?
 - **923,519**

References

Annex A – List of Input Sources to complete a quantification

- Latest National Treatment Guidelines in your country
- Latest WHO HIV treatment guidelines for adult and pediatric patients on ART
- Latest national aggregate of site/hospital ART reports for both adult and pediatric ART cohort
- Latest ARV stock inventory from ALL central warehousing units – including pipeline orders
- Latest prices paid/reference prices
- Current list of ARV procured in-country