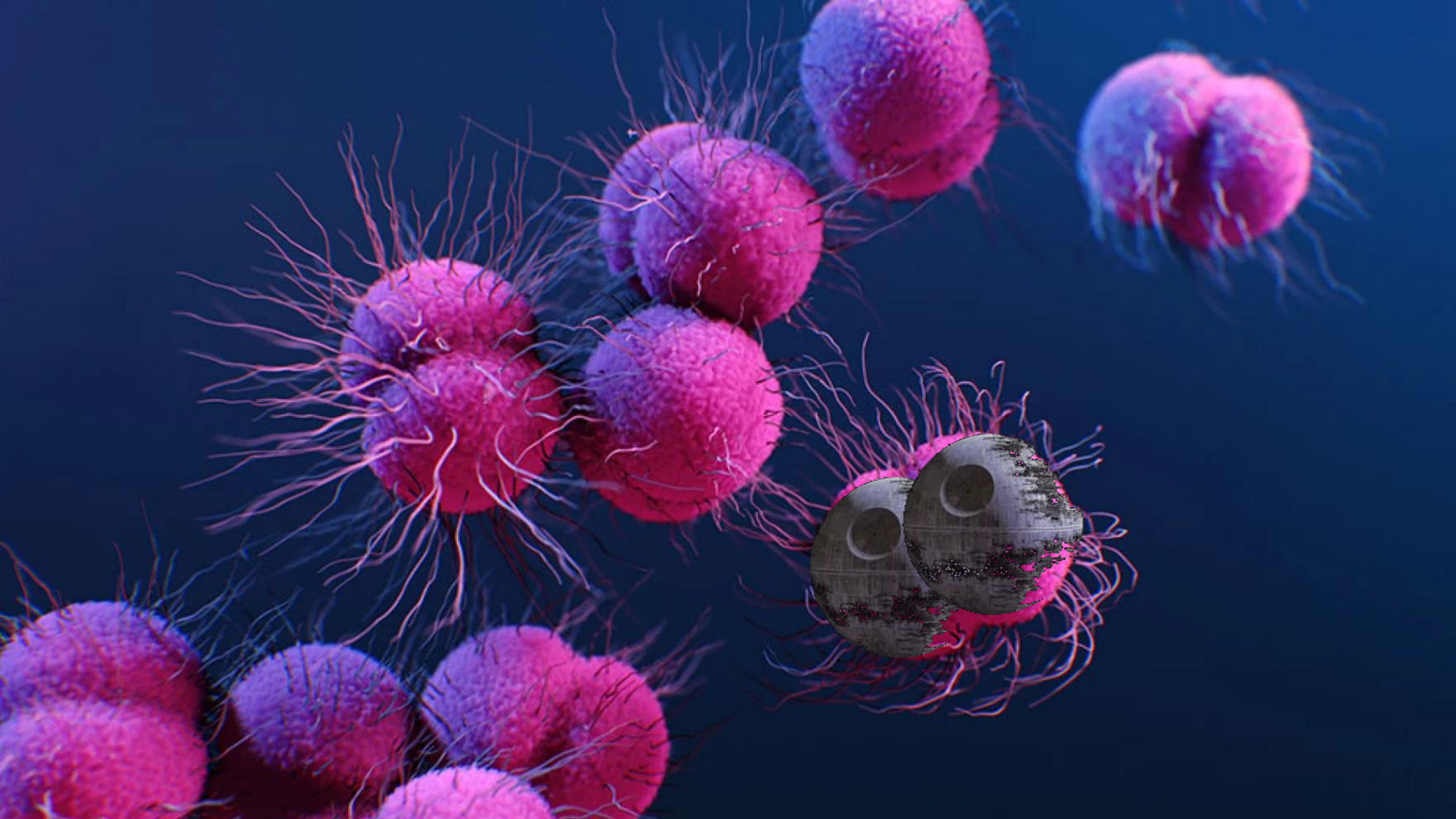




Balance in the Force: GC Susceptibilities

David Payne
Laboratory Director
City of Milwaukee Health Department
September, 2024





Patient-centric
(Healthcare)



Population-centric
(Public Health)

Prostitution



spreads Syphilis and Gonorrhoea

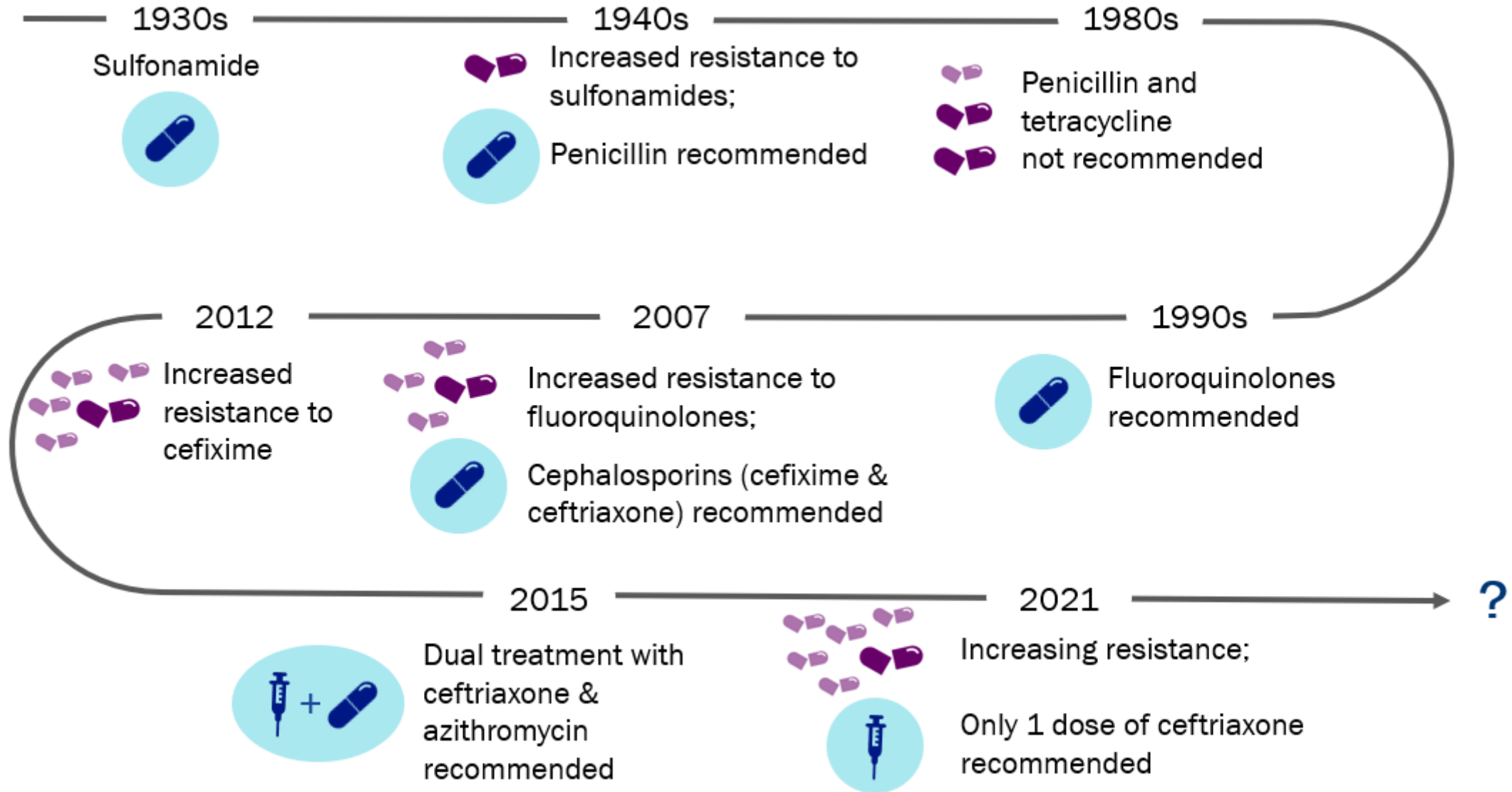
SYPHILIS
AND
GONORRHEA
*Can be Prevented
and Cured*

IF

**YOU SUSPECT INFECTION
GO TO A RELIABLE DOCTOR**
*If you cannot afford a Physician
Go to a clinic*

DEPARTMENT OF HEALTH, NEW YORK

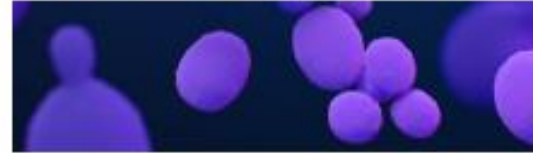
Gonorrhoea learns quickly



Urgent Threats



CARBAPENEM-RESISTANT
ACINETOBACTER



CANDIDA AURIS



CLOSTRIDIoidES DIFFICILE



CARBAPENEM-RESISTANT
ENTEROBACTERIACEAE



DRUG-RESISTANT
NEISSERIA GONORRHOEAE



550,000
Estimated
drug-resistant
infections each
year

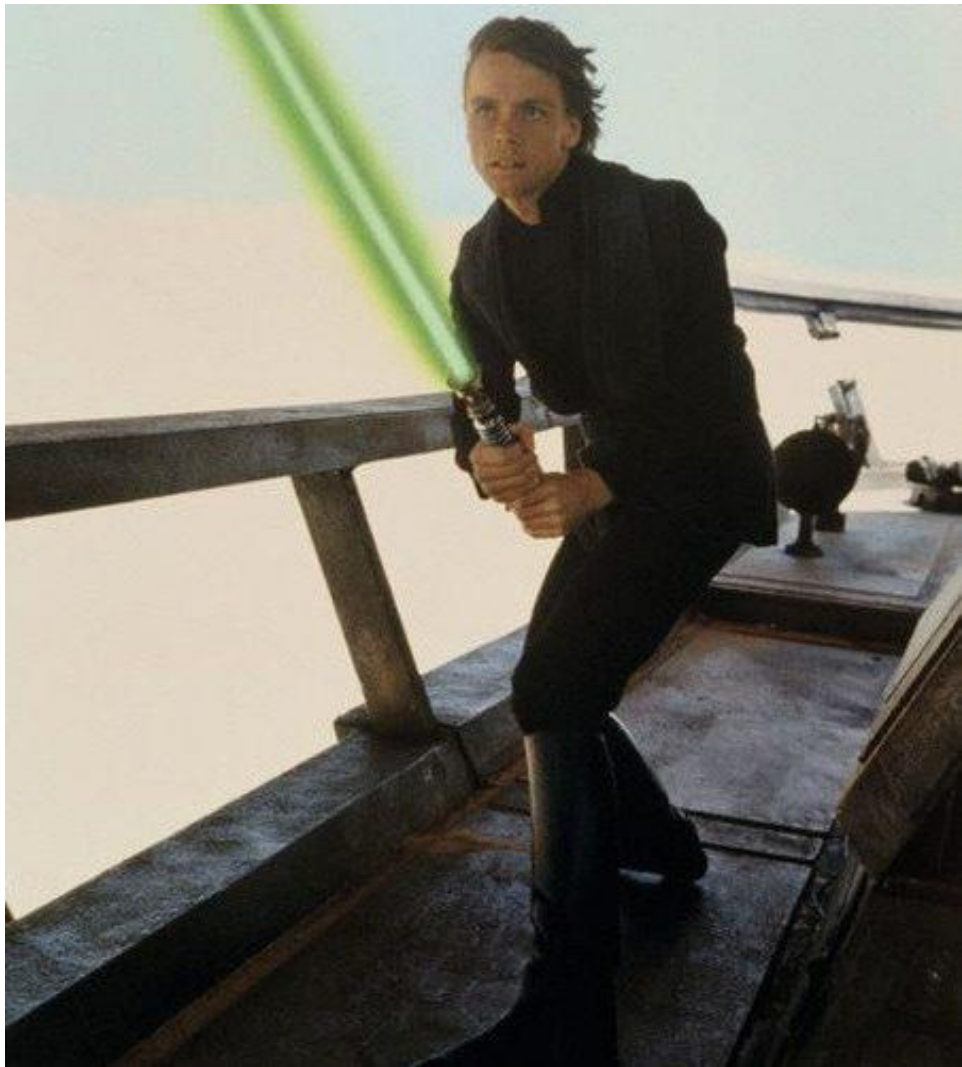


1.14M
Total new
infections
each year



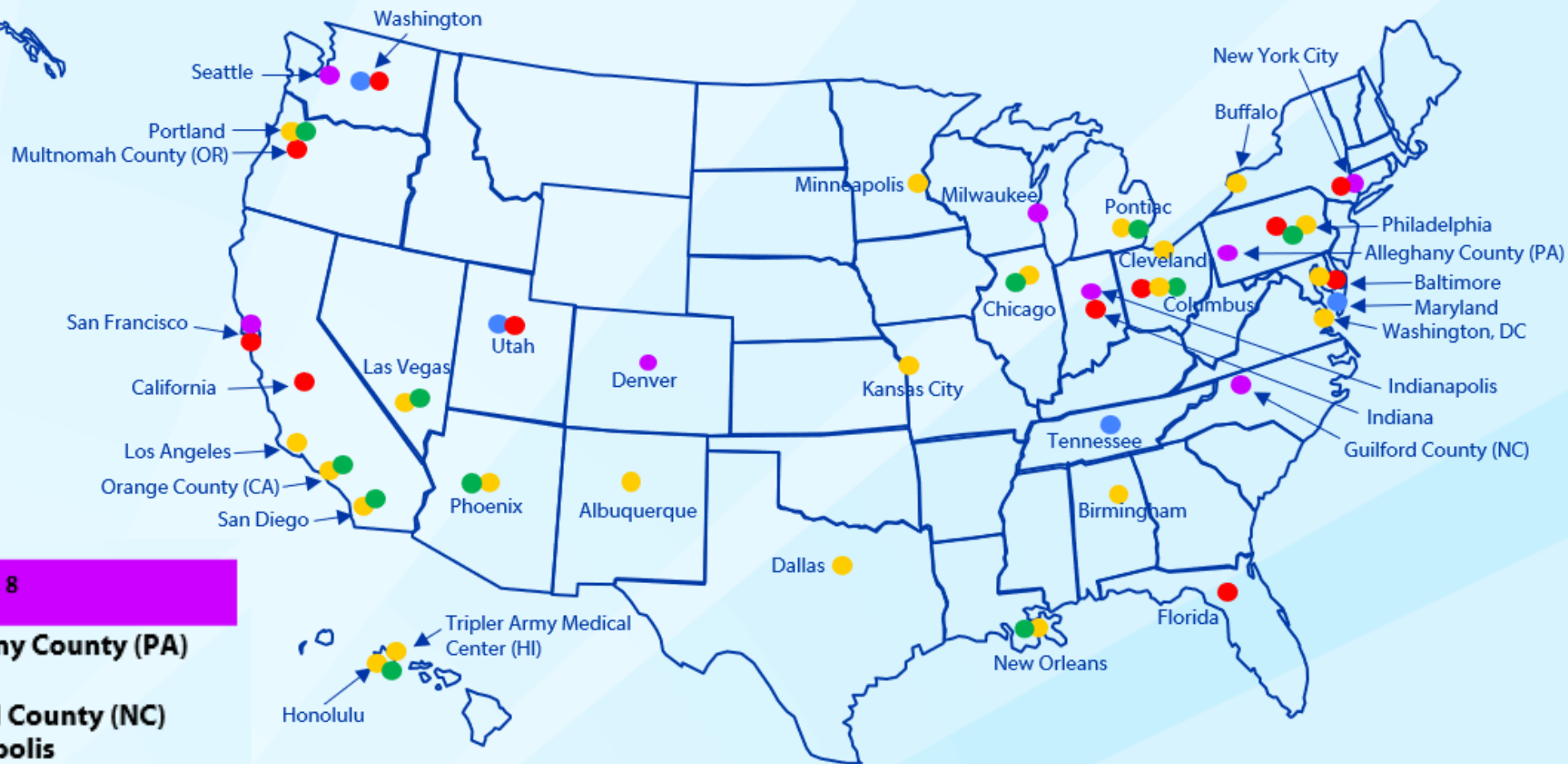
\$133.4M
Annual discounted
lifetime direct
medical costs

ARGC work is always changing!





Places Working to Combat Drug-Resistant Gonorrhea



SURRG^{2, 8}

- Alleghany County (PA)
- Denver
- Guilford County (NC)
- Indianapolis
- Milwaukee
- New York City
- San Francisco
- Seattle

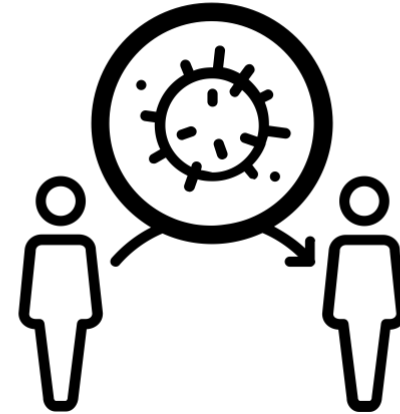
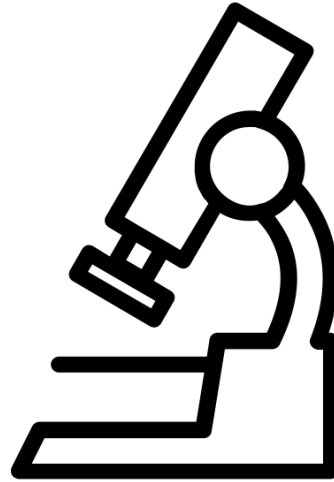
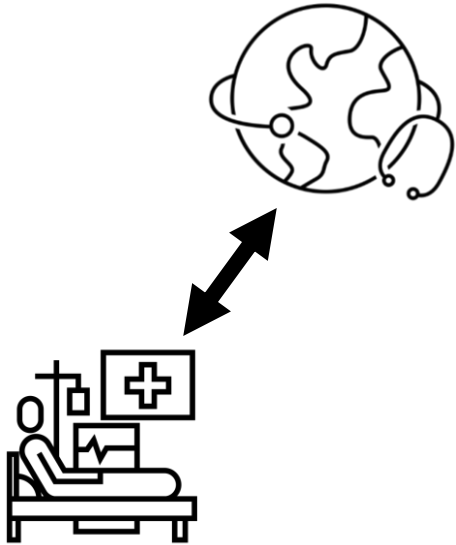
SURRG goals

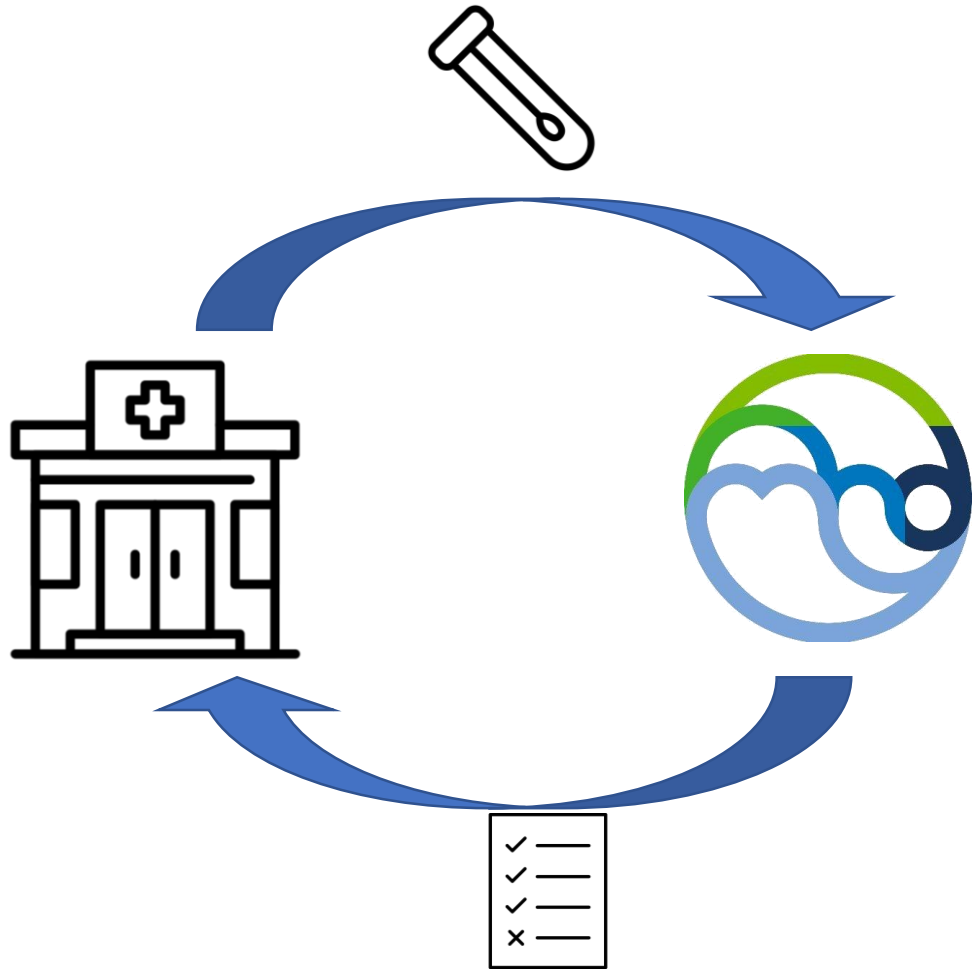
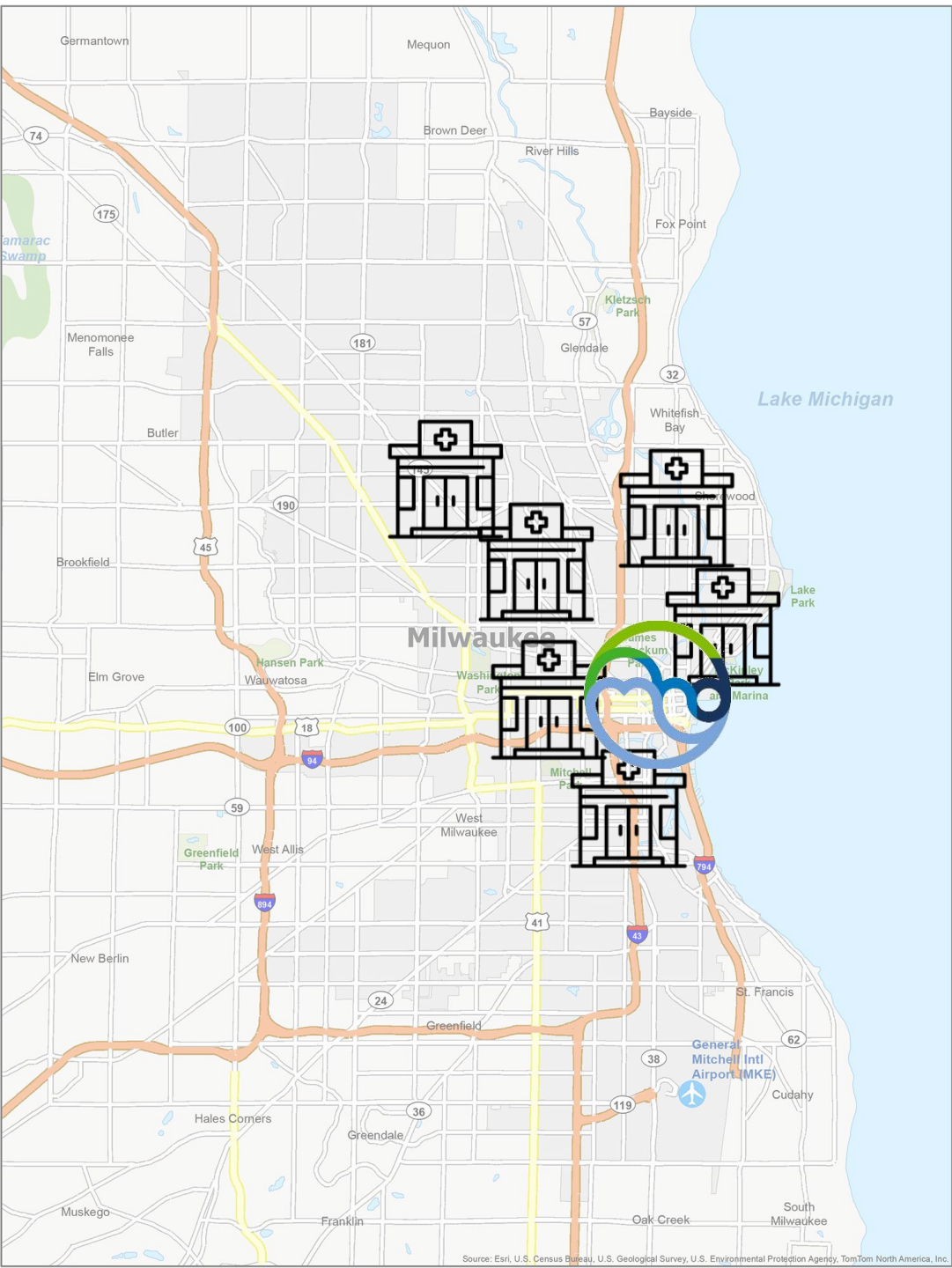


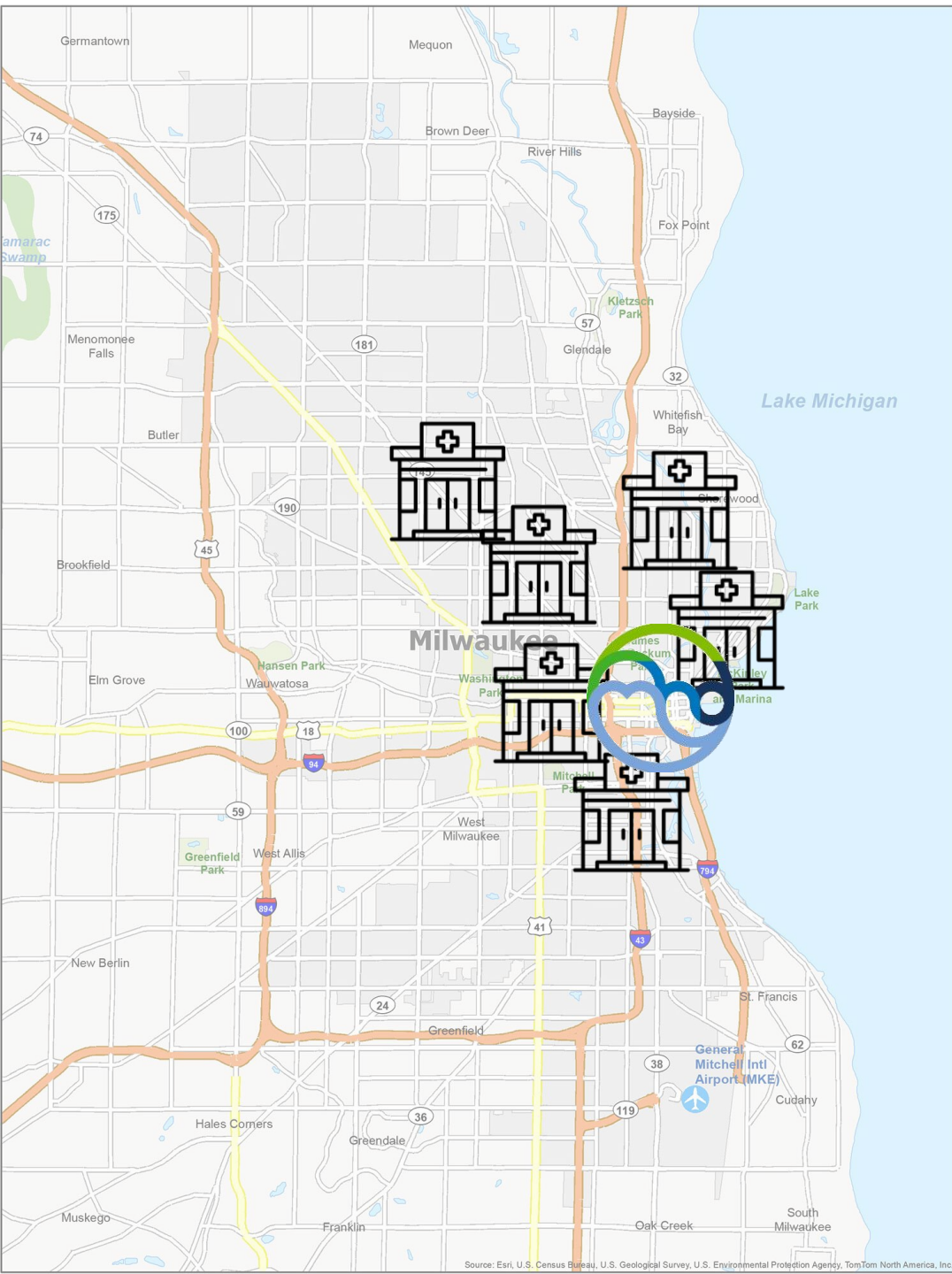
Antibiotic Resistant Gonorrhea
Center of Excellence

Power in Community Partnerships—
Together We Make a Difference
in Wisconsin & Nationally!

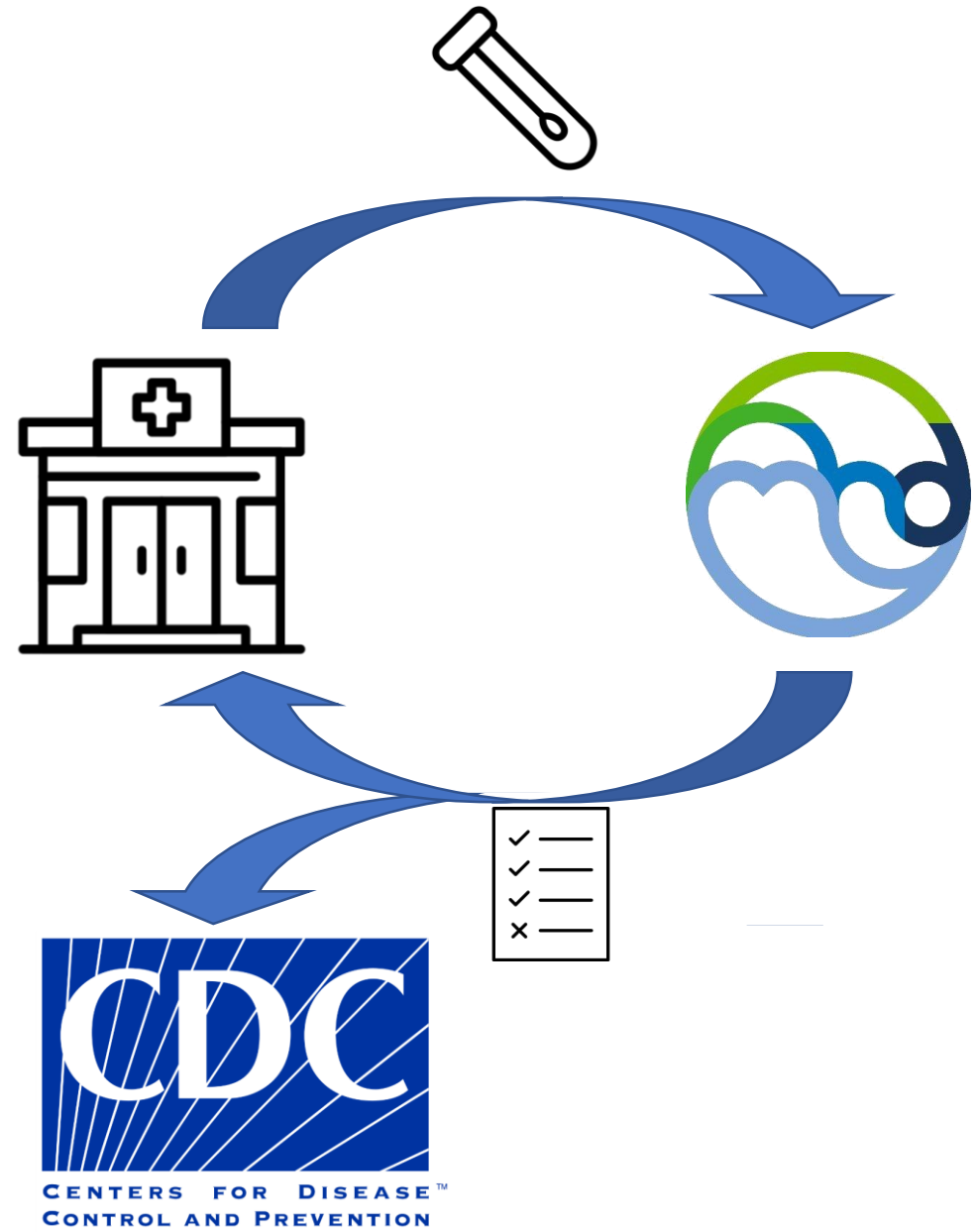
Support Provided by the Centers for Disease Control and Prevention SURRG Project







Source: Esri, U.S. Census Bureau, U.S. Geological Survey, U.S. Environmental Protection Agency, TomTom North America, Inc.



What we get from SURRG

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S97-S103. doi: 10.1097/OLQ.0000000000001545.

Strengthening the US Response to Resistant Gonorrhea: An Overview of a Multisite Program to Enhance Local Response Capacity for Antibiotic-Resistant *Neisseria gonorrhoeae*

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S118-S123. doi: 10.1097/OLQ.0000000000001541.

Demographic and Epidemiological Characteristics Associated With Reduced Antimicrobial Susceptibility to *Neisseria gonorrhoeae* in the United States

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S151-S156. doi: 10.1097/OLQ.0000000000001540.

Impact of Anatomic Site, Specimen Collection Timing, and Patient Symptom Status on *Neisseria gonorrhoeae*

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S167-S173. doi: 10.1097/OLQ.0000000000001539.

Test of Cure Return Rate and Test Positivity, Strengthening the US Response to Resistant Gonorrhea, United States, 2018–2019

Karen Schlanger¹, Kerry Mauk¹, Emily R Learner¹, Julia A Schillinger, Masayo Nishiyama², Robert Kohn³, Christina Thibault⁴, Helen Hermus⁵, Joey Dewater⁶, Vonda Pabon⁷, Jamie Black⁸, Sancta St Cyr¹, Cau R Pham¹, Robert D Kirkcaldy¹; SURRG Working Group

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S161-S166. doi: 10.1097/OLQ.0000000000001542.

The Implementation of Strengthening the US Response to Resistant Gonorrhea in the Emergency Department Setting: Successes and Lessons Learned in 2 Jurisdictions

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S124-S130. doi: 10.1097/OLQ.0000000000001527.

Outcomes of Traditional and Enhanced Gonorrhea Partner Services in the Strengthening the US Response to Resistant Gonorrhea Project, 2017 to 2019

> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S131-S136. doi: 10.1097/OLQ.0000000000001520.

Exploring and Comparing the Structure of Sexual Networks Affected by *Neisseria gonorrhoeae* Using

Sexual Data

Emergence of *Neisseria gonorrhoeae* Strains Harboring a Novel Combination of Azithromycin-Attenuating Mutations

Cau D Pham¹, Samera Sharpe², Karen Schlanger², Sancta St Cyr², Justin Holderman^{2 3}, Richard Steece⁴, Olusegun O Soge⁵, Godfred Masinde⁶, Janet Arno⁷, Matthew Schmerer², Ellen N Kersh²; SURRG Working Group

SURRG provides timely data

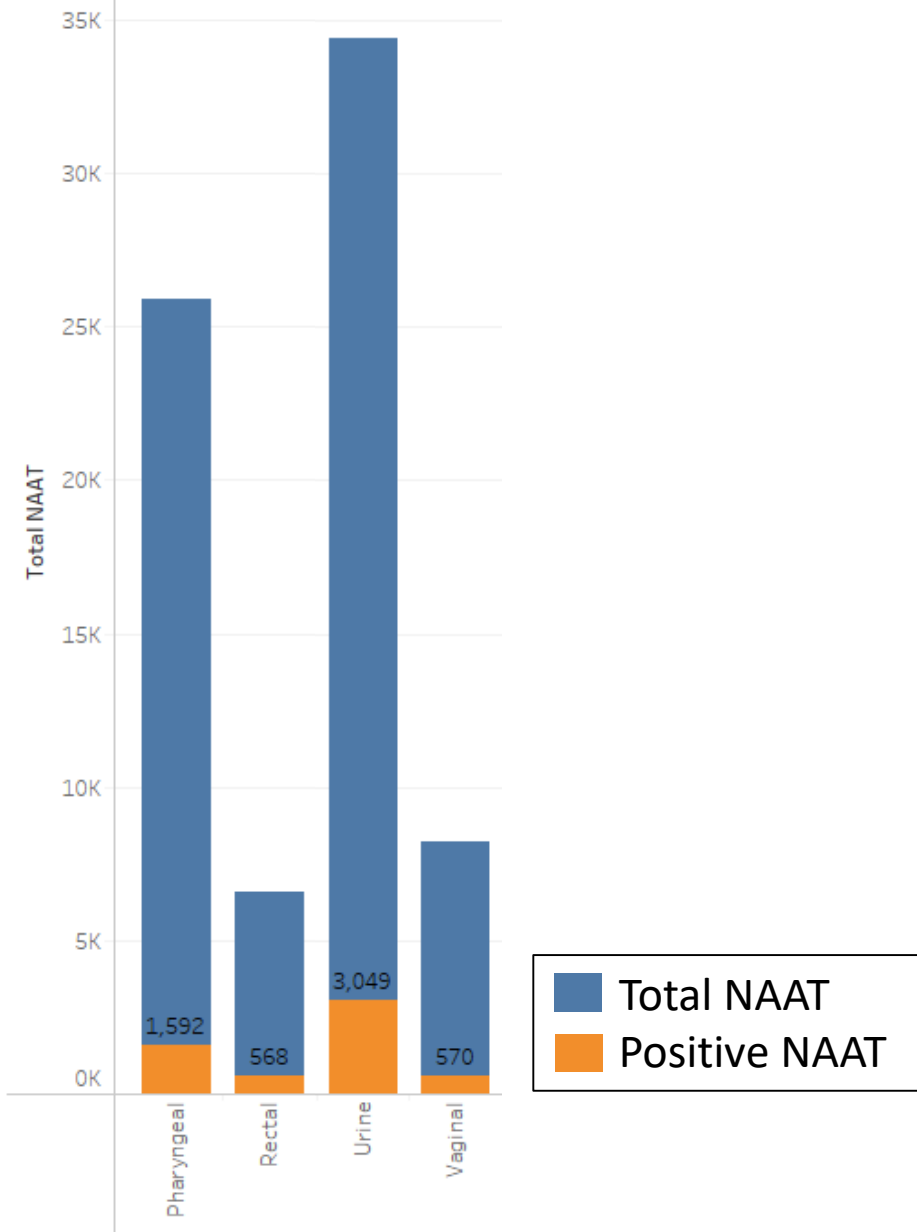
> Sex Transm Dis. 2021 Dec 1;48(12S Suppl 2):S97-S103. doi: 10.1097/OLQ.0000000000001545.

Strengthening the US Response to Resistant Gonorrhea: An Overview of a Multisite Program to Enhance Local Response Capacity for Antibiotic-Resistant *Neisseria gonorrhoeae*

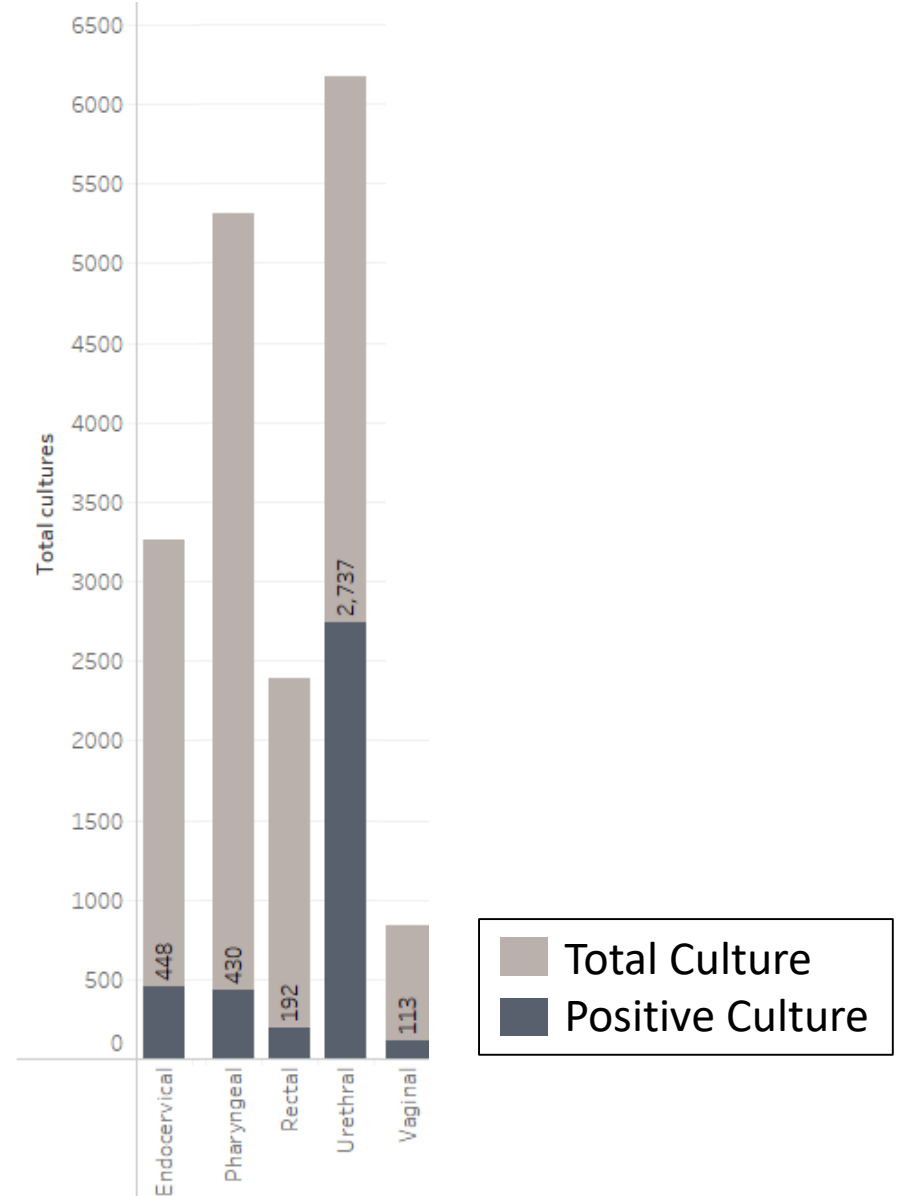
Karen Schlanger¹, Emily R Learner¹, Cau D Pham¹, Kerry Mauk¹, Matthew Golden², Karen A Wendel³, Lori Amsterdam⁴, Candice J McNeil, Kimberly Johnson⁵, Trang Quyen Nguyen⁶, Justin L Holderman, Gerald L Hasty⁷, Sancta B St Cyr¹, Katy Town¹, Evelyn E Nash¹, Robert D Kirkcaldy¹; SURRG Working Group

Presently, detection of resistance requires culture-based AST. Whereas susceptibility data from existing surveillance of long-term susceptibility trends (ie, GISP) has often been available 1 to 3 months after specimen collection, SURRG grantees rapidly processed culture specimens and performed and reported AST by Etest locally within a median of 5 days from specimen collection. Local laboratories developed proficiency and workflows to allow for rapid testing. Participating jurisdictions were therefore able to initiate investigations and ensure infections that may represent emerging resistance were cured, thus reducing risks of adverse complications and potentially containing the continued transmission of such strains in a community.

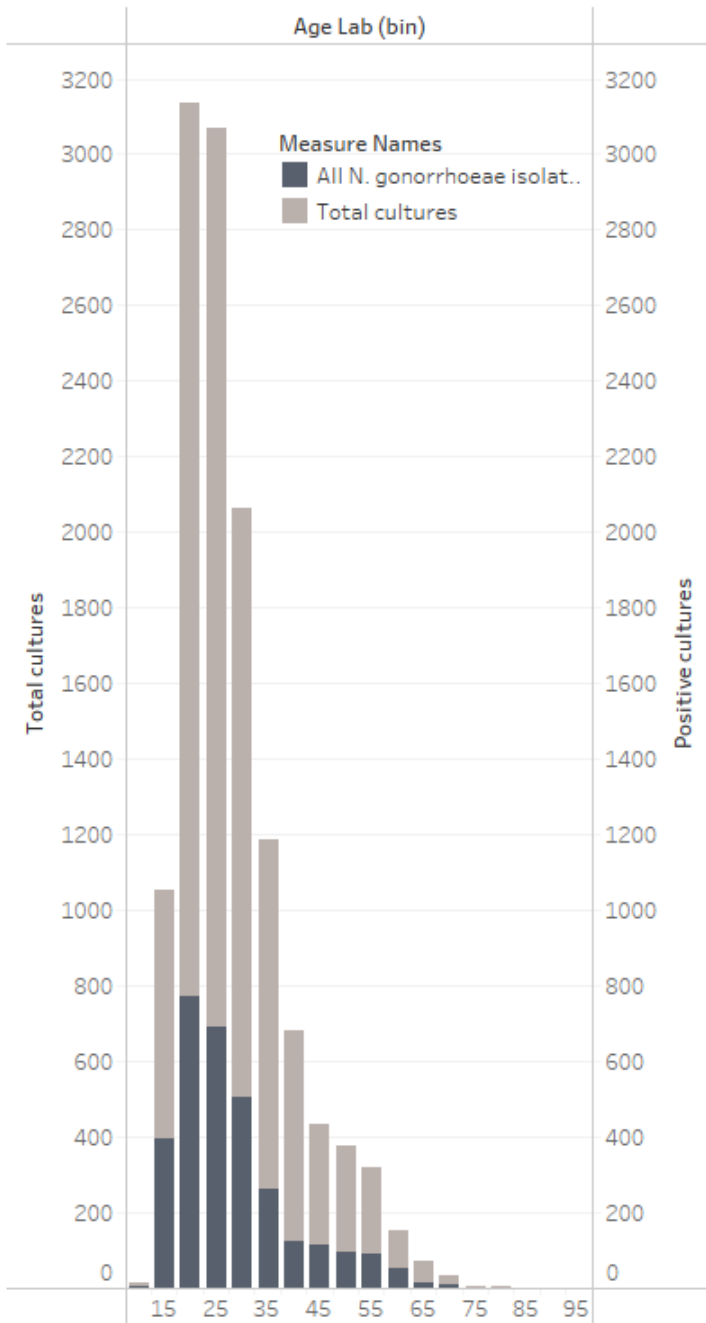
NAAT Positivity by Source



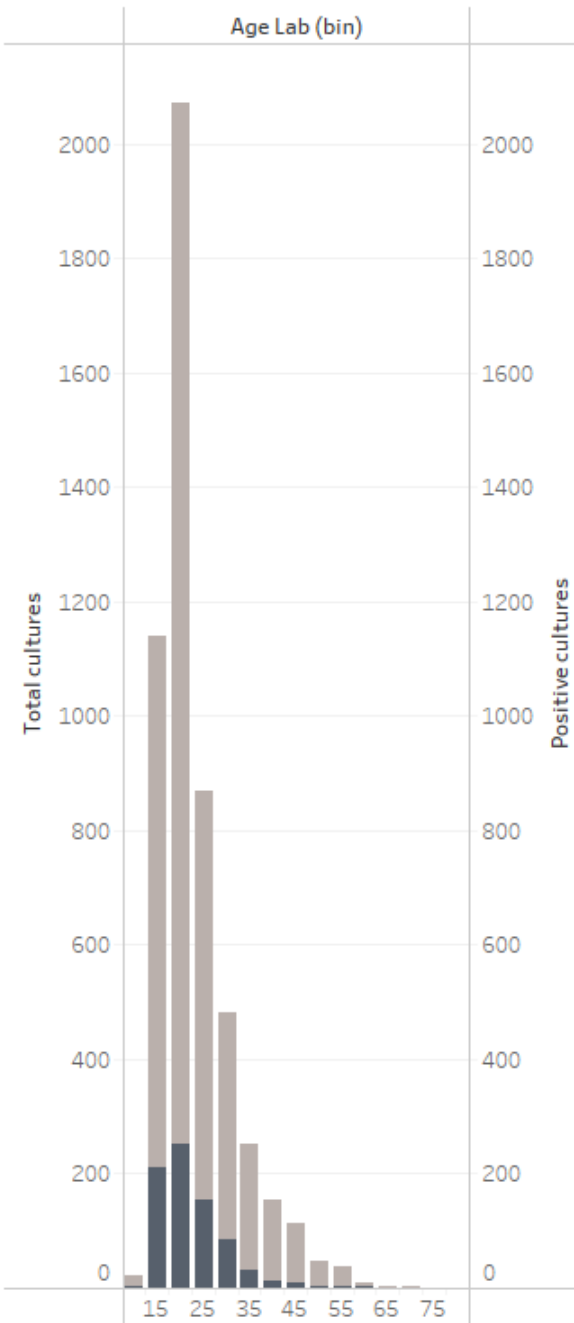
Culture Positivity by Source



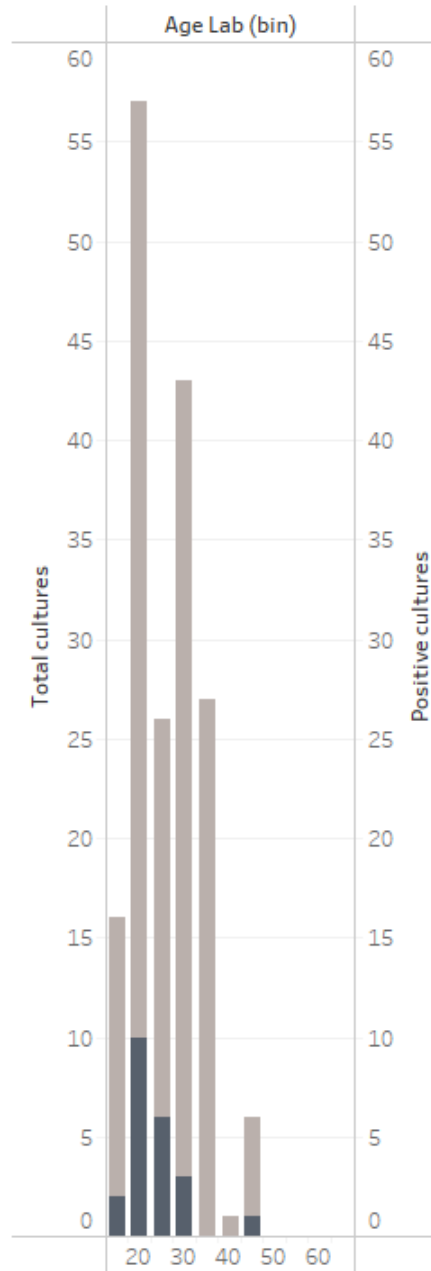
Male Positivity by Age



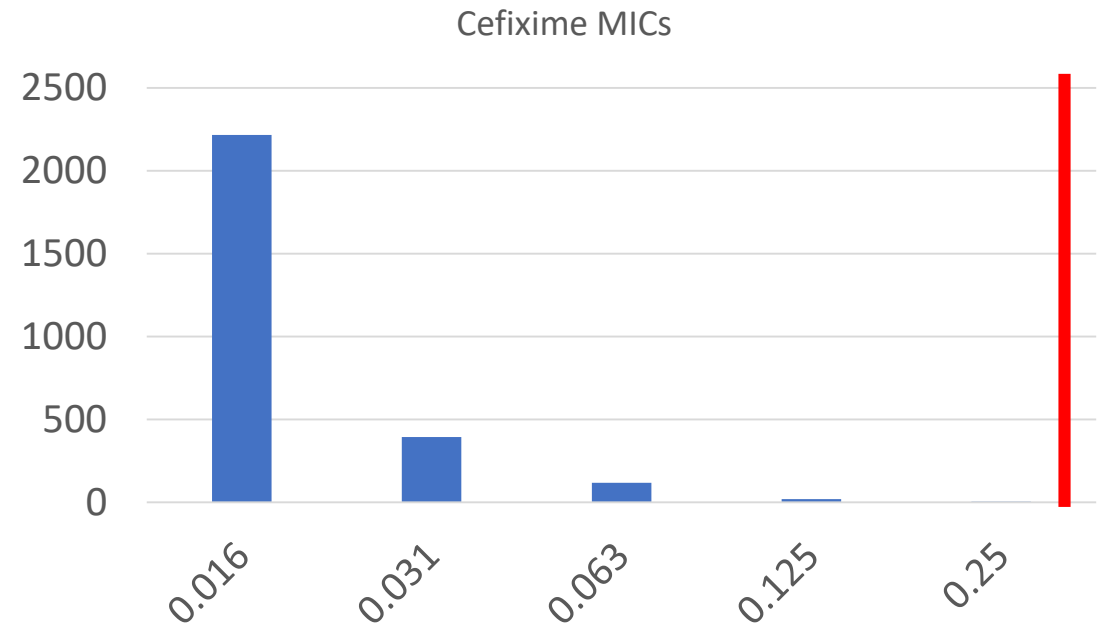
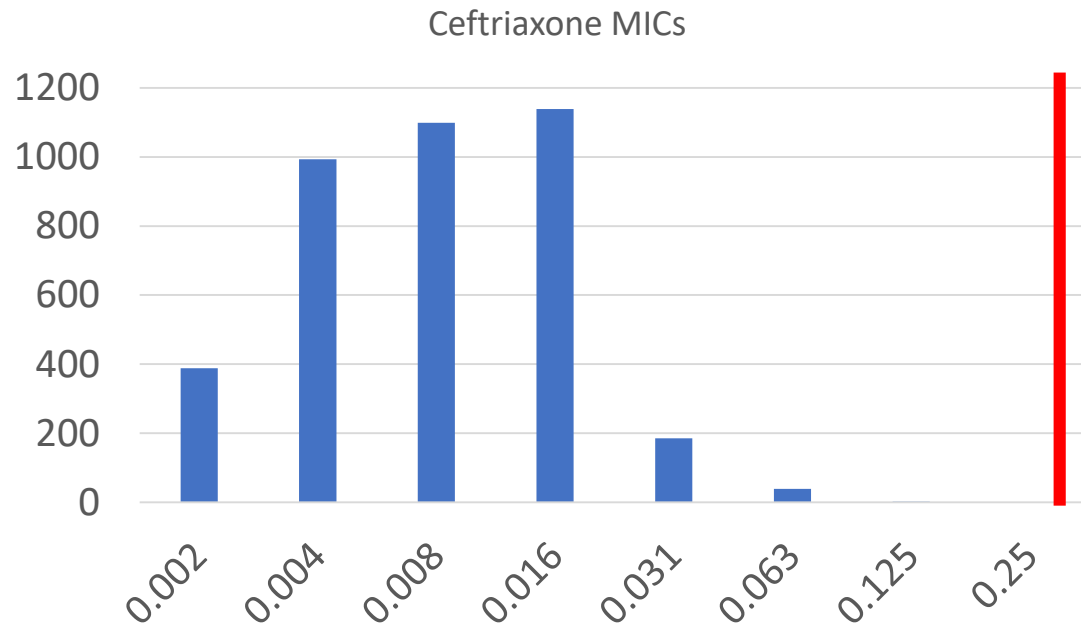
Female Positivity by Age



Other Gender Positivity by Age

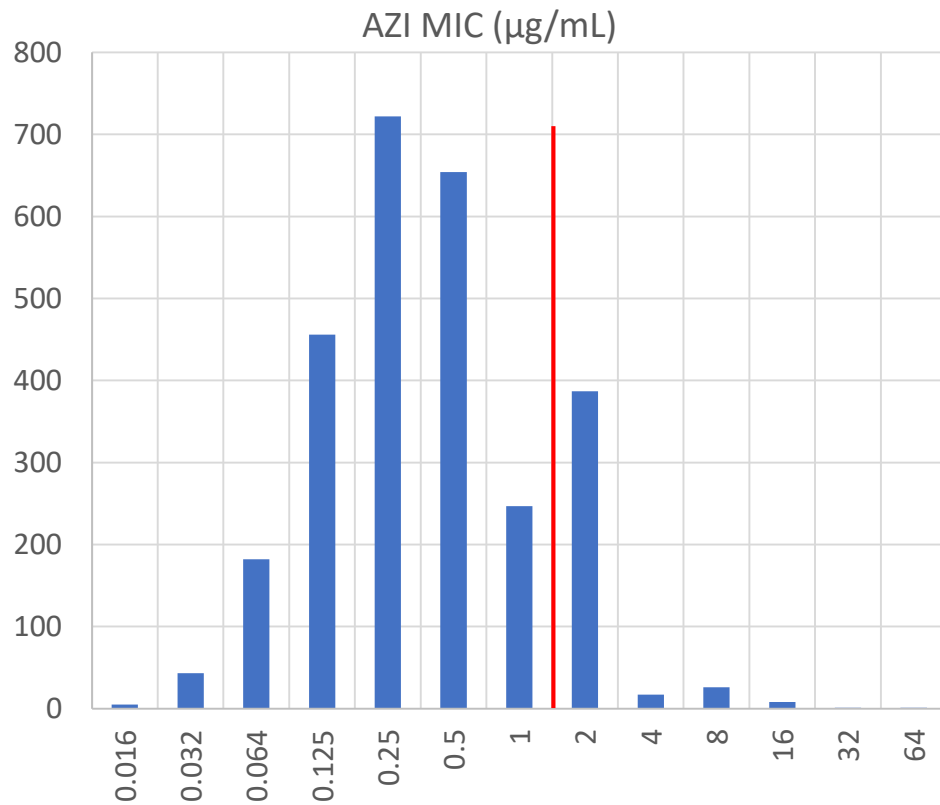


No decreased susceptibility to Ceftriaxone or Cefixime



$\leq 0.25 \mu\text{g/ml} = \text{Susceptible}$

Decreased susceptibility to Azithromycin!



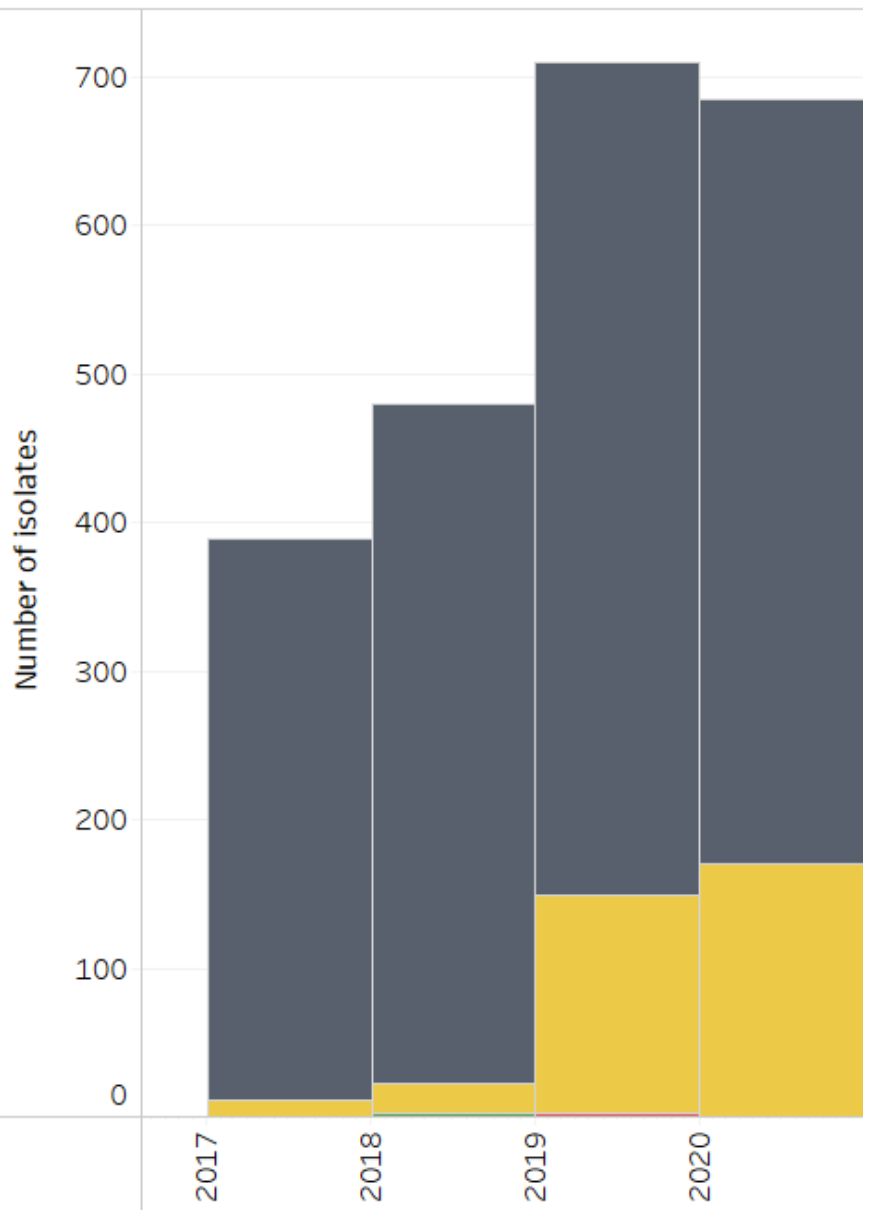
$\leq 1 \mu\text{g}/\text{ml} = \text{Susceptible}$

Update to CDC's Treatment Guidelines for Gonococcal Infection, 2020

Sancta St. Cyr, MD¹; Lindley Barbee, MD^{1,2}; Kimberly A. Workowski, MD^{1,3}; Laura H. Bachmann, MD¹; Cau Pham, PhD¹; Karen Schlanger, PhD¹; Elizabeth Torrone, PhD¹; Hillard Weinstock, MD¹; Ellen N. Kersh, PhD¹; Phoebe Thorpe, MD¹

Sexually transmitted infections (STIs) caused by the bacteria *Neisseria gonorrhoeae* (gonococcal infections) have increased 63% since 2014 and are a cause of sequelae including pelvic inflammatory disease, ectopic pregnancy, and infertility and can facilitate transmission of human immunodeficiency virus (HIV) (1,2). Effective treatment can prevent complications and transmission, but *N. gonorrhoeae*'s ability to acquire antimicrobial resistance influences treatment recommendations and complicates control (3). In 2010, CDC recommended a single 250 mg intramuscular

widely disseminated quinolone-resistant gonococcal strains in the United States, CDC no longer recommended fluoroquinolones for treatment, leaving cephalosporins as the only remaining recommended antimicrobial class (6). Availability of sensitive *C. trachomatis* nucleic acid amplification tests were widespread by 2010, but CDC recommended gonococcal dual therapy with a cephalosporin (ceftriaxone 250 mg IM or cefixime 400 mg orally) and either azithromycin or doxycycline (4) to reflect concerns regarding emerging gonococcal



Total Culture
 Azithromycin non-susceptible

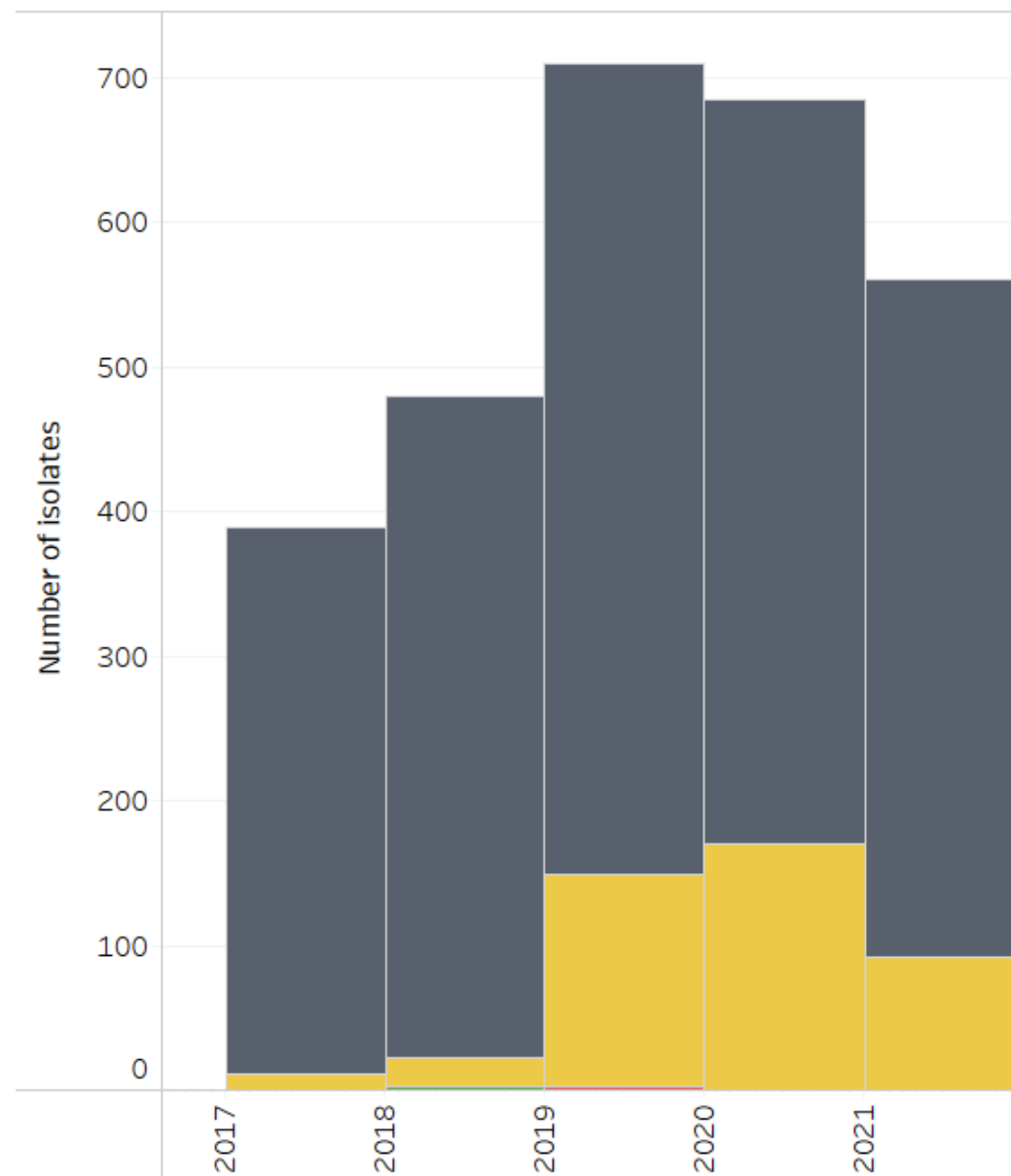
Update to CDC's Treatment Guidelines for Gonococcal Infection, 2020

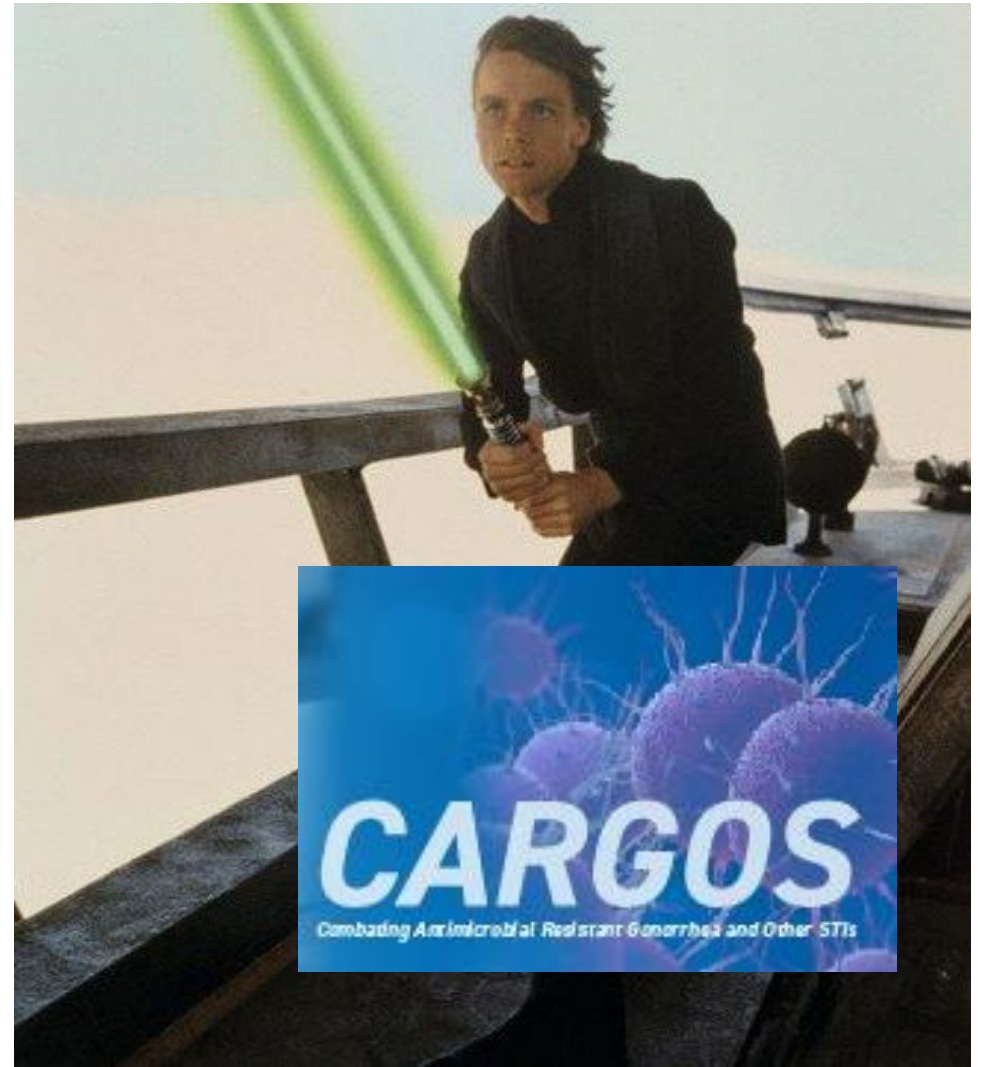
Sancta St. Cyr, MD¹; Lindley Barbee, MD^{1,2}; Kimberly A. Workowski, MD^{1,3}; Laura H. Bachmann, MD¹; Cau Pham, PhD¹; Karen Schlanger, PhD¹; Elizabeth Torrone, PhD¹; Hillard Weinstock, MD¹; Ellen N. Kersh, PhD¹; Phoebe Thorpe, MD¹

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■ Total Culture
■ Azithromycin non-susceptible



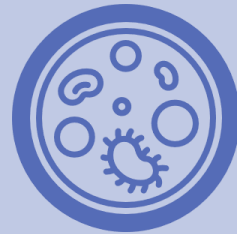


Combating Antibiotic Resistant Gonorrhea and Other STIs: Focus Areas



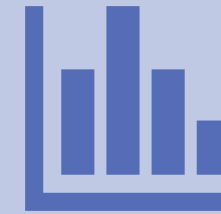
Clinical

- Partner with community clinics for specimen collection
- Currently focusing on pharyngeal & urethral specimen



Laboratory

- MHDL as Center of Excellence
- Perform AST on specimen, share with ARLN & CDC



Data

- Clinical, laboratory, and demographic data analyzed and shared with CDC

Meet the CARGOS Sites

Alabama (Jefferson County/Birmingham)

Maricopa County/Phoenix

California (Orange, San Diego, San Francisco counties)

Los Angeles County

Colorado (Denver County)

Hawaii (Honolulu)

Chicago (IL)

Indiana (Marion County/Indianapolis)

Massachusetts (Boston)

Michigan (Oakland County/Pontiac)

Minnesota (Minneapolis)

Missouri (Kansas City)

Nevada (Clark County/Las Vegas)

New York City

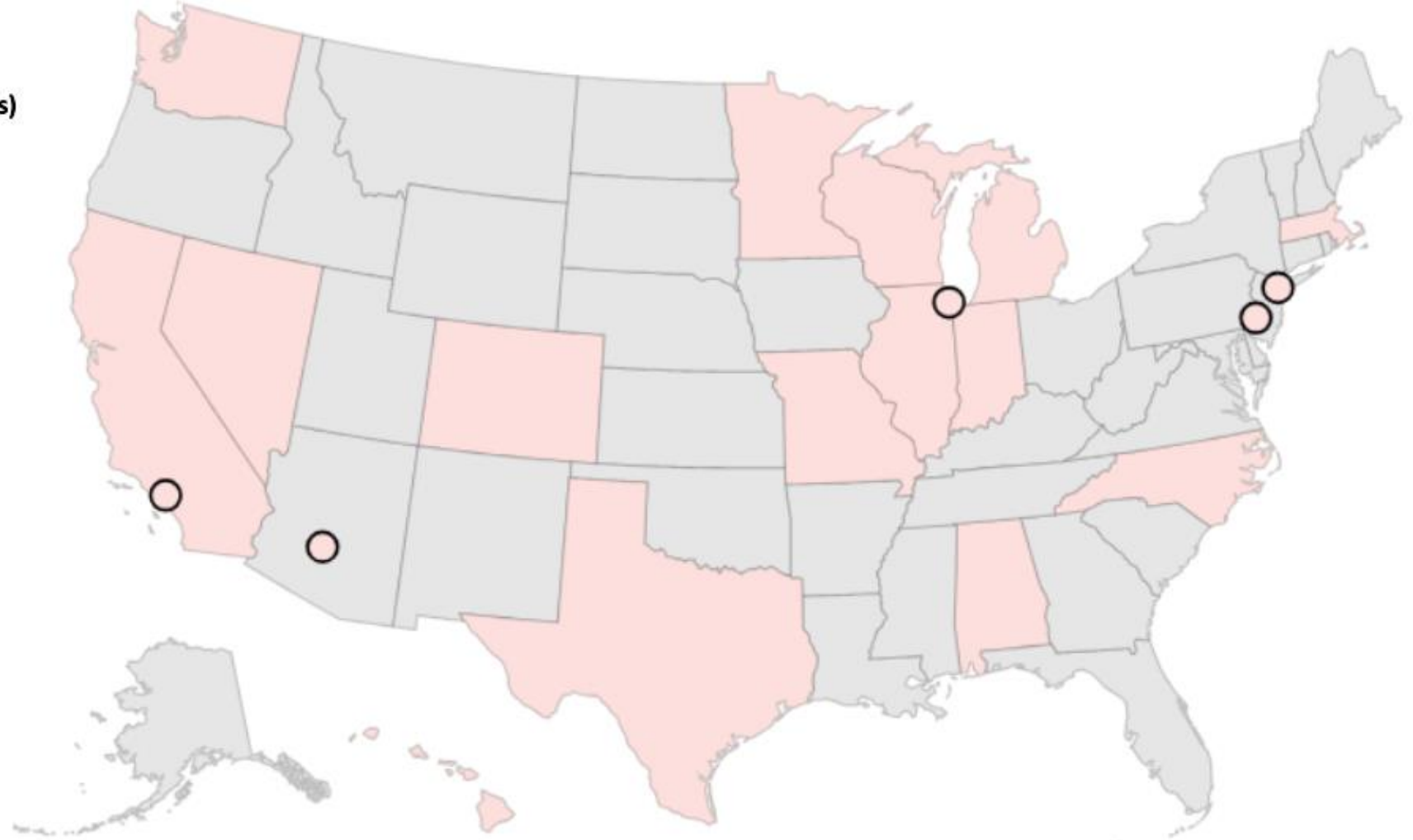
North Carolina (Guilford County/Greensboro)

Philadelphia

Texas (Dallas)

Washington (King County/Seattle)

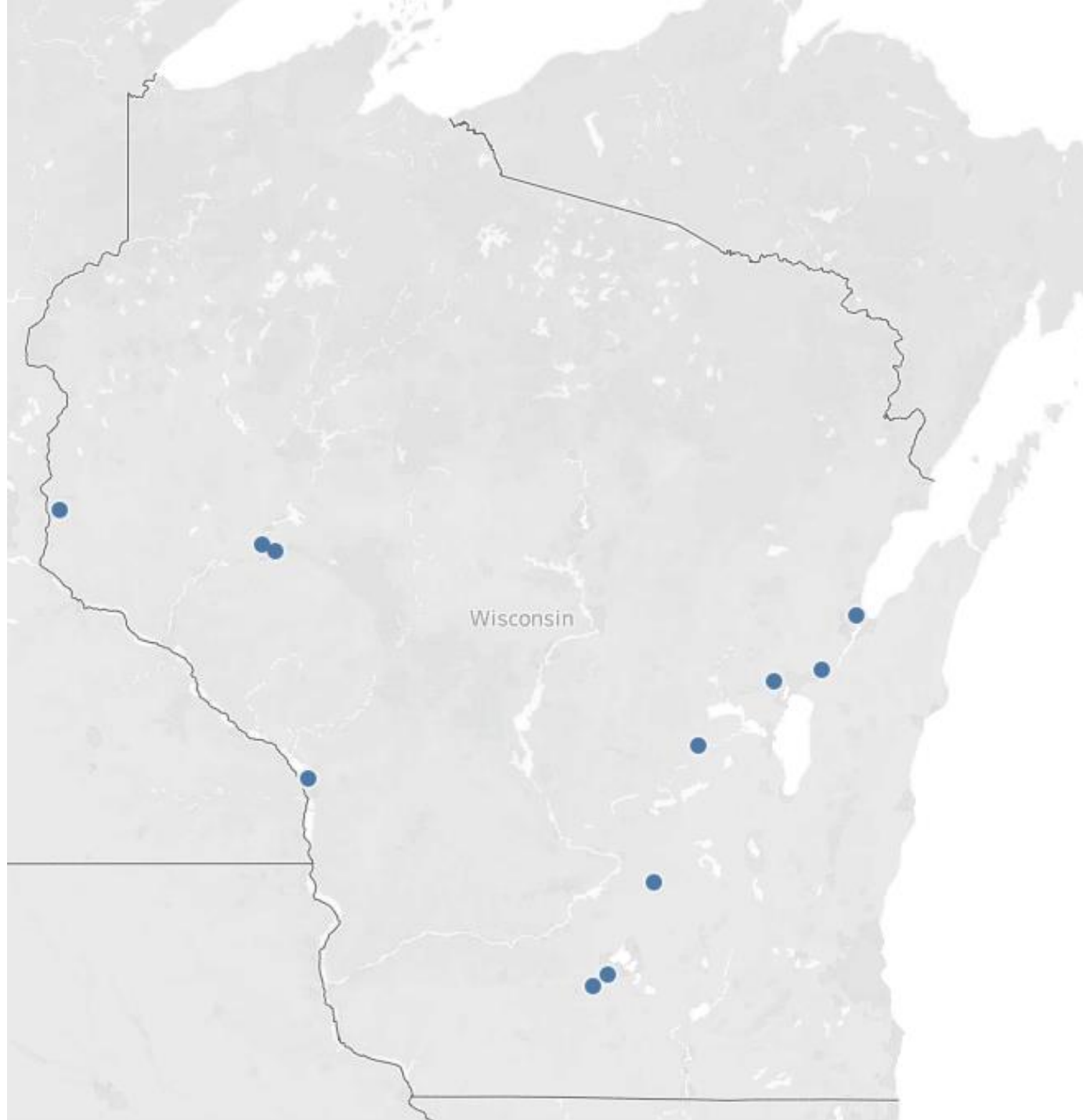
Wisconsin (Milwaukee County)

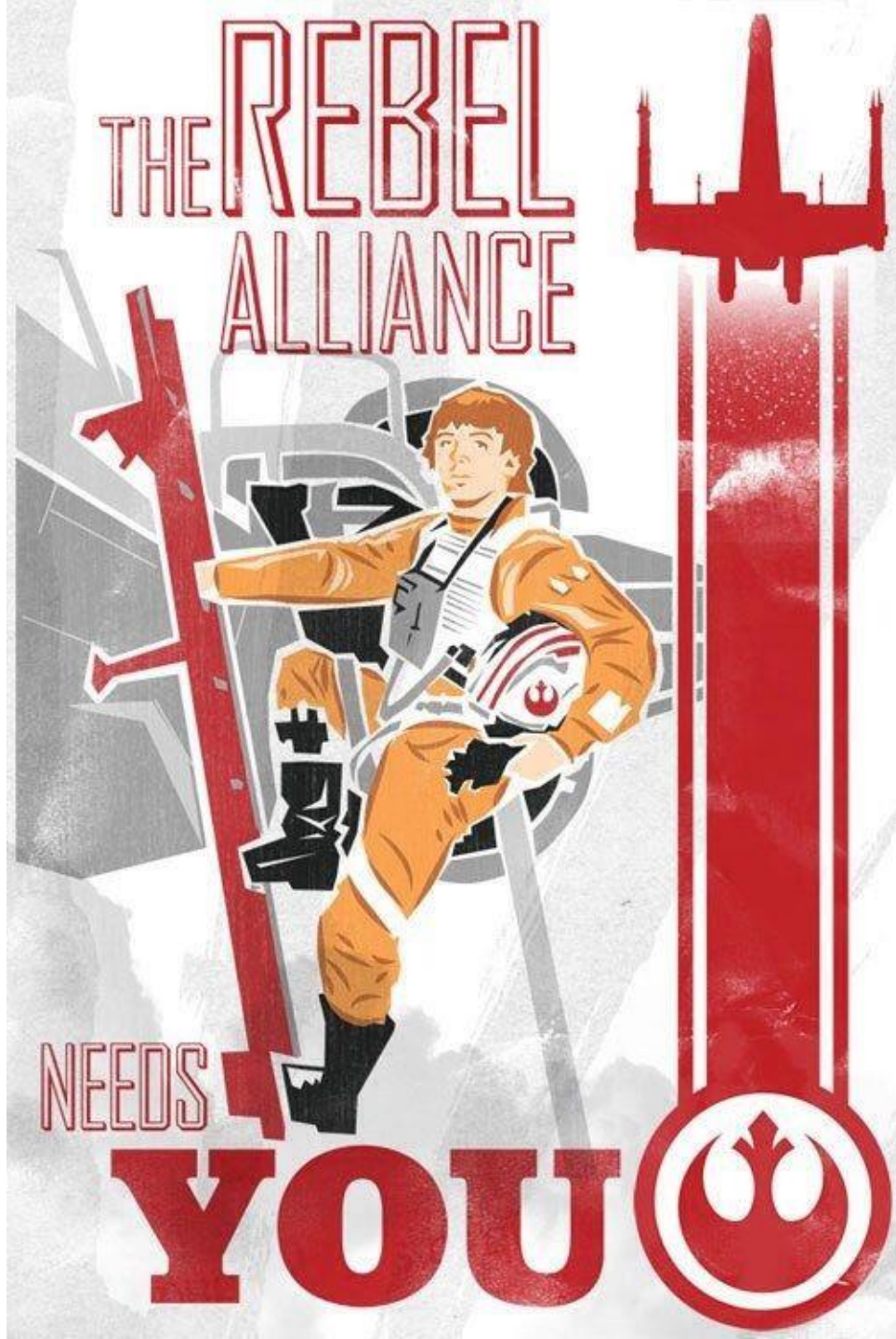


CARGOS increases focus
on Suspect Treatment
Failure (STF)

Ceftriaxone

*I failed you **doctor**. I'm sorry.*





Complete
survey

Send
specimens

Coming soon: DHS survey!

- DHS is assembling a list of laboratories with capacity for culturing GC
- Please provide your contact info at the QR code
- CARGOS will connect with you in mid-October.

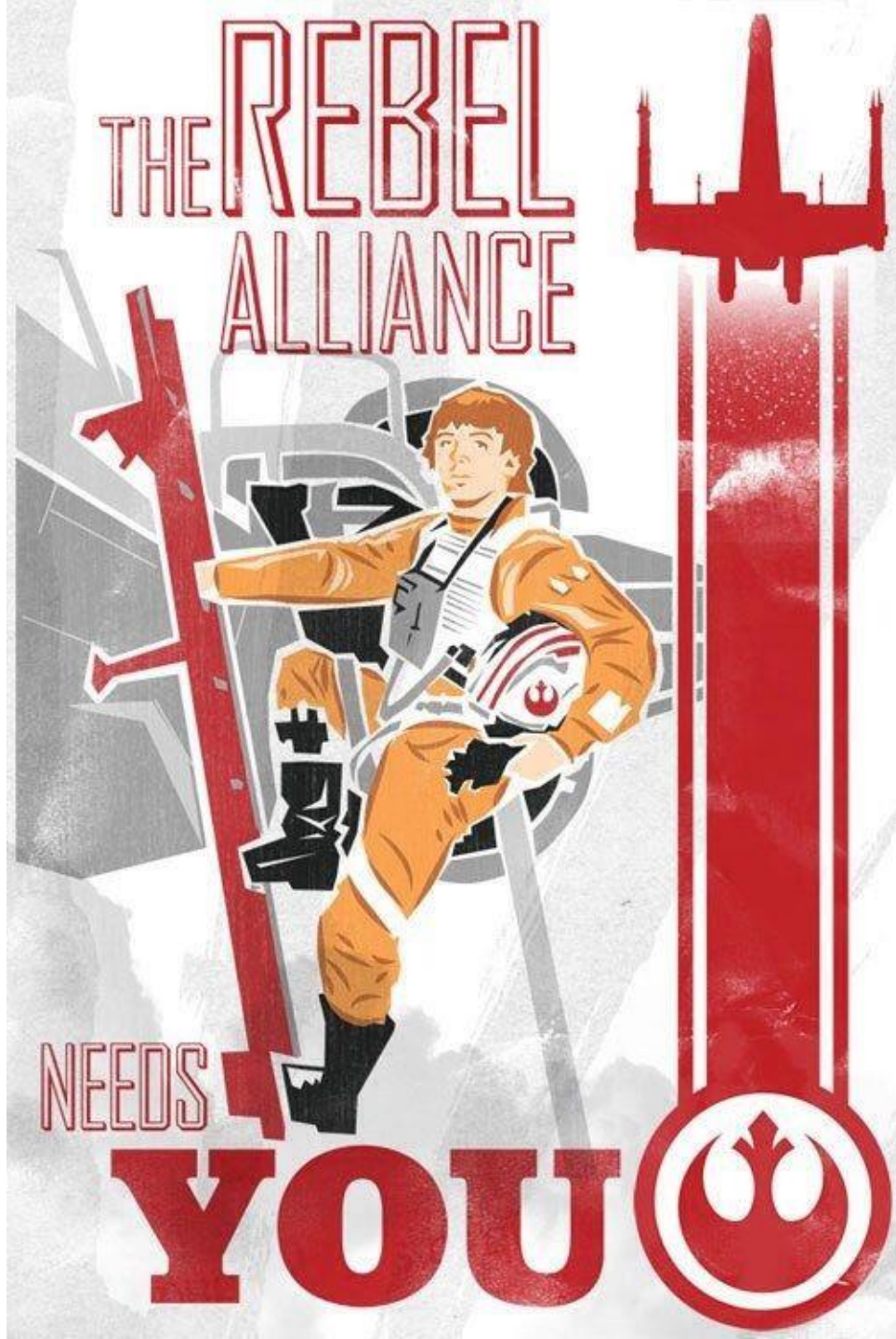


Help the WI CARGOS Team!



Sign up for the CARGOS GC
culture capability survey!

<https://www.signupanywhere.com/signup/ukiv70rp>



Complete
survey

Send
specimens



Date: August 15, 2023

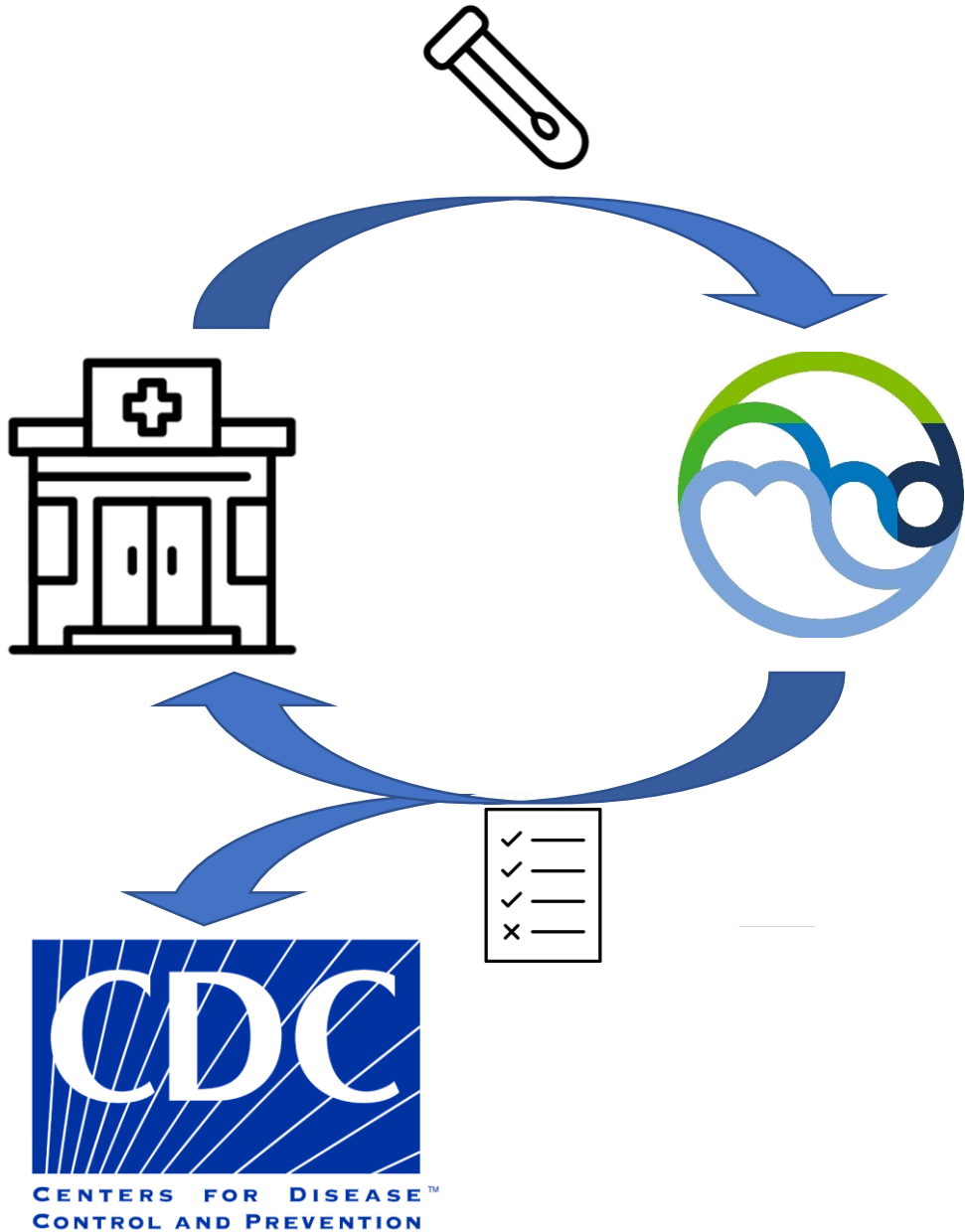
BCD 2023-02

To: Wisconsin Clinicians, Infection Preventionists, Tribal Health Centers, and Local Health Departments, HERC Directors, Coroners/Medical Examiners

From: Ryan Westergaard, MD, Ph.D., Chief Medical Officer and State Epidemiologist for Communicable Disease

Clinical and Laboratory Guidance for Suspected Treatment Failure Among Patients Treated for Gonorrhea Infection

Given the emergent threat of antibiotic-resistant *N. gonorrhoeae*, clinicians and those providing STI screening services are advised to monitor for cases of suspected treatment failure, an indication of reduced susceptibility to antibiotic treatment. Through funding from the CDC, DHS is now able to offer access to testing services for Cephalosporin AST at no charge for clinicians and local or Tribal health departments throughout Wisconsin. The Milwaukee Health Department Laboratory (MHDL) serves as a Center of Excellence Reference Laboratory, providing management of AST for suspect cases of antibiotic-resistant *N. gonorrhoeae*. The following sections outline recommendations for responding to cases of suspected treatment failure, along with guidance on requesting AST from MHDL.



Persistent
Symptoms 3-5
days following
treatment

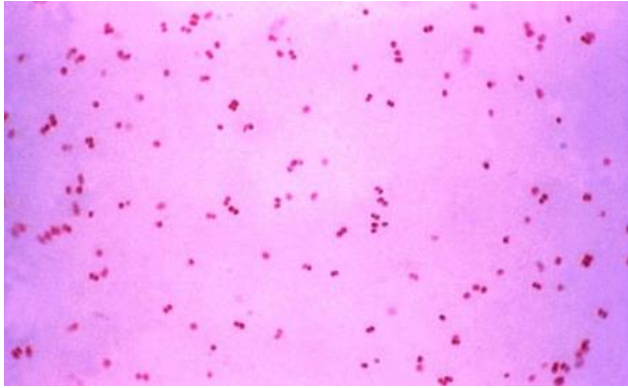
Positive test of
cure results

Laboratory results
suggesting
reduced
susceptibility to
cephalosporins

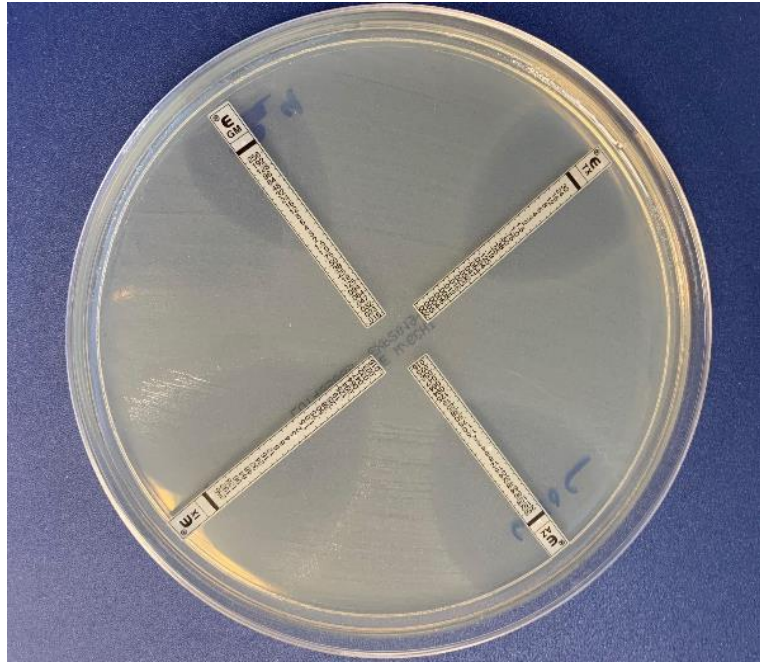
What to send to MHDL



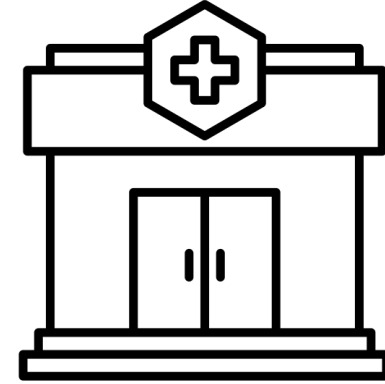
MHDL Identifies GC



MHDL Performs AST



Drug	MIC
Cipro	0.004
Gent	4
Cefixime	0.016
Ceftriaxone	0.002





Antibiotic Resistant Gonorrhea **Center of Excellence**

Power in Community Partnerships—
Together We Make a Difference
in Wisconsin & Nationally!

Support Provided by the Centers for Disease Control and Prevention SURRG Project



Help the WI CARGOS Team!



Sign up for the CARGOS GC
culture capability survey!

<https://www.signupanywhere.com/signup/ukiv70rp>

Suspected Treatment Failure Resources

- MHDL will ship as necessary: specimen collection kit, a requisition form, and a cold pack with dry ice for shipment
- MHDL's courier will be used
- Providers or LTHDs will **not** be charged for these services
- MHDL will fax results back to requestor
- DHS will provide guidance on next steps

Help the WI CARGOS Team!

- Through CARGOS, WI DHS aims to organize a list of laboratories throughout the state with capacity for culturing of gonococcal specimen and conducting AST on such samples.
- To assist with this effort, please provide your **name**, **organization**, and **email address**. The CARGOS program manager will connect with these contacts in mid-October. Respondents will be asked to either respond to a brief survey or to forward it to the most pertinent staff at their organization.
- This may be done through the following link or QR Code:
 - <https://www.signupanywhere.com/signup/ukiv70rp>

