

Strengthening STD Prevention and Control for Health Departments

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Division of STD Prevention



March 6, 2019

Today's speakers:

Cassandra Davis – Program Development and Quality Improvement Branch

Emily Weston – Surveillance and Data Management Branch

Ryan Kreisberg – Center for STI Prevention, Maryland Department of Public Health





About this webinar

- Intended to provide additional information and clarification for ALL STD PCHD recipients
- Questions
 - ✤ All callers are on MUTE until lines are open at the end of the webinar
 - Please use the chat feature for any questions
- Slides and webinar recordings will be available on the STD PCHD website
 - https://www.cdc.gov/std/funding/pchd/default.htm

Overview of Webinar

Surveillance overview

Review of enhanced surveillance strategy

Project area perspective

• Q & A





Strategy-specific Technical Assistance: Surveillance Strategies

Enhanced Gonorrhea Surveillance

Increasing Rates of Reported Gonorrhea

Gonorrhea - Rates of Reported Cases by Sex, United States, 2008-2017



Percentage of Cases with Missing Data from Select Characteristics in Nationally Reported Data, 2017



No Information or Data from Select Characteristics in Nationally Reported Data

Treatment Information (including name and dose of antibiotics)

Sequelae (PID, DGI)

STI co-infection

Understanding the epidemiology of gonorrhea can help improve public health





Understanding the epidemiology of STIs in specific project areas and across the US





Describe the burden and cost Inform and target prevention activities Anticipate needed resources Monitor effectiveness of interventions Continuous quality improvement

To improve population health and lead to greater health equity











2b. Conduct enhanced GC surveillance



Conduct provider follow-up and, if needed, brief patient interviews of a random sample of GC cases from a well-defined high morbidity area or the project area as a whole. Ensure timely and quality capture of core epidemiological variables:

- Age
- Sex
- County
- Diagnosing facility type
- Specimen collection date
- All anatomic site(s) of infection
- Race/ethnicity
- Gender identity/sexual orientation

- Sex of sex partner(s)
- Clinical Symptoms and signs (incl length of time)
- Pregnancy status
- HIV status
- Previous history of GC
- PID
- Disseminated gonococcal infection

- Treatment provided (incl name and dose)
- Date of treatment
- Co-infection with other STDs
- History of substance abuse
- Partner treatment (e.g., EPT provision)

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How will this be useful in my project area?

-DIS conduct follow-up on priority gonorrhea cases including HIV infected cases and all pregnant females to ensure treatment and linkage to care and to offer partner services

-30% of all of gonorrhea cases receive DII/DIS follow-up

-We are not sure why we need to do this strategy



Disease Investigation and Intervention (DII)





interview patient

sex partner(s)



Refer sex partner(s) to a clinic for testing and treatment

Diagnosing lab or clinician reports the infection

Disease Investigation and Intervention (DII)



*Some epi data are collected, but this is not the goal

Diagnosing lab or clinician reports the infection

Refer sex partner(s) to a clinic for testing and treatment



Diagnosing lab or clinician reports the infection

Allows for best allocation of resources



	Surveillance	Disease Intervention & Investigation
Objective	Systematically collect reported cases of disease	Identify cases & sexual partners
Strategy	Analyzetrends by important epidemiological characteristics	Interview infected persons& identify persons still at risk
Goal	Prevent, control, and allocate resources	Prevent sequelae and interruptchain of transmission
Example activities	Gather clinical and demographic information from provider and if needed, frompatient	Elicit partner information from index patient, track down partners either in person or online, link to treatment
Staff	Epidemiologists, surveillance staff, DIS, interns, etc.	Public health investigators
Target population	All persons who are infected	Priority populations (if resources are limited)

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(n=1,000)

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15% known to be HIV-infected based on eHARS

11% known to be pregnant from provider reports

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Interviewed Gonorrhea Cases

(n=280, 28% of all cases)

(n=1,000)



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Interviewed Gonorrhea Cases

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Interviewed Gonorrhea Cases All Reported Gonorrhea Cases (n=280, 28% of all cases) (n=1,000) 57% 30% ŦΤ MSM MSM T **Ť1** 43% 70% heterosexual heterosexual



That doesn't mean the epi data you collected during disease intervention isn't useful!

- Some portion of the cases targeted for priority investigations will also fall in your random sample
- When analyzing enhanced gonorrhea data, only include data from cases in the random sample



Key points

- Understanding the epidemiology of gonorrhea can strengthen your STD prevention and control program
- Surveillance ≠ Disease Intervention & Investigation (DII)
- You can continue to conduct diseases intervention on priority populations if resources allow
- Unless epi data are collected on all reported cases, the interviewed sample must be randomly selected or else estimates will be biased





Questions you might be asking about this surveillance strategy

Question: What is a random sample and what do we mean by it?

Answer:

- A random sample is defined as a smaller number of cases picked at random from the universe of <u>ALL</u> cases reported
- What makes these cases useful for analysis is that each reported case has the same 'probability' of getting picked for the sample
 - ✓ The distribution of characteristics found from investigating just this sample of cases would closely mirror what we would find if we could get the same information from all reported cases
 - ✓ If not, we introduce a **bias** in our sample


Question: What is a bias? And why does it matter?

Answer:

- Systematic error that results in an incorrect estimate of an association between exposure and risk of disease
- There should be NO restrictions on which reported cases gets sampled
- Examples:
 - Choosing to "sample" cases that are only from STD clinics (e.g., one provider type)
 - Only looking at pregnant women or among persons known to be HIVinfected



Question: What is a "well-defined geographic area"?

Answer:

- A well-defined area is a geographic area that may be a state, a cluster of counties (e.g., "20-county metro area", "3-county Bay area"), a single county, a large metropolitan area, or a city
 - \checkmark May be dependent on where most cases of gonorrhea are from
 - Could also include areas of jurisdiction interest: border communities, college towns, high proportion of international travelers
- Population should be quantifiable



✓ To allow for calculation of rate



Question: What is a "high-morbidity" area?

- Answer:
 - CDC does not have a "cut point" to define this; however, high morbidity can most often mean where most cases are reported from/physically located in a certain geographic area
 - This could be an entire state but more simply, it could also be one to a few counties in a project area, one metropolitan area/city



Question: What is a "specified period of time"?

Answer:

- A specified period of time may be the entire year or partial year (e.g., 6 months)
- Data collection for less than 3-months may not be reliable





Question: If we plan to follow up on all cases, do we have to take a random sample?

- If you are able to conduct enhanced surveillance on <u>all</u> <u>reported cases</u> in the welldefined, high morbidity area, you do not need to take a sample
- Otherwise, taking a random sample is key to ensuring representativeness

Target geographic area	Able to follow -up on all cases in area?	Random sample needed?
Whole project area	Yes	No
Whole project area	No	Yes
Part of projectarea (e.g., 3 county area)	Yes	No
Part of projectarea (e.g., 3 county area)	No	Yes



Question: How many cases should I sample?

Answer:

- Dependent on your project area's morbidity and resources, as well as how you plan to use the data
- Will vary across project areas
- Try to aim for <u>complete</u> investigations for at least 5% of all of the morbidity in the selected area
 - Small sample sizes may lead to unstable estimates or wide confidence intervals



Sampling fraction should account for non-response



Example

- 3-county metro area selected, 6-month time period
- ~5,000 gonorrhea cases report in a 6-month period

- Goal: 250 completed investigations (5,000*0.05)
- Assuming 50% response rate
 - 250/0.50 = 500 cases selected in random sample
 - The sample fraction would be 10% (500/5,000)





Site Perspective

Maryland Department of Health

STD Surveillance – Gonorrhea

Ryan Kreisberg Center for STI Prevention Maryland Department of Health 3/6/2019



PCHD requirements - Gonorrhea

a) Collect, manage, analyze, interpret and disseminate data on identified cases of gonorrhea, ensuring timely capture of core epidemiologic variables available on laboratory reports: age, sex, county, diagnosing facility type, specimen collection date, and anatomic site(s) of infection

b) To better understand GC epidemiology, conduct provider follow-up and, if needed, brief patient interviews of a **random sample of GC cases** from a well-defined high morbidity area or the project area as a whole. Ensure timely and quality capture of core epidemiologic variables including, but not limited to:rage sex, county, diagnosing facility type, specimen collection date, anatomic site(s) of infection, race/ethnicity, gender cantuy/sexual orientation, sex of sex partner(s), clinical signs/symptoms, pregnancy status, HIV status, partner treatment (i.e., EPT provision), gonorrhea-related sequelae (i.e., presence of pelvic inflammatory disease (PID), disseminated gonococcal infection (DGI), etc.), substance use, date of diagnosis, treatment received (including names and doses of treatment), date of treatment, co-infection with other STDs, and history of GC infection



Let's Boil it Down

- 1. Capture core epidemiologic variables on GC cases in your jurisdiction
- 2. Capture that information by utilizing:
 - Provider follow-up
 - Patient interviews
 - Other methods of information elicitation specific to your jurisdiction
- 3. You are NOT expected to follow up on all cases!
 - You may select a random sample of GC cases from a well-defined high morbidity area **OR** the project area as a whole.
- 4. You are also **NOT** expected to do this all year!



Including, but not limited to...

substance use HIV status partner treatmentdate of diagnosis history of GC infection specimen collection date pregnancy statusgonorrhea-related sequelaeage gender identity/sexual orientation county co-infection with other STDs diagnosing facility type anatomic site(s) of infection treatment received clinical signs/symptoms race/ethnicity date of treatment sex sex of sex partner(s)



Initial Questions for all Jurisdictions

- Will you conduct GC interviews all year or a for a shorter period of time?
- Will you elicit interviews from your entire area or will you limit them to select counties/parishes/regions?
- Will you interview all GC cases in that area during that period?



Will you need additional FTEs?



Low Morbidity Example

- 412 cases (70.4/100,000) in 2017
- 2 Investigators
- Interviewed all GC cases
- Conducted by phone unless also new HIV infection
- QA
 - DIS work under SOP which outline all required variables they need to collect
 - Quarterly audit to remedy missing variables
- Prioritize MSM and co-infections



WY

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Project Area Data for Maryland

Project Area Population	6,052,177
# FTE STD Surveillance Staff	~12
# Reported Cases/Events in 2017	46,453
Gonorrhea	10,978
Chlamydia	33,416
Primary/Secondary Syphilis	573
Congenital Syphilis	20
Adverse Outcomes in Adults from Syphilis*	29

*Neurological, ocular, otic, and late clinical manifestations.



- Used PRISM to set a randomized 30% selection of all generated GC field records
 - Many of these turned out not to be cases
- Selected 8 out of our 23 counties based on morbidity and staffing considerations
- Regional DIS were tasked with following up on as many selected GC cases in their jurisdictions as they could before the project ended



MD

Maryland



- Some lower morbidity areas randomly interviewed GC cases
- In high morbidity areas, clinic based programs interview cases that were identified as MSM cases through chart abstraction
- If rectal or pharyngeal site and the patient sex at birth is male, it will be assigned to the jurisdiction for followup
- Interviews either in clinic or conducted over the phone depending on when the infection is identified



Texa

TX

High Morbidity Example Cont.

- DIS were not required to do field visits, but were expected to attempt contact via phone
- Poor race information from labs and treatment is frequently missing
- High volume makes follow-up difficult
- Sites send out line listings to large reporters to try and elicit missing race or other demographic information



Texas

TX

Interview Period

- Longer selection/interview period?
 - Take a hard look at your FTEs and evaluate what kind of load they can handle or whether you need to hire additional FTEs to handle interviews
- "Interview season"?
 - How will you handle staffing and prioritization of normal work and GC interviews?
- Set an overall interview completion goal



Selection

- Randomly selecting cases
 External vs internal
 - Algorithm
- Liberal exclusion criteria!



Key Takeaways

- 1. Know your area Don't overcommit
- 2. Take a good look at your current FTEs and what they can handle
- 3. Interview as close to encounter as possible
- 4. Shoot for the moon, land among the stars





Applying Lessons Learned

STD PCHD 2019 Maryland Plan:

- Conduct enhanced GC surveillance in only one high morbidity jurisdiction
- Sample 30-40% of GC cases for a 2-3 month time period
- Use existing staff, including a newly hired DIS during their initial training



MD



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Maryland Department of Health Center for STI Prevention Infectious Disease Prevention and Health Services Bureau Prevention and Health Promotion Administration

http://bit.ly/MDH-CSTIP

https://phpa.health.maryland.gov





Implementation



Implementation strategy over 5 years

 Take an incremental approach based on level of experience with enhanced surveillance

 Methods to select a valid random sample is key and must be developed PRIOR to implementation



Implementation: Year 1

• Might look like this in a project area with no experience:



step 1. Assess morbidity & determine geographic area

Step 2. Determine timeframe that might seem appropriate

Step 3. Develop & validate methods for taking a random sample of cases

Year 1: Detailed Work Plan

Conduct Surveillance

Strategy 2: Conduct Gonorrhea (GC) surveillance

2B: To better understand GC epidemiology, conduct provider follow-up and, if needed, brief patient interviews of a random sample of GC cases from a welldefined high morbidity area or the project area as a whole. Ensure timely and quality capture of core epidemiological variables including, but not limited to: age, sex, county, diagnosing facility type, specimen collection date, anatomic site(s) of infection, race/ethnicity, gender identity/sexual orientation, sex of sex partner(s), clinical signs/symptoms, pregnancy status, HIV status, partner treatment (i.e., EPT provision), gonorrhea-related sequelae (i.e., presence of pelvic inflammatory disease (PID), disseminated gonococcal infection (DGI), etc.), substance use, date of diagnosis, treatment received (including names and doses of treatment), date of treatment, co-infection with other STDs, and history of GC infection

Objective 2B-1

Annual Objective: Describe one objective for this strategy, using the S.M.A.R.T. objectives format Description: Briefly describe the baseline and target measures of your objective

Baseline	Target
n/a	Protocol Approved by HD
	leadership

By August 2019, identify key stakeholders and prepare a validated GC sampling protocol

Activity Description	Activity Timeframe	Output Indicator	Assigned To
Review 2015-2018 GC morbidity data to identify high-	Jan-Feb 2019	Well-defined geographic	
morbidity areas of interest (based on case counts, case		areas to be targeted for	
rates, and populations of interest).		enhanced GC surveillance	
Establish cross-sector enhanced GC surveillance workgroup	Feb-Mar 2019	Workgroup established and	PH Educator (TBD)
that includes local health jurisdiction leadership in		routine meetings scheduled	
prioritized areas, DIS, epidemiologists, and data			
management/IT staff.			
Develop written protocols for 1) for random sampling	Apr-Jun 2019	Draft protocol approved by	Prog Director
methodology, 2) data collection, and 3) data management.		STD program leadership and	
		workgroup	
Conduct a dry run of sampling protocol, assess if sampled	July-Aug 2019	Finalized sampling protocol	Epi I
cases are representative of all cases in the prioritized areas		with validated sampling	
by age and gender, and modify protocol if needed.		methodology for HD approval.	



Implementation: Year 2



Step 1. Gain local support

Step 2. Finalize data collection tools & identify/train staff





Step 3. Modify surveillance info systems to store data





Step 4. Pilot investigations



Implementation: Years 3 - 5



Step 2. Conduct nonresponse analyses to monitor implementation



Step 3. Analyze data to generate representative estimates

Step 1. Conduct investigations

Step 4. Ongoing implementation & QA





Additional Information

Question: Do we need to interview patients if we already follow-up on each case with the provider?

Questions to ask:

- Are all core variables included on the provider follow-up?
- For variables that are included, is the information complete?
- For providers that respond, are they representative are they of all providers?

- If the answer to any of the above questions is no, <u>then</u> patient interviews are likely be needed
 - Interviews can be brief, over the phone, etc.

Question: Gonorrhea epidemiology varies in my project area. Won't the estimates from just one high-morbidity be biased?

Answer:

- Only if you try to generalize the findings from that one area to your entire project area
- Findings from this activity will inform your understanding of the gonorrhea epidemic in that one area
- Sampling from your entire project may be most useful to your program
 - Starting with a well-defined area may help you refine your methods
 - ✓ Expand to other areas in future years

Question: How and when do I pick a random sample of cases?

Answer:

Best practice is to choose cases as close as possible to the initial report and to capture the result permanently in the electronic case record

- ✓ Use random number functions built into data management system
- ✓ Create variable/column in data tables
- ✓ Assure random number is ran and captured ONCE
- Ask for help!
 - ✓ SSuN protocol and Best Practice for Random Sampling
 - ✓ User groups
 - ✓ More guidance in a CSTE tool-kit



Question: How do I ensure my random sample is similar and representative of ALL cases?

Answer:

- A best practice is to regularly compare the distribution of all cases in your sample by sex, age, geographic area, etc. to monitor the representativeness of the sample
- Small differences (<2%) are expected and may be random variations
- If there are significant difference between the sample cases and all cases, re-evaluate your jurisdiction's process to assure all steps are working properly

Question: I am a current SSuN site. Do I have to do this?

Answer:

- If you are a current SSuN site, you are funded through September 30,
 2019 for enhanced surveillance through SSuN
- Because SSuN cycle IV recipients have not yet been identified, you should have generated a workplan for enhanced surveillance strategy 2b for the 4th quarter of FY2019
- If you are NOT funded in the SSuN cycle IV, you will need to implement this objective starting October 1, 2019


Question: I am applying to be a SSuN site. Do I have to do this?

Answer:

- If you are applying to become a SSuN jurisdiction, you will still need a workplan for enhanced surveillance
- The 4th cycle of SSuN will not awarded until October 1, 2019 and your project area should be working to implement enhanced surveillance before this time



Question: How do we or will we report these data to CDC?

Answer:

Most of the variables are in the NETSS record layout Version 5.0 and the STD Message Mapping Guide (MMG)

- Age
- Sex
- County
- Diagnosing facility type
- Specimen collection date
- All anatomic site(s) of infection
- Race/ethnicity
- Gender identity/sexual orientation

- Sex of sex partner(s)
- Clinical Symptoms and signs (incl length of time)
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- Treatment provided (incl name and dose)
- Date of treatment
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Question: How do we or will we report these data to CDC?

Answer:

There is a new variable in the STD MMG and NETSS record layout Version 5.0 [CASE SAMPLE] that will allow you to note whether the case was randomly selected for enhanced surveillance

- Standardized reports & evaluation
 - ✓ Progress reports (APRs, IPRs)
 - ✓ Workplan updates
 - ✓ Targeted Evaluation Plans (TEPs)



Question: I can't modify my surveillance information system to include these other variables. What do I do?

Answer:

- This will be a challenge in some project areas
- Most of the enhanced variables are in the current NETSS record layout and STD MMG
- Participate in user group calls
- ♦ Alternative → create a separate, locally-maintained database (e.g., Access, Excel)

✓ Still need to get information into format for reporting to CDC



I hear you. This sounds important but our project area just can't do this.

- Answer:
 - This is a required activity for all project areas under the new STD PCHD NOFO
 - If you feel that you have questions, we encourage you to reach out to your prevention specialist as soon as possible



Question: I hear you. This sounds important and our project area is excited to do this! Can we get help?

Answer:

- ✤ YES!!!
- Talk to your prevention specialist
- Be on the look out for a tool-kit from CSTE
- Participate in your project area's user group calls
- Participate in CSTE surveillance coordinator calls





Surveillance-related resources

- STD Surveillance Report
 - https://www.cdc.gov/std/stats/default.htm

- STD Surveillance Coordinator's quarterly calls
 - Contact Ashley Vineyard (avineyard@cste.org) to be added to list

- NCSD User Groups (Maven, PRISM, NBS)
 - Contact Marvin Fleming (mqf6@cdc.gov) to be added

Enhanced Surveillance TA Resources

- PCHD Technical assistance (TA) note on enhanced surveillance <u>https://www.cdc.gov/std/funding/docs/STD-PCHD-TA-Notes-2b-Enhanced-GC-Surveillance-Methodology.pdf</u>
- STD Surveillance Network (SSuN) protocol <u>https://www.cdc.gov/std/ssun/default.htm</u>

CSTE Enhanced Gonorrhea Surveillance Tool Kit (fall 2019)

Investigating options for peer-to-peer TA



STD Surveillance Network Notice of Funding Opportunity (SSuN NOFO: PS19-1907)

 Two (identical) informational webinars: 3/12 @ 1 pm EST & 3/19 @ 3:30 pm EST

Applications close on 5/15/2019

https://www.cdc.gov/std/funding/ssun/



Acknowledgements

- Lizzi Torrone
- Mark Stenger (SSuN)
- Hillard Weinstock
- Jennifer Fuld
- PDQIB Prevention
 Specialists
- Marcia Pearl (MD Department of Health)

 Graphic icons taken from <u>https://thenounproject.com/</u>



1. Questions about enhanced surveillance during this webinar?? *Please use chat box*

2. Questions about enhanced surveillance after this webinar? *Email your project area's prevention specialist*

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.

