

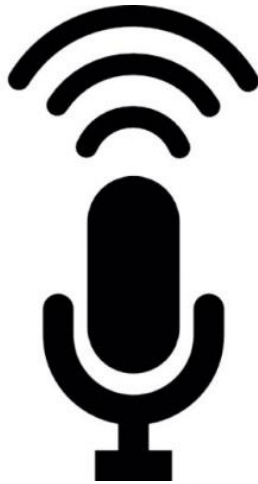
SPACE Monkey: Measuring STD Program Budget Impact

June 28, 2019

Disclaimer: SPACE Monkey uses evidence-based methods for projections related to chlamydia, gonorrhea, syphilis, and STD-related HIV. Other uses have not been validated.



Logistics



Objectives

This webinar aims to:

- Provide details on the purpose of SPACE Monkey and how the tool works
- Highlight ASTHO and NCSD's customizable fact sheet created to accompany the tool
- Describe how the Arizona Department of Health and Texas Department of State Health Services have used SPACE Monkey with internal and external stakeholders

Agenda

1. What is SPACE Monkey?
 - Harrell Chesson, PhD (CDC- DSTDP)
2. “Investing in STD Prevention” fact sheet
 - Elizabeth Ruebush (ASTHO)
3. Examples from the field
 - Rebecca Scranton, MPH & Kaitlyn Sykes, MPH (Arizona Department of Health)
 - Amanda Reich, MPH (Texas Department of State Health Services)
4. Q&A

Disclaimer

SPACE Monkey uses evidence-based methods for projections related to chlamydia, gonorrhea, syphilis, and STD-related HIV. Other uses have not been validated.



Harrell Chesson, PhD
Health Economist
Division of STD Prevention at CDC



What is SPACE Monkey and How Does It Work?

Harrell Chesson, PhD
Health Economist

SPACE Monkey – Measuring STD Program Budget Impact Webinar

June 28, 2019

What is SPACE Monkey?

- **SPACE Monkey is a spreadsheet tool for STD prevention programs to estimate the impact of changes in their budget**
 - SPACE Monkey is based on published studies of the impact of STD prevention funding and activities
- **SPACE Monkey estimates the impact on health outcomes**
 - Syphilis
 - Gonorrhea
 - Chlamydia
 - STD-attributable HIV infections
- **SPACE Monkey estimates the impact on direct medical costs**

What does the name “SPACE Monkey” mean?

- **SPACE Monkey stands for STD Prevention Allocation Consequence Estimator**
- **For people who are disappointed that “Monkey” does not stand for anything:**
 - **Modelling Outcomes Not Known Exactly Yet**

Why was “SPACE Monkey” developed?

- **SPACE Monkey methods were developed at CDC**
- **State and local STD prevention programs asked us for guidance about how to estimate impact of budget changes**
- **The SPACE Monkey tool was developed to make it easier for programs to apply the methods**

What data do I need in order to use SPACE Monkey?

- **Size of population served by STD program (all ages)**
- **Reported number of STD cases in most recent year available**
 - Chlamydia
 - Gonorrhea
 - Syphilis
- **Amount of budget decrease or budget increase**

What data do I need in order to use SPACE Monkey?

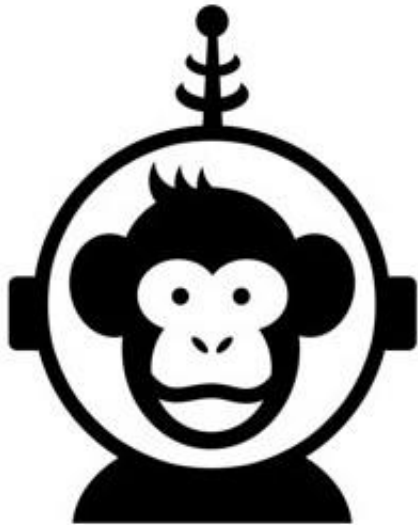
- **SPACE Monkey uses two methods to estimate the effect of budget changes**
 - One method is based on published studies of the effect of STD prevention funding on STD rates
 - One method is based on a published study of the effect of Disease Intervention Specialist (DIS) activities
- **Although not required, you can also enter information about DIS in your program, such as**
 - Number of DIS
 - Average annual salary per DIS
 - Number of STD patients interviewed per DIS per year

SPACE Monkey spreadsheet demo

Use for section headers

S.P.A.C.E. MONKEY 1.1

STD **P**revention **A**llocation **C**onsequence **E**stimator



[Click to Begin](#)

A tool for Sexually Transmitted Disease (STD) prevention programs to estimate the impact of changes in their budget.

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.

To begin, we need a little information about your program

Enter information in the white boxes

Size of population served by STD program (all ages)	6,400,000
---	-----------

Reported number of chlamydia cases	32,000
------------------------------------	--------

Reported number of gonorrhea cases	9,300
------------------------------------	-------

Reported number of syphilis cases (Primary, secondary, and early latent)	550
---	-----

Enter the total population size of your area
For example, if the overall population in your jurisdiction is 6.5 million people, enter "6,500,000"

Enter your reported number of cases for 2016

Previous screen

Next screen

This tool estimates the effect of a permanent change in your budget.
Please enter the change in your budget in the appropriate box below.

Enter information in one of the two white boxes below

Amount of budget decrease

OR

Amount of budget increase

Enter the dollar amount of the change in your budget

Use the top row for a budget decrease

Use the bottom row for a budget increase

Previous screen

Next screen

For each row in the table below, you can:

- Enter your own value in the white box,
- OR
- Leave the white box blank to use the default value.

Input	Default value	Your value Leave blank to use the default value
Number of Disease Intervention Specialists (DIS) employed	15	
Annual cost per DIS (salary plus fringe benefits)*	73,600	
Annual number of STD cases interviewed per DIS	400	
Percentage of chlamydia cases interviewed	12%	
Percentage of gonorrhoea cases interviewed	17%	
Percentage of syphilis cases interviewed (Primary, secondary, and early latent)	89%	

Previous screen

Next screen

*Note: The annual cost per DIS should be the average annual salary of one DIS, including fringe benefits. If you do not know the fringe benefits, you can assume the total annual cost is equal to the DIS salary multiplied by 1.61.

Your results will be shown on the next screen.

Go back and change inputs

Continue to results

Results: Estimated impact of change in STD prevention funding

Year	Percentage increase in STDs due to budget cut	Additional number of syphilis infections	Additional number of gonorrhea infections	Additional number of chlamydia infections	Additional number of STD-attributable HIV infections	Additional STD costs	Additional HIV costs	Total additional costs (STD and HIV)
Year 1	0.82%	5	158	490	0.4	\$143,232	\$132,839	\$276,071
Year 2	1.39%	9	268	833	0.6	\$236,402	\$219,250	\$455,651
Year 3	1.79%	11	346	1,074	0.8	\$295,671	\$274,219	\$569,889
Year 4	2.07%	13	400	1,242	1.0	\$332,019	\$307,929	\$639,948
Year 5	2.27%	14	438	1,359	1.0	\$352,903	\$327,298	\$680,201
Year 6	2.41%	15	464	1,442	1.1	\$363,390	\$337,024	\$700,414
Year 7	2.50%	16	483	1,499	1.2	\$366,918	\$340,297	\$707,215
Year 8	2.57%	16	496	1,540	1.2	\$365,822	\$339,280	\$705,102
Year 9	2.62%	17	505	1,568	1.2	\$361,685	\$335,444	\$697,129
Year 10	2.65%	17	511	1,588	1.2	\$355,581	\$329,782	\$685,362
10-year total		134	4,067	12,636	9.8	\$3,173,622	\$2,943,362	\$6,116,984

[See text summary of these results](#)

Note: The bottom row is the only row with cumulative results. The first 10 rows of results (Year 1 through Year 10) show the impact of the change in funding for the given year compared to the year before the change in funding (Year 0).

[Previous screen](#)

[See advanced options](#)

[Return to start](#)

Results: Estimated impact of change in STD prevention funding

Based on published evidence of the impact of STD prevention programs and the cost of STDs, a budget cut of \$200,000 will result in:

- In the first year alone, there will be an estimated increase of 5 cases of syphilis (range: 2 to 8), 158 cases of gonorrhea (range: 75 to 229), 490 cases of chlamydia (range: 233 to 711), and 0.4 cases of STD-attributable HIV (range: 0.0 to 1.1).
- Over 10 years, there will be an estimated cumulative increase of 134 cases of syphilis (range: 42 to 280), 4,067 cases of gonorrhea (range: 1,272 to 8,527), 12,636 cases of chlamydia (range: 3,951 to 26,491), and 9.8 cases of STD-attributable HIV (range: 0.3 to 40.6).
- Over 10 years, there will be an estimated cumulative increase in direct medical costs of \$6,117,000 (range: 1,061,000 to 18,503,000) due to increases in STIs and STI-attributable HIV infections.

With a budget cut of \$200,000, positions for disease intervention specialists will be eliminated, resulting in:

- No DIS interviews or effective behavioral counseling for an estimated 1,087 patients with STDs.
- DIS are public health professionals who work to find people diagnosed with syphilis and other STDs. DIS work to find new cases of the disease — and to prevent new ones from happening.
- In addition to STDs, DIS fight other disease outbreaks and epidemics, including Ebola, flu, anthrax, and SARS—without these DIS, we could be underprepared for emergencies.
- Since an estimated 1 in 4 DIS interviews identifies a new STD case, an estimated 272 people with syphilis, gonorrhea, or chlamydia will not know they are infected, will not be treated, and will be more likely to spread STDs in their communities.

[Previous screen](#)

ADVANCED OPTIONS MENU

Change the calculation method

Change one or more of the background assumptions

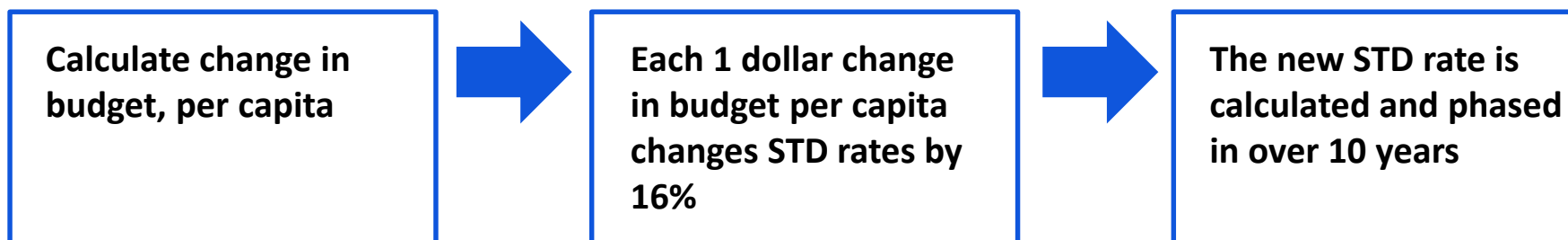
Get more information about SPACE MONKEY calculations

See the complete lower bound and upper bound results

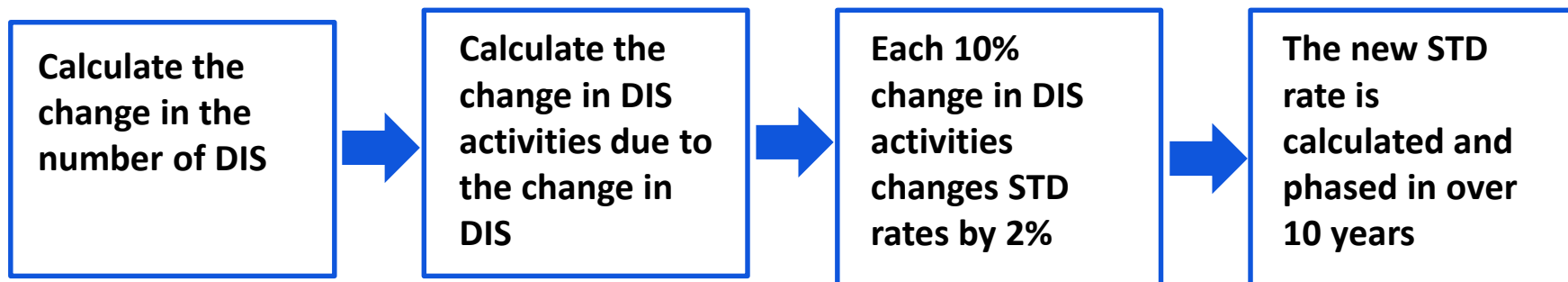
Go back to results

SPACE MONKEY calculation methods

Method 1: Historical formula approach



Method 2: Disease Intervention Specialist (DIS) approach



The historical formula is based on Chesson et al *Eval Rev.* 2005;29(1):3-23. The DIS approach is based on Du et al *Sex Transm Dis.* 2007;34(4):189-194. These methods are described in detail in Chesson, Ludovic, Berruti, and Gift (*Sex Transm Dis*, 2018)

Summary

- **Although the impact of budget changes are difficult to predict with precision, published studies offer evidence-based estimates**
- **SPACE Monkey makes it easier for programs to use this evidence to estimate the health and direct medical cost impact of budget changes**
- **Although not presented today, another related tool is available**
 - “STIC – Figure” allows programs to estimate the direct costs and productivity losses averted by their program activities

Thank You!

Coauthors of SPACE Monkey:

Harrell W. Chesson (HBC7@cdc.gov)

Jennifer A. Ludovic

Andrés A. Berruti

Thomas L. Gift

For more details, see “Methods for sexually transmitted disease prevention programs to estimate the health and medical cost impact of changes in their budget,” *Sexually Transmitted Diseases*, Volume 45, Number 1, January 2018.

For more information, contact CDC

1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.





Elizabeth Ruebush

Director, STD, HIV, and Viral Hepatitis

Association of State and Territorial Health Officials (ASTHO)



COMMUNICATING YOUR DATA: ASTHO & NCSD'S CUSTOMIZABLE FACTSHEET

Elizabeth Ruebush, Director, STD, HIV, and Viral Hepatitis

Association of State and Territorial Health Officials
(ASTHO)

JUNE 28, 2019

VISION

State and territorial health agencies
advancing health equity and optimal health
for all.

MISSION

To support, equip, and advocate for state and
territorial health officials in their work of
advancing the public's health and well-being.



INVESTING IN STD PREVENTION

//////////////////// MAKING THE CASE FOR //////////////////////

YOUR JURISDICTION

- **Customizable factsheet** to feature your SPACE Monkey data outputs.
- **Communicate to target audiences** about the impact of STD program funding on disease burden and associated medical costs.
- **Share** on your social media channels, on websites, or printed as “leave-behinds.”

front

INVESTING IN STD PREVENTION

//////////////////// MAKING THE CASE FOR //////////////////////
[INSERT YOUR JURISDICTION]

Sexually transmitted diseases (STDs) in the United States are at a record high—and treating them is expensive.¹ Preventing infections could save much of the approximately \$16 billion spent each year on direct medical costs for 8 major STDs.² STDs aren't just costly—left untreated, they have serious health consequences, such as infertility, pregnancy complications, and even infant death.³ Strong STD programs are our best line of defense, but dwindling budgets limit the ability to combat rising STD rates. **Now is the time to invest in these critical public health programs.**

STD PREVENTION IS EFFECTIVE

In the past 15 years
CDC-funded programs
prevented an
estimated

5.7
MILLION

cases of gonorrhea, syphilis, and chlamydia,
as well as 3,300 STD-attributable HIV
infections—saving an estimated \$2.4 billion
in lifetime medical costs.^{4, 5}

STD program funding has a direct impact on STD rates and medical spending in [insert your jurisdiction]

An STD program budget [increase/decrease] of [insert dollar amount] would result in*:

1 year	5 years	10 years	\$
<p>Over the first year, an estimated [increase/ decrease] in cases of:</p> <p>[#] syphilis</p> <p>[#] gonorrhea</p> <p>[#] chlamydia</p> <p>[#] STD-attributable HIV</p>	<p>Over 5 years, an estimated [increase/ decrease] in cases of:</p> <p>[#] syphilis</p> <p>[#] gonorrhea</p> <p>[#] chlamydia</p> <p>[#] STD-attributable HIV</p>	<p>Over 10 years, an estimated [increase/ decrease] in cases of:</p> <p>[#] syphilis</p> <p>[#] gonorrhea</p> <p>[#] chlamydia</p> <p>[#] STD-attributable HIV</p>	<p>Over 10 years, the estimated cumulative direct medical costs in [insert your jurisdiction] would [increase/ decrease] by</p> <p>\$[#].</p>

[YOUR LOGO HERE]

[YOUR URL]

reverse

STD program funding in [insert your jurisdiction] supports disease intervention specialists (DIS), or the “on-the-ground” investigators who work to track and interrupt disease transmission.

DIS find STD cases and link people to care, which also halts the spread of associated health and economic consequences.

An STD program budget [increase/decrease] of [insert dollar amount] would [add/eliminate] DIS positions, resulting in*:

> [Additional/No] DIS interviews with those reported to have, or to have been exposed to, an STD [and/or] behavioral counseling for an estimated [#####] patients with STDs.

> An estimated [#] people with syphilis, gonorrhea, or chlamydia would be unaware of their infection and be more likely to spread STDs in their communities.

DIS also respond to other disease outbreaks, such as the flu, measles, food-borne illnesses, Zika, and even Ebola. [With additional/Without these] DIS, [insert your jurisdiction] could be [better prepared/underprepared] for a public health emergency.

\$

Invest in STD prevention programs to protect [insert your jurisdiction] from the consequences of untreated STDs.

[Use this space to highlight particular prevention programs in your jurisdiction that require support.]

For more information:
Check out SPACE Monkey (STD Prevention Allocation-Consequences Estimator), a tool created to help state and local STD programs to estimate the impact of changes in their budgets: www.cdc.gov/std/program/spacemonkey

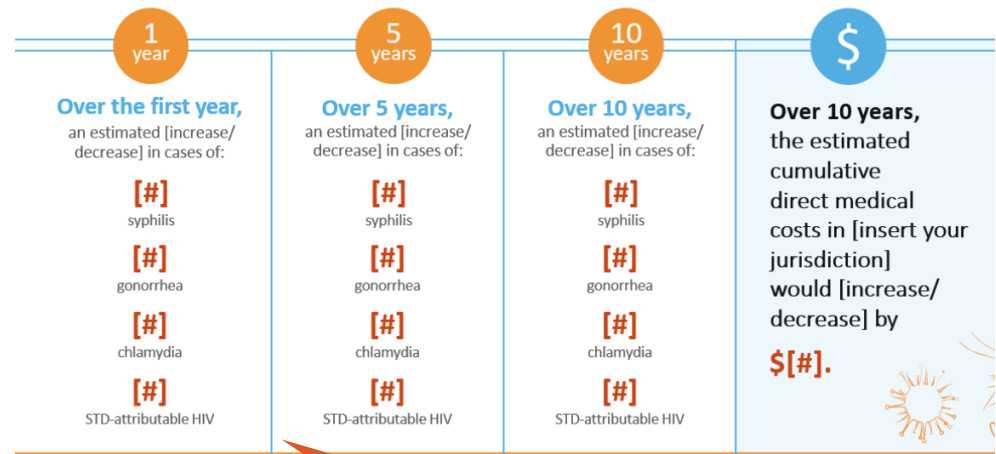
References:

- CDC. “Sexually Transmitted Disease Surveillance: 2017.” Available at <https://www.cdc.gov/std/stds17/>. Accessed 10-31-2018.
- Owusu-Edusei K, Chesson HW, Gift TL, et al. “The Estimated Direct Medical Cost of Selected Sexually Transmitted Infections in the United States, 2008.” *Sexually Transmitted Diseases*. 2013; 84(3):357-201. Available at <https://www.ncbi.nlm.nih.gov/pubmed/23403630>. Accessed 9-9-2018.
- CDC. “Reported STDs in the United States, 2016.” Available at <https://www.cdc.gov/nchsrap/newsroom/docs/factsheets/std-trends-508.pdf>. Accessed 9-9-2018.
- Chesson HW, Ludovic JA, Bernuti AA, et al. “Methods for Sexually Transmitted Disease Prevention Programs to Estimate the Health and Medical Cost Impact Changes in Their Budget.” *Sexually Transmitted Diseases*. 2018; 89(1):2-7. Available at <https://www.ncbi.nlm.nih.gov/pubmed/29240632>. Accessed 9-9-2018.
- CDC. Data estimated using “S.P.A.C.E. Monkey 1.0.” Available at <https://www.cdc.gov/std/program/spacemonkey/default.htm>. Accessed 9-9-2018.



INVESTING IN STD PREVENTION: CORE MESSAGES

- STD prevention is **effective**.
- STD program funding has a **direct impact** on STD rates and medical spending in your jurisdiction.
- Optional: STD program funding in your jurisdiction supports critical staff—**DIS**.
- **Call to action:** Invest in STD prevention programs



A funding increase/decrease would result in...

MULTIPLE DESIGN & CONTENT OPTIONS

INVESTING IN STD PREVENTION
 MAKING THE CASE FOR
 [INSERT YOUR JURISDICTION]

Sexually transmitted diseases (STDs) in the United States are at a record high—and treating them is expensive. Preventing infections could save much of the approximately \$16 billion spent each year on direct medical costs for 8 major STDs.¹ STDs aren't just costly—left untreated, they have serious health consequences, such as infertility, pregnancy complications, and even infant death.² Strong STD programs are our best line of defense, but dwindling budgets limit the ability to combat rising STD rates. **Now is the time to invest in these critical public health programs.**

STD PREVENTION IS EFFECTIVE

In the past 15 years CDC-funded programs prevented an estimated **5.7 MILLION** cases of gonorrhea, syphilis, and chlamydia infections—saving an estimated \$2.4 billion in lifetime medical costs.^{4, 5}

STD program funding has a direct impact on STD rates and medical spending in [insert your jurisdiction]

An STD program budget [increase/decrease] of [insert dollar amount] would result in³:

1 year	5 years	10 years
Over the first year, an estimated [increase/decrease] in cases of:	Over 5 years, an estimated [increase/decrease] in cases of:	Over 10 years, an estimated [increase/decrease] in cases of:
[#] syphilis	[#] syphilis	[#] syphilis
[#] gonorrhea	[#] gonorrhea	[#] gonorrhea
[#] chlamydia	[#] chlamydia	[#] chlamydia
[#] STD-attributable HIV	[#] STD-attributable HIV	[#] STD-attributable HIV

Over 10 years, the estimated cumulative direct medical costs in [insert your jurisdiction] would [increase/decrease] by \$[#].

astho
ASTHO.ORG/STD

National Coalition of STD Directors
NCISDC.ORG

[YOUR LOGO HERE]

[YOUR URL]

Optional DIS messages

Full color and low-ink versions



ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICIALS

PROGRAMS +

RESOURCES +

GOVERNMENT AFFAIRS +

RESEARCH +

MEMBERS +

HEPATITIS-HIV-STD-TB

Accreditation and Performance »

Accreditation »

National Public Health Performance Standards »

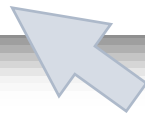
Quality Improvement »

Environmental Health »

Sexually Transmitted Diseases

ASTHO supports state and territorial health departments in their mission to prevent and respond to sexually transmitted diseases (STDs).

In collaboration with CDC and key partners, ASTHO is engaged in activities to raise awareness about STD issues and needs, establish and strengthen cross-sector partnerships, and demonstrate the value of infrastructure at the state public health level.



WWW.ASTHO.ORG/STD

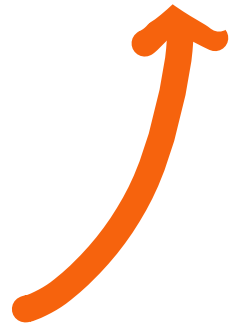
Check out
Additional
ASTHO STD
Resources





TELL US WHAT YOU THINK >>

Help ASTHO evaluate
the customizable factsheet
by visiting <http://bit.ly/stdinvestments>
and clicking on the **evaluation link!**





THANK YOU!

For questions, comments, or states willing to share their experiences using the factsheet:

ERUEBUSH@ASTHO.ORG | WWW.ASTHO.ORG/STD

Examples from the Field



Rebecca Scranton, MPH
STD Control Program Manager
Arizona Dept. of Health



Kaitlyn Sykes, MPH
STD Epidemiologist
Arizona Dept. of Health



Amanda Reich, MPH
Congenital Syphilis Coordinator
Texas Dept. of State Health Services



Arizonan SPACE Monkey

Kaitlyn Sykes, Epidemiologist

Rebecca Scranton, STD Program Manager



ADHS

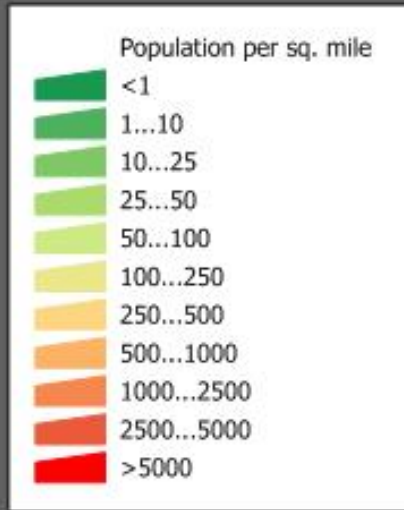
azdhs.gov/std

Outline

- 🚀 Background
- 🚀 Funding
- 🚀 SPACE Monkey Parameters
- 🚀 Voyage of the AZ Space Monkey

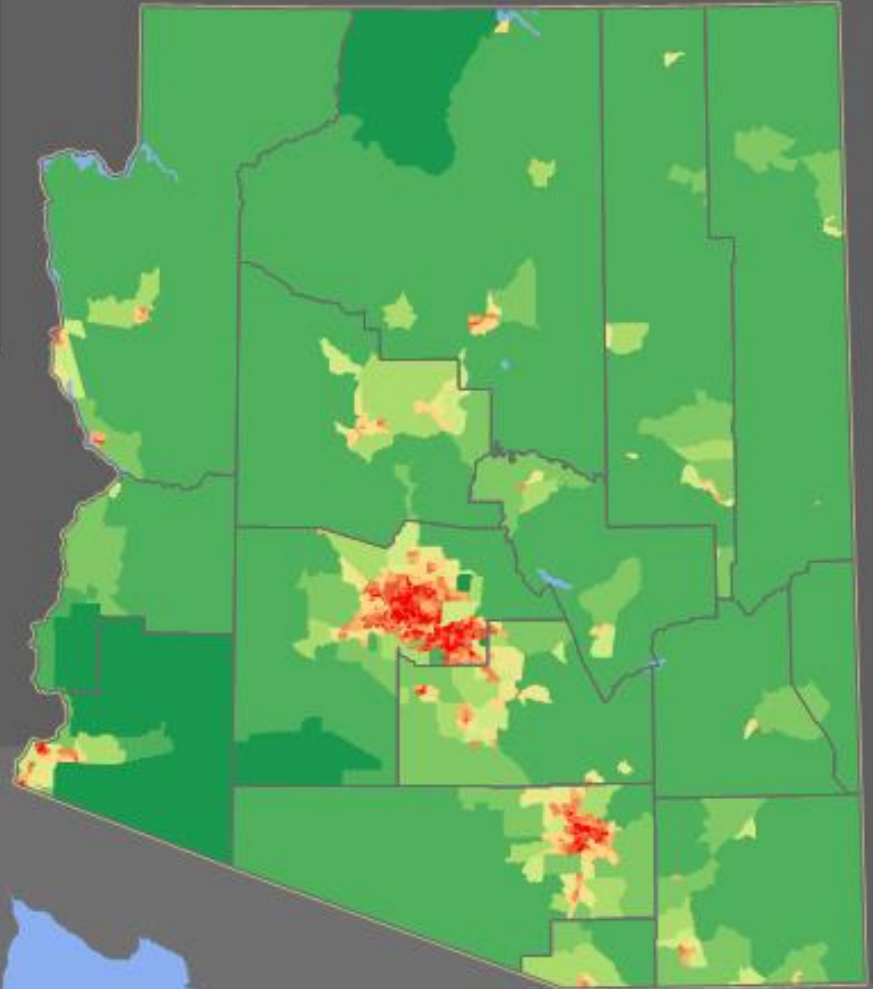


Background



Source: U.S. Census Bureau
Census 2010 Summary File 1
population by census tract

Population: 6,835,518

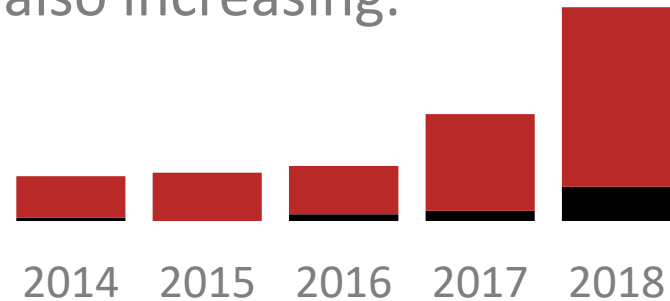


Background

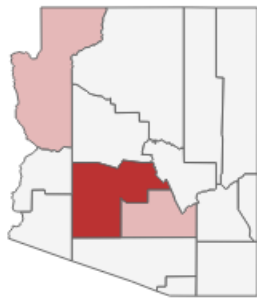
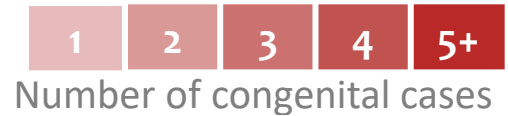
1. **STDs** have been on the rise for over a decade



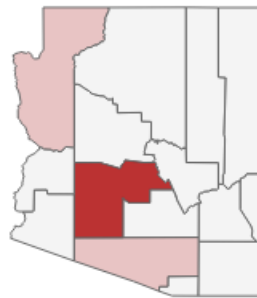
2. **Congenital syphilis** is also increasing.



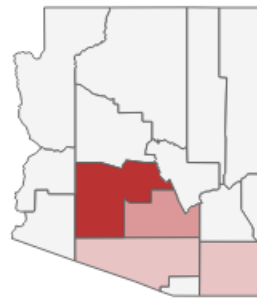
3. **Congenital Syphilis** is moving rural



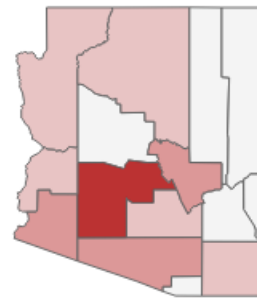
2014
2018



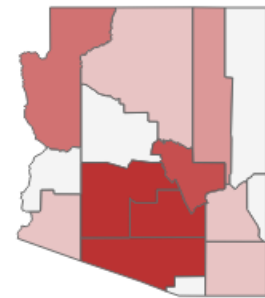
2015



2016



2017



STD Funding in Arizona



PCHD: 15.5 FTE



State: 2.5 FTE



Other grants



Personnel (75%) | Screening (10%) | Database (7%) | Travel (2%) | Other (6%)



Space Monkey Parameters

Parameter	Value
Case Counts	47,213
Increase	\$7,000,000
DIS:11	11
Salary + ERE/DIS	\$70,000
% Interview	PRISM



Voyage of the AZ Space Monkey





**“The sky is the limit only
for those who aren’t
afraid to fly!”**

-Bob Bello



TEXAS
Health and Human
Services

Texas Department of State
Health Services



Send More Bananas : SPACE Monkey and Texas

Amanda Reich, MPH
Congenital Syphilis Coordinator
Texas Department of State Health Services

Texas Partner Services

An overview of Public Health Follow-Up in the Lone Star State

- Integrated HIV and STD partner services
- Regional and Local Health Departments
 - 18 Jurisdictions providing Partner Services to 254 counties
- 2013-2017
 - No increase in number of grant-funded DIS
 - Increase in number of overall Syphilis Cases: 48%
 - Statewide Population Increase: 6.7% (+1.83 Million)
 - 2017 Population: 28.32 Million
 - 2017 award: ~\$6 Million

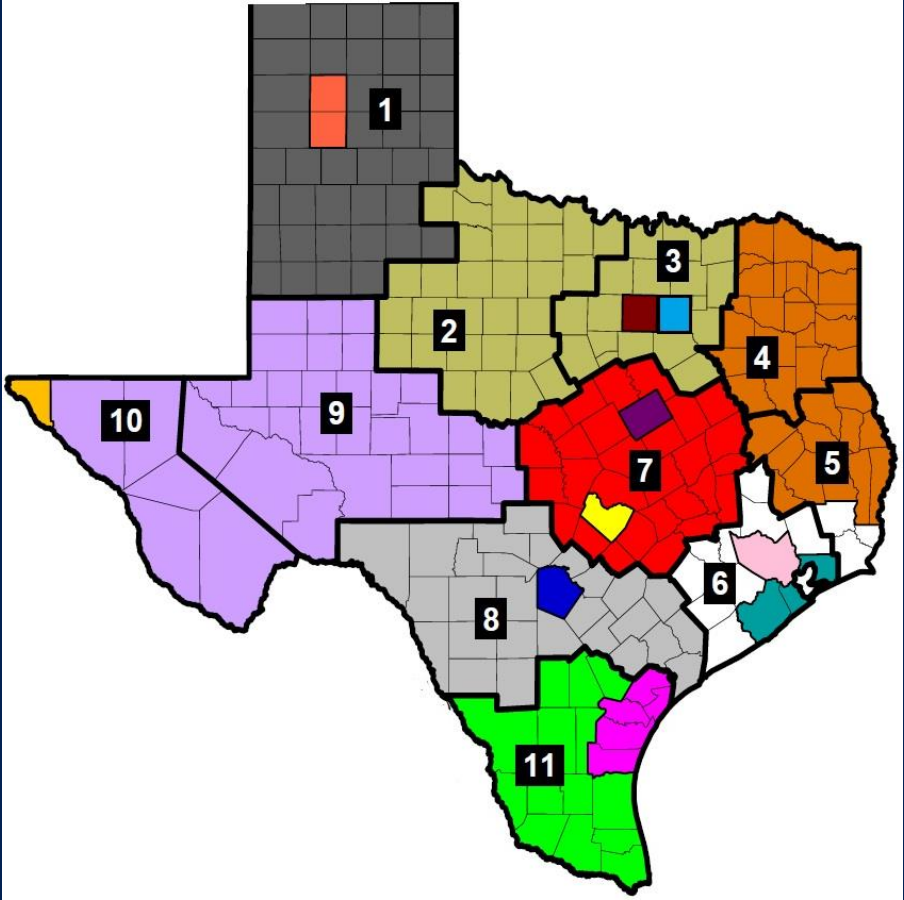


TEXAS

Health and Human Services

Texas Department of State
Health Services

Texas Partner Services Jurisdictions



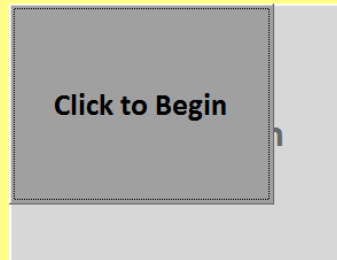
TEXAS
Health and Human Services

Texas Department of State
Health Services

SPACE Monkey: Texas

S.P.A.C.E. MONKEY 1.1

STD Prevention Allocation Consequence Estimator



A tool for Sexually Transmitted Disease (STD) prevention programs to estimate the impact of changes in their budget.

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.



TEXAS
Health and Human Services

Texas Department of State
Health Services

Using the Tool: Decrease

To begin, we need a little information about your program

Enter information in the white boxes

Size of population served by STD program (all ages) 28,320,000

Enter the total population size of your area
For example, if the overall population in your jurisdiction is 6.5 million people, enter "6,500,000"

Reported number of chlamydia cases	144,801
Reported number of gonorrhea cases	45,346
Reported number of syphilis cases (Primary, secondary, and early latent)	11,499

Enter your reported number of cases for 2016

Previous

Next screen



TEXAS
Health and Human Services

Texas Department of State
Health Services

Using the Tool: Decrease

This tool estimates the effect of a permanent change in your budget. Please enter the change in your budget in the appropriate box below.

Enter information in one of the two white boxes below

Amount of budget decrease

OR

Amount of budget increase

Enter the dollar amount of the change in your budget

Use the top row for a budget decrease
Use the bottom row for a budget increase

Previous screen

Next screen



TEXAS
Health and Human Services

Texas Department of State
Health Services

Using the Tool: Decrease

Would you like to enter information about Disease Intervention Specialists (DIS) in your program, such as:

- Number of DIS in your program
- Average annual salary per DIS
- Number of STD patients interviewed per DIS per year
- Percentage of STD cases interviewed by DIS

YES

NO

If you are not sure, choose "YES" to see the data entry screen



TEXAS
Health and Human Services

Texas Department of State
Health Services

DIS Calculations



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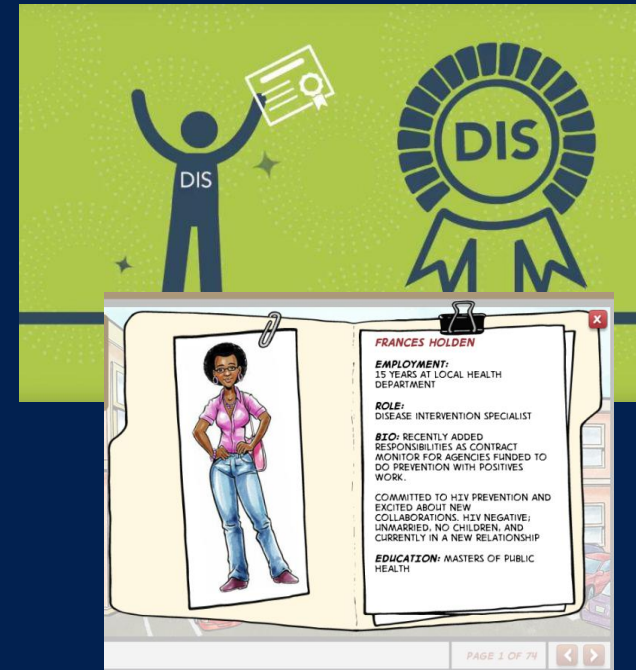
Texas Department of State
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Local Health Department Staff

- Contract Percentage of FTE Multiplied by number of staff supported by grant funds
 - DIS counted at full percentage of grant fund
 - Front Line Supervisors counted at 50% of grant fund
 - Management staff not counted
 - Federal staff (CDC assignees) not counted

Regional Health Department Staff

- No contracts
 - DIS counted at full FTE
 - FLS counted at 50% FTE



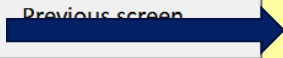
Using the Tool: Decrease

For each row in the table below, you can:

- Enter your own value in the white box,
- OR
- Leave the white box blank to use the default value.

Input	Default value	Your value Leave blank to use the default value
Number of Disease Intervention Specialists (DIS) employed	182	90.35
Annual cost per DIS (salary plus fringe benefits)*	73,600	\$62,400.00
Annual number of STD cases interviewed per DIS	400	250
Percentage of chlamydia cases interviewed	12%	20.0%
Percentage of gonorrhea cases interviewed	17%	15.0%
Percentage of syphilis cases interviewed (Primary, secondary, and early latent)	89%	85.0%

Previous screen



Next screen

*Note: The annual cost per DIS should be the average annual salary of one DIS, including fringe benefits. If you do not know the fringe benefits, you can assume the total annual cost is equal to the DIS salary multiplied by 1.61.



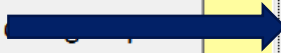
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Using the Tool: Decrease

Your results will be shown on the next screen.

Go back and



Continue to results



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Using the Tool: Decrease

Results: Estimated impact of change in STD prevention funding

Year	Percentage increase in STDs due to budget cut	Additional number of syphilis infections	Additional number of gonorrhea infections	Additional number of chlamydia infections	Additional number of STD-attributable HIV infections	Additional STD costs	Additional HIV costs	Total additional costs (STD and HIV)
Year 1	0.66%	87	618	1,783	2.1	\$583,607	\$742,438	\$1,326,045
Year 2	1.12%	148	1,051	3,030	3.6	\$963,235	\$1,225,383	\$2,188,618
Year 3	1.44%	191	1,354	3,904	4.6	\$1,204,732	\$1,532,603	\$2,737,335
Year 4	1.66%	221	1,566	4,515	5.4	\$1,352,833	\$1,721,011	\$3,073,844
Year 5	1.82%	242	1,714	4,943	5.9	\$1,437,929	\$1,829,265	\$3,267,194
Year 6	1.93%	256	1,818	5,243	6.2	\$1,480,658	\$1,883,623	\$3,364,281
Year 7	2.01%	267	1,891	5,452	6.5	\$1,495,034	\$1,901,912	\$3,396,946
Year 8	2.06%	274	1,942	5,599	6.6	\$1,490,569	\$1,896,232	\$3,386,800
Year 9	2.10%	279	1,978	5,702	6.8	\$1,473,713	\$1,874,788	\$3,348,501
Year 10	2.13%	282	2,003	5,774	6.9	\$1,448,839	\$1,843,145	\$3,291,983
10-year total		2,246	15,935	45,944	54.5	\$12,931,148	\$16,450,399	\$29,381,548

[See text summary of these results](#)

Note: The bottom row is the only row with cumulative results. The first 10 rows of results (Year 1 through Year 10) show the impact of the change in funding for the given year compared to the year before the change in funding (Year 0).

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[See advanced options](#)

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Using the Tool: Decrease

To begin, we need a little information about your program

Enter information in the white boxes

Size of population served by STD program (all ages)	28,320,000
Reported number of chlamydia cases	4,391
Reported number of gonorrhea cases	45,346
Reported number of syphilis cases (Primary, secondary, and early latent)	11,499

Enter the total population size of your area
For example, if the overall population in your jurisdiction is 6.5 million people, enter "6,500,000"

This is the number of reported HIV cases

Enter your reported number of cases for 2016

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SPACE Monkey uses evidence-based methods for projections related to chlamydia, gonorrhea, syphilis, and STD-related HIV. Other uses have not been validated. *THIS IS A HYPOTHETICAL DATA USE, IS NOT EVIDENCE-BASED, AND IS NOT FOR EXTERNAL DISTRIBUTION*

Using the Tool: Decrease

For each row in the table below, you can:

- Enter your own value in the white box,
- OR
- Leave the white box blank to use the default value.

Input	Default value	Your value Leave blank to use the default value
Number of Disease Intervention Specialists (DIS) employed	81	90.35
Annual cost per DIS (salary plus fringe benefits)*	73,600	\$62,400.00
Annual number of STD cases interviewed per DIS	400	250
Percentage of HIV cases interviewed	12%	85.0%
Percentage of gonorrhea cases interviewed	17%	15.0%
Percentage of syphilis cases interviewed (Primary, secondary, and early latent)	89%	85.0%

Previous screen

Next screen

*Note: The annual cost per DIS should be the average annual salary of one DIS, including fringe benefits. If you do not know the fringe benefits, you can assume the total annual cost is equal to the DIS salary multiplied by 1.61.



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SPACE Monkey uses evidence-based methods for projections related to chlamydia, gonorrhea, syphilis, and STD-related HIV. Other uses have not been validated. *THIS IS A HYPOTHETICAL DATA USE, IS NOT EVIDENCE-BASED, AND IS NOT FOR EXTERNAL DISTRIBUTION*

Using the Tool: Decrease

Results: Estimated impact of change in STD prevention funding

Year	Percentage increase in STDs due to budget cut	Additional number of syphilis infections	Additional number of gonorrhea infections	Additional number of chlamydia HIV infections	Additional number of STD-attributable HIV infections	Additional STD costs	Additional HIV costs	Total additional costs (STD and HIV)
Year 1	0.66%	87	618	54	1.3	\$220,633	\$439,095	\$659,728
Year 2	1.12%	148	1,051	92	2.1	\$364,152	\$724,720	\$1,088,872
Year 3	1.44%	191	1,354	118	2.7	\$455,450	\$906,417	\$1,361,867
Year 4	1.66%	221	1,566	137	3.2	\$511,439	\$1,017,846	\$1,529,285
Year 5	1.82%	242	1,714	150	3.5	\$543,610	\$1,081,870	\$1,625,480
Year 6	1.93%	256	1,818	159	3.7	\$559,764	\$1,114,019	\$1,673,783
Year 7	2.01%	267	1,891	165	3.8	\$565,199	\$1,124,835	\$1,690,034
Year 8	2.06%	274	1,942	170	3.9	\$563,510	\$1,121,476	\$1,684,986
Year 9	2.10%	279	1,978	173	4.0	\$557,138	\$1,108,794	\$1,665,932
Year 10	2.13%	282	2,003	175	4.1	\$547,734	\$1,090,079	\$1,637,813
10-year total		2,246	15,935	1,393	32.2	\$4,888,629	\$9,729,151	\$14,617,780

[See text summary of these results](#)

Note: The bottom row is the only row with cumulative results. The first 10 rows of results (Year 1 through Year 10) show the impact of the change in funding for the given year compared to the year before the change in funding (Year 0).

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[See advanced options](#)

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SPACE Monkey uses evidence-based methods for projections related to chlamydia, gonorrhea, syphilis, and STD-related HIV. Other uses have not been validated. *THIS IS A HYPOTHETICAL DATA USE, IS NOT EVIDENCE-BASED, AND IS NOT FOR EXTERNAL DISTRIBUTION*

Funding Sources

Local Health Departments

- Primarily grant funds distributed by DSHS
 - Some sites receive supplemental funds by Texas DSHS general revenue (GR)
- Some sites have staff positions that are supplemented by local GR
 - City or County GR is subject to local budgetary approval

Public Health Regions

- Predetermined funding set by the Department of Regional Local Health Operations (RLHO)
- Grant funds cannot be awarded directly to a Regional Health Department (RHD)
- Process for an additional staff (FTE)
 - Reallocate another FTE within the current Region for Partner Services
 - If no FTE is available within the Region:
 - Request a FTE reallocation from another Region or within the DSHS infrastructure through the RLHO Division



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Health Services

Texas Jurisdiction A

Local Fast Facts

- Population increase from 2013-2017: 7.3%
 - Service Area: City/County
- No increase in number of DIS
 - 8 DIS
 - 2 Front Line Supervisors
 - 1 Field Operations Manager
- Funding increase from 2013-2017: 7.9%
 - 2017 award: ~\$550,000
- Program is 100% funded by grant funds



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Using the Tool: Increase

To begin, we need a little information about your program

Enter information in the white boxes

Size of population served by STD program (all ages)	1,959,000
Reported number of chlamydia cases	12,475
Reported number of gonorrhea cases	4,357
Reported number of syphilis cases (Primary, secondary, and early latent)	1,293

Enter the total population size of your area
For example, if the overall population in your jurisdiction is 6.5 million people, enter "6,500,000"

Enter your reported number of cases for 2016

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Using the Tool: Increase

This tool estimates the effect of a permanent change in your budget.
Please enter the change in your budget in the appropriate box below.

Enter information in one of the two white boxes below

Amount of budget decrease

OR

Amount of budget increase

Enter the dollar amount of the change in your budget

Use the top row for a budget decrease
Use the bottom row for a budget increase

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Using the Tool: Increase

Would you like to enter information about Disease Intervention Specialists (DIS) in your program, such as:

- Number of DIS in your program
- Average annual salary per DIS
- Number of STD patients interviewed per DIS per year
- Percentage of STD cases interviewed by DIS

YES

NO

If you are not sure, choose "YES" to see the data entry screen



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Using the Tool: Increase

For each row in the table below, you can:

- Enter your own value in the white box,
- OR
- Leave the white box blank to use the default value.

Input	Default value	Your value Leave blank to use the default value
Number of Disease Intervention Specialists (DIS) employed	17	9.00
Annual cost per DIS (salary plus fringe benefits)*	73,600	\$50,652.00
Annual number of STD cases interviewed per DIS	400	256
Percentage of chlamydia cases interviewed	12%	20.0%
Percentage of gonorrhea cases interviewed	17%	15.0%
Percentage of syphilis cases interviewed (Primary, secondary, and early latent)	89%	85.0%

Previous screen

Next screen

*Note: The annual cost per DIS should be the average annual salary of one DIS, including fringe benefits. If you do not know the fringe benefits, you can assume the total annual cost is equal to the DIS salary multiplied by 1.61.



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Using the Tool: Increase

Results: Historical Formula

Results: Estimated impact of change in STD prevention funding

Year	Percentage decrease in STDs due to budget increase	Reduction in number of syphilis infections	Reduction in number of gonorrhea infections	Reduction in number of chlamydia infections	Reduction in number of STD-attributable HIV infections	Reduction in STD costs	Reduction in HIV costs	Reduction in total costs (STD + HIV)
Year 1	1.63%	24	148	382	0.5	\$132,884	\$182,671	\$315,554
Year 2	2.78%	41	251	649	0.9	\$219,323	\$301,495	\$520,818
Year 3	3.58%	53	323	836	1.1	\$274,310	\$377,084	\$651,394
Year 4	4.14%	62	374	967	1.3	\$308,032	\$423,440	\$731,472
Year 5	4.53%	68	409	1,059	1.4	\$327,408	\$450,075	\$777,483
Year 6	4.80%	72	434	1,123	1.5	\$337,137	\$463,450	\$800,587
Year 7	5.00%	74	452	1,168	1.6	\$340,410	\$467,950	\$808,360
Year 8	5.13%	77	464	1,199	1.6	\$339,394	\$466,552	\$805,946
Year 9	5.23%	78	472	1,221	1.7	\$335,556	\$461,276	\$796,832
Year 10	5.29%	79	478	1,237	1.7	\$329,892	\$453,490	\$783,382
10-year total		628	3,806	9,840	13.4	\$2,944,345	\$4,047,483	\$6,991,828

[See text summary of these results](#)

Note: The bottom row is the only row with cumulative results. The first 10 rows of results (Year 1 through Year 10) show the impact of the change in funding for the given year compared to the year before the change in funding (Year 0).

[See advanced options](#)

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Using the Tool: Increase

Advanced Option 1: Calculation method (See the SPACE MONKEY manual for details)

Which calculation approach do you want to use?

Use the DIS approach

Use the average of the two approaches (default)

Use the historical formula approach

Use the DIS approach

Previous screen

Enter your selection in the white box, using the drop-down menu

Go back to results



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Using the Tool: Increase

Results: DIS Approach

Results: Estimated impact of change in STD prevention funding

Year	Percentage decrease in STDs due to budget increase	Reduction in number of syphilis infections	Reduction in number of gonorrhea infections	Reduction in number of chlamydia infections	Reduction in number of STD-attributable HIV infections	Reduction in STD costs	Reduction in HIV costs	Reduction in total costs (STD + HIV)
Year 1	2.71%	40	245	633	0.9	\$220,365	\$302,928	\$523,293
Year 2	4.61%	69	416	1,076	1.5	\$363,710	\$499,978	\$863,688
Year 3	5.93%	88	536	1,386	1.9	\$454,897	\$625,330	\$1,080,227
Year 4	6.86%	102	620	1,604	2.2	\$510,819	\$702,204	\$1,213,022
Year 5	7.51%	112	679	1,756	2.4	\$542,950	\$746,374	\$1,289,324
Year 6	7.97%	119	720	1,862	2.5	\$559,084	\$768,553	\$1,327,637
Year 7	8.29%	124	749	1,936	2.6	\$564,513	\$776,015	\$1,340,527
Year 8	8.51%	127	769	1,989	2.7	\$562,827	\$773,697	\$1,336,524
Year 9	8.67%	129	783	2,025	2.8	\$556,462	\$764,948	\$1,321,410
Year 10	8.77%	131	793	2,051	2.8	\$547,070	\$752,037	\$1,299,106
10-year total		1,041	6,312	16,318	22.2	\$4,882,696	\$6,712,062	\$11,594,758

[See text summary of these](#)

Note: The bottom row is the only row with cumulative results. The first 10 rows of results (Year 1 through Year 10) show the impact of the change in funding for the given year compared to the year before the change in funding (Year 0).

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Using the Tool: Increase

Based on published evidence of the impact of STD prevention programs and the cost of STDs, a budget increase of \$200,000 will result in:

- In the first year alone, there will be an estimated decrease of 40 cases of syphilis (range: 18 to 59), 245 cases of gonorrhea (range: 107 to 357), 633 cases of chlamydia (range: 277 to 922), and 0.9 cases of STD-attributable HIV (range: 0.0 to 2.5).
- Over 10 years, there will be an estimated cumulative decrease of 1,041 cases of syphilis (range: 299 to 2,191), 6,312 cases of gonorrhea (range: 1,815 to 13,284), 16,318 cases of chlamydia (range: 4,692 to 34,343), and 22.2 cases of STD-attributable HIV (range: 0.6 to 91.4).
- Over 10 years, there will be an estimated cumulative decrease in direct medical costs of \$11,595,000 (range: 1,560,000 to 37,078,000) due to decreases in STIs and STI-attributable HIV infections.

With a budget increase of \$200,000, positions for disease intervention specialists will be increased, resulting in:

- Additional DIS interviews or effective behavioral counseling for an estimated 1,011 patients with STDs.
- DIS are public health professionals who work to find people diagnosed with syphilis and other STDs. DIS work to find new cases of the disease — and to prevent new ones from happening.
- In addition to STDs, DIS fight other disease outbreaks and epidemics, including Ebola, flu, anthrax, and SARS—with additional DIS, we will be better prepared for emergencies.
- Since an estimated 1 in 4 DIS interviews identifies a new STD case, an estimated 253 people with syphilis, gonorrhea, or chlamydia will become aware that they are infected, will be more likely to be treated, and will be less likely to spread STDs in their communities.



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INVESTING IN STD PREVENTION

//////////////////// MAKING THE CASE FOR //////////////////////

Sexually transmitted diseases (STDs) in the United States are at a record high—and treating them is expensive.¹ Preventing infections could save much of the approximately \$16 billion spent each year on direct medical costs for 8 major STDs.² STDs aren't just costly—left untreated, they have serious health consequences, such as infertility, pregnancy complications, and even infant death.³ Strong STD programs are our best line of defense, but dwindling budgets limit the ability to combat rising STD rates. **Now is the time to invest in these critical public health programs.**

TEXAS JURISDICTION A

STD PREVENTION IS EFFECTIVE

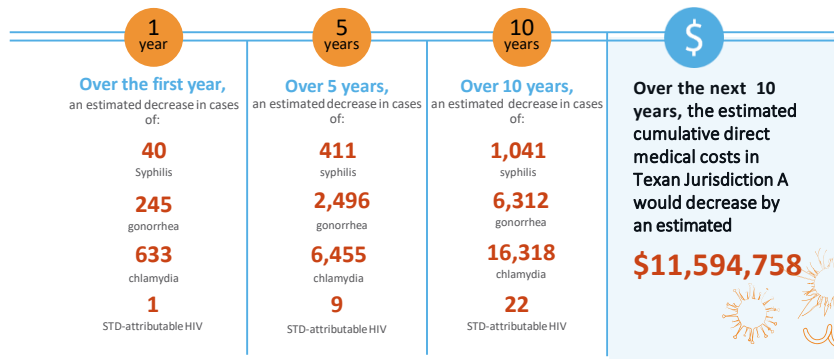
In the past 15 years CDC-funded programs prevented an estimated

5.7
MILLION

cases of gonorrhea, syphilis, and chlamydia, as well as 3,300 STD-attributable HIV infections—saving an estimated \$2.4 billion in lifetime medical costs.^{4,5}

STD program funding has a direct impact on STD rates and medical spending in Texas

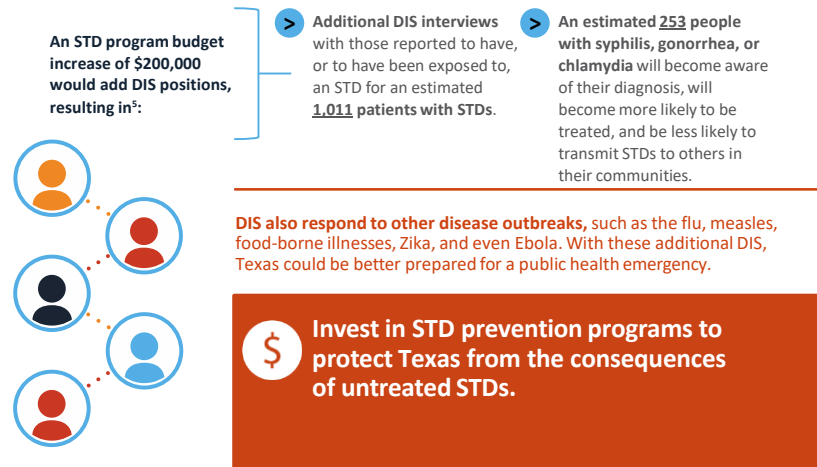
An STD program budget increase of \$200,000 would result in⁶:



[YOUR LOGO HERE]
[YOUR URL]

STD program funding in Texas Jurisdiction A supports disease intervention specialists (DIS), or the “on-the-ground” investigators who work to track and interrupt disease transmission.

DIS find STD cases and link people to care, which also halts the spread of associated health and economic consequences.



For more information:

Check out SPACE Monkey (STD Prevention Allocation Consequences Estimator), a tool created to help state and local STD programs to estimate the impact of changes in their budgets: www.cdc.gov/std/program/spacemonkey

References:

1. CDC. "Sexually Transmitted Disease Surveillance 2016." Available at <https://www.cdc.gov/std/stats16/toc.htm>. Accessed 3-9-2018.
2. Owusu-Edusei K, Chesson HW, GIR TL, et al. "The Estimated Direct Medical Cost of Selected Sexually Transmitted Infections in the United States, 2008." Sexually Transmitted Diseases. 2013. 40(3):197-201. Available at <https://www.ncbi.nlm.nih.gov/pubmed/23403600>. Accessed 3-9-2018.
3. CDC. "Reported STDs in the United States, 2016." Available at <https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/std-trends-508.pdf>. Accessed 3-9-2018.
4. Chesson HW, Ludovic JA, Berruti AA, et al. "Methods for Sexually Transmitted Disease Prevention Programs to Estimate the Health and Medical Cost Impact Changes in Their Budget." Sexually Transmitted Diseases. 2018. 45(1):2-7. Available at <https://www.ncbi.nlm.nih.gov/pubmed/29240632>. Accessed 3-9-2018.
5. CDC. Data estimated using "S.P.A.C.E. Monkey 1.0." Available at <https://www.cdc.gov/std/program/spacemonkey/default.htm>. Accessed 3-9-2018.

Wish list for Future Iterations

Options for level funding

This tool estimates the effect of a permanent change in your budget. Please enter the change in your budget in the appropriate box below.

Enter information in one of the two white boxes below

Amount of budget decrease

OR

Amount of budget increase

Enter the dollar amount of the change in your budget
Use the top row for a budget decrease
Use the bottom row for a budget increase

Previous screen Next screen

Year	Percentage decrease in STDs due to budget increase	Reduction in number of syphilis infections	Reduction in number of gonorrhea infections	Reduction in number of chlamydia infections	Reduction in number of STD-attributable HIV infections	Reduction in STD costs	Reduction in HIV costs	Reduction in total costs (STD + HIV)
Year 1	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 2	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 3	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 4	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 5	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 6	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 7	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 8	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 9	0.00%	0	0	0	0.0	\$0	\$0	\$0
Year 10	0.00%	0	0	0	0.0	\$0	\$0	\$0
10-year total		0	0	0	0.0	\$0	\$0	\$0

- Factoring in changes in disease burden and population change
- Including Congenital Syphilis cases averted and cost burden
- Options for number of HIV cases interviewed for integrated partner services states



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Notes

Data utilized was 2017 data

- Budgetary
- Contract
- Surveillance
- Population

Sources

- U.S. Census Bureau QuickFacts: Texas; United States. (n.d.). <https://www.census.gov/quickfacts/geo/chart/TX,US/PST120218> [Accessed 10 June 2019].
- Texas Department of State Health Services, "Texas STD Surveillance Annual Report, 2017," 02 August 2018. [Online]. Available: <https://dshs.texas.gov/hivstd/reports/STDSurveillanceReport.pdf>. [Accessed 01 October 2018].



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Thank you

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