



Outbreak Preparedness, Detection, & Response Tools for STI Programs

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Introduction to STI Outbreaks

- Sexually transmitted infection (STIs) affect the quality of life for millions of Americans everyday, and cost the healthcare system billions of dollars every year.
- STIs affect various populations, but they primarily impact vulnerable groups, including marginalized individuals such as sex workers, those with low socioeconomic status, and even the elderly.
- Effective outbreak **preparedness, detection, and response** is essential to control transmission and reduce health risks.
- This presentation will explore current tools, challenges, and opportunities for improving STI outbreak management



Challenges in Outbreak Preparedness, Detection, & Response

- Limited resources and infrastructure for STI programs
- Public reluctance and stigma affect response efforts
- Delays in response due to insufficient resources and preparedness
- Data sharing and privacy issues
- Lack of awareness and education on STIs
- Asymptomatic nature of some STIs



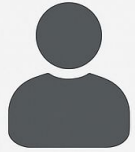
Limited Access
to Healthcare



Funding Gaps



Delayed Testing
and Reporting



Staff Shortages

CDC's Data-Driven Tools for STI Outbreak Response

- The CDC's STI Prevention Allocation Consequences Estimator (SPACE) version 2.0 is a tool that estimates how federal STI funding changes impact infection rates and costs, using a model based on 35+ years of chlamydia and gonorrhea data.

Impact of a change in your jurisdiction's annual funding on infections and direct medical costs

Program inputs	What if I do not have access to these data?
Size of population served by your program (all ages)	0
Reported number of chlamydia cases	0
Reported number of gonorrhea cases	0
Reported number of primary and secondary syphilis cases	0
What was your previous annual funding amount?	
What is your new annual funding amount?	

→

Estimated 3-year impact	additional infections	\$ additional costs
Interpretation:		

The numbers are calculated for three years. You can view longer time frames in the "Advanced options" sheet.

If you enter the same "previous" and "new" annual funding amounts, the output will be blank because there is no change in costs.

If you encounter errors, see the instructions on the "Start" page regarding saving the file on your computer and enabling macros.

Detailed output	Base case	Lower bound	Upper bound
Additional chlamydia infections			
Additional gonorrhea infections			
Additional syphilis infections			
Additional STI-attributable HIV infections			
Total infections	0	0	0
Additional chlamydia costs			
Additional gonorrhea costs			
Additional syphilis costs			
Additional STI-attributable HIV costs			
Total costs	\$0	\$0	\$0

Advanced Options

Model Overview

Print Page

This model assumes that...

1. Funding changes remain fixed over the next few years.
2. Estimates baseline STI incidence based on your jurisdiction's share of nationally reported cases.
3. Your jurisdiction's share of reported cases equals its share of estimates incidence for chlamydia, gonorrhea, and syphilis.
4. Each \$1 in additional funding per capita decreases gonorrhea and syphilis incidence by 31.3% and chlamydia incidence by 17.9% by year 3.
5. Year 1 impact is assumed to be 1/3 of the Year 3 impact, and that the Year 2 impact is assumed to be 2/3 of the Year 3 impact.



Space 2.0 Methodology

1. Input Data: Users can enter jurisdiction information — reported STI cases, population, prior and future funding.
2. Estimate Incidence: Reported cases adjusted using national ratios to estimate total (unreported/reported) infections.
3. Model then projects future STI incidence under new funding level using historical data that links changes in federal funding to changes in infection rates.
4. Calculate change in infection by comparing before/after incidence to estimate # of additional infections.
5. Multiply STI changes by probability of STI attributable infection.
6. Estimate cost by multiplying infections by published lifetime medical cost per STI/HIV infection to calculate cost impact.

Resource Allocation in STI Prevention & Treatment

- The goal of local health departments are to safeguard the health of the populations they serve
- Western UP Health Department
 - Promote healthy sexual behaviors
 - Increase partner notification
 - Improve access to care by offering increased STD/STI screening for Family Planning program participants
 - ***“Services will not be denied based on income or the inability to pay.”***



Intervention Strategies & Public Health Response

- Community Health Assessment vs Community Health Improvement Plan
- Partnership between medical organizations, community groups, and local health departments
- Allows for gathering information on current state and needs of specific community
- Provides community based plan to address issues

Western UP Health Department

- Community Needs Assessment 2021 v 2023 (Next 2025)
- All Upper Peninsula counties have multiple federal designations for health professional shortages Health Professional Shortage Areas (HPSAs)



Evaluating Effectiveness of STI Response Tools

Year	Pop.	Chlamydia			Gonorrhea			P&S Syphilis		Latent Syphilis	
		#	Rate	Re-infec. %	#	Rate	Re-infec. %	#	Rate	#	Rate
2021	64907	125	192.6	2%	11	16.9	0%	-	0.0	3	4.6
2023	68211	76	111.4	0%	10	14.7	10%	1	1.5	5	7.3

Program inputs

What if I do not have access to these data?

Size of population served by your program (all ages)	64,907
Reported number of chlamydia cases	125
Reported number of gonorrhea cases	11
Reported number of primary and secondary syphilis cases	3
What was your previous annual funding amount?	\$395,000
What is your new annual funding amount?	\$436,000

Estimated 3-year impact

83 infections averted

\$41,056 saved

Interpretation:

The increase in your annual funding will avert 83 (range: 50-105) infections and will save \$41,056 (range: \$21,670-\$51,446) in direct medical costs over the next three years.

Advanced Options

Model Overview

Print Page

Detailed output

	Base case	Lower bound	Upper bound
Chlamydia infections averted	66	39	83
Gonorrhea infections averted	12	8	15
Syphilis infections averted	5	3	7
STI-attributable HIV infections averted	0.04	0.02	0.05
Total infections	83	50	105
Chlamydia costs averted	\$12,601	\$6,625	\$15,813
Gonorrhea costs averted	\$2,372	\$1,295	\$2,973
Syphilis costs averted	\$6,857	\$4,106	\$8,533
STI-attributable HIV costs averted	\$19,226	\$9,644	\$24,127
Total costs	\$41,056	\$21,670	\$51,446

“Findings demonstrate gaps and reductions in U.S. public STD services including clinical services that play an important role in reducing disease transmission. Furthermore, STD clinics tended to offer more specialized STD services than other public clinics.” (Leichliter, Jami S, et al. 2017)



Areas for Improvement and Future Recommendations

Continue to build and improve tools, like SPACE 2.0, to help government agencies make sensible and educated decisions.

The future is not looking good. Our country is failing to learn from past data and budgetary mistakes when it comes to public health funding.

- This year alone, the HHS began enacting a reorganization plan that severely cuts HHS agencies and staffing, including core programs for STI prevention. In response to the latest \$2.9 billion cuts to the CDC.
- These cuts will have a \$398 million direct impact to local health departments in Michigan.



Conclusion & Discussion

- STI testing and outbreak surveillance depends on preparedness, detection, and response
 - All starts with Community Health Assessments and Improvement Plans
 - Depends on Community Involvement and Engagement
- Using the tools like SPACE tool 2.0 allows for government agencies to show budget significance and consequences.
 - Can be used to assess current budgets to projected outcomes.
- Government funding decisions should be driven by experts using data and tools created.



Works Cited

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