Indiana Department of Health

DATA DAY 2023

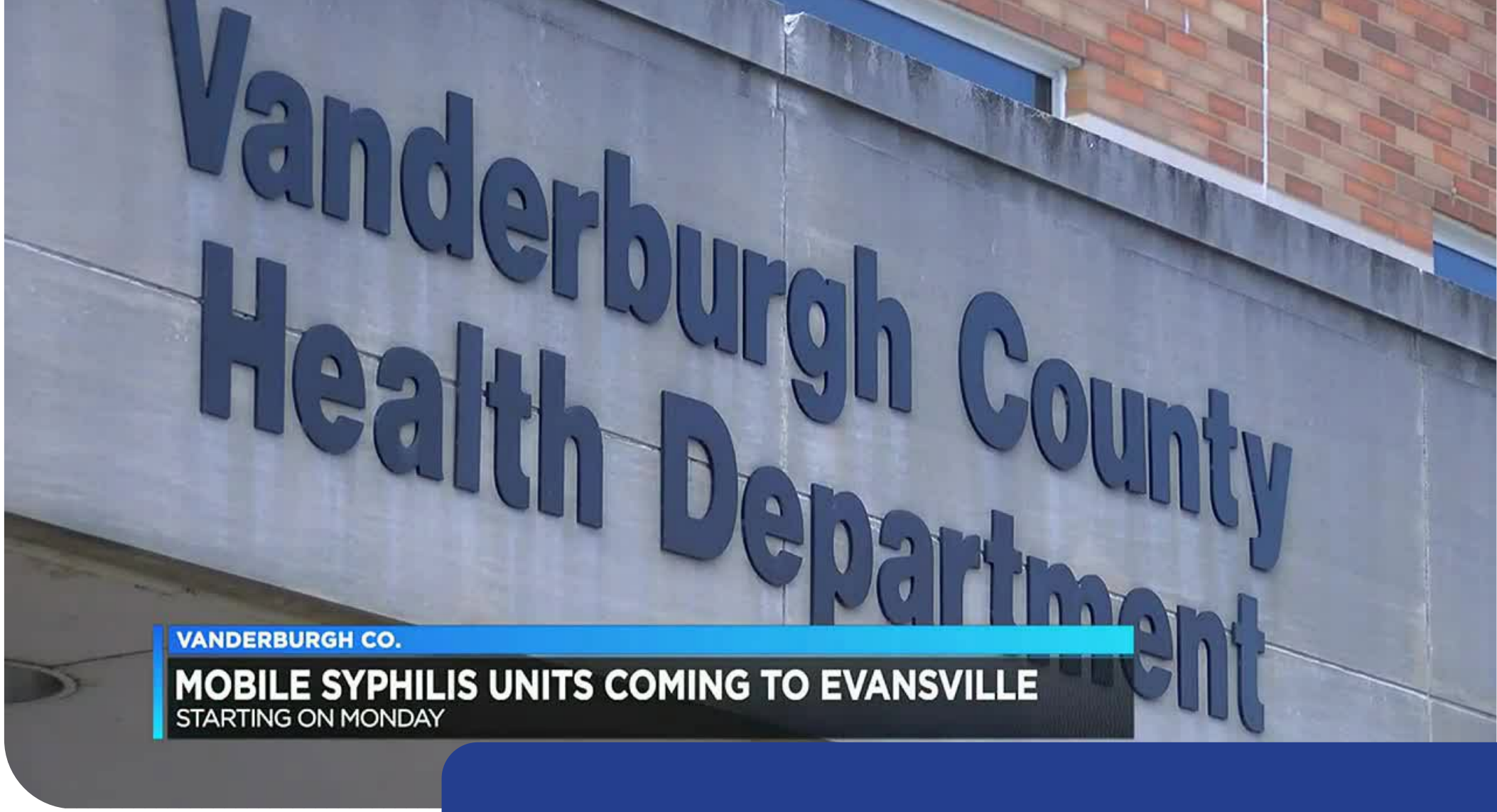
Improving Tracking and Data Visualizations for Syphilis Outbreaks Using Tableau

Jamie Black, MPH
Division of HIV/STD/Viral Hepatitis
Indiana Department of Health

April 26, 2023

Topics to Cover

- Background on Syphilis Outbreak
- Outbreak Detection Dashboard
- Incident Command Daily Dashboard and Other Vizes
- Other Dashboards for STD Trends



Syphilis Outbreak in Indiana

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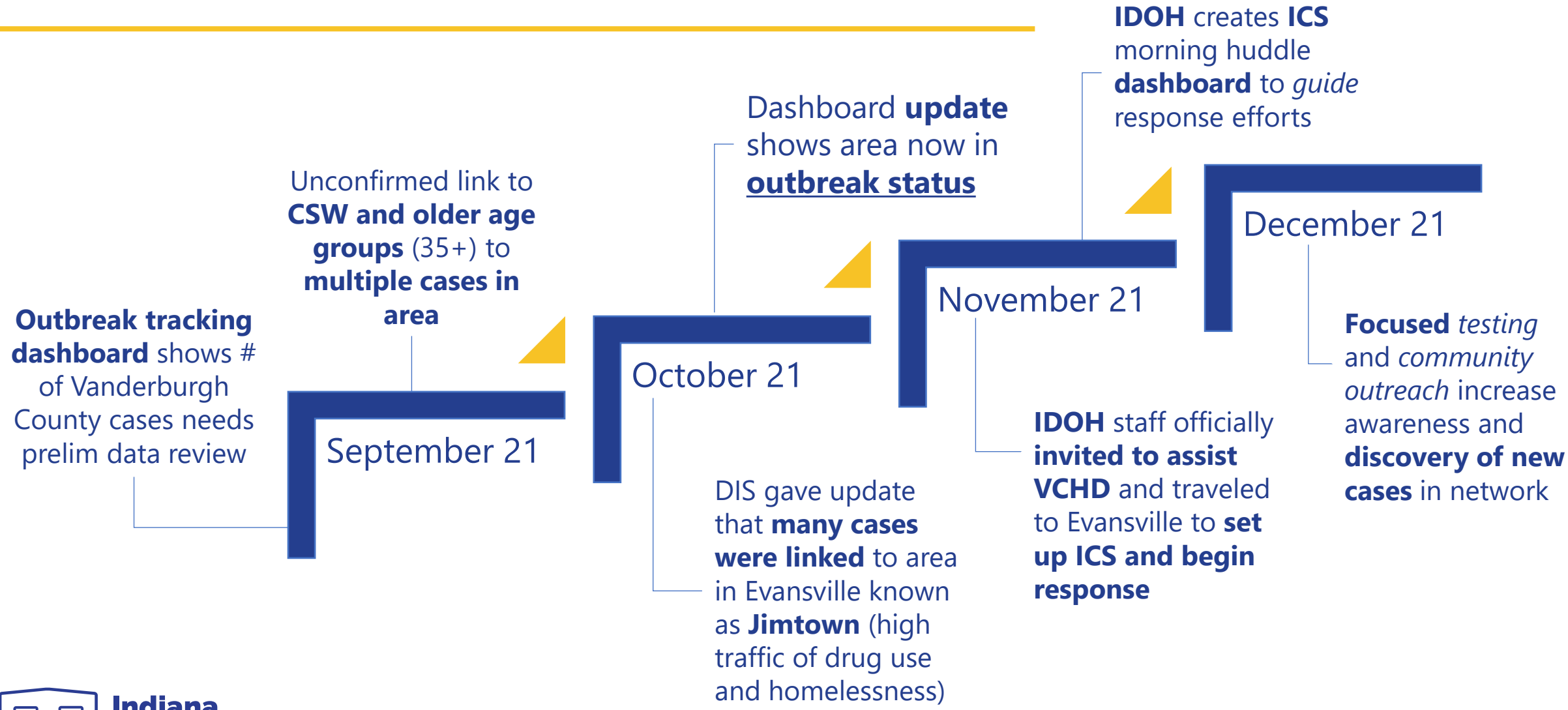
Timeline of Events



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Syphilis Increase Check

Avg Number of Syphilis Cases in Past 18 months
(Primary, Secondary, & Early Np/Ns)
Excluding Current Month & Past Two Months

Disease
- Primary Syphilis
- Secondary Syphilis
- Early Np/Ns Syphilis

Filters!

District: (All)
Sex: (All)
Race: (All)
Sexual Orientation: (All)
County: (All)

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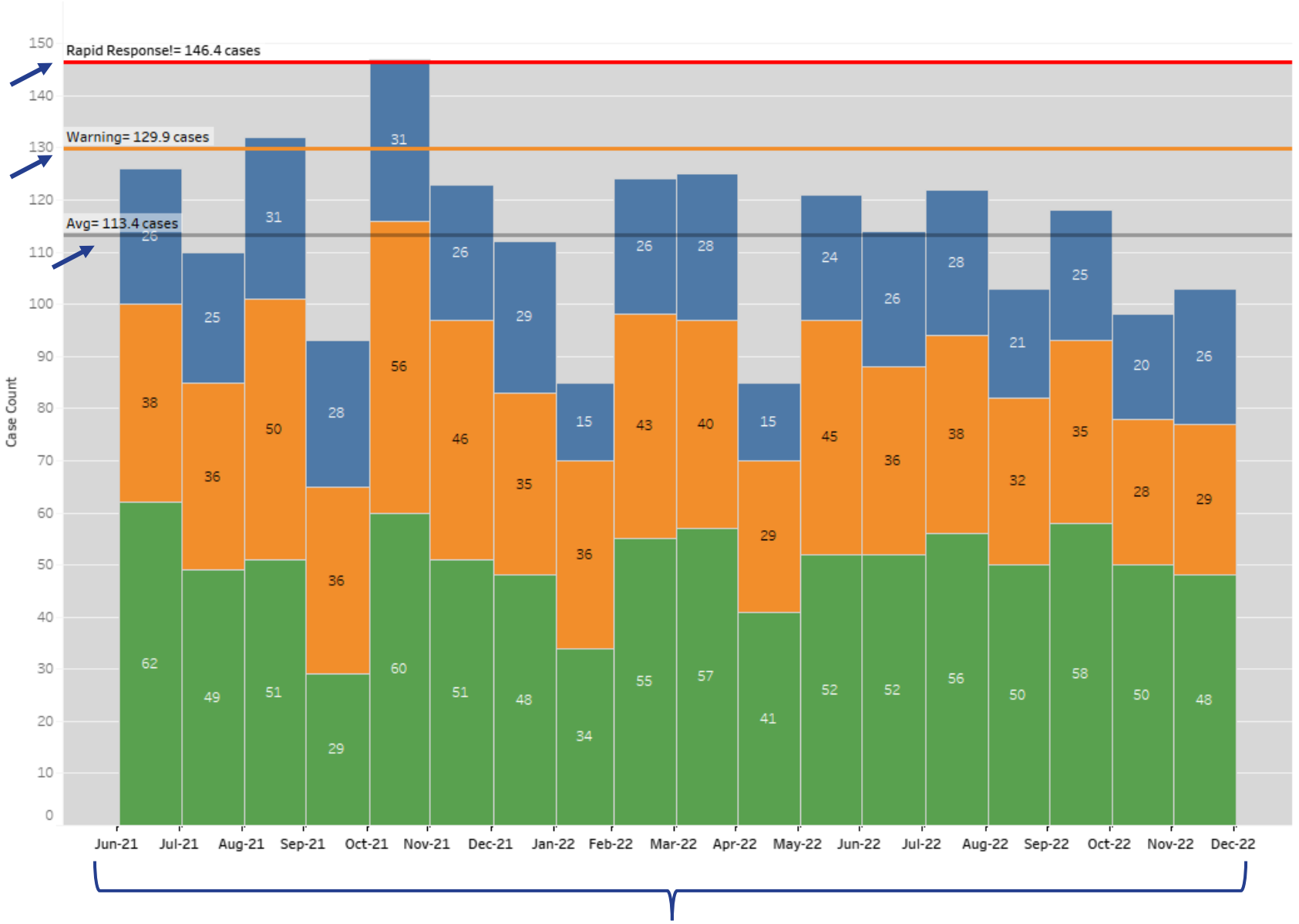


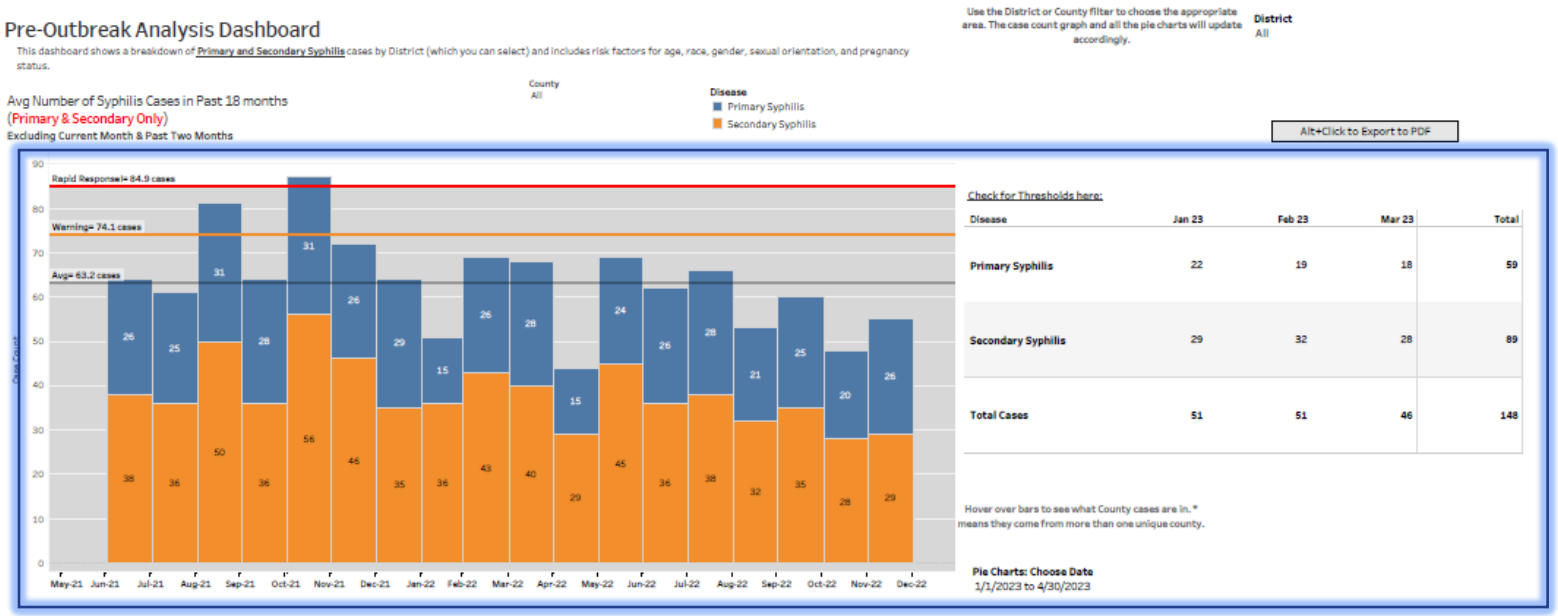
Check for Increases here:

Disease	Jan 23	Feb 23	Mar 23	Total
Primary Syphilis	22	19	18	59
Secondary Syphilis	29	32	28	89
Early Np/Ns Syphilis	43	46	43	132
Total Cases	94	97	89	280

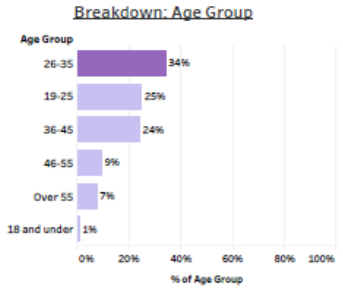
Counts for a Month will only populate if greater than ZERO for at least one disease stage.

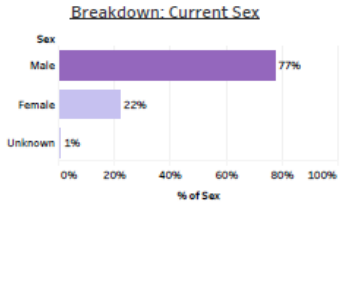
Warning line represents one standard deviation above the average, while Rapid Response! represents two standard deviations above the average.

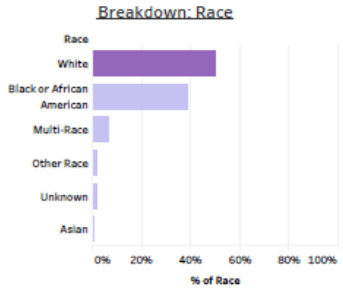
Important Note: This dashboard includes Early Np/Ns syphilis cases. Do not use this dashboard to define an actual outbreak. That information is found in the "Pre-Outbreak Analysis" dashboard.

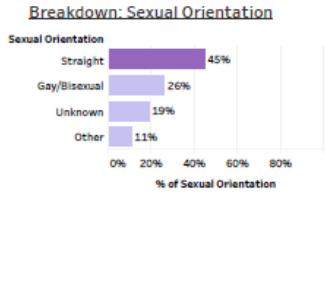


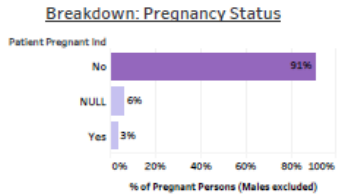
Percent breakdown of **patient characteristics** and **risk factors**!

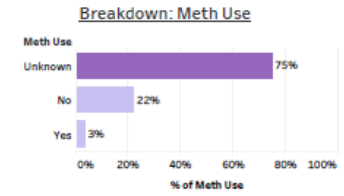


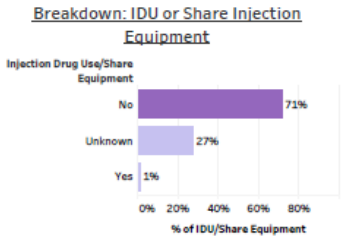


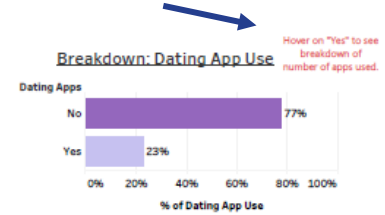


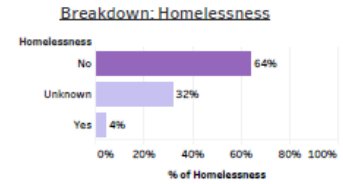












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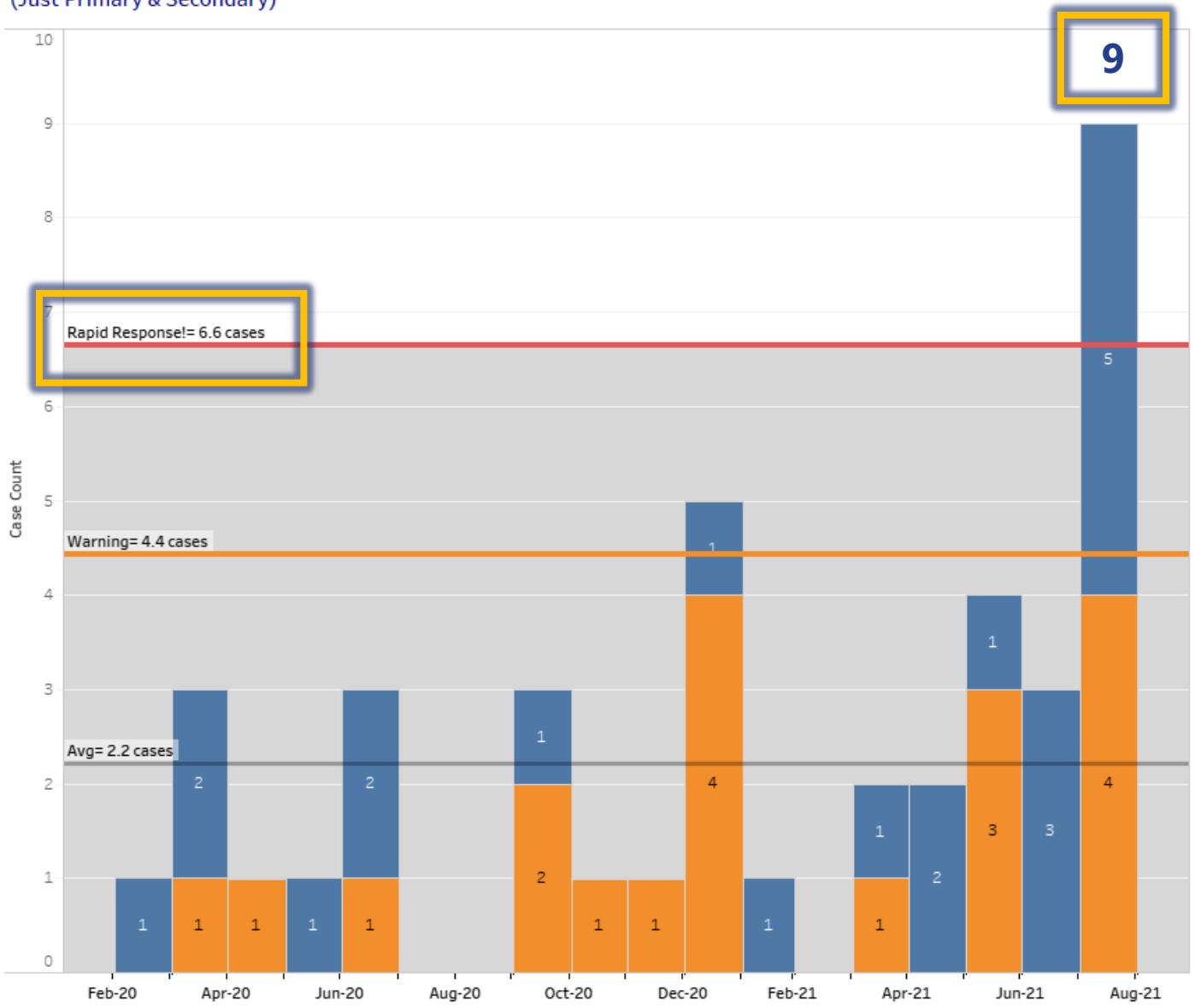
D8 Syphilis Pre-Outbreak Check

Disease
- Primary Syphilis
- Secondary Syphilis

Alt+Click to Export to PDF

Avg Number of Syphilis Cases in Previous 18 months with standard deviations (+1="Warning", +2="Rapid Response!")
(Just Primary & Secondary)



Check for Increases here:

Disease	Sep 21	Oct 21	Nov 21	Total
Primary Syphilis	3	2	8	13
Secondary Syphilis	6	2	14	22
Total Cases	9	4	22	35

Counts for a Month will only populate if greater than ZERO for at least one disease stage.

Warning line represents one standard deviation above the average, while Rapid Response! represents two standard deviations above the average.

Topics to Cover

Background on Syphilis Outbreak

Outbreak Detection Dashboard

Incident Command Daily Dashboard and Other Vizes

Other Dashboards for STD Trends

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Bringing data to life!

Patient-specific Data

- Diagnosis, staging → **Outbreak case definition: Confirmed or Probable**
- County of residence, address w/zip → **Filled "heat" maps + pin-point outreach maps**
- Testing and treatment dates → **Flag number of patients needing treatment**
- Symptoms
- Patient demographics → **Monitor proportional changes in outbreak case epi profile**
- Risk factors → **Monitor proportional changes across all risk factors**
- Pregnancy and HIV status
- HIV viral suppression
- Hepatitis co-infection (ABC)

→ **Monitor number of co-occurrences with syphilis**

Daily ICS Dashboard For Leaders

STD District 8 Syphilis Outbreak Tracker

Number of Total Outbreak Cases

122

Confirmed Outbreak Case	Probable Outbreak Case
105	17

Open Cases

14

Closed Cases

108

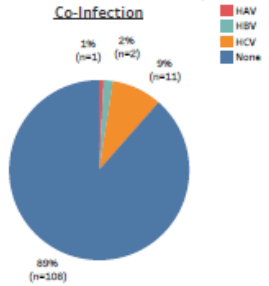
Cases Treated	Partners Prev. Treated
78	47

Number of Partners Being Pursued

1

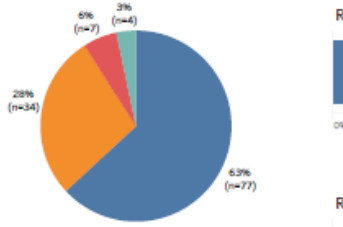
COVID Vaccines	Hep A Vaccines
3	1

Percent of Outbreak Cases with Hepatitis Co-Infection

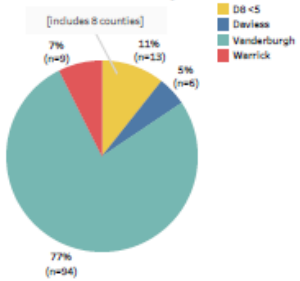


Percent of Outbreak Cases with HIV Co-Infection (not virally suppressed)

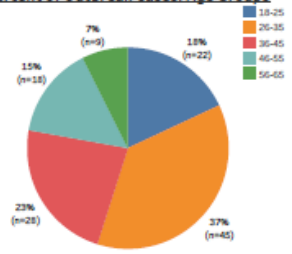
Percent of Outbreak Cases: Sex and Pregnancy Status



Percent of Outbreak Cases: County of Residence

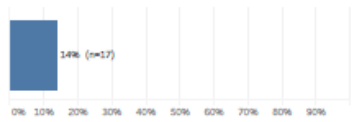


Percent of Outbreak Cases: Age Groups



Risk Factors: Percent of Outbreak Cases

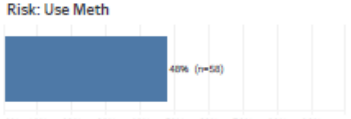
Risk: Homelessness



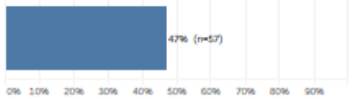
Risk: MSM (not sexual orientation)

Risk: IDU

Risk: Use Meth



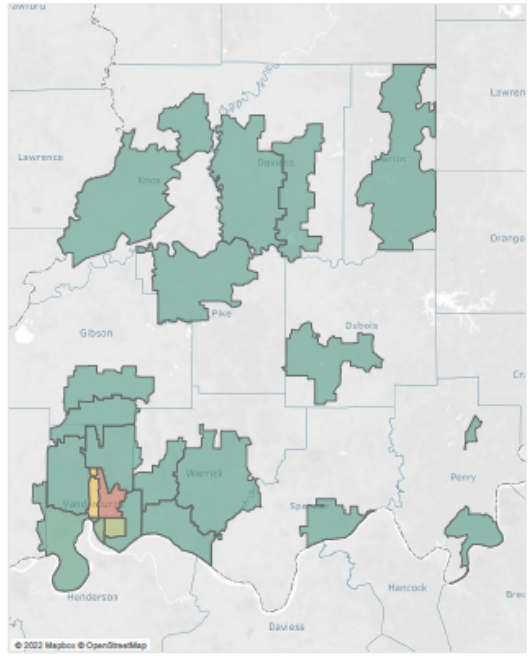
Risk: Recent Incarceration



Risk: Exchange for Sex

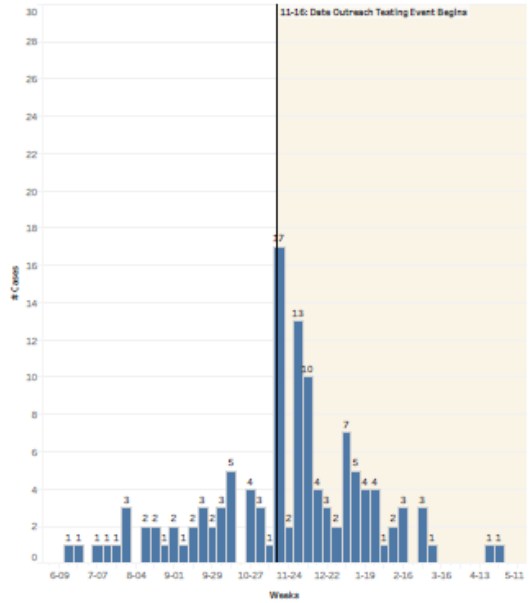
Risk: Use Dating Apps

Map of Outbreak Cases



Number of Outbreak Cases Over Time

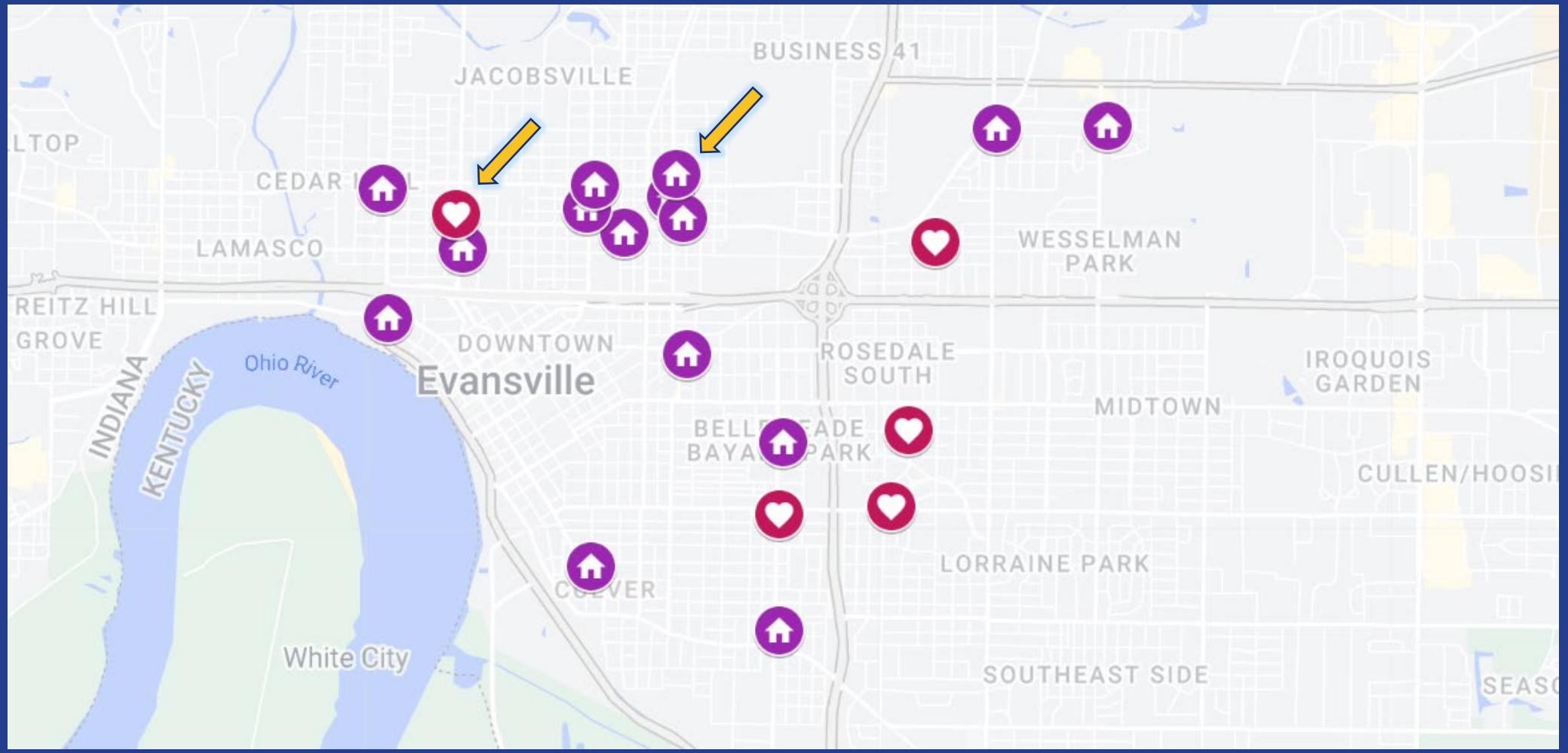
Index case tested positive 6/14/21



For both internal and external use. Share accordingly.

Report as of June 7, 2022.

Pinpoint map for outreach

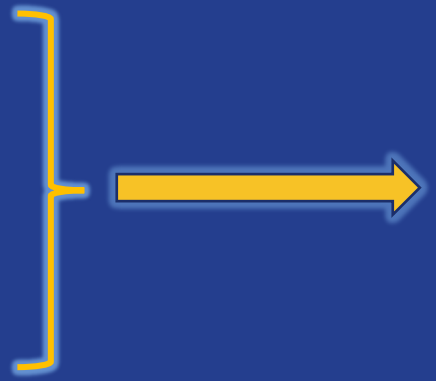


Addresses are just examples in this map, and do not represent actual patient locations.

Improving case management

Case Management

- DIS assigned to case
- Interview completion
- Partner case completion
- Case action items



Created “Chalk Talk” report for Supervisor

Chalk talk report

Disclaimer: All names are fictional!

STD District 8 Syphilis Chalk Talk Dashboard

Report as of June 13, 2022.

Dashboard on left shows all outbreak cases assigned to DIS and what stage they are at in their case work. Dash in lower left shows needed action items on each selected case. Use the DIS_Assigned filter to select a specific DIS. This will update both Case and Partner dashes, and the action items as well.

DIS_ASSIGNED: (All)

Number of Partners Being Pursued: 17

Number of P1s Preventatively Treated: 6

Open Cases: 22

Closed Cases: 26

Choose Case Priority -->

Priority: Stage: (All)

Priority: Virally Suppressed?: (All)

Use the priority filter for partners to filter through P1s being tracked by their OP's stage of infection.

Choose P1 Priority -->

Priority- OP's Stage: (All)

Investigations (Field Records) Assigned- Cases

Stage 0: Needs Tx, DIS Ix, and P1 Elicited.	Stage 1: Tx. Needs DIS Ix, and P1s Elicited.	Stage 2: Tx. Ix. Needs P1 Elicited.	Stage 3: Tx. Ix. Partner Work Complete. Needs supervisor review.	Ix and P1s being worked. Needs additional tx.
Hopper, Jane (32793063)	Byers, Noah (40651694)	Harrington, Steve (21276541)	Ballard, Peter (25822181)	Bauman, Murray (30990651)
Wheeler, Mike (30634530)	Callahan, Paul (425782)	Holloway, Heather (766161)	Brenner, Martin (36686847)	Buckley, Robin (692257)
Wheeler, Nancy (2119631) ←	Clarke, Thomas (17357422)	Munson, Eddie (41110126)	Creel, Victor (2069561)	Byers, Jonathan (39593127)
	Henderson, Dustin (9744)			Hargrove, Billy (39235667)
	Ives, Terry (31732)			Newby, Bob (12630)
	Mayfield, Max (796099)			
	Powell, Joe (17296432)			
	Sinclair, Lucas (5295498)			

Partner Case Assigned -- Partner's OP -- Last Action Item

Banner, Bruce	301893	Accurint done. No contact attempts.
Barnes, James	36686847	Null
Barton, Clinton	5417632	Accurint done. No contact attempts.
Danvers, Carol	Null	Null
Maximoff, Pietro	19763435	OP said he would inform. No contact made by DIS
McCoy, Henry	Null	Null
Odison, Thor	301893	Accurint done. No contact attempts.
Pym, Hank	11256238	Refused ix.
Quill, Peter	38665904	Accurint done. No contact attempts.
Rogers, Steve	6696858	Accurint and 2 PCs made.
Romanova, Natalia	Null	Null
Shade, Victor	33010897	Null
Stark, Anthony	6696858	Null
Strange, Steven	2119631 ←	Null
Thompson, Flash	30634530	Null
van Dyne, Janet	6696858	Refused ix.
Wilson, Samuel	37036482	Null

New ways to explore outbreaks

Sexual Network Analysis

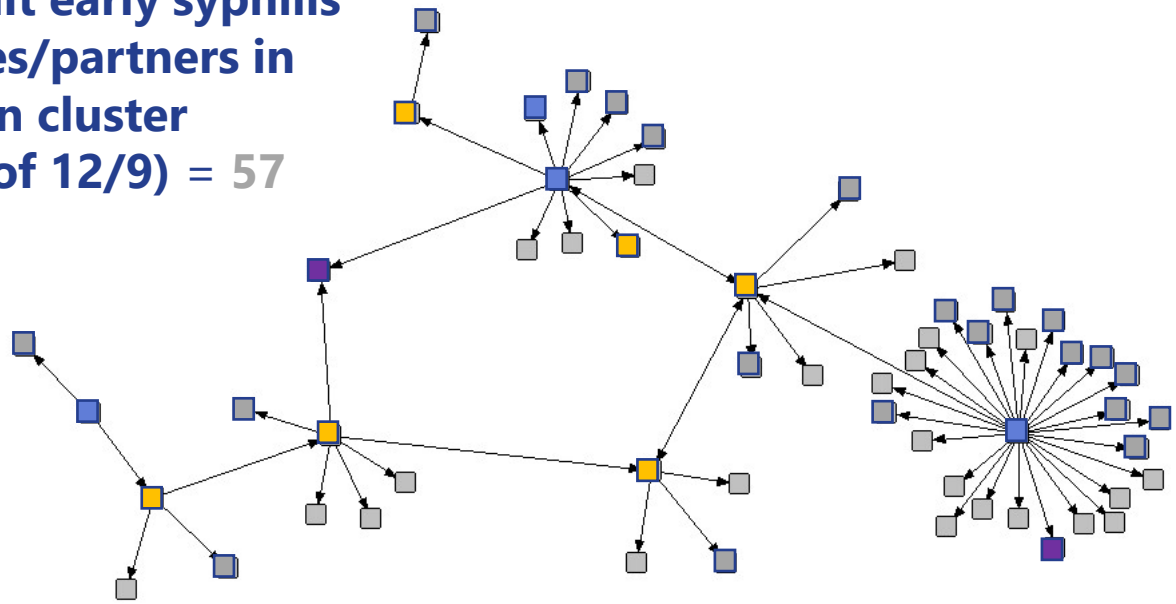
- Cases and their linked partners
- Date connection added to network
- Specimen collection month
- County of patient's residence
- Patient's current sex

Establishes "nodes" in network and how they are physically connected

Allows characteristics to be visualized as the node colors (different versions of network picture)

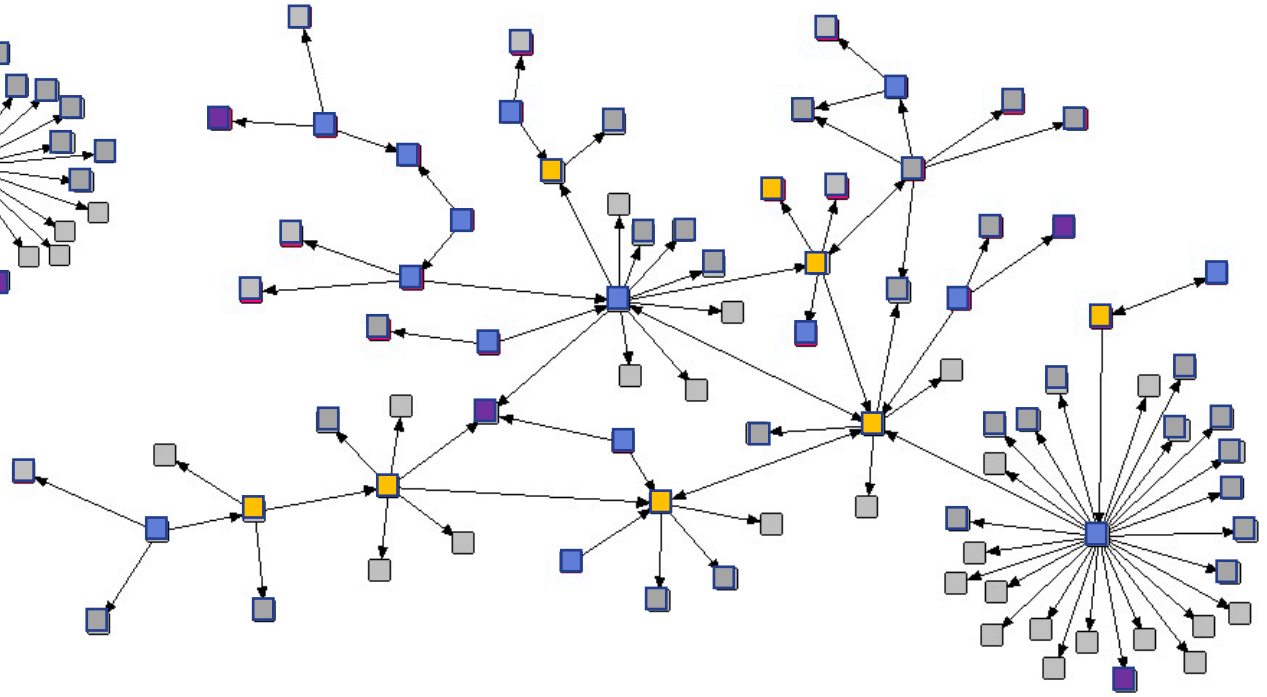
Syphilis Network Animation

Adult early syphilis cases/partners in main cluster (as of 12/9) = 57



Outbreak Cases= 4
(+) Contacts= 6
(-) Contacts= 22
Unable to Test/Locate= 23
Out of state= 2

Adult early syphilis cases/partners in main cluster (as of 2/2) = 85



Outbreak Cases= 15
(+) Contacts= 8
(-) Contacts= 27
Unable to Test/Locate= 31
Out of state= 4

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STD Data Dashboard: Syphilis

Indiana Department of Health | Division of HIV/STD & Viral Hepatitis

STD Data Dashboard: Syphilis

Alt+Click Download PDF

Data are updated as of: 4/25/2023

This dashboard is built to assist local STD staff in monitoring the amount of syphilis cases for notable increases that warrant further investigation, based on location and patient characteristics (including demographics, risk factors, and pregnancy status) over time. These views should be used in conjunction with the Prevention program's **Syphilis Increase Monitoring Policy** to conduct more in-depth reviews of case-related information obtained by DIS during interviews with infected patients and their partners in determining the likelihood of an actual syphilis outbreak. Information contained within the different dashboard tabs is updated on a weekly basis. Please note that data for the current year are considered **preliminary** until closeout is completed in the year that follows. Filters apply to individual tabs. *This dashboard may be shared with external partners.*

Overall Case Counts | Cases By Time | Cases By Person | Cases By Place | Key Populations

--Filters for View--

Select **STD District**: (All)

Select **Patient County**: (All)

Select **Year**: 2022

	Primary & Secondary Cases	Early Latent Cases	Late or Unknown Duration Cases	Total Syphilis Cases
Total Adult Syphilis Cases YTD	670	534	740	1,944

Percent Change (Last 2 Months)	Nov 2022	Dec 2022	Nov 2022	Dec 2022	Nov 2022	Dec 2022	Nov 2022	Dec 2022
	-20.7%	-67.4%	-39.6%	-53.1%	5.0%	-66.7%	-17.5%	-63.8%

Notes

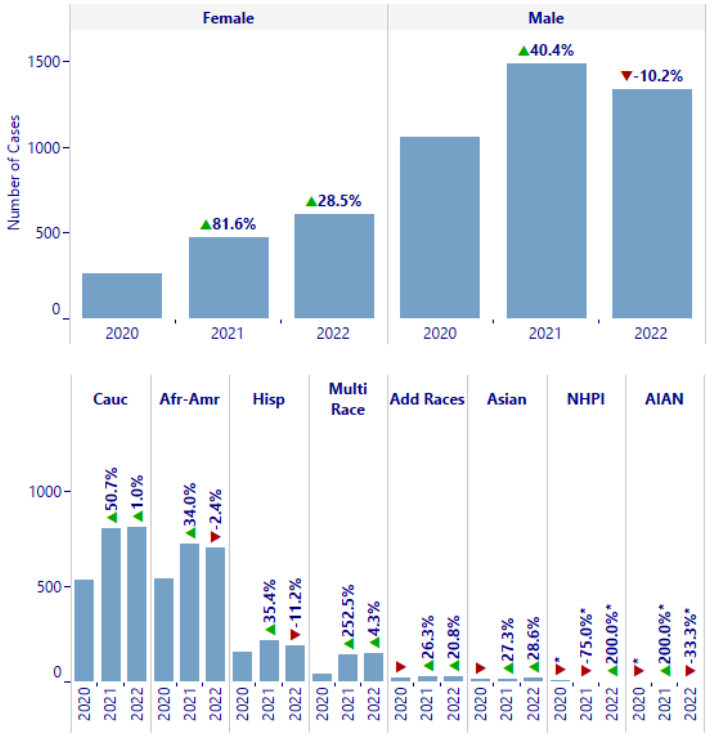
Total cases YTD: If no cases meet the filter and data element criteria, the area will remain blank. Counts less than five will show as *. If a percent change involves going from zero cases to more than zero, the percent change will be missing (Tableau cannot force calculate dividing by zero).

Percent Change: Increases for percent change are shown in green text. Decreases in percent change are shown in red.

Total Cases Over Time: Percent change shown above bar is from previous year (2020 not shown since 2019 data not included). ▲= Percent increase, and ▼= Percent decrease. All races should be considered non-Hispanic or Latino, ex. non-Hispanic Caucasian, except for "Hispanic" race. * next to a percent indicates the percent change is based on a count less than five and should be intepreted with caution. Case counts less than five in the hover option on the bar graphs are suppressed and show a * character.

Race abbreviations: Cauc=Caucasian, Afr-Amr=African-American, Hisp=Hispanic, NHPI=Native Hawaiian-Pacific Islander, and AIAN=American Indian-Alaskan Native. Unknown and NULL races have been excluded from the bar graph on the bottom right.

Total Cases Over Time **by Sex** (*Top*) and **Race** (*Bottom*)



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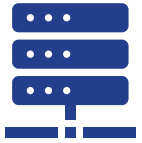
Lessons Learned

Visualizing disease burden and monitoring increases can help identify outbreaks sooner.

Tracking proportional changes in risk factors will help your understanding of outbreak shifts.

Simple, eye-catching visualizations help communicate data to broad audiences.



Centrally-located data trackers with locked fields can streamline data collection across staff skill ranges.

(Near) Real-time data reports can help inform programmatic decisions about response efforts during an outbreak.

Questions?

CONTACT:

Jamie Black, MPH
STD Epidemiology
Projects Supervisor

SURRG & SSuN Grant
Principal Investigator

jamblack@isdh.in.gov

Work: 317-234-8981

Center of Gonorrhea Excellence Website