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Health and Human Services

Texas Department of State Health Services

Healthcare-Associated Infections (HAI)-Lights: Introduction

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Texas Department of State Health Services
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Healthcare Safety Unit (HSU)

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Vision

- Helping to achieve safe, quality healthcare that improves the well-being of everyone in Texas

Mission

- Promoting safe and quality healthcare through awareness, education, transparency, monitoring, and response

https://www.dshs.texas.gov/idps-home/healthcare-safety-unit

HSU Teams

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- Multi-Drug Resistant Organisms/Antimicrobial Resistance (MDRO/AR) Group
- Data and Training Group
- Antibiotic Stewardship Academic Partnership Team
- Healthcare-Associated Infections (HAI) Investigations Group

Healthcare-Associated Infections (HAIs)

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- HAIs are infections patients develop while receiving treatment for other conditions at a healthcare facility.
- Estimated 1 out of 31 hospital patients develop HAIs daily (per the 2015 HAI Hospital Prevalence Study).

687K

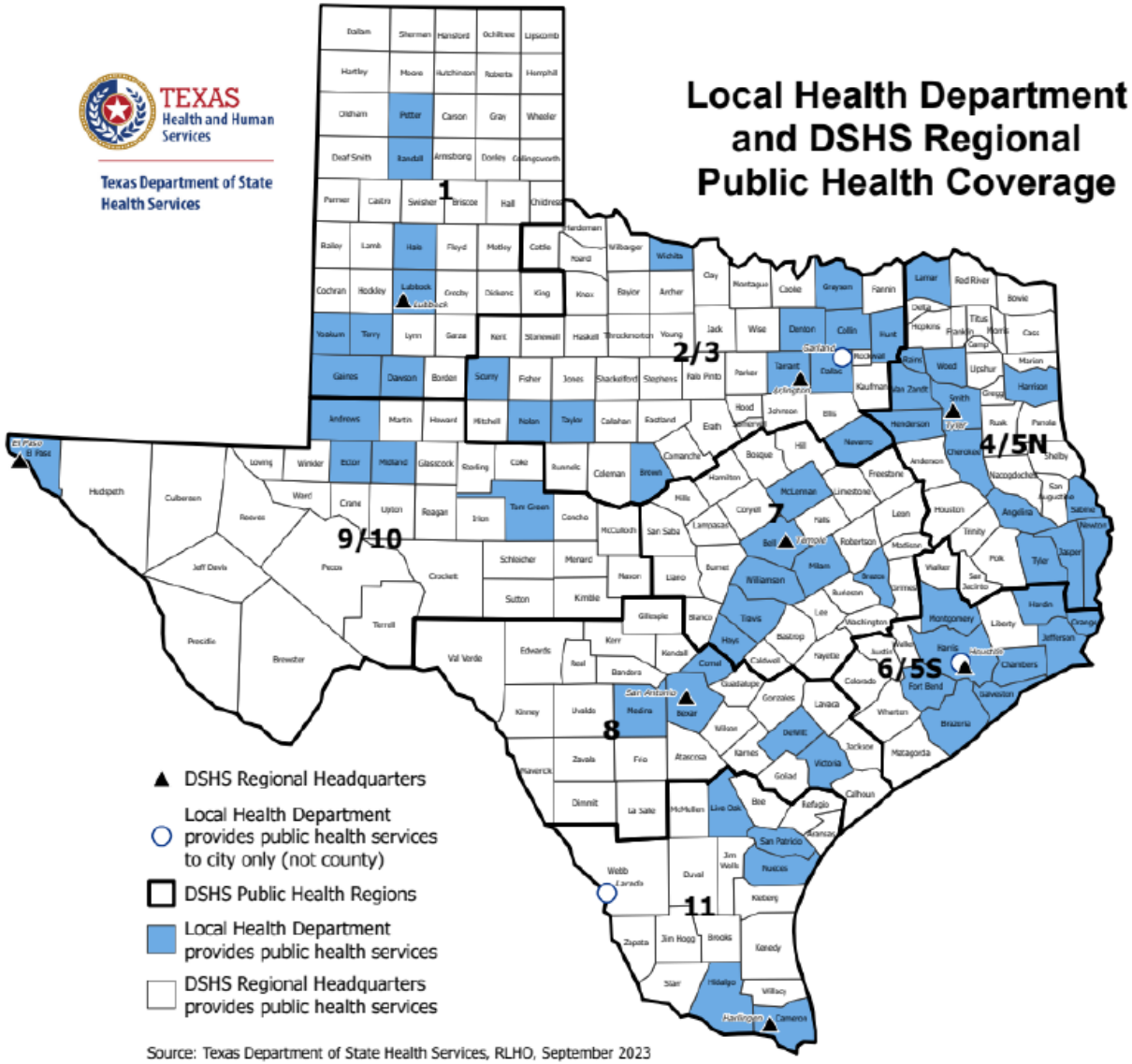
develop infections annually during a U.S. hospital stay

72K

people in U.S. die each year due to hospital infections

Available at: https://www.cdc.gov/hai/data/portal/index.html, accessed February 1, 2024.

Texas Healthcare-Associated Infections (HAI) Epidemiologists



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Primary Roles of HAI Epidemiologists

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Provide Infection Prevention and Control (IPC) Expertise

Respond to investigations and outbreaks in facilities

Conduct Infection Control Assessments (ICARs)

Support Local Health Departments

Collaborate with stakeholders in IPC activities

HSU Collaborations

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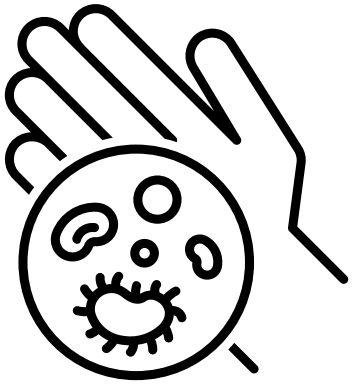
- *Candida auris (C. auris)* in Long-Term Acute Care Hospitals (LTACHs)
- Fungal Meningitis Investigation

Candida auris Outbreak Investigation and Response

Jose A. Ulloa, MPH
Epidemiologist

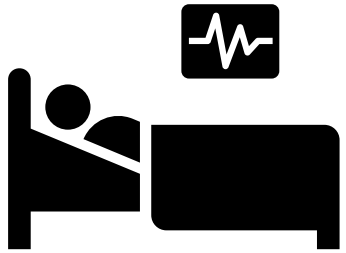
Candida auris

- *Candida auris (C. auris)* is an emerging multidrug –resistant yeast (a type of fungus)
  - It can cause severe illness
  - Spreads easily among patients in Healthcare facilities
    - Disproportionately Long-term Acute Care Hospitals (LTACHs)
  - Not a threat to most healthy people
    - Healthcare workers at minimal risk
  - Cases in Texas are categorized into two categories:
    - Clinical
    - Colonized



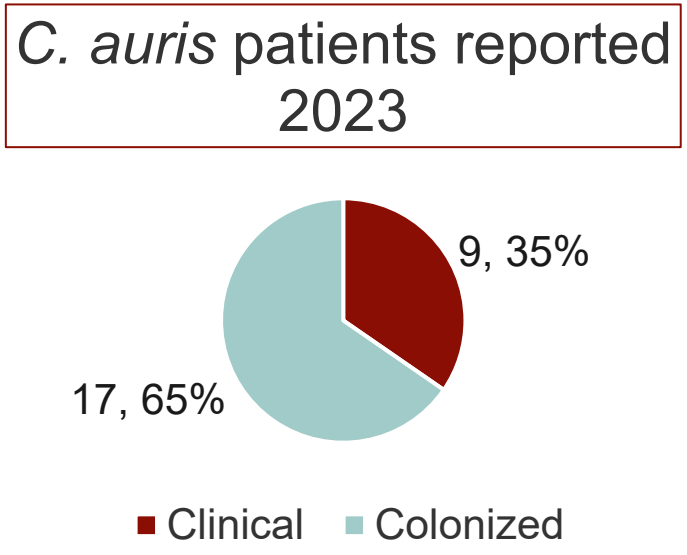
C. auris

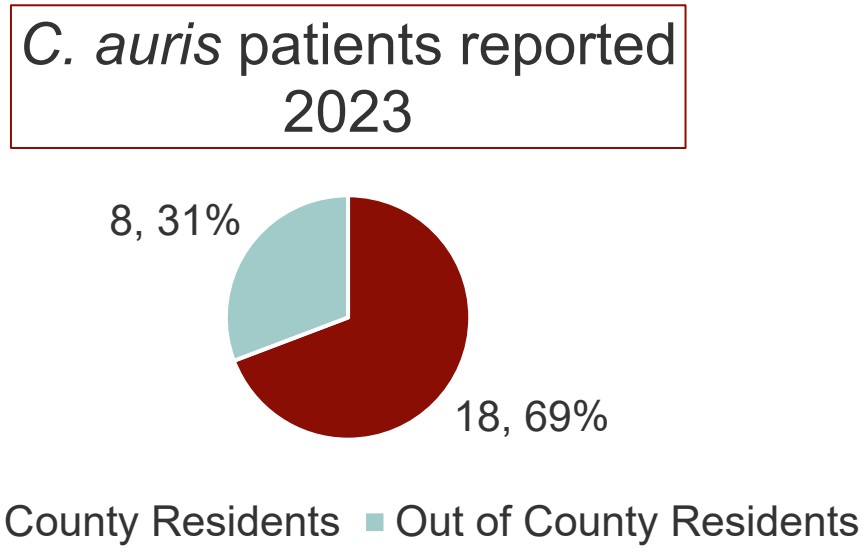
- *C. auris* affects the sickest of the sick
- Patients with *C. auris* are often colonized indefinitely.
  - Colonized patients can spread the germs to others and develop infections
- *C. auris* can persist in the environment for a long time and it can also contaminate medical equipment
- Ensure that appropriate cleaning and disinfectant agent is being used
  - Contact time
  - Zone cleaning methods
  - See EPA list K
  - https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris



C. auris in Bexar County

- No cases reported prior to 2023
- 26 patients reported in 2023
  - 11 Females and 15 Males
  - 20 patients over 65 years of age





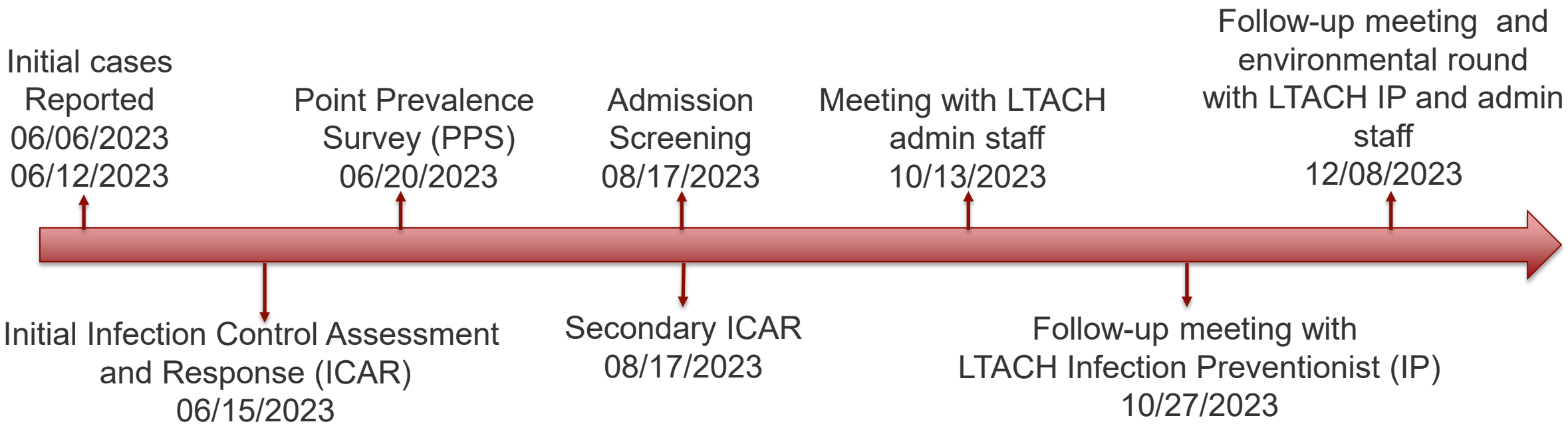
Outbreak

Investigation

Initial Cases - 2023

- First case reported 06/06/2023
  - DOC: 06/02/2023 Blood Culture at LTACH facility
- Second case reported 06/12/2023
  - DOC: 06/07/2023 Blood Culture at Acute Care Hospital
  - Case had been admitted at the same LTACH facility where the first case was reported

Timeline of events



Initial ICAR Recommendations

- 06/15/2023 on-site ICAR conducted
- Point prevalence survey (PPS) suggested
- Recommended retrospective and proactive laboratory surveillance for detection of possibly missed cases
- Consider admission screening
- Continue transmission-based contact precautions
  - Transmission-based
    - Isolate positive patients in single rooms
    - If not possible to isolate, cohort
    - Use of adequate Personal Protective Equipment (PPE) when entering positive patient's rooms

Point Prevalence Survey

- 06/20/23 LTACH initial PPS
  - 1 positive case identified as colonized
  - PPS was conducted every two weeks from 06/20/23 – 09/18/23
  - PPS timeframe varied for various reasons until 1/17/24

- 06/20/23 and 07/11/23 Acute care facility
  - No additional positive cases associated to facility identified
  - No further PPS testing, investigation closed

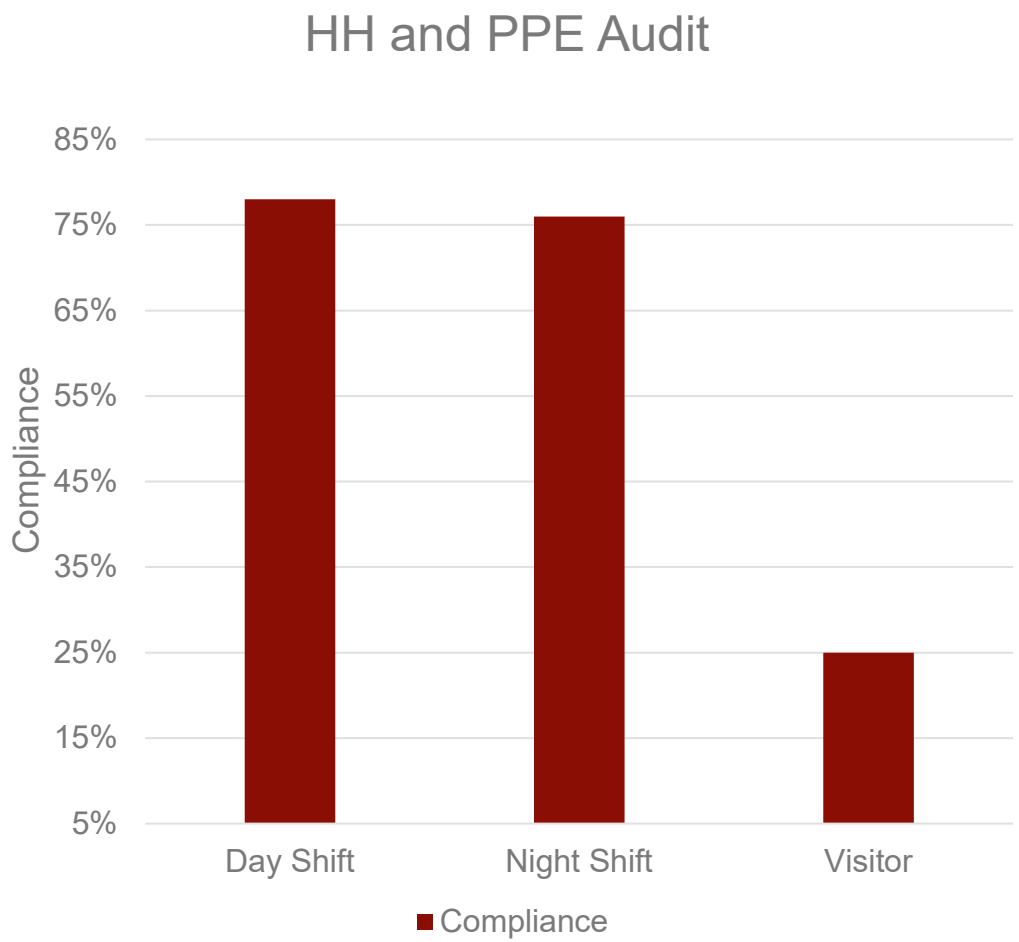
- Two rounds of PPS with no new positive cases are required to determine that there is no ongoing transmission of *C. auris* at a facility

Secondary on-site ICAR

- Due to continued positive results during PPS screenings, an in-depth onsite ICAR was conducted on 8/17/2023
- Two teams of Metro Health epidemiologists and HAI Epidemiologist – Public Health Region 8 dispatched for onsite observation
  - Day shift and night shift (at least 3 hours per shift)
- Focus on:
  - Hand Hygiene (HH) and PPE compliance audit of all staff
  - Environmental cleaning (questionnaire for Environmental Services (EVS) staff)
  - Isolation room observation

Secondary ICAR Findings

- HH and PPE audit:
  - 78% compliance rate during day shift (73 observations)
  - 76% compliance rate during night shift (76 observations)
  - Out of 4 **visitor** HH and PPE observations: **25%** compliance rate



Secondary ICAR cont.

- Recommendations
  - Increase frequency of Infection Control (IC) Training (HH/PPE/EVS) for staff beyond current standard.
  - Individuals visiting patients should be educated on proper HH and PPE compliance through multiple methods.
  - Ensure that appropriate cleaning and disinfectant agent is being used

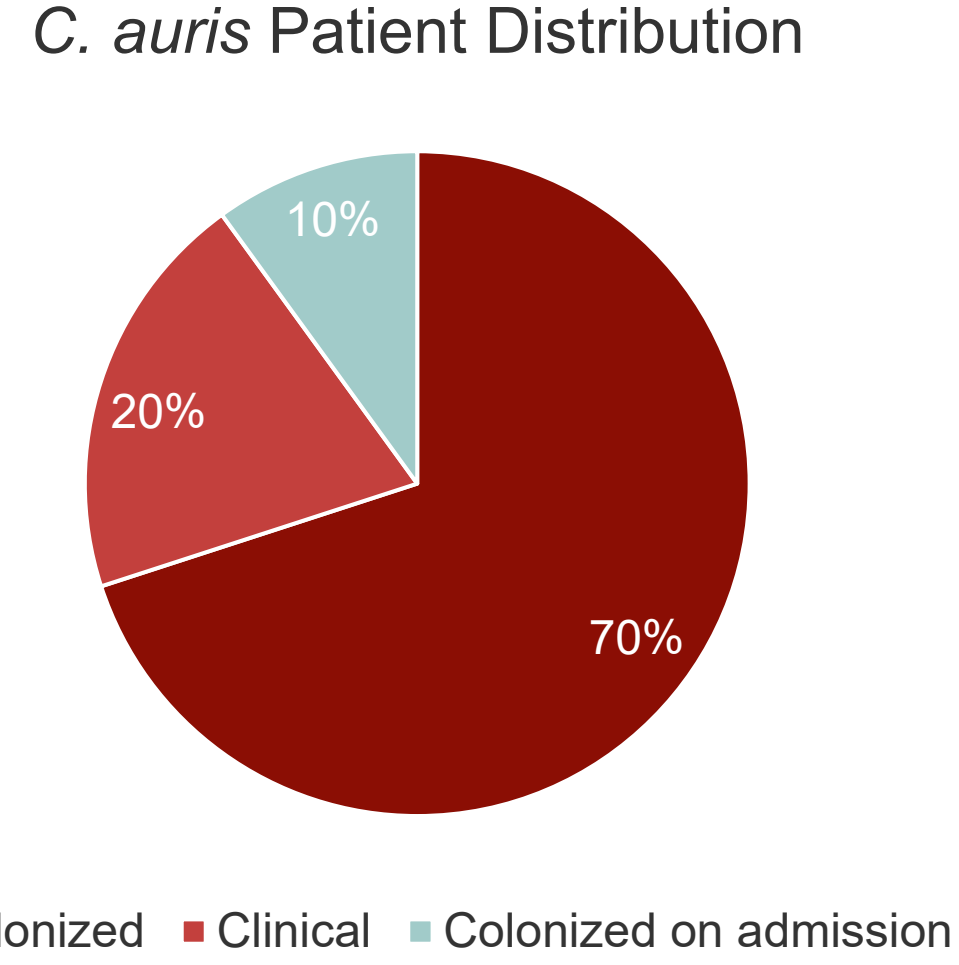
Follow-Up with LTACH

- Metro Health Staff met with LTACH administration and chief officers
- Continual communication with LTACH IP
- LTACH IP submitted documentation re: progress towards improvement
- APIC, CDC and other training tools recommended for IP
- Metro Health consult with TX DSHS Region 8 HAI Epidemiologist and Central Office Epidemiologists

C. auris LTACH Cases Breakdown as of 12/31/2023

- Ongoing *C. auris* outbreak case breakdown
- 20 positive *C. auris* patients reported
  - 4 clinical cases
    - 2 colonization cases turned clinical
  - 14 colonized only
  - 2 positive colonized detected at Admission Screening

- 6 patient deaths
  - 5 colonized
  - 1 clinical



Role of Metro Health

- Conduct investigations on all reports of *C. auris*, follow-up with affected facilities, track patient movement between facilities
- Assess the LTACH response and provide guidance
- Ensure control measures are in place and provide education to prevent further spread of disease
- Assist with PPS screenings submission to TX DSHS Laboratory; report laboratory results to facility

Role of DSHS HAI Epidemiologist

- Provide guidance to Metro Health
- Assist with *C. auris* education and PPS screening resources
- Act as liaison between TX DSHS (Central HAI, other regions, Laboratory) and Metro Health
- Special thanks to HAI Epidemiologist – Public Health Region 8: Cynthia Williams, MPH, CIC

Thank You

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2023 Fungal Meningitis Outbreak in Texas

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Healthcare Safety Unit | HAI Epidemiologist | Public Health Region 11
Office of the Chief State Epidemiologist | Disease Surveillance and Epidemiology Section
Texas Department of State Health Services
February 16, 2024

Fungal Meningitis Overview

- Rare, life-threatening fungal infection causing swelling in areas around brain and spinal cord.
- Symptoms may include fever, headache, stiff neck, nausea, vomiting, photophobia, confusion.

Available at: Healthcare-Associated Fungal Meningitis:Information for Healthcare Providers | Fungal Infections | Fungal | CDC, accessed on 02/07/2024.

Initial Report

- May 7, 2023: Texas provider reported 2 patients with central nervous system infections following procedures in Mexico to Emerging Infections Network.
- CDC requested spinal tap labs to identify possible sources and etiologies.
- May 13, 2023: Two Matamoros, Tamaulipas, Mexico clinics' (possible sources of exposure) operations suspended by Mexican health authorities

Available: Health Alert Network (HAN) - 00491 | Outbreak of Suspected Fungal Meningitis in U.S. Patients who Underwent Surgical Procedures under Epidural Anesthesia in Matamoros, Mexico (cdc.gov), accessed 2/1/2024.

Available at: Health Alert: Outbreak of Fungal Meningitis | Texas DSHS, accessed 02/01/2024

Public Health Response

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- Frequent CDC and other partner meetings.
- CDC and DSHS obtained list of U. S. residents with procedure(s) at the two clinics between January 1, 2023, and May 13, 2023.
- DSHS, local health jurisdictions partnered to contact TX patients, advise medical evaluation.
- CDC created interim guidance to aid provider evaluation and diagnosis, including labs.

Available at: Health Alert Network (HAN) - 00491 | Outbreak of Suspected Fungal Meningitis in U.S. Patients who Underwent Surgical Procedures under Epidural Anesthesia in Matamoros, Mexico (cdc.gov), accessed on 02/01/2024
Available at: Health Alert: Outbreak of Fungal Meningitis | Texas DSHS, accessed on 02/01/2024

Laboratory Summary

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- Negative CSF and blood cultures
- Positive CSF and blood Beta-D-Glucan tests from several patients
- *Fusarium solani* species detected by:
  - PCR at Mexico Ministry of Health Lab
  - Metagenomic testing at UC San Francisco
  - Pan-fungal PCR tests at CDC and Univ. Washington

Fungal PCR: Detection, ITS rDNA

Detected

Fungal PCR: ITS Identification

Fusarium solani species complex

Fungal PCR: Specimen Description

Cerebrospinal Fluid

Available at: Interim Guidance Matamoros FM Outbreak 5_20_23 – Fungus Education Hub Comunicado Técnico Semanal Meningitis | Secretaría de Salud | Gobierno | gob.mx (www.gob.mx), accessed on 02/01/2024

Fungal Meningitis Investigation Case Counts

Case Types	Texas	Other states	U.S. Total
Confirmed Cases: Fungus detected	8 (80%)	2 (20%)	10
Probable Cases: Spinal tap suggests meningitis; fungus not isolated	12 (86%)	2 (14%)	14
Suspected Cases: Symptoms consistent with meningitis; spinal tap results pending or unknown	3 (33%)	6 (67%)	9
Persons under Investigation: surgery, but no symptoms; spinal tap results pending or unknown	122 (81%)	29 (19%)	151

Available at: Fungal Meningitis | Texas DSHS, accessed on 02/01/2024
Available at: Fungal Meningitis Outbreak Associated with Procedures Performed under Epidural Anesthesia in Matamoros, Mexico | HAI | CDC, accessed on 02/01/2024

Fungal Meningitis Case Characteristics

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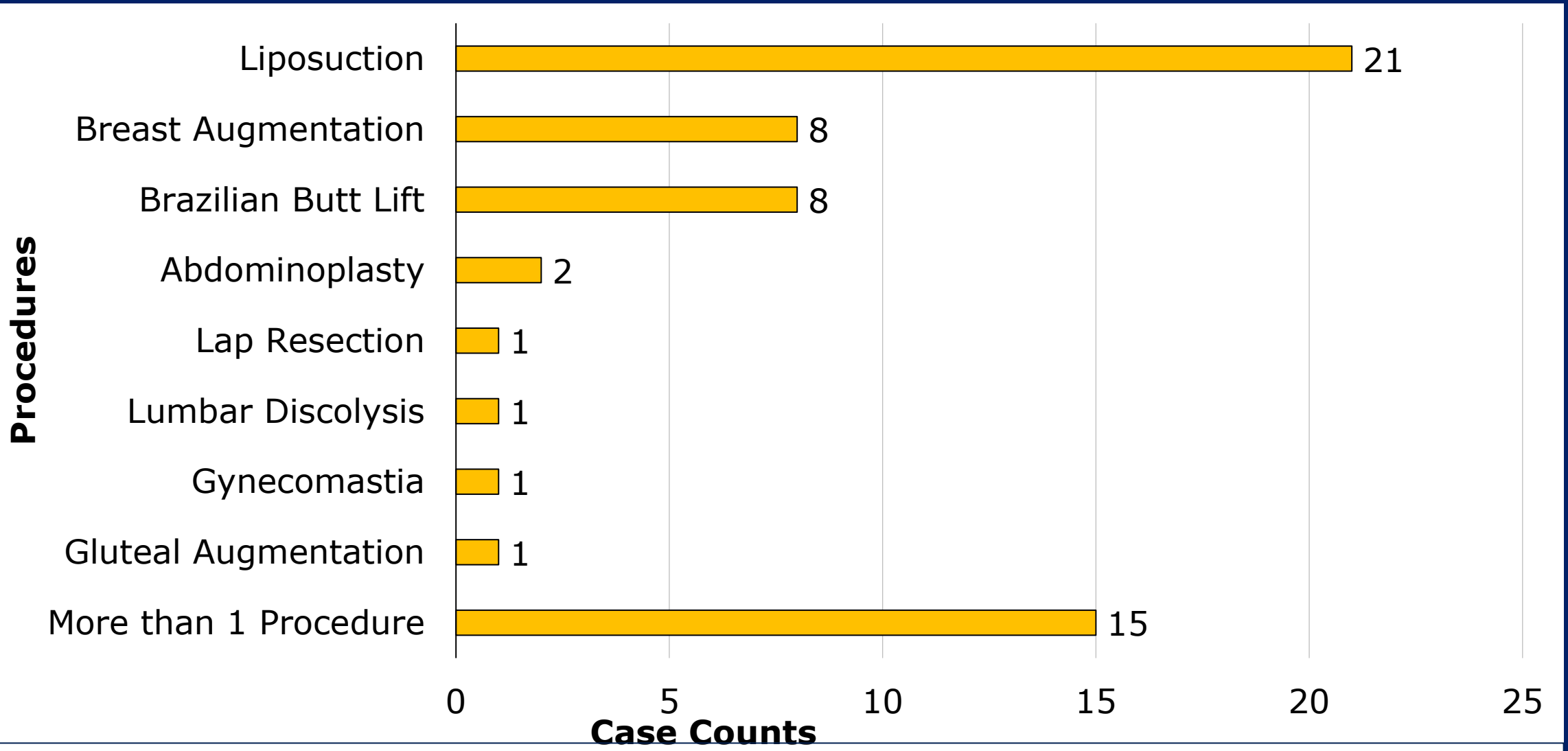
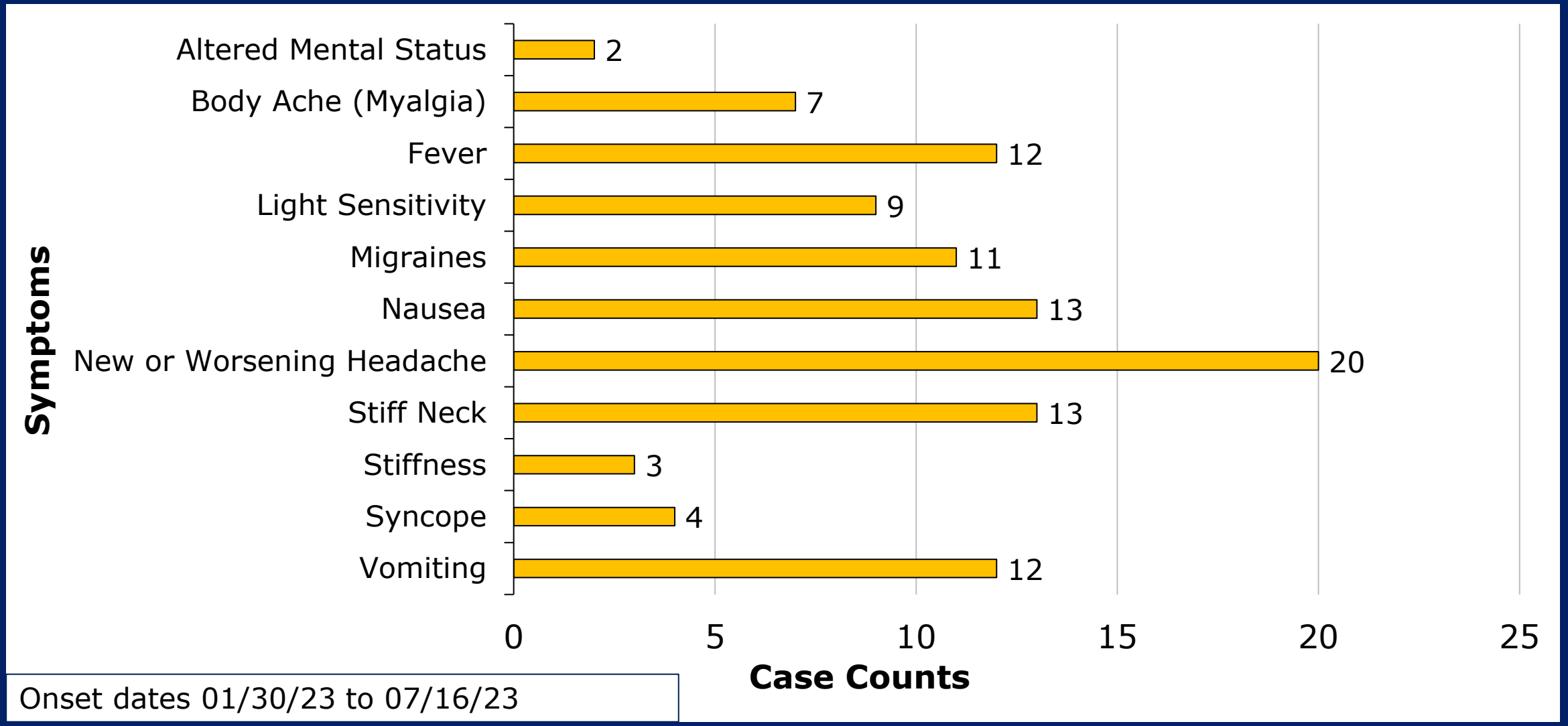
- 23 Total cases (confirmed + probable + suspected)
- Age
  - Median = 30 years
  - Range = 23 to 52 years
- Sex
  - Females = 21
  - Males = 2
- Ethnicity
  - Hispanic/Latino = 17
  - Non-Hispanic/Latino = 6

Texas Fungal Meningitis Case Procedures



Procedure dates 01/17/23 to 05/03/23; some had 1+ procedure, so counted in multiple categories.

Texas Fungal Meningitis Case Symptoms



Onset dates 01/30/23 to 07/16/23

Treatment

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Antifungal Therapy

- Liposomal amphotericin B (IV)
- Voriconazole
- Fosmanogepix (FMGX)
  - Available 07/19/2023
  - Investigational new drug application

Of the 11 deaths:

- 4 did not receive treatment
- 3 received Liposomal Amphotericin B
- 3 received Liposomal Amphotericin B and Voriconizole
- 1 received Liposomal Amphotericin B, Voriconizole, and FMGX

Texas Fungal Meningitis Case Disposition (n = 23)

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Hospitalizations

- 20 cases (87%)
  - 8 confirmed
  - 11 probable
  - 1 suspect

Not Hospitalized

- 3 cases (13%)
  - 1 probable
  - 2 suspect

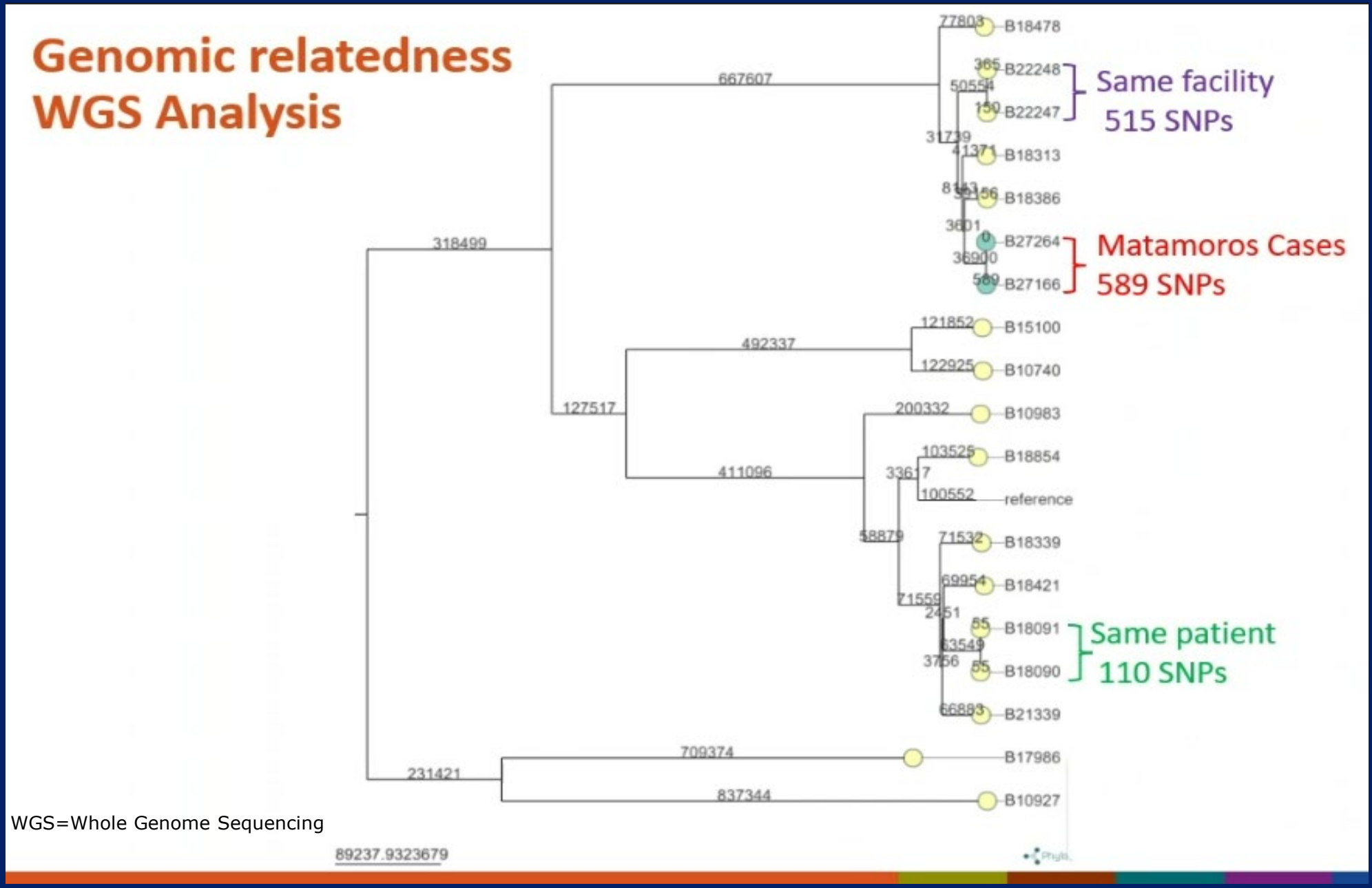
Deaths

- 11 females
  - 8 confirmed
  - 3 probable
- Median 30-years-old
  - Range 28 to 52 years
- Case Fatality Rate
  - 48% (11 of 23)

Texas Case Characteristics by Disposition and Symptom

Symptoms	Survived	Died
Altered Mental Status	0	2
Body Aches	3	4
Fever	5	7
New or Worsening Headache	10	10
Light Sensitivity	5	4
Migraines	4	7
Nausea	6	7
Stiffness	2	1
Stiff Neck	8	5
Syncope	1	3
Vomiting	6	6
Other symptoms	5	9

Genomic relatedness WGS Analysis



WGS=Whole Genome Sequencing

Smith, Dallas. "Deadly Fungal Meningitis Outbreak Linked to Epidural Anesthesia in Mexico." Presentation, MS Teams, November 2023.

Summary and Lessons Learned

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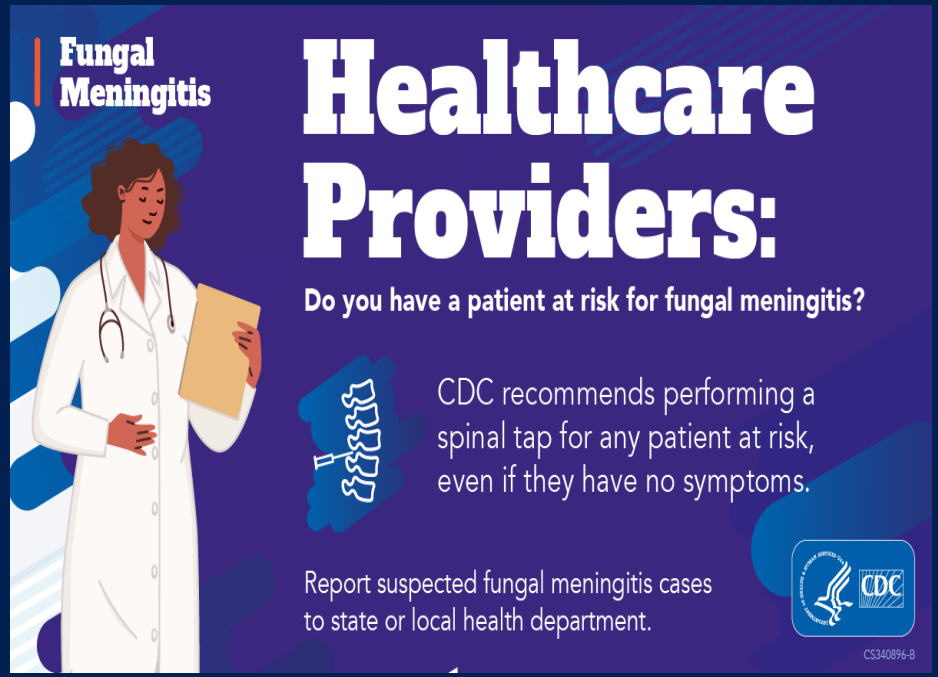
- Importance of timely information sharing
- Importance of social media in epidemiologic investigations
- Limited laboratory capacity to test for *Fusarium solani* in U.S.
- Need for early notification and communication
- Lack of established treatment recommendations
- Gap in provider education



Available at: https://www.cdc.gov/fungal/infections/HAI-fungal-meningitis-toolkit.html, accessed 02/01/2024

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  - University of California at San Francisco
  - DSHS
  - CDC
- Hidalgo County
  - Cynthia Gutierrez
  - Amy Gonzalez
- Mexico Ministry of Health

Summary of Resources

1. Available at: Centers for Disease Control and Prevention. Healthcare-Associated Fungal Meningitis: Information for Healthcare Providers. https://www.cdc.gov/fungal/infections/fungal-meningitis-healthcare-providers.html, accessed 02/07/2024
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3. Available at: Centers for Disease Control and Prevention. Fungal Meningitis Outbreak Social Media Toolkit. https://www.cdc.gov/fungal/infections/HAI-fungal-meningitis-toolkit.html, accessed 02/01/2024
4. Available at: Fungus Education Hub. Interim Recommendations for Diagnosis and Management of Cases of Fungal Meningitis Associated with Epidural Anesthesia Administered in Matamoros, Mexico. https://funguseducationhub.org/interim-guidance-matamoros-fm-outbreak-5_20_23, accessed 02/01/2024
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7. Available at: Texas Department of State Health Services. Health Alert: Outbreak of Fungal Meningitis. https://www.dshs.texas.gov/news-alerts/health-alert-outbreak-fungal-meningitis, accessed 02/01/2024

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