

### Alaska ID ECHO: HCV, HIV, PrEP and common STIs

August 8, 2023

This ECHO (Extension for Community Healthcare Outcomes) is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided by the HHS Secretary's Minority HIV/AIDS Fund.

# AK ID ECHO Consultant team

- Youssef Barbour, MD Hepatologist
- Leah Besh, PA-C HIV/Hepatology Provider
- Terri Bramel, PA-C HIV/STI Provider
- Rod Gordon, R.Ph. AAHIVP Pharmacist
- Jacob Gray, MD Infectious Disease Provider
- Annette Hewitt, ANP Hepatology Provider
- Brian McMahon, MD Hepatologist
- Lisa Rea, RN HIV/STI Case Manager
- Lisa Townshend, ANP Hepatology Provider





### Agenda

#### Didactic Presentation:

Mycoplasma genitalium STI

#### Presented by:

- Mercedes Cheslock, PhD, Medical Science Liaison Mountain Region for Hologic
- Theresa P. Savidge, M(ASCP)<sup>CM</sup> Clinical Microbiology Laboratory Manager, Alaska Department of Health
- Katie Presser, Pharm.D., BCPS, BCIDP, Infectious Diseases Clinical Pharmacy Specialist, ANMC

Patient Case



# Welcome to Alaska Infectious Disease ECHO: HCV, HIV, PrEP, STI

#### **Approved Provider Statements:**



In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

#### **Contact Hours:**

ANMC designates this activity for a maximum of 12 contact hours, including 3 total pharmacotherapeutics contact hours, commensurate with participation.

#### **Financial Disclosures:**

Mercedes Cheslock, Ph.D., faculty for the 8/8/23 event is a medical science liaison for Hologic. Youssef Barbour, MD & Lisa Townshend-Bulson, APRN / faculty for this educational event, are primary investigators in an ANTHC sponsored hepatitis C study funded in part by Gilead Sciences. All of the relevant financial relationships listed have been mitigated.

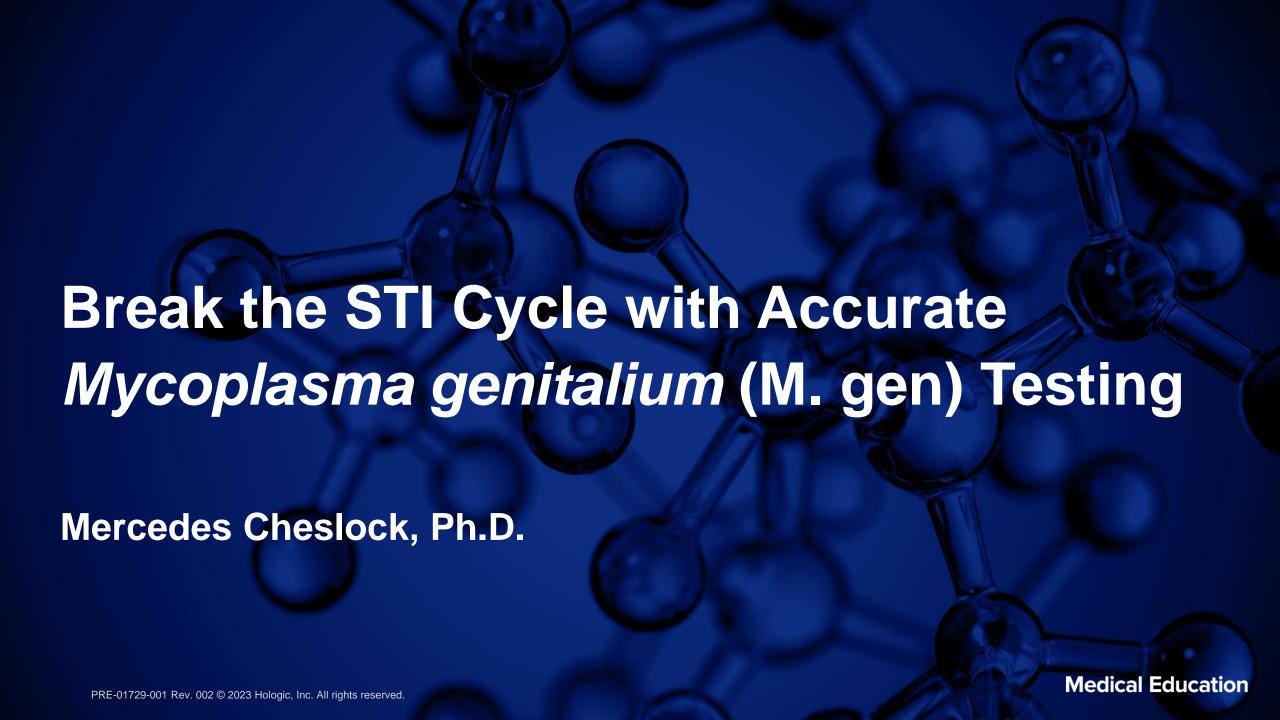
#### **Requirements for Successful Completion:**

To receive CE credit please make sure you have actively engaged in the entire activity, your attendance is recorded by the facilitator, and complete the course evaluation form found here: <a href="https://forms.gle/18t4EgvN2WdnM4P77">https://forms.gle/18t4EgvN2WdnM4P77</a>

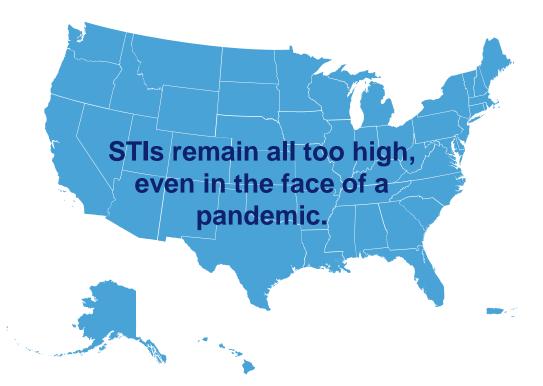


For more information contact <a href="mailto:jlfielder@anthc.org">jlfielder@anthc.org</a> or (907) 729-1387





### **Importance of STI Surveillance**



Anyone who has sex could get an STD, but some groups are more affected

- Young people aged 15-24
- Gay and bisexual men
- Pregnant people
- Racial and ethnic minority groups



### **Persistent or Recurring Cervicitis**

#### **Definition**

cervicitis that persists after treatment.<sup>1</sup>

- Frequently asymptomatic<sup>1</sup>
- Commonly caused by CT, NG, TV, HSV-2 and M. gen<sup>1</sup>

### Diagnostic Criteria<sup>1</sup>

- 1. Purulent or mucopurulent endocervical discharge visible in the endocervical canal or on an endocervical swab specimen
- 2. Signs of **inflammation** such as sustained **endocervical bleeding** easily induced by gentle passage of a cotton swab through the Cervical Os







Most persistent cases of cervicitis **are not** caused by reinfection with CT/NG, rather other factors might be involved such as **M. gen**<sup>1,2</sup>

### **Pelvic Inflammatory Disease (PID)**

Can be difficult to diagnose due to subtle or non-specific symptoms

Commonly caused by STIs such as CT, NG, and associated with TV and M. gon

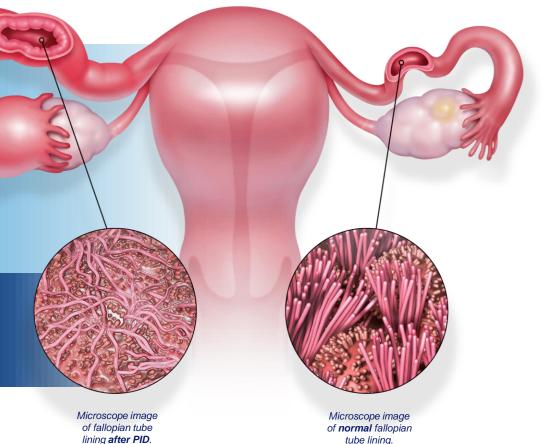
with TV and M. gen

### **Diagnostic Criteria**

One or more of the following may be present during pelvic examination to consider PID: **cervical motion tenderness**, **uterine tenderness**, **or adnexal tenderness**.

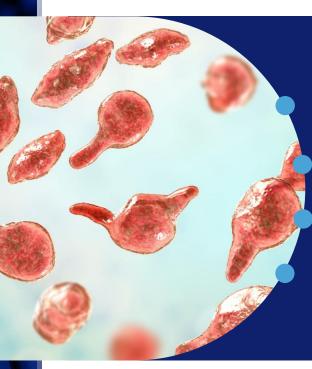


Up to 22% of women with PID have M. gen



### Consider M. gen

A Prevalent, Often Misdiagnosed STI



First identified in male non-gonococcal urethritis cases in 1981<sup>1,2</sup>

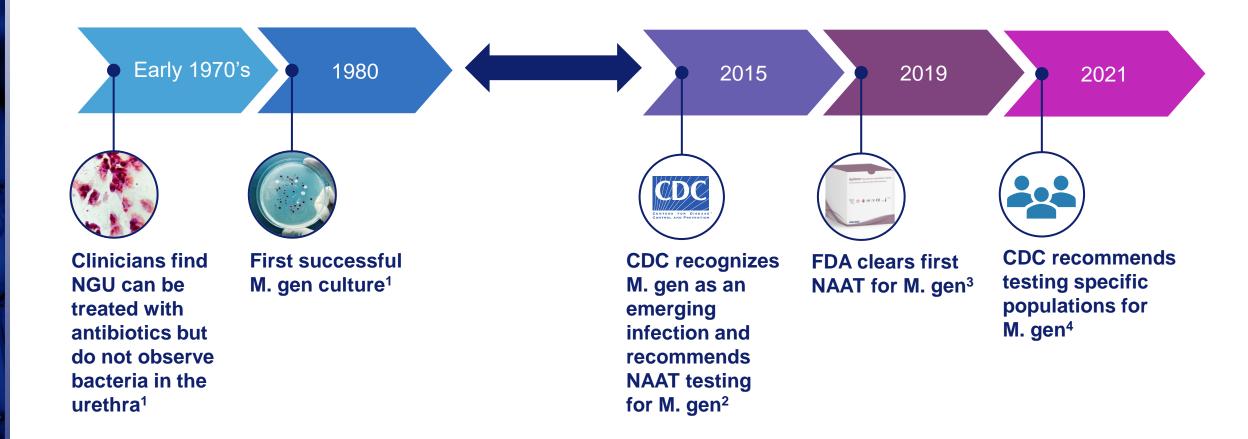
Lives on and in the epithelial cells of the urinary and genital tracts<sup>1,2</sup>

Significant morbidity in men<sup>2</sup>

Sexually transmitted infection<sup>2</sup>

### Why Are We Only Hearing About This Now?

The Challenge of Diagnosing M. gen



<sup>1.</sup> Taylor-Robinson D and Jensen JS. *Mycoplasma genitalium:* from chrysalis to multicolored butterfly. *Clin Microbiol Rev.* 2011 July; 24: 498-514. 2. CDC. Sexually Transmitted Diseases and Treatment Guidelines: *Mycoplasma genitalium.* Updated June 4, 2015. Accessed January 22, 2020. <a href="https://www.cdc.gov/std/tg2015/emerging.htm">http://www.cdc.gov/std/tg2015/emerging.htm</a> 3. FDA permits marketing of first test to aid in the diagnosis of a sexually-transmitted infection known as Mycoplasma genitalium [press release]. Silver Spring, MD: FDA; January 23, 2019. 4. Workowski, et al. Sexually Transmitted Infections Treatment Guidelines 2021. MMWR Recomm Rep 2021;70

### **Detection of M. gen Requires NAAT**



Clinical Presentation

Can be similar to other STIs.<sup>1</sup>



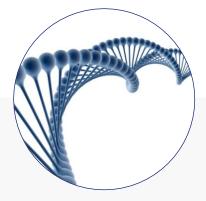
**Microscopy** 

Cannot be seen because M. gen has no cell wall.<sup>2</sup>



**Culture** 

Is not clinically feasible as it may take up to six months.<sup>2</sup>



Nucleic Acid Amplification Test (NAAT)

Is the recommended method of detection.<sup>2</sup>



### M. gen: A Prevalent, Often Misdiagnosed STI

| Similar Symptoms <sup>1,2</sup> |                       |                     |  |           |  |                          |  |  |  |  |  |
|---------------------------------|-----------------------|---------------------|--|-----------|--|--------------------------|--|--|--|--|--|
|                                 | Trichomoniasis        | Bacterial Vaginosis | Yeast Infection                                    | Chlamydia | Gonorrhea  | Mycoplasma<br>genitalium |  |  |  |  |  |
| Abnormal Discharge              | $\otimes$             | $\otimes$           | $\otimes$  | $\otimes$ | $\otimes$  | $\otimes$                |  |  |  |  |  |
| Vaginal Odor                    | $\otimes$             | $\otimes$           |  |           |  |                          |  |  |  |  |  |
| Vaginal Irritation              | $\otimes$             | $\otimes$           | $\otimes$  | $\otimes$ | $\otimes$  | $\otimes$                |  |  |  |  |  |
| Pain During Urination/Sex       | $\otimes$             |                     | $\otimes$  | $\otimes$ | $\bigcirc$   | $\otimes$                |  |  |  |  |  |
| • Prevalence <b>~10%</b>        | in women <sup>3</sup> |                     | than gonorrhea, ar<br>gh as chlamydia <sup>4</sup> |           | <ul> <li>Exhibits similar clinical presentation to<br/>trichomonas, chlamydia and gonorrhea<sup>5</sup></li> </ul> |                          |  |  |  |  |  |

Table adapted from Kent and Mobley

1. Kent H. Epidemiology of vaginitis. Am J Obstet Gynecol. 1991;165(4):1168-1176. 2. Mobley V and Seña AC. Mycoplasma genitalium infection in men and women. UpToDate. Last updated February 15, 2019. Accessed September 8, 2021. 3. Gaydos C, et al. Molecular Testing for Mycoplasma genitalium in the United States: Results from the AMES Prospective Multicenter Clinical Study. J Clin Microbiol. 2019;57(11):e01125-19. Published 2019 Oct 23. doi:10.1128/JCM.01125-19 4. Getman D, et al. Mycoplasma genitalium prevalence, coinfection, and macrolide antibiotic resistance frequency in a multicenter clinical study cohort in the United States. J Clin Microbiol. 2016 Sep; 54(9): 2278-83. 5. Powell, AM. Acute cervicitis. Last updated January 27, 2020. Accessed October 15, 2021. <a href="https://www.uptodate.com/contents/acute-cervicitis">https://www.uptodate.com/contents/acute-cervicitis</a>.

### M. gen Can Lead to Health Consequences for Females





- Detected in 10-30% of women with clinical cervicitis.<sup>1</sup>
- Identified in up to 22% of pelvic inflammatory disease (PID) cases.<sup>1</sup>
- Persons <34 years of age are the most likely to be affected by M. gen.<sup>2</sup>

2x

**Two-fold increased risk** of cervicitis, PID, infertility and adverse pregnancy outcomes with M. gen infection.<sup>3,4</sup>

### M. gen Can Lead to Health Consequences for Males





- More likely to exhibit symptoms of an M. gen infection<sup>1</sup>
- Responsible for **40%** of persistent or recurrent urethritis in men<sup>1,2</sup>
- 73% of M. gen positive men show symptoms of urethritis<sup>3</sup>

25%

M. gen present in up to 25% of men with acute NGU and over >33% of men with NCNGU<sup>2</sup>



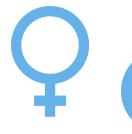
### Prevalence of M. gen by Population

Low Risk Populations of Women and Men<sup>1</sup>



High Risk Populations<sup>2-5</sup>

7.3%-14%



**High Risk Populations**<sup>2-5</sup>

10%-41%

### M. gen Prevalence Studies: Characteristics of Low and High Risk Individuals<sup>4</sup>

#### **Low Risk**

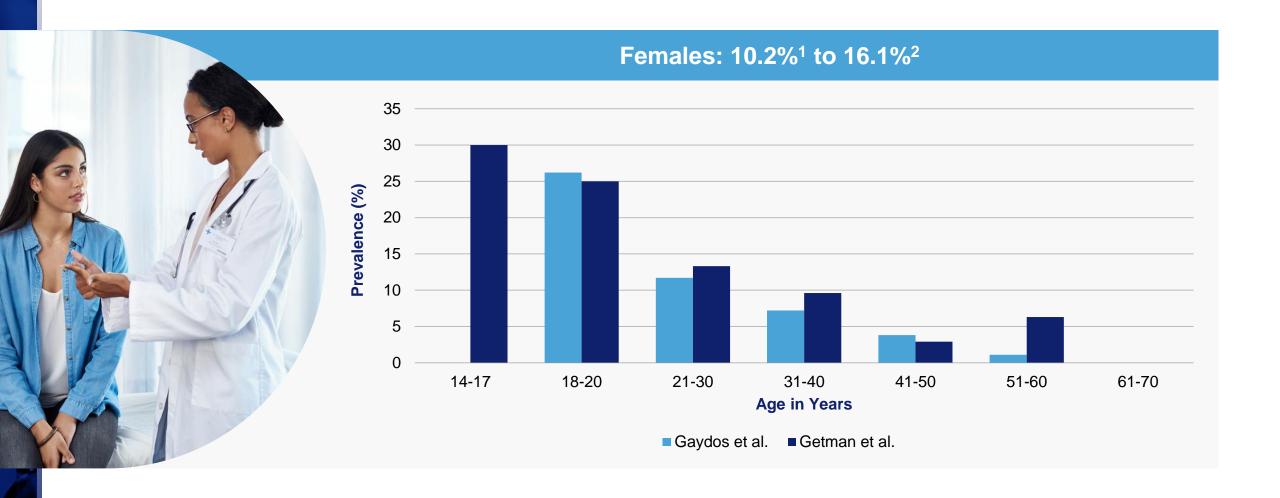
- Patients not attending an STI clinic
- Patients attending fertility clinic
- Patients randomly selected from an otherwise healthy population

#### **High Risk**

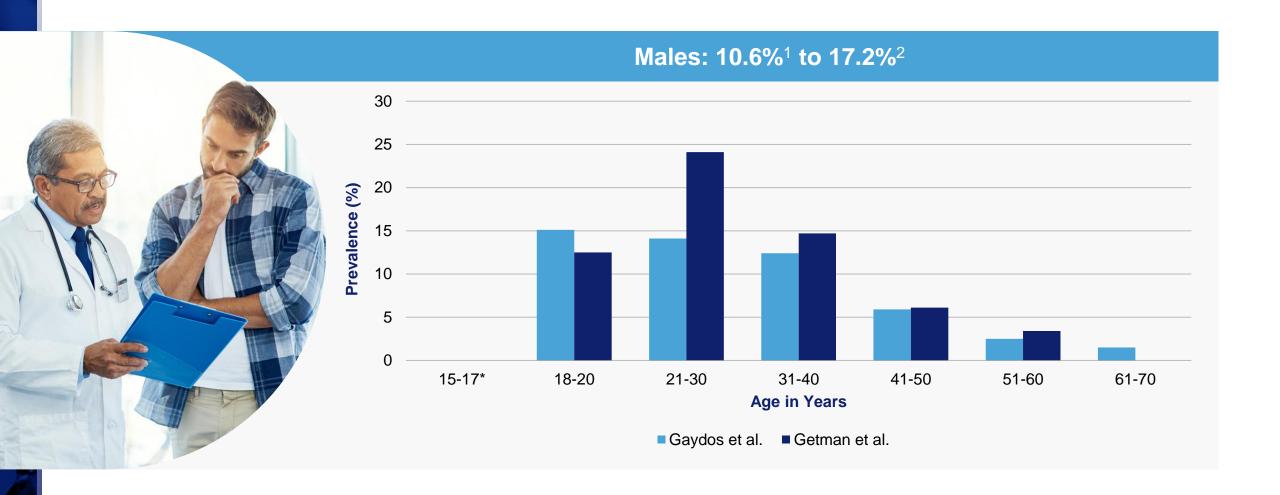
- Patients attending an STI clinic
- Patients presenting to family planning clinics for termination of pregnancy
- Symptoms of urogenital disease
- Sex workers

<sup>1.</sup> Anagrius C, et al. Treatment of *Mycoplasma genitalium*. Observations from a Swedish STD Clinic. PLOS One. 2013 Apr 8;8(4):e61481. 2. Hilton J, et al. Sex Health. 2010;7(1):77-81. 3.Wikstrøm, et al. *Mycoplasma genitalium*: a common cause of persistent urethritis among men treated with docycycline. Sex Transm Infect. 2006; 82:276-279.4. McGowin CL, et al. *Mycoplasma genitalium*: An Emerging Cause of STD in Women. PLoS Pathog. 2011;7(5):e1001324. 5. Wroblewski, et al. Comparison of Transcription-Mediated Amplification and PCR Assay Results for Various Genital Specimen Types for Detection of Mycoplasma genitalium. J Clin Microbiol. 2006; 44:3306-12. doi:10.1128/JCM.00553-06.

### Prevalence of M. gen by Age: Females



### Prevalence of M. gen by Age: Males



<sup>\*</sup>No data for 15-17 age range from Getman, et al study

<sup>1.</sup> Gaydos CA, et al. Molecular testing for Mycoplasma genitalium in the United States: results from the AMES prospective multi-center clinical study. *J Clin Microbiol.* 2019 Oct 23; 57(11). 2. Getman D, et al. Mycoplasma genitalium prevalence, coinfection, and macrolide antibiotic resistance frequency in a multicenter clinical study cohort in the United States. *J Clin Microbiol.* 2016 Sep; 54(9): 2278-83.



### Recommended M. gen testing populations



#### **Whom to Test**



Testing is recommended for women with recurrent cervicitis and should be considered in women with PID

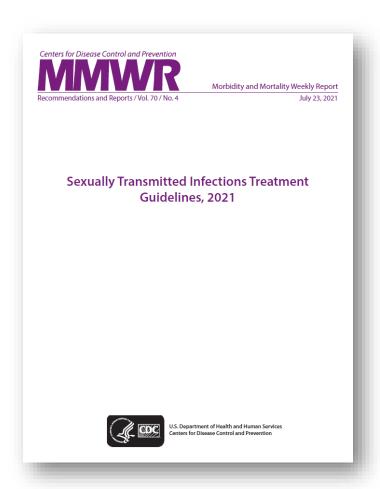
#### **Whom to Test**



Testing is recommended for men with recurrent non-gonococcal urethritis

### **Testing for Other Mycoplasmas**

CDC Does Not Recommend *Ureaplasma/M. hominis* Testing Due to Inconsistent and Insufficient Data





Data are inconsistent regarding other *Mycoplasma* and *Ureaplasma* species as etiologic agents of urethritis. The majority of men with *Ureaplasma* infections do not have overt disease unless a high organism load is present.

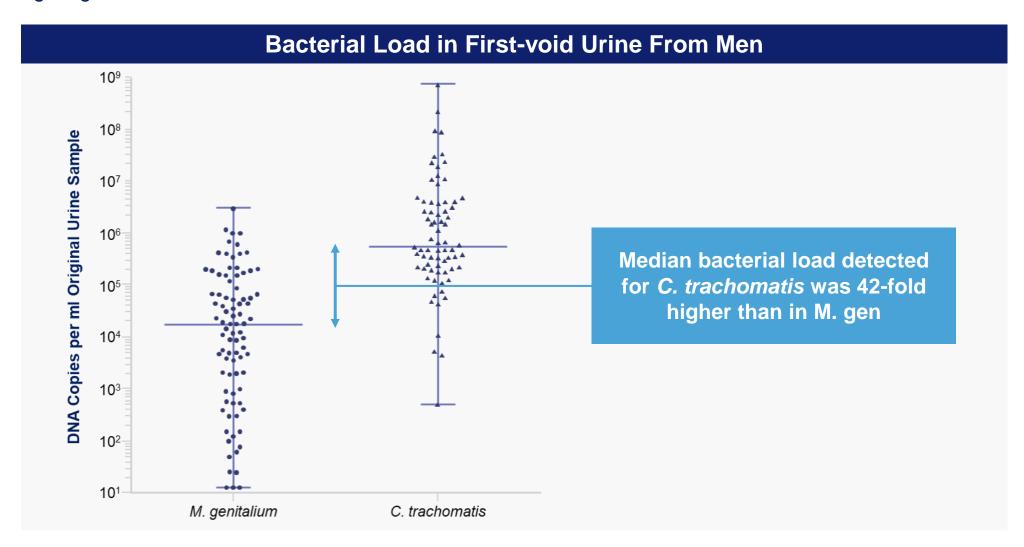
Testing for *U. parvum, U. urealyticum, Mycoplasma hominis*, or genital culture for group B streptococcus is not recommended.

No specific evidence exists for a role for Ureaplasma parvum or Ureaplasma urealyticum in cervicitis.



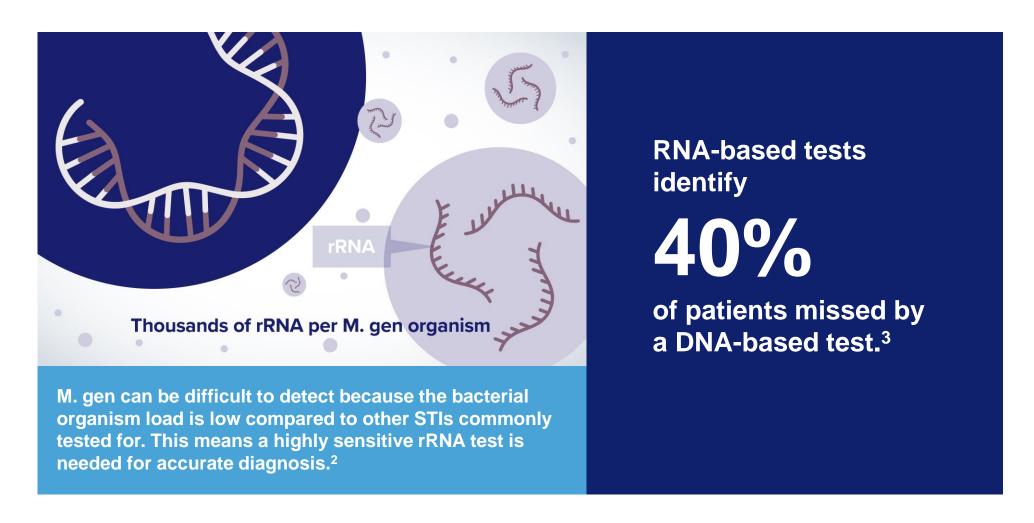
### M. gen Organism Load

Why Targeting RNA Matters

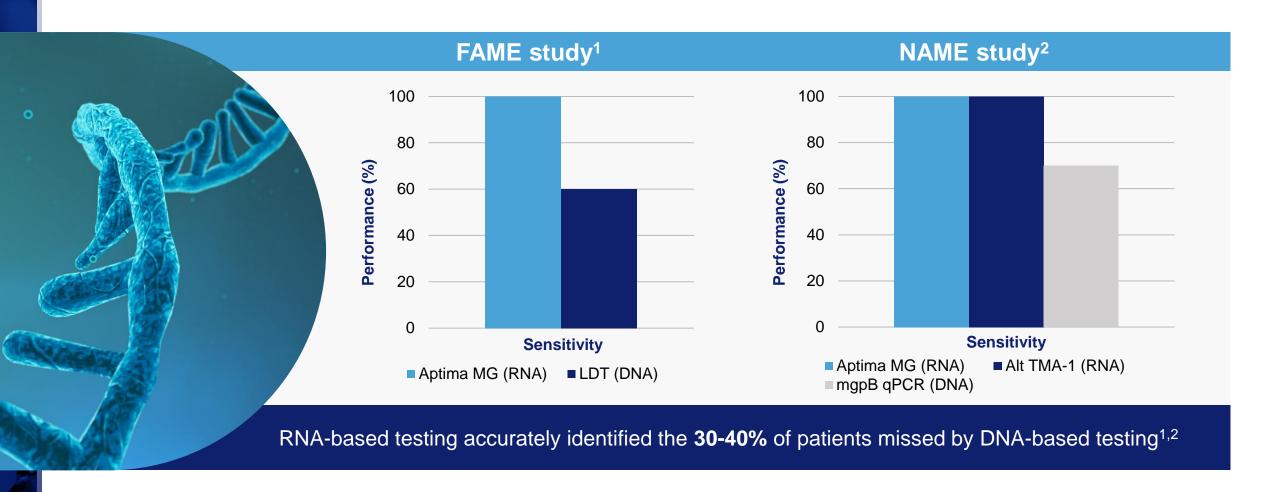


### Targeting rRNA is Needed to Detect M. gen With High Sensitivity

CDC recommends NAATs to detect M. gen<sup>1</sup>



### Why Targeting RNA Matters



<sup>1.</sup> Adapted from: LeRoy C, et al. French prospective clinical evaluation of the Aptima *Mycoplasma genitalium* CEIVD assay and macrolide resistance detection using three distinct assays. J Clin Microbiol. 2017 Nov; 55(11): 3194-3200. 2. Adapted from: Unemo M, et al. Clinical and analytical evaluation of the new Aptima Mycoplasma genitalium assay, with data on *M. genitalium* prevalence and antimicrobial resistance in *M. genitalium* in Denmark, Norway and Sweden in 2016. Clin Microbiol Infect. 2018 May; 24(5): 533-539.

### **Key Takeaways**

M. gen testing is recommended for all patients with recurrent cervicitis, urethritis and PID.<sup>1</sup>





Testing for and targeting the right infection with the right treatment is critical.

NAAT is the CDC recommended method for detection of M. gen.<sup>1</sup>

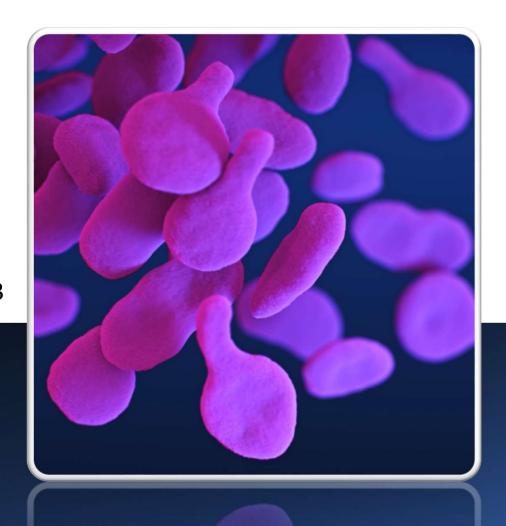




The sensitivity of RNA-based tests have been shown to detect the 40% of infections overlooked by DNA-based tests.<sup>2</sup>

# Mycoplasma genitalium

Testing in Alaska - 2023





Theresa Savidge
Clinical Microbiology Laboratory Manager
State of Alaska Department of Health
08 August 2023

## Test Positivity Studies in Alaska

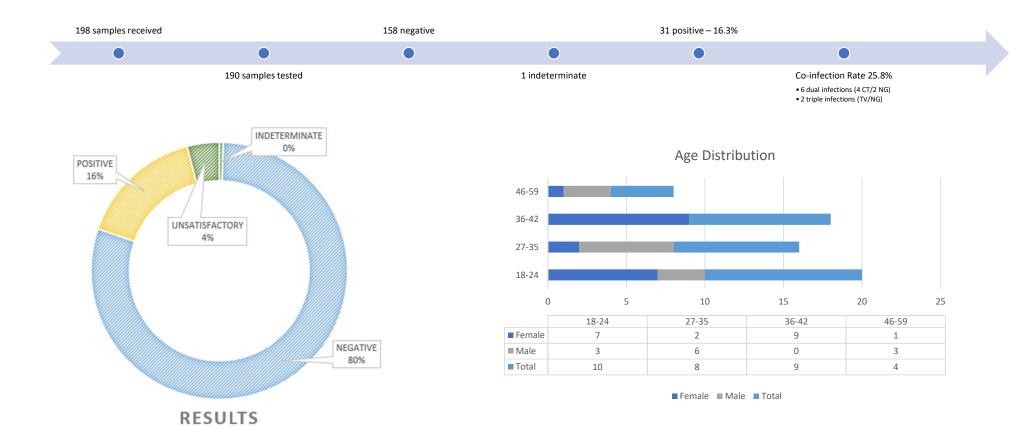


259 Samples Tested, 32 Positive (12.4%) 8 dual infection (25%) with CT (7) or NG (1)

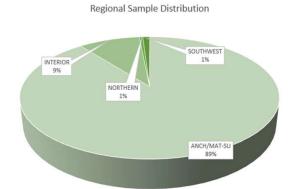
274 Samples Tested, 34 Positive (12.4%) 6 dual infection (17.6%) with CT

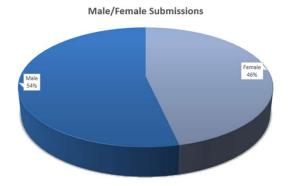
2022

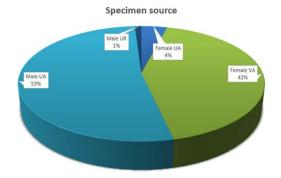
## April 5, 2023 - July 31, 2023



# Demographic Statistics







## Laboratory Testing at the State Lab

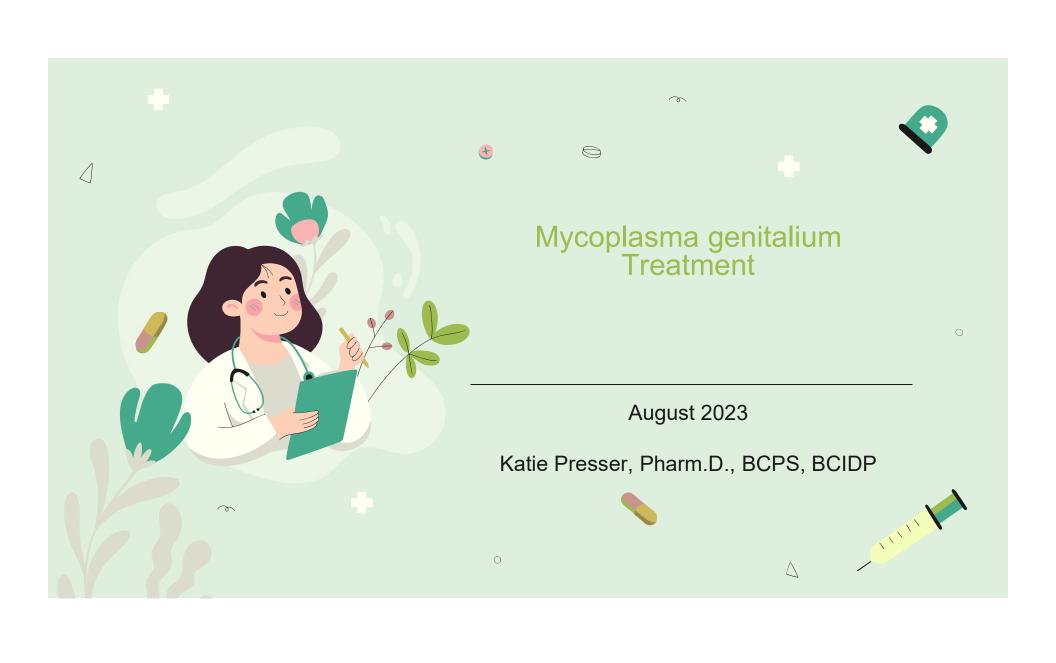
- Methodology
- Collection
- Storage/Transport
- TAT/Final Report
- Test Request Form
- Resistance Testing

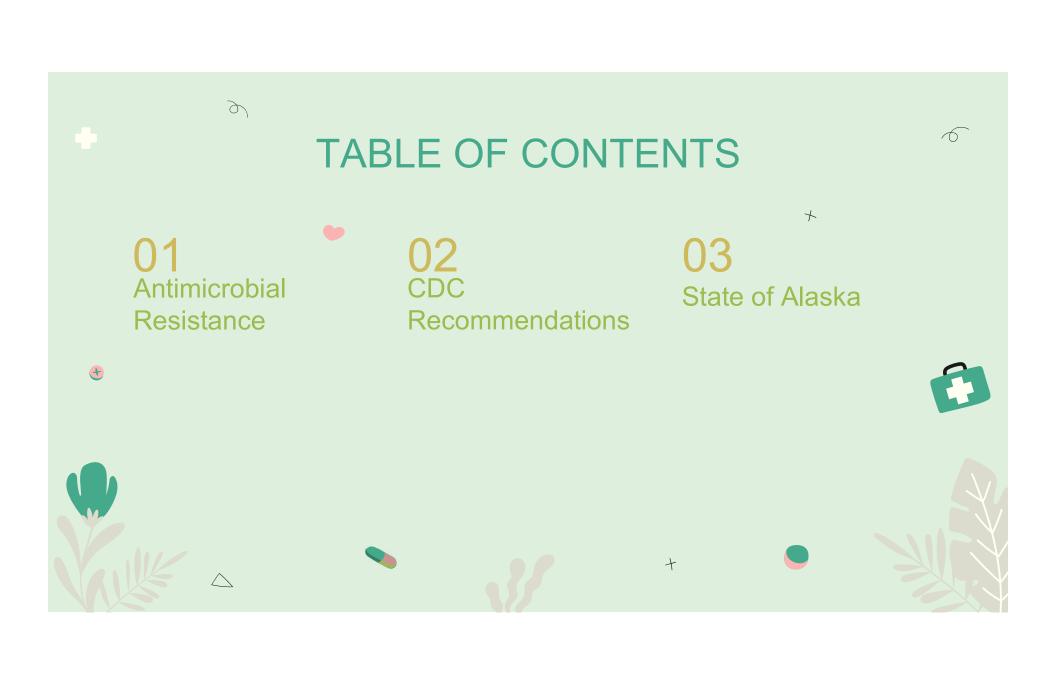






| PO Box<br>Anchor<br>Phone:<br>24 hour   | a State Publi<br>: 196093<br>age, AK 99519<br>907-334-2100<br>: 1-855-222-991<br>Compliant Fax: | \$        |  | atories                              | Anchorage Lab Request Form +2/22/02/ The using astert identificate required on the specime and the regamen. Massepred early, future to fill our required fields will easily in specimen processing delay. |   |            |          |  |  |
|---|---|-----------|--|--------------------------------------|---|---|------------|----------|--|--|
| Patient Informati   |   | labels    | are recom  | mended.                              | Submitter Information - Report Results to:  |   |            |          |  |  |
| Non-Human Collect Sample  |   | Time arr  |  | Facility Name (Hospital/             | Clinic/etc.)  | Phone Number  |            |          |  |  |
| Patient ID (Chart#, MR#   |   | Ethnicity |  | Provider Name                        |   | Fax Number  |            |          |  |  |
| Last Name First Name  |   |           | L MI   |                                      | Mailing Address   |   |            |          |  |  |
| Date of Birth   | Gender  | Pati      | ent Phon   | Number                               |   |   |            |          |  |  |
| Patient Physical Address  |   |           | City/Village   |                                      | City  |   | State      | Zip Code |  |  |
| Chlamydia & Gon   | orrhoea NAAT  |           |  | Bacte                                | riology   |   | Botulism   |          |  |  |
| CT/GCUrine  | CT/GC Ento  | pervical  | DiphtheriaCulture Source   |                                      |   | Contact Epidemiology 1-800-478-0084   |            |          |  |  |
| □ CT/GC Vaginal     □ CT/GC Veetral     □ CT/GC Sectal     □ CT/GC Sectal |   |           | □ Seteric Culture Compoletores E coè Salmonnila Ship □ Acromonas Pissionnonas □ World □ Prisidio □ Routine Shiga totaln Screen © IA) □ Othes |                                      |   | Pre-BAT Serum (min. 10 mL serum per patteat) Date/Time BAT Administered: Stool Gastric/Aontitus Other/Food: |            |          |  |  |
| M. genitalium NA  |   |           | Reportable Organism Submission   |                                      |   | Biothreat and Emerging Pathogens  |            |          |  |  |
| M. gen Urine M. gen Vaginal M. gen Endocentral Syphi  | M gen Uret Symptomatic C Treatment Failur   | hral      | CRE/CRI  | m Resistance To<br>PA/CRAB **Artio   |   | Contact Epidemiology 1-800-478-0084 Contact ASPHL 1-855-222-0957 Specify Pathogen: Source                   |            |          |  |  |
| Syphilis Screen (RPR)   |   |           | Condido auris  |                                      |   | Pertussis   |            |          |  |  |
| Date Frozen (freeze if transit > 5 days):   |   |           | Culture Independent Method Used? VES NO CIDT Method:  "Please Attach CIDT Instrument Printest*"  |                                      |   | Pertussis PCR Decran or Relpeter Nacopharyogeal Swebs Only  |            |          |  |  |
| Mycobacteri   | ology (TB)  |           | ☐ Campvic  | obade                                |   | Samples from patients commonly taking antibiotica langer than 5 days manyield false negative results.       |            |          |  |  |
| Source  | _   |           | acterium alphthe   |                                      | Antibiotic start date:  |   |            |          |  |  |
| AFB Culture and Smear Susceptibility Testing performed on Initial TB positive cultures only  TB NAAT: Contact Aleste TB Control of  |   |           |  |                                      |   | Chemical Threat  Contact ASPHL 1-855-222-0951   |            |          |  |  |
| 1-907-269-8000 for approval prior to ordering   |   |           | Shiga toxin BA Method Used:  |                                      |   | Suspected Agent/Toxin:  |            |          |  |  |
| Parasitology  Ova and Parasite Exam   |   |           | Listeria monocytogenes   |                                      |   | Source  |            |          |  |  |
| Glandia-Cryptosporidium DFA   |   |           | ☐ Neisser is gonor/hoeae   |                                      |   | Chemistry   |            |          |  |  |
| Acid Fast Stain Occopera, Cryptosporatium, and CystoSospora   |   |           | Neisser in menting triats*  Satmone In. species if known   |                                      |   | **Only authorized providers can request<br>Chemistry Testing**  |            |          |  |  |
| Pinworm Ecam  |   |           |  | species if known                     |   | Blood Lead (Pb) straticate Source Capillary or Venous Blood   |            |          |  |  |
| Arthropod/Ectoparasite/Worm/ID  |   |           |  | nes, agalactiae, o                   |   | CINA Trace Drug Panel (Uttne Onty)  |            |          |  |  |
| Blood Parasite Exam Submit thick and stained thin smears for makeria  |   |           |  | pecies if known_<br>species if known |   | Tordic Alcoholis and Glycols (Whole Blood Only - gray top preferred -no SST)                                |            |          |  |  |
| Travel History:   |   |           | * Isolates fr  | om normally ste                      | rile body fluids or sites only.<br>Investigations Program.  |   |            |          |  |  |
|   |   |           |  | toot considering f                   |   | 1   | Marie Care |          |  |  |









### Resistance

#### Mgen treatment failures

0

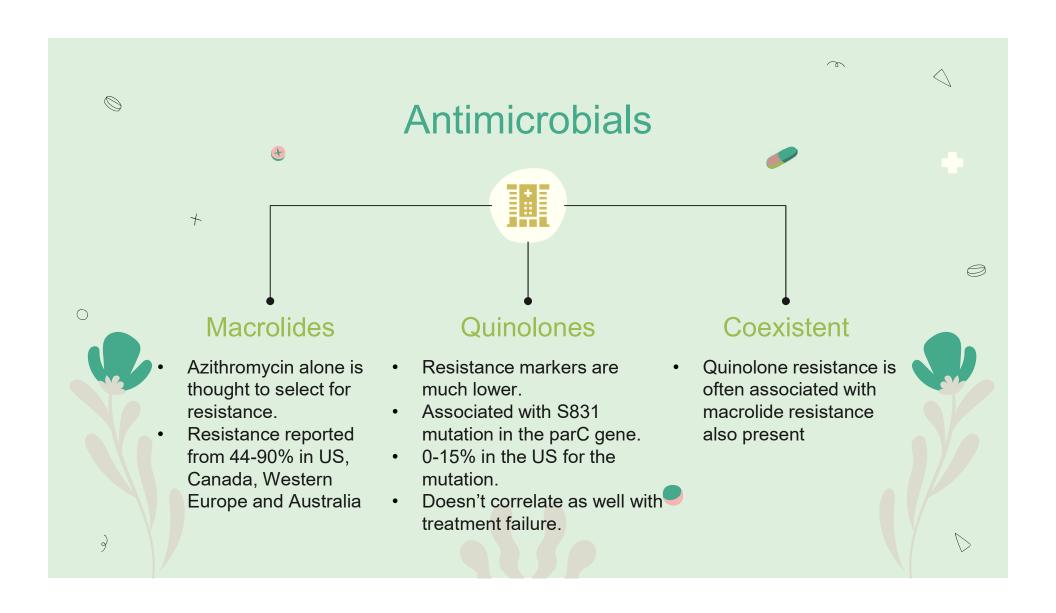
0

- https://airc.cdc.gov/surveys/?s=7NCDWJAYF7ML4 PRK
- CDC Division of STD Prevention reviews and follows up for demographic information











 $\bigcirc$ 

## Mechanism of Action







Lacks a cell wall



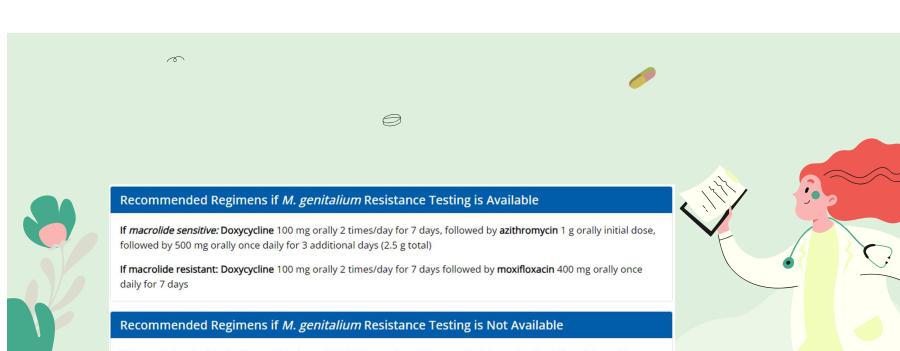
#### **Antimicrobials**

**(**)

Cell wall active agents are ineffective (beta-lactams)

 $\bigcirc$ 





If *M. genitalium* is detected by an FDA-cleared NAAT: Doxycycline 100 mg orally 2 times/day for 7 days, followed by moxifloxacin 400 mg orally once daily for 7 days

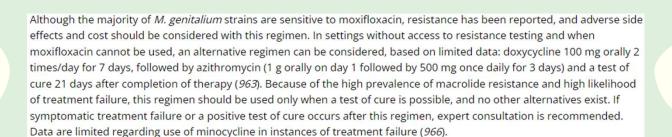


https://www.cdc.gov/std/treatment-guidelines/mycoplasmagenitalium.htm. Accessed July 13, 2023.



## DIFFERENT TREATMENTS

0



https://www.cdc.gov/std/treatment-guidelines/mycoplasmagenitalium.htm. Accessed July 13, 2023

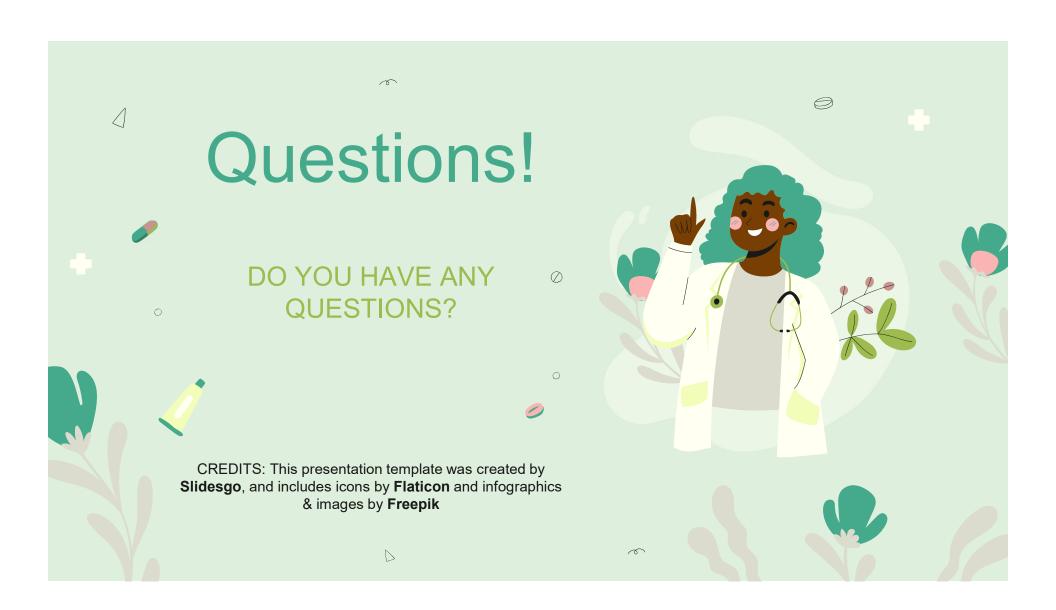
 $\bigcirc$ 



## **Epidemiology Bulletin**

Since resistance testing for *Mgen* is not currently available in Alaska, the recommended treatment regimen is doxycycline 100 mg orally 2 times per day for 7 days, followed by moxifloxacin 400 mg orally once per day for 7 days.<sup>2,7</sup>

For cases occurring in pregnancy, consult the STD Clinical Consultation Network for treatment recommendations.<sup>8</sup> Report *Mgen* treatment failures to the CDC registry.<sup>9</sup>





## Questions

You're welcome to unmute yourself or add your question in the chat box.

### AK ID ECHO

Alaska Infectious Disease ECHO: HCV, HIV, PrEP and common STIs

#### AK LD ECHO

Alaska Liver Disease ECHO



- Second Tuesday of every month from noon-I:00 PM AKDT
- Upcoming sessions
  - September 12: Hepatitis B
  - October 10: DoxyPEP
- www.anthc.org/ak-id-echo
- akidecho@anthc.org
- Third Thursday of every month from noon-1:00 PM AKDT
- Upcoming sessions
  - August 17: Importance of Diabetes Management in NAFLD/NASH
  - September 21: Recognizing Common Autoimmune Liver Diseases Seen in Alaska Native and American Indian People
- www.anthc.org/ak-ld-echo
- akldecho@anthc.org



## **Evaluation and Continuing Education Credit**

#### **Approved Provider Statements:**



In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Continuing education also available for Behavioral Health (APA), Social Work (ASWB-ACE), and Dietitians (CPEU).

#### To claim Continuing Education credit:



- The QR code will connect to the electronic evaluation to claim the CE credit certificate for today's AK ID ECHO.
- A PDF certificate of credit will be automatically emailed to the address provided in the electronic evaluation form.
- The evaluation link will be sent out via email to all registered participants.
- https://forms.gle/18t4EgvN2WdnM4P77



#### **AK ID ECHO Contacts**

#### **ANTHC Staff**

- Leah Besh PA-C, Program Director: <a href="mailto:labesh@anthc.org">labesh@anthc.org</a>
- Lisa Rea RN, Case Manager: <a href="mailto:ldrea@anthc.org">ldrea@anthc.org</a>
- Jennifer Williamson, Program Coordinator: jjwilliamson@anthc.org

ANTHC Early Intervention Services/HIV Program: 907-729-2907

ANTHC Liver Disease and Hepatitis Program: 907-729-1560

Northwest Portland Area Indian Health Board // www.indiancountryecho.org

- David Stephens, Director Indian Country ECHO: <a href="mailto:dstephens@npaihb.org">dstephens@npaihb.org</a>
- Jessica Leston, Clinical Programs Director: <u>ileston@npaihb.org</u>



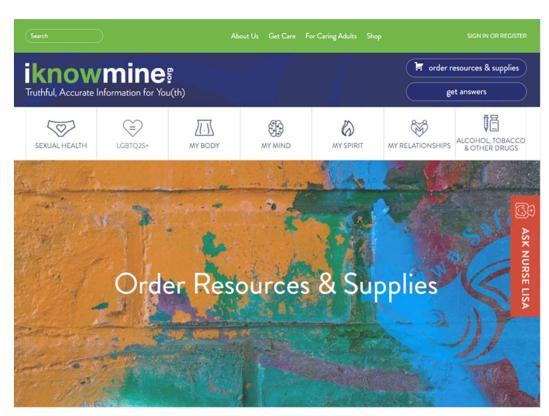




# ANTHC's iknowmine.org program

Free prevention resources are available at iknowmine.org/shop.











CONDOMS FOR ORGANIZATIONS



HIV SELF-TEST KIT



# Thank you!

AK ID ECHO is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided from the HHS Secretary's Minority HIV/AIDS Fund.