HCV Elimination Tool
User Guide

Last updated 28 June 2021
Getting Started: Setting Parameters

1. Select a country

Selecting a country will change the underlying disease burden model to match the HCV profile for that country, then you can modify certain parameters:

- Screening policy and testing strategy
- Screening and confirmation testing costs
- Treatment cost
- Hepatitis C elimination targets

2. Select Screening Strategy

Select the screening policy you would like to model from the available options (e.g., risk-based, age cohort, or universal screening).

- **Risk-based screening**, which indicates that only a high-risk population (such as people who use injection drugs) will be screened annually. Screened persons will be eligible to be re-screened each year.

- **Age Cohort screening**, which indicates that an older population cohort will be eligible for one-time screening, and screening of high-risk populations will happen in the background, with the same high-risk population eligible to be re-screened each year.

- **Universal screening**, which indicates that all adults in the population will be eligible for one-time screening, and screening of high-risk populations will happen in the background, with the same high-risk population eligible to be re-screened each year.
3. Select a Testing Strategy

Changing the testing strategy used will change the sensitivity and specificity of tests, and the patient follow-up rates. There are 5 options for testing strategies, or you can select a combination. Details on selecting a combination of strategies are further explained under step 4.

Testing Strategy Options and Descriptions:

1. **POC Antibody + POC PCR**: assumed 10% follow-up for confirmation, 100% confirmed patients treated.
2. **POC Antibody + lab-based PCR**: assumed 80% follow-up for confirmation, 100% confirmed patients treated.
3. **POC Antibody + lab-based cAg**: assumed 80% follow-up for confirmation, 100% confirmed patients treated.
4. **Lab-based Antibody + lab-based PCR**: assumed 80% follow-up for both tests, 100% confirmed patients treated.
5. **Lab-based Antibody + lab-based cAg**: assumed 80% follow-up for both tests, 100% confirmed patients treated.

4. OPTIONAL: Select a Combination of Testing Strategies

If preferred, a user can select the “choose combination of testing strategies” option to model a scenario where two or more testing strategies are implemented together. Once this choice is selected, you will need to enter a percentage representing the proportion of testing done under each strategy.

In the example to the left, both the **POC Antibody + POC PCR** and **POC Antibody + lab-based cAg** have been selected. The first selection accounts for 80% of tests, while **POC Antibody + lab-based cAg** makes up the remaining 20%.

Users can also enter differing costs (in U.S. dollars) for screening and confirmatory testing under the selected strategies.
5. Enter Costs

2. Select screening strategy, testing strategy, costs

After selecting your preferred testing strategies, or combination, costs can be entered. The user can enter specific values (in U.S. dollars) for the antibody test, the confirmation test, and DAA treatment costs. These input costs will be utilized in computing the total cost for the selected screening and testing strategy.

<table>
<thead>
<tr>
<th>Antibody test cost:</th>
<th>Confirmation test cost:</th>
<th>DAA treatment cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>20</td>
<td>500</td>
</tr>
</tbody>
</table>

Startup and Annual Program Costs:

- Add startup costs and/or annual program costs

6. OPTIONAL: ADD Startup and annual program costs

The user can also elect to include startup costs and/or annual program costs associated with HCV elimination program in the total cost calculation. To do so, select the box next to “startup costs and/or annual program costs”. Any startup costs can be entered in the left box as a U.S. dollar amount. Additionally, annual program management costs can be entered into the right box as a percentage.

- Add startup costs and/or annual program costs

Start-up cost (1st Year): 10000

Annual Program Management Costs (% of total cost): 7
7. Set HCV Elimination Goals

In the bottom panel, the user can set their preferred HCV elimination goals. By default, these will each be set to a value of 60 percent. However, the incidence reduction, mortality reduction, diagnosis coverage, and treatment coverage goals can each be modified by clicking and dragging the green bar to your target value. To automatically set each of these to the WHO targets, select the “Default WHO Targets” button in the lower right. There are more details on each of these four goals below. Additionally, 2030 will be the default year by which to meet these targets, but this can be easily changed using the slide bar at the bottom.

- **Incidence reduction**: Reduction in HCV incidence between 2015 and selected target year.
- **Mortality reduction**: Reduction in HCV related mortality between 2015 and selected target year.
- **Diagnosis coverage**: Percent of viremic HCV population diagnosed by selected target year.
- **Treatment coverage**: Percent of treatment-eligible HCV population treated by selected target year.

8. Generate Results

Once all of the selections are to your liking, you can select the blue “generate results” button to identify all possibly strategies that meet the goals identified in step 7. If any modifications are made to the above goals, clicking this icon again will re-run the model to identify strategy options that fulfill the newest targets.

Viewing and Selecting Strategy Options
9. Select a Strategy

Upon generating results, you will see a summary identifying how many total strategy options exist to achieve the elimination goals set in step 7 by the year specified in step 7.

Below this, there are three pre-specified options to filter the results:

- **Lowest Total Cost**: This option sorts the strategies in descending order by total cost (2022 to 2050).
- **Greatest Death Reduction**: This option sorts the applicable strategies in descending order by mortality reduction (2015 to 2030).
- **Most Gradual Scale-up**: This option sorts the strategies in ascending order by annual screening rate (first) and annual treatment rate (second).

Additionally, for further customization, any of the table headers can be selected to sort the relevant strategies according to that variable (in either ascending or descending order).

Clicking any row in the summary table will generate the full results in step 10.

View Detailed Results

10. View the Results
Selecting a row in the summary table from step 9 will generate detailed results for your chosen intervention. There are four categories of detailed results that can be depicted: **Targets**, **Outcomes**, **Costs**, and **Cascade of Care**. You can toggle to the category you would like to view by selecting one of the tabs at the top. More details on the plots available under each tab are included below.

### Targets:
- **Number of People to Screen**: From 2022 through 2030
- **Number of People to Receive Confirmation Test**: From 2022 through 2030
- **Number of People Diagnosed**: From 2022 through 2030
- **Number of People to Treat**: From 2022 through 2030

### Outcomes:
- **HCV Diagnosis Coverage**: From 2022 through 2030
- **HCV Treatment Coverage**: From 2022 through 2030
- **Hepatitis C Prevalence**: From 2022 through 2030, separated by F0, F1, F2, F3, and F4.
- **Disease Burden**: From 2022 through 2030, separated into HCC, DCC, and Liver-related Mortality.
- **Hepatitis C Incidence**: From 2022 through 2030, stratified by high-risk and low-risk populations.

### Costs:
- **Annual Cost**: From 2022 through 2030, separated by costs for Disease Management, Treatment, Confirmation, and Screening.

### Cascade of Care:
- **Cascade of Care**: Shows the change in the number of persons over time who: 1) have HCV, 2) are Aware, and 3) are Cured.