STIC FIGURE

Sexually **T**ransmitted **I**nfection **C**osts saved

Version 1.1b (Beta Test Version)

Instruction Manual
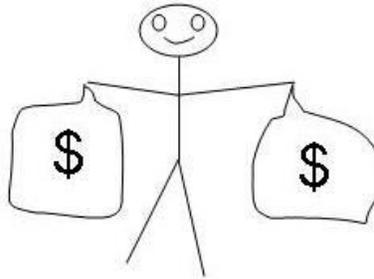
A spreadsheet to estimate the direct medical costs and indirect costs (lost productivity) saved by sexually transmitted disease prevention programs

For use with Microsoft Excel[*]

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This manual and the spreadsheet described in this manual reflect the views of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention (CDC).

ACKNOWLEDGEMENTS

We are grateful to Betty Apt for helpful suggestions.

Background information

For details on the costs, probabilities, and other assumptions applied in STIC FIGURE,
see the background paper, "Formulas for estimating the costs averted by sexually
transmitted infection (STI) prevention programs in the United States," available at:

http://www.resource-allocation.com/content/6/1/10

This version (1.1b) is the same as version 1.1a except that it has been updated for
inflation from 2010 dollars to 2016 dollars.

DISCLAIMERS

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

Although this spreadsheet can be used to calculate evidence-based estimates of the costs saved by your STD program, the results are subject to uncertainty and should be considered as rough approximations. The actual impact of your STD program could be substantially different than estimated by this spreadsheet. Therefore, this spreadsheet should not be used to compare one STD program to another.

This spreadsheet is not a resource allocation tool.

This spreadsheet is not intended to guide program activities.   Resource allocation decisions based on this spreadsheet could reduce the impact and cost-effectiveness of your STD program.

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This spreadsheet is a test version and is still under development: results may be subject to programming errors.

BASIC INSTRUCTIONS

STEP 1: OPEN STIC FIGURE

When opening STIC FIGURE, select "Enable Macros" if prompted.[*] If you encounter difficulties in opening STIC FIGURE, try the following steps:

1). Open a blank Excel spreadsheet.
2). Click "Tools" and then click "Macro", then choose "Security"
3). Set Security Level to Medium.
4). Click "OK".
5). Open STIC FIGURE file.
6). When asked to "Disable Macros" or "Enable Macros", click "Enable Macros".

[*]Note: STIC FIGURE can still be used if you elect not to change the security settings and/or if you select "Disable Macros." However, you will have to go from worksheet to worksheet manually rather than by clicking the "next screen", "previous screen", and other command buttons.

STEP 2: INPUT THE REQUESTED INFORMATION IN THE WHITE BOXES

The first screen contains the STIC FIGURE logo. To continue, click the "Click to begin" button. Continue from screen to screen, and enter the requested information in the white boxes. Enter information in the white boxes only. To enter information in a white box, click that box and type your information. Then press "Enter" on your keyboard or click another white box. Repeat these steps to change a number that you have already entered.

For more details about the information requested from you, please see the screen-by-screen guide (page 4), the "examples" section (page 13), and the background paper noted on page 1.

STEP 3: VIEW YOUR RESULTS

After entering your information, you will advance to a screen that summarizes the estimated economic impact of your STD program. This screen cannot be edited directly. To make changes, please go back to the previous screens where you entered your information in the white boxes. If the results are not displayed as expected, click "HELP" for more information.

SCREEN-BY-SCREEN GUIDE

SCREEN 1: START

The introductory screen shows the STIC FIGURE logo. Use the "Click to begin" button to go to the next screen.
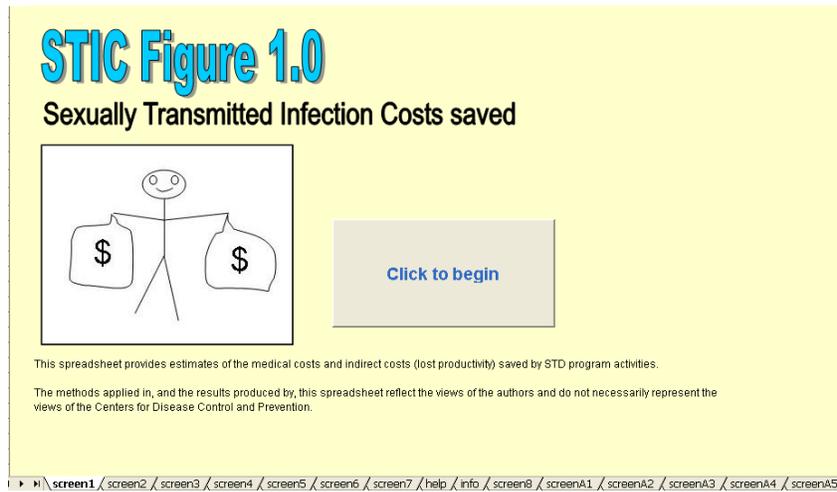
If you have not enabled the macros, you will have to move from screen to screen manually. To do so, click the tab labeled "screen2" at the bottom left of the Excel screen.

SCREEN 2: TIME FRAME

This screen allows you to input the time frame over which you want to assess your program impact. This information is not required, but you may find it helpful.
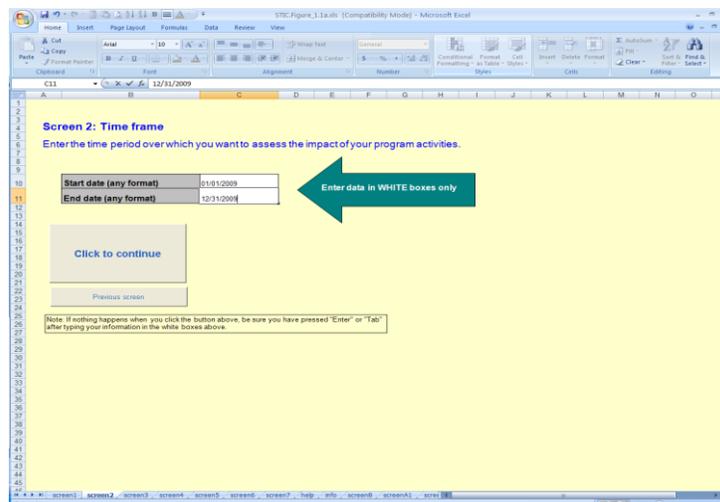
To use this feature, enter your start date and end date in the appropriate white boxes. You can use any format you want for the date (such as January 01, 2009 or 01/01/09). You can even enter text such as "Day 1."

For example, if you want to examine the economic impact of your program activities for January 2009, you could enter January 1, 2009 as your start date and January 31, 2009 as your end date.

If you choose to enter a start date and end date, the subsequent screens will display your start date and end date, so that you will be reminded to enter information for the same time frame throughout.

> Note: For whatever time frame you choose, you will be asked to enter information about your program activities (such as the number of people treated for STDs) over that time frame. The spreadsheet will then assess the impact of your program over this time frame, and will calculate the current and future benefits of this impact.

In prevention effectiveness terms, you provide the "time frame"- the period during which program activities are assessed. The spreadsheet then applies a lifetime "analytic horizon"- the period of time in which the costs saved by these program activities are assessed. For more details, see Haddix AC, Teutsch SM, Corso PA, eds. Prevention Effectiveness. A Guide to Decision Analysis and Economic Evaluation, 2nd edition. Oxford: Oxford University Press, 2003:156-77.

SCREEN 3: NUMBER OF LABORATORY-CONFIRMED INFECTIONS TREATED

On this screen, enter the number laboratory-confirmed infections treated, for each of the following STDs: chlamydia, gonorrhea, and primary and secondary (P&S) syphilis.

Screen 3: Number of laboratory-confirmed cases treated

STD	Women	Men	Total
Chlamydia	250	200	450
Gonorrhea	199	230	429
P&S Syphilis*	45	60	105

*P&S: Primary and secondary

FROM: 01/01/2006
TO: 12/31/2006

Enter data in WHITE boxes only

Click to continue

Previous screen

Note: If nothing happens when you click the button above, be sure you have pressed "Enter" or "Tab" after typing your information in the white boxes above.

screen1 / screen2 \ **screen3** / screen4 / screen5 / screen6 / screen7 / help / info / screen8 / screenA1 / screenA2 / screenA3 / screenA4 / screenA5 /

SCREEN 4: TREATMENT OF PARTNERS

On this screen, enter the number of instances of presumptive or preventative treatment due to sexual contact with an infected person (epi-treatment), for each of the following STDs: chlamydia, gonorrhea, and P&S syphilis.

Under the "women treated" column, enter the number of instances in which a woman was treated for a given STD (chlamydia, gonorrhea, or P&S syphilis) because of sexual contact with an infected partner.

Under the "men treated" column, enter the number of instances in which a man was treated for a given STD (chlamydia, gonorrhea, or P&S syphilis) because of sexual contact with an infected partner.

Partners treated as a result of **patient-delivered therapy**, if offered by your program, should be included on this screen. Although exact estimates of the number of instances of presumptive treatment may be unavailable for patient-delivered therapy, **a reasonable approximation is that, on average, one partner is treated for each patient provided with therapy for his or her partner(s).** This average reflects the possibility that some patients might give the medication to none, one, two or more than two of their partners. See the background paper referenced on page 1 of this manual for more information.

SCREEN 5: HIV COUNSELING AND TESTING

Enter the number of persons counseled and tested for HIV, regardless of HIV status.

It is okay to include persons seeking repeat counseling and testing. The spreadsheet automatically estimates the percentage of people who are repeat testers.

It is okay to include persons who are counseled but not tested. Although the spreadsheet is not designed to account for this situation explicitly, the inputs applied by the spreadsheet are based on studies which account in part for the possibility that persons tested might not return for their HIV test results.

DO NOT include persons tested but not counseled. Although HIV testing can offer benefits even in the absence of counseling, these benefits are not included in these calculations.

SCREEN 6: LIMITATIONS

Before viewing the results, you are asked to confirm that you have read the limitations described. Please read the limitations, then select "SHOW RESULTS" to continue.

For a complete description of the costs, probabilities, and other assumptions applied, as well as a more detailed discussion of the associated limitations, please see the background paper referenced on page 1 of this manual.

SCREEN 7: RESULTS

This screen provides results based on the information you provided on the previous screens. If there are no errors, and you do not wish to use any of the options described below, this will be the last screen. If so, you may wish to print the page and save the Excel spreadsheet under a different name.

You will not be able to edit this screen directly; however, you can change the numbers you entered in the white boxes on the previous screens, or add additional information about your program activities, by using the five command buttons on the right of the results screen. The five command buttons are: "HELP", "START OVER", "Previous screen", "More information", and "Advanced options." These command buttons are described below. The information you entered in the white boxes will not be lost if you click any of these five command buttons.

> **HELP**: Use this option if the results are not calculated (that is, the results screen has all zeros or blank spaces) or otherwise appear to be in error.

> **START OVER**: Use this option to go back to the start, if you want to start over, double-check the information you entered, or change the information you have entered.

> **Previous screen**: Use this option to go back one screen at a time to double-check the information you entered, or change the information you have entered.

> **More information**: Use this option to find out more details about the costs included in the calculations, as well as costs that are not included in the calculations.

> **Advanced options**: The advanced options are described below.

SCREEN 8: ADVANCED OPTIONS

You will see screen 8 (advanced options) if you select "Advanced options" on the results screen.
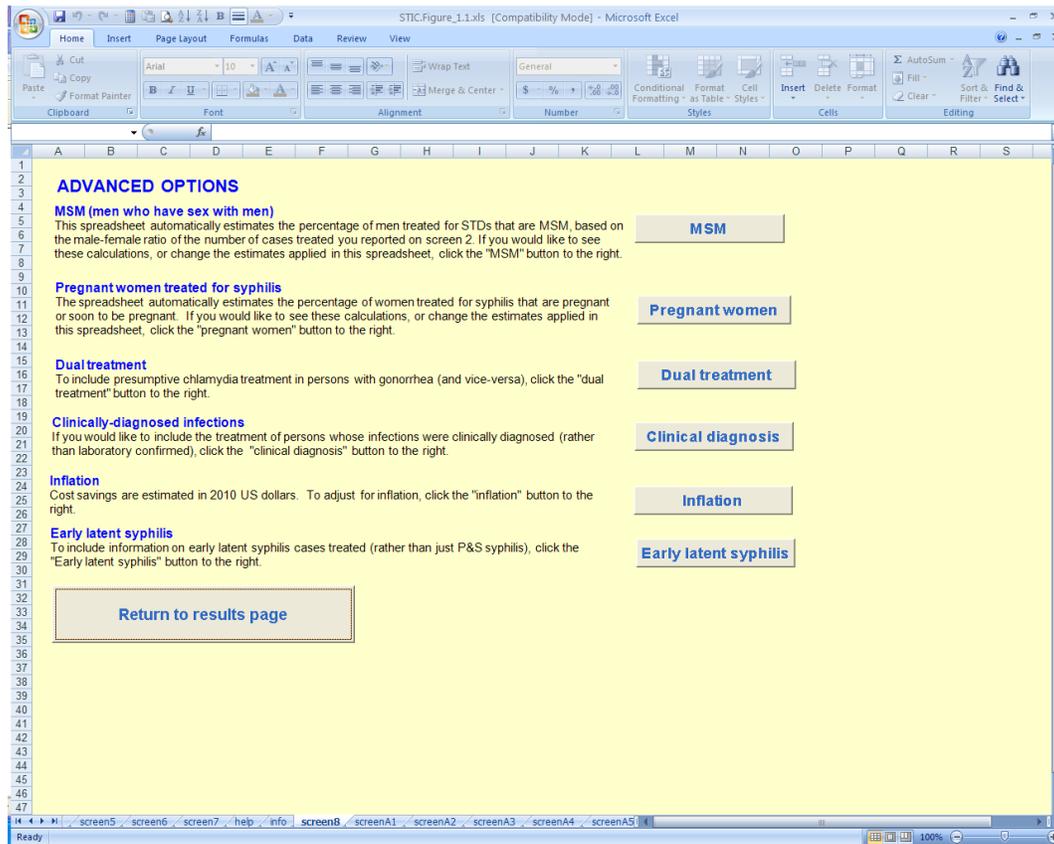
The following options are available:

> **MSM:** Use this option to enter information about the number of men who have sex with men (MSM) treated for STDs.
>
> The spreadsheet automatically estimates the percentage of men treated for STDs who are MSM based on the male-female ratio of the laboratory-confirmed STD cases entered on screen 3. The percent of cases of each STD (chlamydia, gonorrhea, and P&S syphilis) in men that occur in MSM are calculated by the spreadsheet under the assumption that all excess cases of a given STD in men (the number of cases in men minus the number of cases in women) occur in MSM. In the event that there are no cases of a given STD in men, or that the number of cases in women is equal to or greater than the number of cases in men, then 0% of the cases of that STD are assumed to be in MSM. The spreadsheet also automatically estimates the percentage of men receiving HIV counseling and testing who are MSM based on the male-female ratio of persons receiving HIV counseling and testing.

By selecting the "MSM" option, you will be able to over-ride these automatic estimates.

PREGNANT WOMEN: Use this option to enter information about the number of pregnant women treated for P&S syphilis. The spreadsheet automatically estimates the percentage of women treated for P&S syphilis who are pregnant or soon-to-be pregnant, based on the national birth rate in women 15-44 years old.

By selecting the "PREGNANT WOMEN" option, you will be able to over-ride these automatic estimates.

DUAL TREATMENT: Use this option to enter information about the number of instances of presumptive chlamydia treatment in persons with gonorrhea, and/or the number of instances of presumptive gonorrhea treatment in persons with chlamydia.

Instances of chlamydia treatment or gonorrhea treatment should be entered on the "dual treatment" screen only if they have not been entered on a previous screen (such as laboratory-confirmed infections treated). In other words, do not "double count."

CLINICAL DIAGNOSIS: Use this option to enter information about the number of persons treated for clinically-diagnosed (not lab-confirmed) cases. Instances of treatment for clinically-diagnosed infections should be entered here only if they have not been entered on a previous screen (such as laboratory-confirmed infections treated). In other words, do not "double count."

INFLATION: Use the option to adjust for inflation (i.e., to change the base year to which the dollar values are adjusted).

STIC Figure (version 1.1b) by default provides cost estimates in 2016 US dollars. To change the year to which the dollar values are adjusted, you will need two components of the consumer price index (CPI) for that year, the medical care CPI (U.S. city average, 1982-1984 = 100), and the all items, all urban consumers CPI (U.S. city average, 1982-84=100). This CPI information is traditionally available online from the U.S. Department of Labor, Bureau of Labor Statistics (http://www.bls.gov/cpi/home.htm, as of May 22,2017).

To adjust the cost estimates to a different base year, enter the CPI values in the white boxes. The first is the "medical care" CPI (NOT the "medical care services" CPI) and the second is the "standard" all items, all urban consumers CPI. For 2016, the CPI values are: 463.675 (medical care) and 240.007 (all items).

For example, to convert to year 2002 US dollars, you would apply "285.6" in the "medical care CPI" box and "179.9" in the "all urban consumers CPI" box.

EARLY LATENT SYPHILIS: Use this option to enter the number of people treated for early latent syphilis. The spreadsheet will then calculate the benefits of treating early latent syphilis in terms of reducing sequelae costs and indirect costs in the treated patients. In calculating the benefits of treating early latent syphilis, the spreadsheet employs the conservative assumption that treatment of early latent syphilis offers no benefit in terms of reduced syphilis transmission in the population, prevention of congenital syphilis, or reductions in syphilis-attributable HIV infections.

EXAMPLES

Q. Woman A had a laboratory-confirmed case of chlamydia and was treated. Later that year, she was re-infected (based on a lab-confirmed diagnosis) and again treated for chlamydia. Should both instances of treatment be included?

A. Yes. Both treatments should be included in the chlamydia count on screen 3 (lab-confirmed cases). The spreadsheet performs an automatic adjustment, based on estimates of the probability of re-infection, to avoid the double-counting of benefits in persons treated for gonorrhea or chlamydia who are re-infected within one year of treatment.

Q. Man A had chlamydia and gonorrhea (both were laboratory-confirmed) and was treated for both. How should this be counted?

A. The treatment of chlamydia and the treatment of gonorrhea should be included in the chlamydia and gonorrhea counts on screen 3 (laboratory-diagnosed infections). The spreadsheet makes an automatic adjustment to reduce the potential double-counting of the benefits of preventing epididymitis in men (and PID in women) in persons treated for both chlamydia and gonorrhea.

Q. Man B had a laboratory-confirmed case of gonorrhea. He was treated for gonorrhea and was presumptively treated for chlamydia. How should this be counted?

A. The treatment of gonorrhea should be included on screen 3 (laboratory-confirmed infections) and the treatment of chlamydia should be included using the advanced option "dual treatment" (see pages 10-12 for more information on advance options).

Q. Woman B was treated for a laboratory-confirmed case of chlamydia. Later, she was epi-treated for syphilis because of sexual contact with a man with syphilis. How should this be counted?

A. The chlamydia treatment should be included in the chlamydia count on screen 3 (lab-confirmed cases) and the syphilis epi-treatment should be included in the syphilis count on screen 4 (treatment of partners).

Q. Woman C was treated for a laboratory-confirmed case of chlamydia and was given 4 patient-delivered therapy packs for her partners. Woman C is heterosexual. How should this be included?

A. The treatment of woman C should be included in the chlamydia count in screen 3 (lab-confirmed cases), and it can be assumed that one partner received treatment. This assumption reflects an average, as patient-delivered therapy can result in none, one, or more than one partner treated (see background paper referenced on page 1 of this manual for details and sources). In this example, treatment of one male (because the woman is heterosexual) should be listed in the chlamydia count on screen 4 (treatment of partners).

Q. Woman D was "epi-treated" for syphilis, gonorrhea, and chlamydia due to sexual contact with a man with lab-confirmed syphilis, chlamydia, and gonorrhea. How should this be included?

A. All three treatments should be included in the respective counts (syphilis, chlamydia, and gonorrhea) on screen 4 (treatment of partners).

TROUBLESHOOTING

Problem: Nothing happens when clicking "next screen" or "previous screen" or any of the other command buttons.

Possible solution: Be sure you have pressed "Enter" on your keyboard after adding information to the white boxes.

Problem: The "start date" and "end date" displayed on screen 3 through screen 7 cannot be changed.

Solution: The "start date" and "end date" that you provide on screen 2 are automatically displayed throughout the subsequent screens. To change these dates, return to screen 2 and enter the start and end dates you desire in the white boxes. Or, to disable this feature, leave the white boxes blank on screen 2.

Problem: The results screen contains the term "#VALUE!" rather than estimates of the number of prevented cases or costs.

Possible solution: A common cause of this error is that non-numeric information has been entered in the white boxes on one or more of the input screens. Be sure that each white box is either blank or contains numeric characters only. For example, make sure the letter "O" is not used instead of the number "0". It is okay if the white boxes are blank, but they cannot contain non-numeric characters (except for the "start date" and "end date" boxes, which can contain text or numbers or both).

Problem: The results (estimated costs saved) are not displayed, or do not change when the information in the white boxes is changed.

Possible solution: Make sure your Excel program is set up to perform calculations automatically. To do so, select "Tools", then "Options", then "Calculation". The "automatic" box should be filled in- if not, click it so that it is activated. If the "Tools" option is not available, try clicking one of the white boxes before trying to access the "Tools" option.

For additional help, please email one of the authors using the contact information on page 1 of this manual.