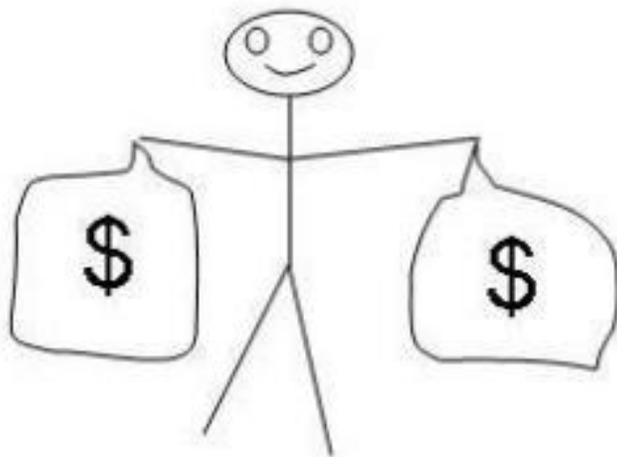


STIC Figure 2.0

Sexually Transmitted Infections Costs Saved

Version 2.0

User Guide



A spreadsheet tool to estimate the direct medical costs and productivity costs saved by sexually transmitted infection prevention programs

Last updated February 3, 2025

ACKNOWLEDGMENTS

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*Note: All authors contributed to the STIC Figure 2.0 tool, this User Guide, and the corresponding manuscript and appendix. The authorship order listed here for the STIC Figure 2.0 tool and User Guide differs from that of the corresponding manuscript and appendix, due to differences in author contributions to the specific components of the overall project.

Contact information

For additional help or to provide feedback on the tool including potential errors, please email your questions and comments to Harrell Chesson (hbc7@cdc.gov).

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Appreciation

The authors thank Monica Trigg and Dr. Taiwo Abimbola for administrative support, Dr. Elizabeth Torrone for helpful discussions, and Christopher Wells and Robin Kelley for feedback on the associated spreadsheet tool and user guide. The authors also thank the focus group participants and usability testing participants from state and local jurisdictions for their time and careful reflections on desired enhancements to the original spreadsheet tool and testing the usability of the prototype of the updated version.

DISCLAIMERS

This spreadsheet tool is intended to facilitate the calculation of the number of infections and other health outcomes averted, and the associated savings in direct medical costs and productivity costs, by STI prevention program activities as described in this User Guide and supporting scientific manuscript and appendix.

Estimating the costs saved through STI prevention is not an exact science.

Although this spreadsheet can be used to generate evidence-based estimates of the health and economic benefits of your STI program, the results are subject to uncertainty and should be considered informed approximations rather than exact assessments. The actual impact of your STI program could be substantially different than that estimated by this spreadsheet. Therefore, this spreadsheet should not be used to compare one STI program to another. The authors do not warrant or guarantee the accuracy of the spreadsheet calculations.

The spreadsheet tool is not a budgeting tool.

STIC Figure 2.0 is more suitable for estimating the health and economic benefits of program activities rather than for determining the optimal mix of program activities.

This User Guide reflects the authors' views.

The findings and conclusions in this document and the spreadsheet tool described herein are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

TOOL OVERVIEW AND INTENDED AUDIENCE

Tool overview

The Sexually Transmitted Infection Cost Saved (STIC Figure) 2.0 tool calculates the number of infections and other adverse health outcomes averted and costs saved as a result of STI program activities.

Intended audience and sample use cases

The tool is appropriate to estimate the impact of STI and HIV prevention activities, including activities of state, tribal, local, and territorial (STLT) health departments. The tool's audience includes STLT health department staff, STI and HIV clinic managers, other practitioners, researchers, and others interested in estimating the benefits of STI and HIV prevention activities. Possible uses of the tool include preparing fact sheets or presentations about the benefit of STI and HIV prevention activities by public health agencies, demonstrating the economic value of STI and HIV prevention, and informing internal and external audiences about the impact of STI and HIV prevention work.

How is STIC Figure 2.0 different from SPACE Tool 2.0?

Feature	STIC Figure 2.0	SPACE Tool 2.0
Provides output such as the estimated number of infections averted and medical costs saved	✓	✓
Used to estimate the impact of STI budget cuts or budget increases	✗	✓
Used to estimate the impact of specific STI and HIV prevention activities	✓	✗
Suitable for use by almost any STI/HIV program or jurisdiction regardless of size	✓	✗
Suitable for use by large jurisdictions only	✗	✓

STIC Figure 2.0 and the STI Prevention Allocation Consequences Estimator (SPACE) Tool 2.0 are similar in that they both can be used to show the impact of STI prevention activities, in terms of infections averted and costs saved. The key difference is that SPACE Tool 2.0 is used to estimate the impact of changes in the amount of funding allocated for STI prevention in a large jurisdiction, whereas STIC Figure 2.0 is used to estimate the impact of prevention and treatment activities by an STI prevention program of any size. SPACE Tool 2.0 is intended for large jurisdictions, such as states and cities that are federally funded for STI prevention. STIC Figure 2.0 is suitable for almost any program that provides STI treatment and prevention services, ranging from a small health clinic to a large state health department.

For large jurisdictions, the two tools complement each other. For example, a large jurisdiction might use SPACE Tool 2.0 to provide answers to questions about the potential impact of an increase or decrease in their STI prevention funding. Additionally, this same jurisdiction might use STIC Figure 2.0 to provide a report about the impact of their STI program activities, such as treatment of chlamydia, gonorrhea, and syphilis and providing linkage to HIV care.

What's new in STIC Figure 2.0?

STIC Figure 1.0 was initially developed and disseminated by CDC in 2008. In 2017, CDC developed an updated "1.1" version with an inflation adjustment to 2016 dollars. For the new "2.0" tool, users were engaged throughout the design process to make the revised interface more user-friendly and engaging.

The mathematical model behind the STIC Figure 2.0 tool incorporates the following:

- Updated scientific evidence about the effectiveness of different program activities on averting future infections and other health outcomes.
- Updated estimates of the direct medical costs and productivity costs of HIV and STIs. Productivity costs occur when a person's ability to work or to perform valuable non-paid productive tasks (such as household cleaning or childcare) is reduced or eliminated due to STI/HIV-related illness, treatment, disability, or premature death.
- Addition of ranges to output to show uncertainties in the estimates.

The STIC Figure 2.0 tool has the following new features:

- An interactive chart and table of results that can be customized and copied into other applications such as Word and PowerPoint.
- A revised "program inputs" page to reflect current partner services activities, such as linkage to HIV care and facilitating access to HIV pre-exposure prophylaxis (PrEP).
- Reduced data requirements for users to customize the tool to their jurisdiction.
- Plain-language interpretations of the results.

WHAT DOES THE TOOL DO?

STIC Figure 2.0 does the following...	STIC Figure 2.0 does not...
<ul style="list-style-type: none"> ✓ The tool estimates health and economic benefits of STI treatment, partner services, and HIV prevention activities. ✓ The tool estimates the number of infections (HIV, syphilis, gonorrhea, and chlamydia) averted. ✓ The tool estimates the discounted lifetime direct medical costs and productivity costs saved. 	<ul style="list-style-type: none"> ✗ The tool does not consider program costs. ✗ The tool does not calculate cost-effectiveness. ✗ The tool is not suitable for determining the optimal mix of program activities. ✗ The tool does not include costs of program activities (such as screening and treatment); it only calculates the benefits.

STIC Figure 2.0 estimates several benefits of treating STIs and partner services activities:

- Prevention of sequelae among persons treated for STIs.
- Congenital syphilis cases averted through treatment of syphilis in women.
- STI infections averted among partners of persons treated, their partners' partners, and so on.
- Prevention of STI-attributable HIV infections among persons treated and in the population by interrupting STI/HIV transmission.
- HIV infections averted by HIV PrEP referrals or direct provision of HIV PrEP.
- HIV infections averted through linkage to or reengagement with HIV medical care for persons with diagnosed HIV infection.

Your STI program activities (inputs) are those that occur during a one-year period. For example, inputs for estimating the benefit from your STI program activities in 2022 would include the number of confirmed cases treated, persons receiving epi-treatment, and newly-diagnosed HIV cases linked to care from January 1, 2022 through December 31, 2022. All inputs and their definitions are described in more detail below.

The costs saved (outputs) are expressed in discounted lifetime direct medical and productivity costs. Your inputs describing your STI program activities will be based on a one-year period. The number of infections averted is calculated over a one-year period as well. However, the sequelae averted as a result of these averted infections (such as the possibility of pelvic inflammatory disease due to chlamydia or gonorrhea, or the possibility of congenital syphilis in infants of mothers with syphilis) are included even if they occur one or more years in the future. Similarly, costs saved as a result of these averted infections reflect the average discounted lifetime cost per infection, regardless of when these costs occur. Following best practices in the scientific literature, future costs are expressed in present value terms.

✘ STIC Figure 2.0 does not consider program costs. STIC Figure 2.0 does not account for STI and HIV program costs when estimating the costs saved by STI and HIV program activities. Thus, the estimated cost savings are not net savings, i.e., they do not reflect savings above and beyond the cost of performing the program activities. Instead, the estimated cost savings reflect only the benefits of program activities.

HIV linkage to care and reengagement with care are modeled as “treatment as prevention.” So, for persons with HIV, linkage to and reengagement with care is a prevention activity that provides benefits (prevention of secondary HIV infections and the corresponding HIV medical costs saved). The tool does not include the costs of delivering services to facilitate linkage to care or the HIV medical costs among persons linked to care.

For example, suppose an HIV infection in Person B is averted because Person A was linked to HIV care. In this example, the benefits calculated by STIC Figure 2.0 include the HIV infection averted in Person B as well as the lifetime medical costs saved that would have been incurred if Person B had acquired HIV. However, in this example, the program costs incurred to link Person A to care and the HIV treatment costs incurred by Person A are not included in the STIC Figure 2.0 calculations, which include only the benefits of program activities, not the costs.

✘ STIC Figure 2.0 does not perform cost-effectiveness analysis. STIC Figure 2.0 does not consider the costs to run your program and to deliver the services. As such, STIC Figure 2.0 does not assess whether your program benefits are a good value in relation to their costs, compared to other types of public health investments. However, the information from STIC Figure 2.0 can help to inform cost-effectiveness analyses.

✘ STIC Figure 2.0 is not a budgeting tool. It does not show the annual stream of program benefits and costs over time. The cost savings from treating index patients to avert downstream health consequences (e.g., pelvic inflammatory disease) and preventing secondary infections are all in terms of “lifetime” discounted costs. Direct medical costs saved reflect all medical costs regardless of who pays these costs; thus, these reflect savings to society and not necessarily to the STI program.

✘ STIC Figure 2.0 does not optimize program efficiency. It is not intended to determine the optimal mix of program activities to provide, but instead is more suitable for estimating the health and economic benefits of program activities.

✘ STIC Figure 2.0 does not include screening activities. Instead, you will enter the number of persons who were treated for STIs and the number of people diagnosed with HIV who were linked to HIV medical care.

WHAT DATA DO I NEED BEFORE USING THE TOOL?

Inputs

The following inputs are allowed and should be calculated as numbers over a one-year time period (e.g., to estimate the impact of activities in 2022, include all counts from January 1, 2022 through December 31, 2022). Within each column, persons should only be counted once. For example, someone should not be counted as both being a confirmed case treated for chlamydia and receiving epi-treatment for chlamydia unless those are separate, distinct events that occurred at different time points during the year. At least one of the inputs in the table below must be entered in order for STIC Figure 2.0 to calculate estimates.

Input, stratified by male vs. female	Chlamydia	Gonorrhea	P&S Syphilis	HIV
Number of confirmed cases treated <i>Defined as the confirmed or probable cases, as per CSTE STD Case Definitions, that have documented treatment via surveillance system or Partner Services Disposition C, E.</i>	✓	✓	✓	
Number of persons receiving epi-treatment <i>Defined as the contacts or associates of an infected person who received documented treatment, but do not have a lab-confirmed diagnosis: Partner Services Dispositions A, Z.</i>	✓	✓	✓	
EPT referrals or prescriptions distributed to patients for their partners <i>Defined as the number of Expedited Partner Therapy (EPT) referrals (either through prescriptions or medication-in-hand) given to persons diagnosed with an STI where EPT is permissible.</i>	✓	✓		
Other presumptive treatment <i>Presumptive cases (for example, presumptive treatment of chlamydia in those with gonorrhea) should be entered here only if they have not been entered as persons receiving epi-treatment. Do not double-count epi-treatment and presumptive treatment.</i>	✓	✓		
Newly diagnosed HIV cases linked to care <i>Defined as the number of persons that were newly diagnosed by your program and linked to HIV care. Do not double-count persons who were previously linked to care and re-engaged with care.</i>				✓
Previously-diagnosed HIV cases re-engaged in care <i>Defined as the number of persons with HIV who were re-engaged with care. Do not double-count persons who were newly linked to care and re-engaged with care.</i>				✓
Persons provided with a PrEP referral <i>If your program provides HIV PrEP referrals but does not provide PrEP, enter "0" for direct provision, and vice versa.</i>				✓

Input, stratified by male vs. female	Chlamydia	Gonorrhea	P&S Syphilis	HIV
<i>If your program does a mixture of referrals and direct provisions, enter numbers in both inputs without double counting people.</i>				
Persons receiving direct provision of PrEP <i>If your program provides HIV PrEP referrals but does not provide PrEP, enter "0" for direct provision, and vice versa. If your program does a mixture of referrals and direct provisions, enter numbers in both inputs without double-counting people.</i>				✓

Advanced options

The following inputs are optional. The tool’s default values are derived from published scientific manuscripts. You may modify the default values if you want to further customize the tool to your jurisdiction. If you do not have relevant data for your jurisdiction, the default values are recommended.

- % of females with syphilis who are pregnant (default: 14.6%)
- % of chlamydia cases in males that occur among MSM (default: 10.7%)
- % of gonorrhea cases in males that occur among MSM (default: 59.7%)
- % of syphilis cases in males that occur among MSM (default: 60.0%)
- % of males linked to HIV care that are MSM (default: 86.9%)
- % of males using HIV PrEP who are MSM (default: 97.7%)
- The current medical care consumer price index (CPI) to adjust the direct costs for inflation (default: 2023 dollars)
- The current general CPI to adjust the productivity costs for inflation (default: 2023 dollars)

HOW DO I GET STARTED?

✓ Step 1: Download and save the file to your computer.

It is critical to save the Excel spreadsheet to your computer before starting your work. Do not use the tool until you have saved it to your computer. When ready to use the spreadsheet, open the saved version, and you will be prompted to enable macros. Finally, it is important to use the desktop (not web-based) version of Excel.

STIC Figure 2.0
Sexually Transmitted Infection Costs Saved

1. Download and save the file to your computer
2. Open the saved file
3. Enable macros

READ ME! Before you begin, save this file on your computer on your desktop or in a folder and use the desktop version of Excel. After saving the file, you will need to enable content to allow the macros to work. Failure to save the file on your computer before using it will result in model errors.

Click to Begin!

Purpose: This spreadsheet tool allows state, tribal, local, and territorial health departments estimate the number of infections and other health outcomes averted, and direct medical costs and productivity costs saved, by STI and HIV program activities. Potential model users include health departments, STI clinic managers, other practitioners, and researchers. The calculations are based on the scientific literature. See the "Interpretation Guide" and scientific manuscript for additional details. ***This is not a budgeting tool.***

Disclaimer: The methods applied in, and the results produced by, this spreadsheet reflect the views of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention. This spreadsheet tool is intended to facilitate the calculation of health outcomes averted and costs saved as described in the User Guide, the "Interpretation Guide" tab, and the corresponding scientific manuscript and appendix. However, the authors do not warrant or guarantee the accuracy of the spreadsheet calculations.



To avoid errors, remember to save the model to your computer, open the saved file, and allow macros.

✓ Step 2. Familiarize yourself with the tool

You will find the following information on the homepage:

- Brief explanation of the tool
- Information on who to contact for additional help or to provide feedback on the tool
- The version number

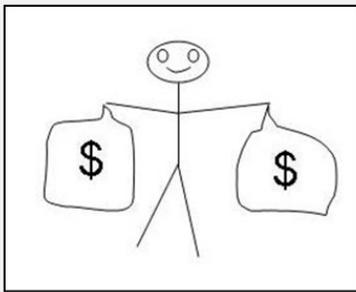
To navigate between screens, you can either click on the tabs at the bottom (“Start,” “User input,” “Output,” “Edit output here,” and “Interpretation guide”) or use navigation buttons within each screen.

Once you are ready to start, hit the “Click to Begin!” button.

Click to Begin!

STIC Figure 2.0

Sexually Transmitted Infection Costs Saved



Click to Begin!

READ ME! Before you begin, save this file on your computer on your desktop or in a folder and use the desktop version of Excel. After saving the file, you will need to enable content to allow the macros to work. Failure to save the file on your computer before using it will result in model errors.

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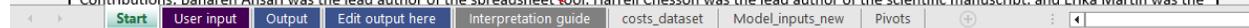
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Contributions: Bahareh Ansari was the lead author of the spreadsheet tool, Harrell Chesson was the lead author of the scientific manuscript, and Erika Martin was the

You can either navigate between screens by clicking the tabs or by using navigation buttons within each screen.



Step 3. Enter information about your jurisdiction

You will be directed to the main “User input” sheet, where you will be prompted to enter information about your jurisdiction.

For more information on each item, click on cells in the “Program inputs” column. That will bring up a text box with more detailed information about each input. These definitions are identical to those provided in the “What Data Do I Need Before Using the Tool?” section above.

Please read the instructions to the right of the checklist!

Program Inputs			
Jurisdiction Name and Year		Example in manuscript	
Program inputs <i>(click input name for more information)</i>		Male	Female
Chlamydia	Confirmed cases treated	600	1,045
	Persons receiving epi-treatment	20	30
	EPT referrals or prescriptions distributed to patients for partners	60	100
	Other presumptive treatment	5	10
Gonorrhea	Confirmed cases treated	390	255
	Persons receiving epi-treatment	10	10
	EPT referrals or prescriptions distributed to patients for partners	40	25
P&S Syphilis	Confirmed cases treated	45	15
	Persons receiving epi-treatment	5	5
HIV	Newly diagnosed HIV cases linked to care	30	5
	Previously-diagnosed HIV cases relinked to care (i.e., re-engaged)	15	5
	Persons provided with a PrEP referral	265	5
	Persons receiving direct provision of PrEP	0	0



- ✓ Enter your program inputs into the light yellow cells.
- ✓ Your program inputs should be for a one-year period.
- ✓ Click on the input name to see a pop-up description.
- ✓ Leave an input blank if it is not applicable or no data are available for your jurisdiction.
- ✓ Do not double-count an infection treated by including it in more than one box.
- ✓ After entering data, you must click the "Show Results!" button in order to update the results.

Show Results!

Print Page

Note: These inputs are for a fictional jurisdiction and for demonstration purposes only.

If you scroll down the page, you will find some advanced options. You can further customize the tool to your jurisdiction by adjusting these inputs. The default values are based on published studies. Adjusting these values is optional.

Advanced Options	
% of females with syphilis who are pregnant	14.6%
% of chlamydia cases in males that occur among MSM	10.7%
% of gonorrhea cases in males that occur among MSM	59.7%
% of syphilis cases in males that occur among MSM	60.0%
% of HIV cases in males that occur among MSM	86.9%
% of male HIV PrEP users who are MSM	97.7%
Current medical CPI to adjust the direct costs for inflation (default: 2023)	549.084
Current general CPI to adjust the productivity costs for inflation (default: 2023)	304.702

← These inputs are derived from the literature. You may modify them if you want to further customize the model to your jurisdiction.

If you do not have relevant data for your jurisdiction, we recommend using the default values.

After you have inputted your values, click the “Show Results!” button.

Show Results!



If you do not click the “Show Results!” button, the tool will not update.



Tip: Some users might want to print a page of the inputs for their records or a meeting handout. You can do that by clicking the “Print Page” button.

Print Page

 **Step 4. Review your results**

The tool will take you to the following screen, which provides a snapshot of your results. These findings are for all infections and populations.

- The box on the top left (“estimated total lifetime costs saved”) provides you with the total estimate for costs saved. This includes both direct medical and productivity costs.
- The interpretation box has dynamic text. The values will change when you revise the inputs and press “Show Results!”. You can use that text in your own reports and presentations.
- The table provides more details, separating direct medical and productivity costs. Within each cost, there are both benefits to the patients treated and benefits to the population (infections averted).
- The “costs saved” and “outcomes averted” are color-coded in the table and bar chart to match the interpretation guide.
- Costs saved and outcomes averted each have associated ranges, represented as the lower and upper bounds.
- For simplicity, the number of outcomes averted are listed only in the “Direct medical costs” section of the table (the top right).
- To avoid accidental deletions, this screen is locked and cannot be modified.

STI Program Benefits: Example in manuscript

Estimated total lifetime costs saved:

\$2,027,651

	Costs saved	Costs lower bound	Costs upper bound	Outcomes averted	Lower bound	Upper bound
Direct medical costs	\$1,429,787	\$754,589	\$1,906,265	1,252.7	809.5	1,539.9
Benefits to the patients treated	\$179,542	\$107,537	\$223,284	73.1	45.2	90.4
Congenital syphilis averted	\$17,543	\$10,426	\$21,849	1.2	0.8	1.5
Sequelae averted in patients treated	\$161,999	\$97,110	\$201,435	71.8	44.4	88.9
Benefits to the population	\$1,250,246	\$647,053	\$1,682,981	1,179.7	764.3	1,449.5
HIV infections averted	\$1,008,447	\$507,783	\$1,381,397	2.2	1.1	3.0
STI infections averted	\$241,799	\$139,269	\$301,584	1,177.5	763.2	1,446.5
Productivity costs	\$597,863	\$303,271	\$777,343	-	-	-
Benefits to the patients treated	\$257,364	\$144,219	\$321,391	-	-	-
Congenital syphilis averted	\$109,929	\$66,378	\$136,679	-	-	-
Sequelae averted in patients treated	\$147,434	\$77,841	\$184,712	-	-	-
Benefits to the population	\$340,500	\$159,052	\$455,952	-	-	-
HIV infections averted	\$190,484	\$83,563	\$267,812	-	-	-
STI infections averted	\$150,015	\$75,489	\$188,140	-	-	-

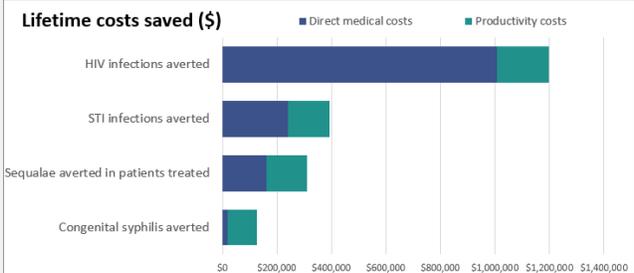
Questions on the direct medical and productivity costs? [Click here for the interpretation guide.](#)

If you entered inputs but do not see any results, go back to the User Input tab and click "Show Results."

Revise Inputs

Explore and Edit Output

Print Page



Note: These inputs are for a fictional jurisdiction and for demonstration purposes only.



STIC Figure 2.0 provides *estimates* based on the scientific literature. When presenting results, we strongly recommend including the confidence intervals.



Tip: The following buttons allow you to navigate to other screens and print the page for your records for a meeting handout.

Revise Inputs

This will take you back to the “User input” page, where you can change your program inputs to see how results change under different scenarios.

Explore and Edit Output

This will take you to the “Edit output here” page, where you can explore results by type of cost, population treated, and program activities. This page is unlocked, so you can also copy the table and chart into a new application.

Print Page

This will let you print a page of the outputs for your records or a meeting handout.

Questions on the direct medical and productivity costs? [Click here](#) for the interpretation guide.

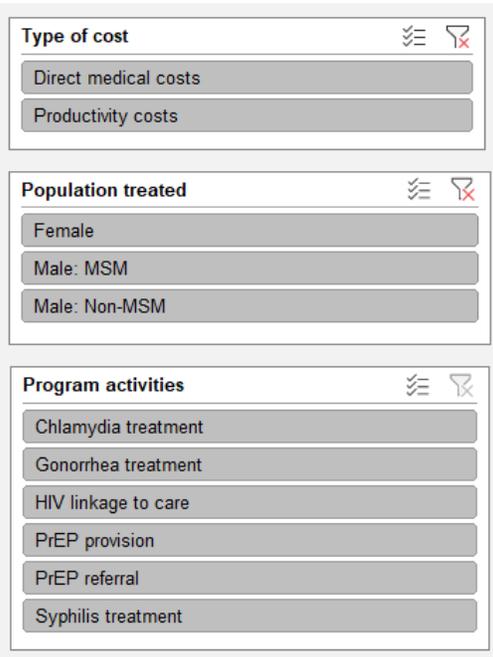
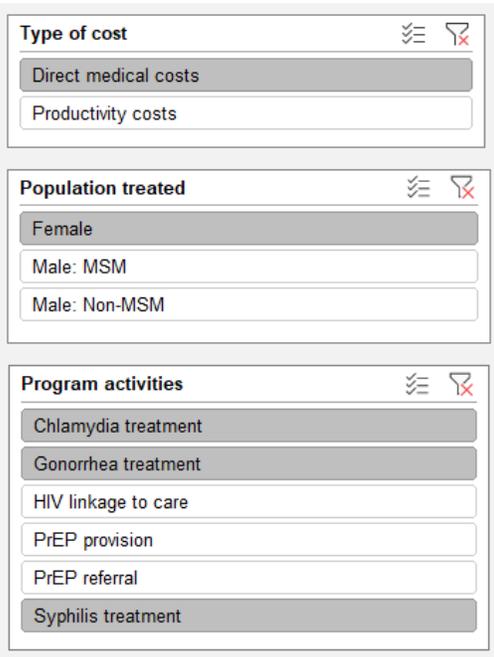
This will take you to the “interpretation guide” for more information including a brief summary of the tool and what is included in the different costs. (Note: That information is identical to what is in this User Guide.)

HOW CAN I EXPLORE THE OUTPUT?

The “Edit output here” tab allows you to explore the output in more detail, create a customized chart and table with your desired information, and export to another document.

The table and charts are identical to the main “Output” screen. On this tab, they are connected to filters (on the left side of the screen) that can be customized to your information needs.

You can explore the output by selecting or deselecting the types of cost, population treated, and program activities. Multiple choices are possible in each filter. In our example below, the output is limited to the direct medical costs saved by treatment of chlamydia, gonorrhea, and syphilis among females. The selection of filters changes the numbers in the table and chart.

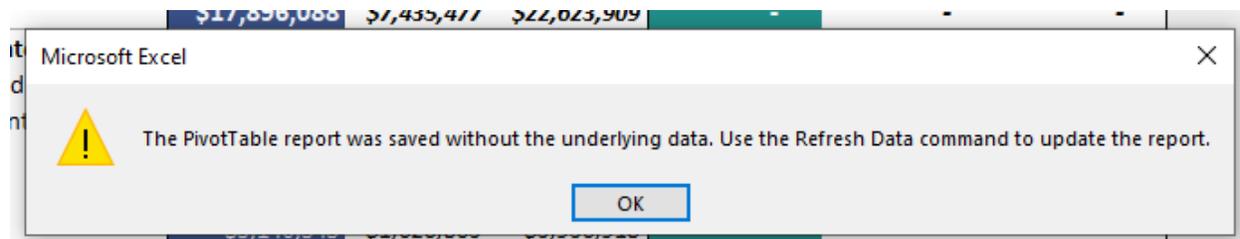
Default view: all costs, populations, and program activities included	Exploration to limit the analysis to direct medical costs among female populations
	

To select multiple items, click the first button, hold your “Shift” key, and then click additional buttons as needed. In our example, you would click “Chlamydia treatment,” then hold down “Shift” while clicking “Gonorrhea treatment” and “Syphilis treatment.”

To clear the filter, click the funnel icon with the red X:



Tip: If you receive the error message below, go back to the “User inputs” tab and click the “Show Results!” button. Afterwards, return to the “Edit output here” tab.



HOW CAN I COPY THE CHART AND TABLE INTO MY DOCUMENT?

In response to user feedback, STIC Figure 2.0 allows you to export the chart and table into another application, such as a Word document or PowerPoint presentation. You will do this work in the “Explore output here” tab.

See the prior section for how to customize the information included in the table and chart.



The “Edit output here” sheet is unlocked. Do not edit the formatting of the table and chart in the spreadsheet. Instead, use the “copy” (not “cut”) function to export the table or chart to another document. Otherwise, part or all of the table and chart might be deleted in the STIC Figure 2.0 tool. These deletions cannot be fixed, and the tool would need to be downloaded again.

How to copy the table into your document

To copy the table, simply take your mouse and select all cells in the table. Right-click your mouse to pull up a menu. Select “copy.” Open your new document (e.g., a Word document or PowerPoint presentation). Right-click your mouse to pull up a menu and click “Paste.” Easy keyboard shortcuts are to hold down “Ctrl” and “c” to copy and then “Ctrl” and “v” to paste. Because the table is wide, you may need to change your Word document orientation from portrait view to landscape view before pasting the table in Word.

After the table is in your document, you can edit the formatting, labels, etc. to meet your needs.

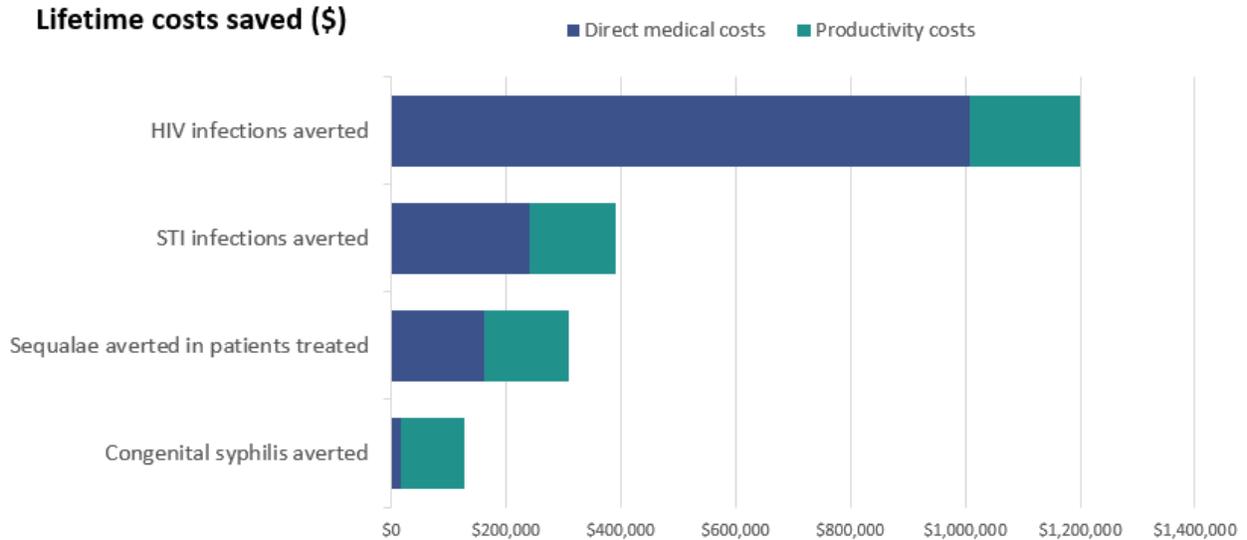
	Costs saved	Costs lower bound	Costs upper bound	Outcomes averted	Lower bound	Upper bound
Direct medical costs	\$1,429,787	\$754,589	\$1,906,265	1,252.7	809.5	1,539.9
Benefits to the patients treated	\$179,542	\$107,537	\$223,284	73.1	45.2	90.4
Congenital syphilis averted	\$17,543	\$10,426	\$21,849	1.2	0.8	1.5
Sequelae averted in patients treated	\$161,999	\$97,110	\$201,435	71.8	44.4	88.9
Benefits to the population	\$1,250,246	\$647,053	\$1,682,981	1,179.7	764.3	1,449.5
HIV infections	\$1,008,447	\$507,783	\$1,381,397	2.18	1.11	2.96
STI infections	\$241,799	\$139,269	\$301,584	1,177.5	763.2	1,446.5
Productivity costs	\$597,863	\$303,271	\$777,343	-	-	-
Benefits to the patients treated	\$257,364	\$144,219	\$321,391	-	-	-
Congenital syphilis averted	\$109,929	\$66,378	\$136,679	-	-	-
Sequelae averted in patients treated	\$147,434	\$77,841	\$184,712	-	-	-
Benefits to the population	\$340,500	\$159,052	\$455,952	-	-	-
HIV infections	\$190,484	\$83,563	\$267,812	-	-	-
STI infections	\$150,015	\$75,489	\$188,140	-	-	-

Note: These results are for a fictional jurisdiction and for demonstration purposes only.

How to copy the chart into your document

Follow the same steps as described above for copying the table. Here, you will click the chart object before the copy and paste steps.

Like with the table, it is important to copy and paste the chart into a new document before modifying the format to meet your needs.



Note: These results are for a fictional jurisdiction and for demonstration purposes only.

HOW TO EXPLAIN THE TOOL TO YOUR AUDIENCE

STIC Figure 2.0's output is presented as a breakdown of the infections and other adverse health outcomes averted, and associated costs saved, as a result of the activities of STI programs. Below are some explanations about the calculations behind these outputs to make it easier for you to interpret the results and communicate findings to your audience.

These explanations are identical to those in the "Interpretation Guide" spreadsheet tab.

Three-sentence explanation that you can use in your own documents and presentations

The STIC Figure 2.0 tool (STIC = Sexually Transmitted Infection Costs) calculates the number of infections and other health outcomes averted, and the associated savings in direct medical costs and productivity costs, by STI program activities. It uses the most recent peer-reviewed scientific evidence on the benefits of treating chlamydia, gonorrhea, and syphilis; providing access to HIV pre-exposure prophylaxis; and linking persons with HIV to medical care. Benefits include STIs averted, HIV infections averted, preventing sequelae such as pelvic inflammatory disease and epididymitis, congenital syphilis cases averted, direct medical costs saved, and productivity costs saved.

Additional details on the different costs

The calculations described below are supported by a robust literature review of the most recent scientific evidence. For the complete list of references and more detailed calculations, see the associated manuscript and appendix.

Direct medical costs

Benefits to the patients treated

Congenital syphilis: STIC Figure 2.0 estimates that on average, treating each pregnant woman with syphilis will avert 0.5 congenital syphilis cases and the associated costs.

Sequelae averted in patients treated: If left untreated, chlamydia and gonorrhea can lead to sequelae such as pelvic inflammatory disease in women and epididymitis in men. Sequelae of untreated syphilis includes outcomes such as neurosyphilis and cardiovascular syphilis. Treating STIs can avert these sequelae and their associated costs. STIC Figure 2.0 estimates the number of adverse health outcomes averted through the treatment of STIs based on the reduction in the probability of sequelae for those treated and the cost per case of sequelae.

Benefits to the population

HIV infections: In STIC Figure 2.0, HIV infections are prevented in three ways:

- 1) **Prevention of STI-attributable HIV infections.** Infection with an STI increases the likelihood of HIV transmission and acquisition, and thus treating persons for chlamydia, gonorrhea, and syphilis will avert some STI-attributable HIV infections and their associated costs. To estimate the number of STI-attributable HIV infections averted, STIC Figure 2.0 applies estimates of the probability that an STI-attributable HIV infection will occur, per STI infection. These probabilities were obtained from recent mathematical modeling studies.
- 2) **Linkage to HIV care.** Linking persons with HIV to care can lead to their HIV viral suppression, thereby preventing HIV transmission to that person's partners. The number of HIV infections averted through linkage to care (for newly-diagnosed persons) and reengagement with care (for previously-diagnosed persons) was calculated based on the estimated impact of linkage to care on the probability that viral suppression will be achieved, and the impact of viral suppression on the estimated number of secondary HIV infections per person with HIV.
- 3) **HIV PrEP.** If taken as prescribed, HIV PrEP is effective at preventing HIV acquisition. Therefore, providing PrEP referrals or direct provision of PrEP to persons who might benefit from PrEP can prevent HIV infections and their associated costs. The benefit of PrEP is calculated based on an analysis of the number of new HIV infections averted by PrEP, and the estimated benefit of referral (or direct PrEP provision) in terms of increasing the number of "person years on PrEP."

STI infections: A person with an STI can transmit the infection to their sex partners, who might transmit it to their sex partners, and so on. Therefore, successful treatment of STIs helps to prevent transmission in the population. STIC Figure 2.0 assumes that each case of a treated STI prevents, on average, 0.5 new infections in the population by interrupting the transmission of that STI. This assumption is consistent with modeling studies indicating that screening and treatment for STIs can reduce STI incidence and prevalence in the population.

Productivity costs (sometimes called "indirect costs")

Productivity costs reflect the value of patients' lost time due to STI and HIV morbidity and mortality. This includes time spent traveling to, waiting for, and receiving treatment, as well as life years lost due to premature death. This lost time could have been used for economically productive activities, including working at a paid job or performing non-paid tasks such as providing childcare, preparing a meal, or cleaning the home. Lost productivity costs are commonly included in economic analyses.