Three Year Forecasting Tool Overview

This document provides detailed information on the three-year forecasting tool's purpose, function, and assumptions. Updates to back-end calculations and integration with JRSM data will be documented as they become available.

Objective and Benefits

The primary purpose of this tool is to provide pharmaceutical companies with early insights into significant changes in future demand, helping to prevent surprise decreases in orders as progress toward eradication continues. This tool complements existing epidemiological forecasts by putting predicted orders front and center. It allows countries to communicate their intentions, supplementing epidemiological modeling and any future forecasting efforts based on past orders, shipments, and treatments.

By including an alternative type of forecast, this approach aims to improve alignment between orders, shipments, and mass drug administration (MDA) plans, ensuring they follow epidemiological best practices. Additionally, it encourages all stakeholders to proactively plan, consider epidemiological guidance rather than relying solely on historical patterns, and identify areas where further surveys or adjustments to treatment strategies may be needed. It also includes key information on what share of the medications are for different age groups; funded or non-funded; supplied by pharmaceutical companies; and what part of the year they fall into. This can help identify gaps where additional funding or support may be needed early.

Setup

This section details the worksheets that JSI will complete before sending to the country, along with their assumptions.

1. Country Information Paste (COUNTRY_INFO_PASTE)

- Data is pasted from the **COUNTRY_INFO** tab of the **Joint Request for Selected PC Medicines (JRSM)**.

Purpose:

- Populate the list of **Implementation Units (IU)**
- Retrieve base population data
- Identify requested medicines for the upcoming year (2026, based on completed JRSMs)
- Inform forecasts for subsequent years (2027, 2028, and 2029)

Age Group Definitions

- **Pre-SAC:** Pre-school-aged children (starting from age 2)
- **SAC:** School-aged children
- **WRA:** Women of reproductive age (15+ years)
- **Other Adults:** Adults who are not WRA, including men and elderly
- **Infants:** Not split out, as they are not treated for these diseases; however, they are included in the Total Population where indicated

Endemicity Codes

For LF and Oncho

- **0** = Non-endemic
- **1** = Endemic
- **4** = Status unknown
- **19 =** Endemic, pending impact survey
- **99** = Endemic, MDA stopped

For SCH

- **0** = Non-endemic
- **1** = Low prevalence (<10%)
- **2** = Moderate prevalence (10-49%)
- **3** = High prevalence (≥50%)
- **4** = Status unknown
- **5** = Endemic, prevalence unknown
- **99** = Prevalence < 1%, surveillance
- **11** = Prevalence < 10%, 1 round every 2/3 years
- **21** = Prevalence 10%–49%, 1 round annually
- **31** = Prevalence > 50%, 1 round annually and hot-spots with additional round

For STH

- **0 =** Non-endemic
- **1 =** Low prevalence (<20%)
- **2 =** Moderate prevalence (20-49%)
- **3 =** High prevalence (≥50%)
- **4 =** Status unknown
- **5** = Endemic, prevalence unknown
- **99** = Prevalence < 2%, surveillance
- **11** = Prevalence 2–9%, 1 round every 2 years
- **21** = Prevalence 10%–19%, 1 round annually
- **22** = Prevalence 20%–49%, keep baseline frequency
- **31 =** Prevalence > 50%, 3 rounds annually

Sheets for Country Completion

This section details the worksheets that countries will complete, along with their assumptions.

2. Country-Specific Values

This sheet includes:

- **Women of Reproductive Age (WRA) as a Percent of TOTAL Population**. Countries may input the value they use
- **Estimated Population Growth per Year**. Default is 3% but countries should overwrite

- **Default LF Treatment Approach**: Options include: ALB + DEC + IVM, ALB + DEC, ALB + IVM, 1x ALB Only, 2x ALB Only
- **Default STH Treatment Approach for PreSAC/SAC/Other Adults**: Options include ALB and MBD.
- **Rounds for LF/Oncho, SCH, and STH**: Defaults are indicated below, but gives countries a location to adjust how many rounds they give for different endemicities. The purpose is to reduce the burden for countries who have a custom treatment approach.

Countries should complete or update these values based on their existing data.

Note: WRA is calculated as a percentage of the total population, including men, women, children, and infants—not just women or adults.

3. D_Projections_Paste

This sheet gives countries the option of pasting the projections tab from version 6 of the SCH workbook. If a country pastes this data, it will populate the SCH Pop columns with the population determined in the workbook, saving countries the effort of entering that data manually.

4. LF

This worksheet recommends LF MDA plans for **2027, 2028, and 2029** based on epidemiological data. Countries may overwrite formula output with hardcoded values as needed.

Section Descriptions

- **IU Information**: Pulled from COUNTRY_INFO_PASTE; lists administrative units (IU = Implementation Unit, similar to regions/districts).
- **MDA History**: From **ESPEN Data Portal**; reports past treatment rounds using **EpiEffMDA_n**
- **2026 Data**: Imported from COUNTRY_INFO_PASTE, reflecting the latest **JRSM** requests.
- **2027, 2028, and 2029 Forecasts**: Users review and update these columns.

Default Forecasting Rules for 2027, 2028, and 2029

The worksheet pre-populates the columns for 2027, 2028, and 2029 with the below values. Countries have the option to overwrite these pre-populated values with their plans and estimates. The goal of the pre-population is to highlight needed surveys and possible changes in endemicity and MDAs.

If a value is different from the previous year, it will be highlighted in orange.

- **Expected Endemicity**: If a survey is being conducted this year, endemicity = 19. If endemicity last year was 19, then endemicity = 99. Otherwise, endemicity remains the same as last year.
- **Surveys Planned**: Indicates if an impact survey/impact assessment is planned. Based on the number of previous rounds as indicated in MDA History. A survey is indicated if there has been a baseline survey (as indicated by a one-digit endemicity code the previous year) and 5 previous rounds, or an impact survey (as indicated by a two-digit endemicity code the previous year) and 7 previous rounds (5 after baseline + 2 after impact)

- **Treatment Strategy**: Countries may select their approach to treating LF. Options include: ALB + DEC + IVM (default if an MDA is indicated), ALB + DEC, ALB + IVM, 1x ALB Only, 2x ALB Only, and No MDA (default if no MDA is indicated). Their selection is then reflected in the drugs included in the final tally, and the number of MDA rounds in the MDAs Planned column
- **Rounds Planned**: Based on endemicity and the number of rounds indicated on the Country-Specific Values worksheet
- **Funding Likelihood**: Defaults to Low if an MDA is planned. Countries may put Medium or High
- **Age Groups Included in 2027, 2028, and 2029**:
    - No user selection
    - Indicated for SAC and Adults. Takes the lower of the LF population from COUNTRY_INFO_PASTE or SAC + Adults population

Current Endemicity	Projected Endemicity	Current Rounds
0	99	0
1	19	1
4	99	0
19	99	0
99	99	0

If both LF and Oncho use IVM for treatment in a specific IU, LF takes priority, and tablets used for Oncho will be considered duplicates and deducted. The number of tablets deducted will equal the LOWER value of LF and Oncho tablets for that year and IU.

If both LF and STH use ALB for treatment in a specific IU, ALB takes priority, and tablets used for STH will be considered duplicates and deducted. The number of tablets deducted will equal the TOTAL value of STH ALB tablets for that year and IU.

5. Oncho

This worksheet recommends Oncho MDA plans for **2027, 2028, and 2029** based on epidemiological data. Countries may overwrite formula output with hardcoded values as needed.

Section Descriptions

- **IU Information**: Pulled from COUNTRY_INFO_PASTE; lists administrative units (IU = Implementation Unit, similar to regions/districts).
- **MDA History**: From **ESPEN Data Portal**; reports past treatment rounds using **Cum_MDA**
- **2026 Data**: Imported from COUNTRY_INFO_PASTE, reflecting the latest **JRSM** requests.
- **2027, 2028, and 2029 Forecasts**: Users review and update these columns.

Forecasting Rules

The worksheet pre-populates the columns for 2027, 2028, and 2029 with the below values. Countries have the option to overwrite these pre-populated values with their plans and estimates. The goal of the pre-population is to highlight needed surveys and possible changes in endemicity and MDAs.

If a value is different from the previous year, it will be highlighted in orange.

- **Expected Endemicity**: If a survey is being conducted this year, endemicity = 19. If endemicity last year was 19, then endemicity = 99. Otherwise, endemicity remains the same as last year.
- **Surveys Planned**: Indicates if an impact survey/impact assessment is planned. Based on the number of previous rounds as indicated in MDA History. A survey is indicated if there has been a baseline survey (as indicated by a one-digit endemicity code the previous year) and 15 previous rounds, or an impact survey (as indicated by a two-digit endemicity code the previous year) and 16 previous rounds (15 after baseline + 1 after impact)
- **Rounds Planned**: Based on endemicity and the number of rounds indicated on the Country-Specific Values worksheet
- **Funding Likelihood**: Defaults to Low if an MDA is planned. Countries may put Medium or High
- **Age Groups Included in 2027, 2028, and 2029**:
    - No user selection
    - Indicated for SAC and Adults. Takes the lower of the LF population from COUNTRY_INFO_PASTE or SAC + Adults population

Current Endemicity	Projected Endemicity	Current Rounds
0	99	0
1	19	1
4	99	0
19	99	1
99	99	0

If both LF and Oncho use IVM for treatment in a specific IU, LF takes priority, and tablets used for Oncho will be considered duplicates and deducted. The number of tablets deducted will equal the LOWER value of LF and Oncho tablets for that year and IU.

6. SCH

This worksheet recommends SCH MDA plans for **2027, 2028, and 2029** based on epidemiological data. Countries may overwrite formula output with hardcoded values as needed.

Section Descriptions

- **IU Information**: Pulled from COUNTRY_INFO_PASTE; lists administrative units (IU = Implementation Unit, similar to regions/districts).
- **MDA History**: From **ESPEN Data Portal**; reports past treatment rounds using **EpiPC_n**

- **2026 Data**: Imported from COUNTRY_INFO_PASTE, reflecting the latest **JRSM** requests.
- **2027, 2028, and 2029 Forecasts**: Users review and update these columns.

Forecasting Rules

The worksheet pre-populates the columns for 2027, 2028, and 2029 with the below values. Countries have the option to overwrite these pre-populated values with their plans and estimates. The goal of the pre-population is to highlight needed surveys and possible changes in endemicity and MDAs.

If a value is different from the previous year, it will be highlighted in orange.

- **Expected Endemicity**: If a survey was conducted the previous year, assumes a drop in endemicity as shown in the below table's Projected Endemicity column
- **Surveys Planned**: Indicates if an impact survey/impact assessment is planned. Based on the number of previous rounds as indicated in MDA History. A survey is indicated if there has been a baseline survey (as indicated by a one-digit endemicity code) and 5 previous rounds, or an impact survey (as indicated by a two-digit endemicity code) and 10 previous rounds (5 after baseline + 5 after impact)
- **Rounds Planned**: Based on endemicity and the number of rounds indicated on the Country-Specific Values worksheet
- **Funding Likelihood**: Defaults to Low if an MDA is planned. Countries may put Medium or High
- **Age Groups Included in 2027, 2028, and 2029**:
    - **SAC, All Adults**: Each defaults to Yes if an MDA is planned
    - **PreSAC**: Defaults to No
    - If the SCH Workbook Projections have been pasted, it will look for the population value there. If not, it will use the SCH population from the JRSM COUNTRY_INFO

Current Endemicity	Projected Endemicity	Current Rounds
0	99	0
1	99	0
2	99	1
3	21	1
4	99	0
5	99	0
11	99	0.5
21	11	1
31	21	1
99	99	0

7. STH

This worksheet recommends STH MDA plans for **2027, 2028, and 2029** based on epidemiological data. Countries may overwrite formula output with hardcoded values as needed.

Section Descriptions

- **IU Information**: Pulled from COUNTRY_INFO_PASTE; lists administrative units (IU = Implementation Unit, similar to regions/districts).
- **MDA History**: From **ESPEN Data Portal**; reports past treatment rounds using **EpiPC_n**
- **2026 Data**: Imported from COUNTRY_INFO_PASTE, reflecting the latest **JRSM** requests.
- **2027, 2028, and 2029 Forecasts**: Users review and update these columns.

Forecasting Rules

The worksheet pre-populates the columns for 2027, 2028, and 2029 with the below values. Countries have the option to overwrite these pre-populated values with their plans and estimates. The goal of the pre-population is to highlight needed surveys and possible changes in endemicity and MDAs.

If a value is different from the previous year, it will be highlighted in orange.

- **Expected Endemicity**: If a survey was conducted the previous year, assumes a drop in endemicity as shown in the below table's Projected Endemicity column
- **Surveys Planned**: Indicates if an impact survey/impact assessment is planned. Based on the number of previous rounds as indicated in MDA History. A survey is indicated if there has been a baseline survey (as indicated by a one-digit endemicity code) and 5 previous rounds, or an impact survey (as indicated by a two-digit endemicity code) and 10 previous rounds (5 after baseline + 5 after impact)
- **Rounds Planned**: Based on endemicity and the number of rounds indicated on the Country-Specific Values worksheet
- **Funding Likelihood**: Defaults to Low if an MDA is planned. Countries may put Medium or High
- **Age Groups Included in 2027, 2028, and 2029**: Varies by age group; if MDA is planned:
    - Defaults to country selected value from Country-Specific Values for Pre-SAC
    - Defaults to country selected value from Country-Specific Values for SAC
    - Defaults to **Yes-MBD** for WRA (No ALB option)
    - Defaults to **No** for Other Adults

Current Endemicity	Projected Endemicity	Current Rounds
0	99	0
1	99	0
2	99	1
3	22	2
4	99	0

5	99	0
11	99	0.5
21	11	1
22	21	2
31	22	2
99	99	0

If both LF and STH use ALB for treatment in a specific IU, ALB takes priority, and tablets used for STH will be considered duplicates and deducted. The number of tablets deducted will equal the TOTAL value of STH ALB tablets for that year and IU.

Output Sheets

This section details the worksheets are visible to users and include summaries and output.

8. Summary for Country Review

This sheet provides:

- The forecasted number of tablets to cover the planned population, by medicine. This number is calculated from the other sheets
- A graph of the forecasted number of tablets for review
- Detailed breakdowns of the data
- A graph comparing past shipments to the forecast treatment. Please note that the current year may be low due to partial shipments

There are toggles at the top to filter by likelihood of funding, whether SCH treatment will include adults, and whether STH treatment will include “Other Adults” (non-WRA adults).

Sheets for Calculation and Review (Hidden)

These sheets are not for country input, but for back-end calculation and review. They also include specialized cuts of the data to answer specific questions by the pharma companies and other stakeholders. They may be locked or hidden during country completion of the tool.

9. Dups

This worksheet calculates duplicate values for ALB and IVM, expressed as negative values so they subtract tablets in the rounds tally and summaries. For IVM, if it is used for an IU and age group for both LF and Oncho in the same year, we keep the LF rounds intact and subtract the Oncho rounds. For ALB, if it is used for an IU and age group for both LF and STH, we keep the LF rounds intact and subtract the latest STH round. Because STH can have more than one round, we may still have STH-specific ALB rounds despite the overlap. Keeping Dups as a separate “disease” in the Rounds Tally allows us to see the planned treatment for LF, Oncho, and STH, but also to subtract the overlap in the totals.

10. Population Tables

This worksheet applies the population growth rate on the Constants worksheet to the population data in the JRSM from COUNTRY_INFO_PASTE, and calculates population by Age Group for 2027, 2028, and 2029. It is then used to calculate totals.

11. Rounds Tally

This worksheet contains a detailed breakdown of medicines needed by country, round, disease, age group, funding status, whether the drugs were donated by the pharma companies, and year.

Tablets will be calculated based on the following guidance, with the number of tablets indicated by age group:

Disease	Medicine	Pre-SAC	SAC	All Adults	WRA	Other Adults
LF*	IVM	0	2.8	2.8		
LF*	DEC	2.5	2.5	2.5		
LF	ALB	1	1	1		
Oncho	IVM	0	2.8	2.8		
SCH	PZQ	0	2	3		
STH*	ALB	0	1		0	1
STH*	MBD	1	1		1	1

* Inclusion depends on drug selection in the individual disease sheet

12. Validation + Lookup

This worksheet includes validation lists and lookup tables to support data entry and calculations.

13. Drug Shipments

This worksheet allows the admin to paste past drug shipments downloaded from NTDeliver, which then populate the time series on the Detailed Output tab.

14. SCH_Projections

This is a copy of D_Projections_PASTE to address any formatting issues related to the pasting of data

15. Totals Checks

This sheet is for any quality checks to validate the totals and highlight possible errors. None are built currently but they may be planned for the future.

Acronym List

- **IU** = Implementation Unit
- **MDA** = Mass Drug Administration
- **JRSM** = Joint Request for Selected PC Medicines
- **NTD** = Neglected Tropical Diseases
- **Pre-SAC** = Pre-school aged children
- **SAC** = School-aged children
- **WRA** = Women of reproductive age (15+ years)
- **SCH** = Schistosomiasis

- **STH** = Soil-Transmitted Helminths
- **LF** = Lymphatic Filariasis
- **Oncho** = Onchocerciasis
- **ALB** = Albendazole
- **DEC** = Diethylcarbamazine
- **IVM** = Ivermectin
- **MBD** = Mebendazole
- **PZQ** = Praziquantel
- **ARP** = Arpraziquantel