

Healthcare-Associated Infections (HAI)-Lights From The Field

2024 Healthcare Safety Conference

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Healthcare Safety Unit | TB and Hansen's Disease Unit

Texas Department of State Health Services

July 16, 2024

Presentation Outline

- Introduction to the Healthcare Safety Unit.
- Bone Allograft – Tuberculosis Investigation.
- Fungal Meningitis Outbreak.



Introduction

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Office of the Chief State Epidemiologist | Disease Surveillance and Epidemiology Section

Texas Department of State Health Services

July 16, 2024



TEXAS
Health and Human
Services

Texas Department of State
Health Services

Healthcare Safety Unit

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.

Healthcare Safety Unit

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



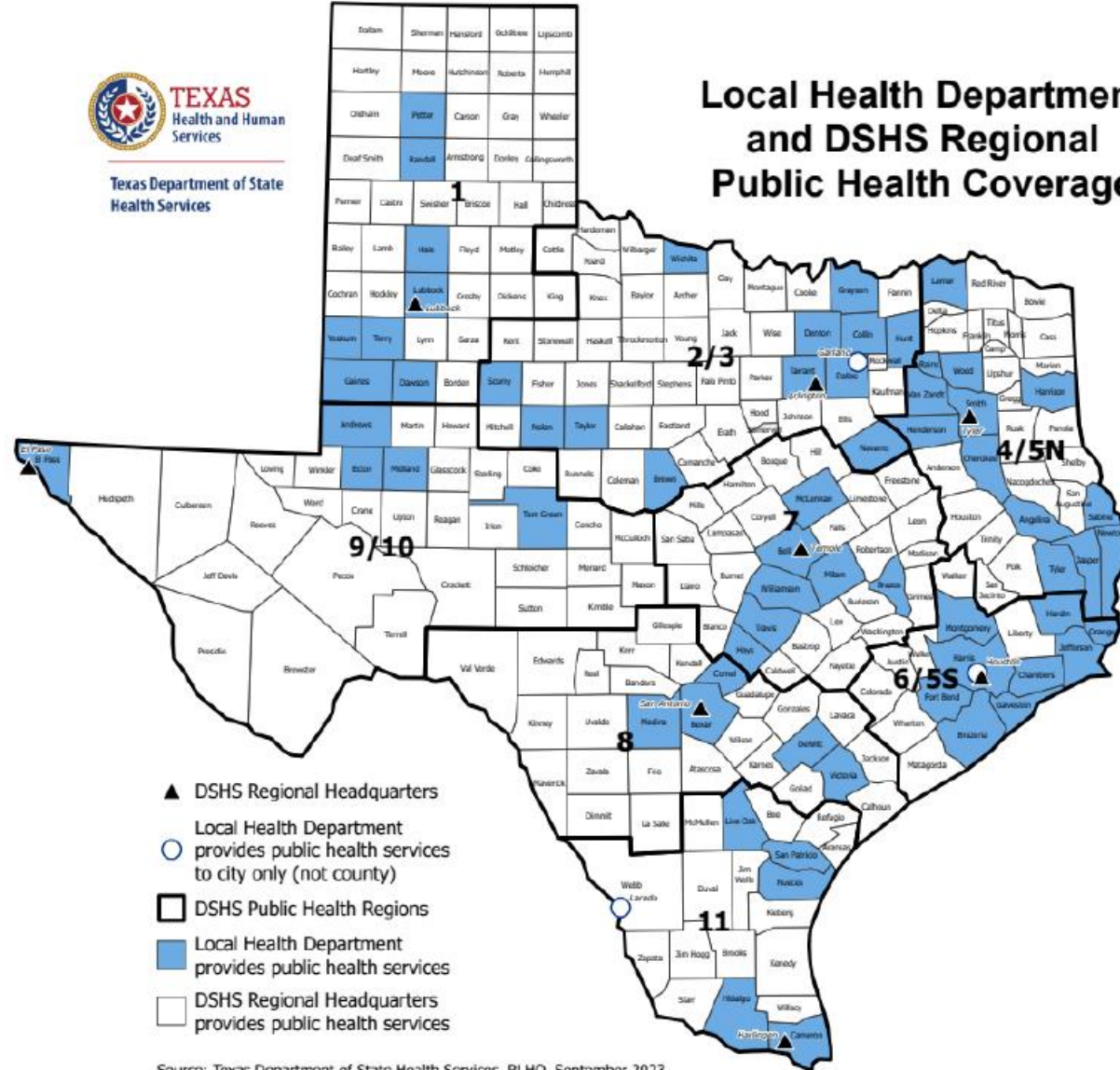
Gretchen, R. (2024) Photograph of HSU Team at an annual meeting at the Texas Department of State Health Service. [Photo] Austin, Texas.

Texas Healthcare-Associated Infections (HAI) Epidemiologists



Texas Department of State Health Services

Local Health Department and DSHS Regional Public Health Coverage



- ▲ DSHS Regional Headquarters
- Local Health Department provides public health services to city only (not county)
- DSHS Public Health Regions
- Local Health Department provides public health services
- DSHS Regional Headquarters provides public health services

Source: Texas Department of State Health Services, RLHO, September 2023

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Texas Department of State Health Services

HAIs

- 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

people 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/healthcare-associated-infections/php/data/index.html>, accessed 06/06/2024.



Texas Department of State
Health Services

Primary Roles of HAI Epidemiologists

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.



2023 Fungal Meningitis Outbreak in Texas

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Fungal Meningitis Overview

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

Initial Report

- May 7, 2023: Texas provider reported 2 patients with central nervous system infections following procedures in Mexico to Emerging Infections Network.
- May 13, 2023: Two Matamoros, Tamaulipas, Mexico clinics' (possible sources of exposure) operations suspended by Mexican health authorities.
- May 17, 2023: CDC requested spinal tap labs to identify possible sources and etiologies.

Public Health Response

- 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 and local health jurisdictions partnered to contact TX patients and advised them to seek medical evaluation.
- CDC developed interim guidance to aid provider evaluation and diagnosis, including labs.

Laboratory Summary

- Negative CSF and blood cultures.
- Positive CSF and blood Beta-D Glucan tests from several patients.
- *Fusarium solani* species was detected in 47% of submitted samples by:
 - PCR at Mexico Ministry of Health Lab.
 - Metagenomic testing at UC at 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

Fungal Meningitis 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

Case Characteristics – Texas Cases

- 23 Total cases (confirmed + probable + suspected)

Age

- Median = 30 years
- Range = 23 to 52 years

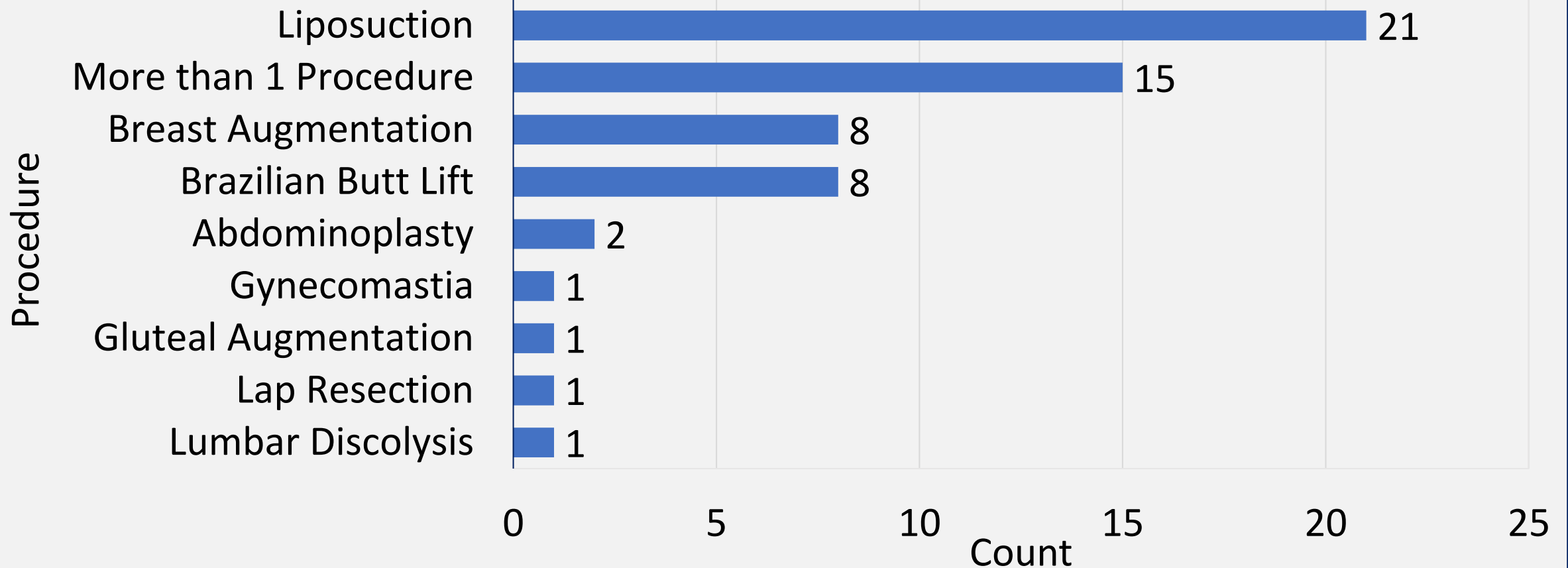
Ethnicity

- Hispanic/Latino = 17 (74%)
- Non-Hispanic/Latino = 6 (26%)

Sex

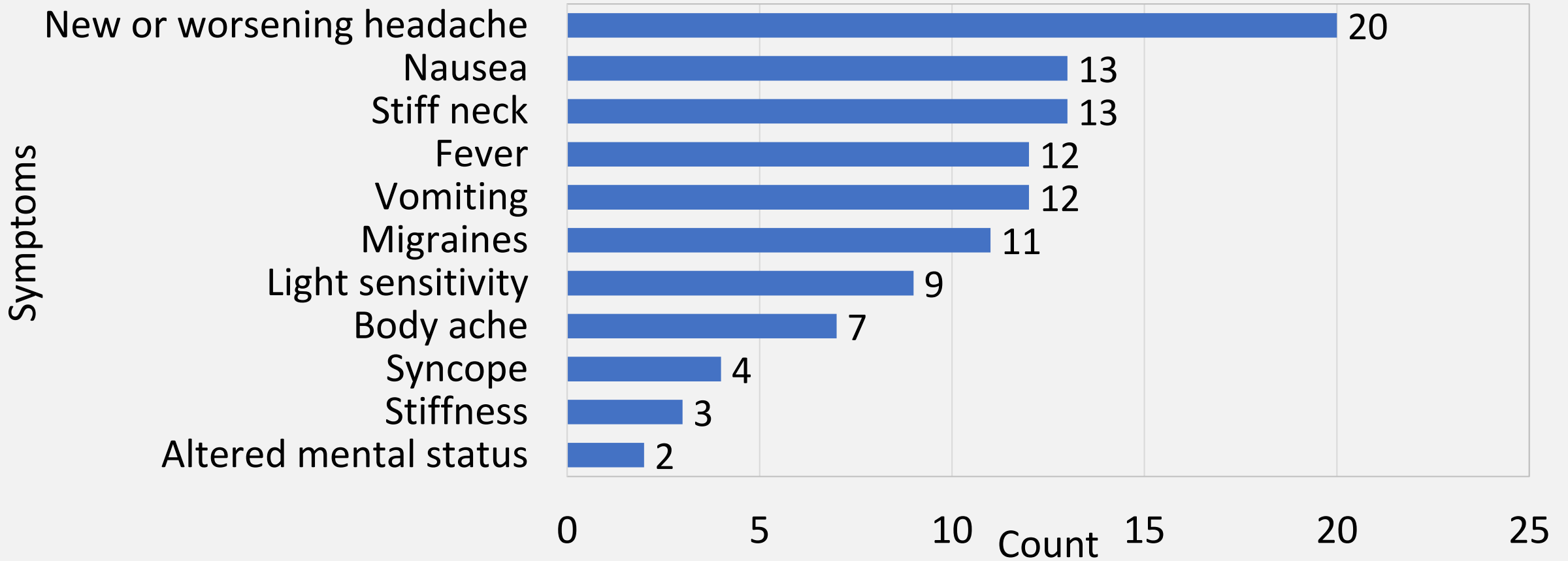
- Females = 21 (91%)
- Males = 2 (9%)

Procedures Summary* – Texas Cases



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

Symptoms Summary – Texas Cases



- Onset dates 01/30/23 to 07/16/2023.

Case Disposition – Texas Cases

Total number of cases (n=23)

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

- Comparing case characteristics by disposition and symptom, all cases, those that survived and died, experienced similar and a wide range of symptoms.
- The most common shared symptom was new or worsening headache.
- The least common shared symptom was altered mental status.

Treatment Options

Antifungal Therapy

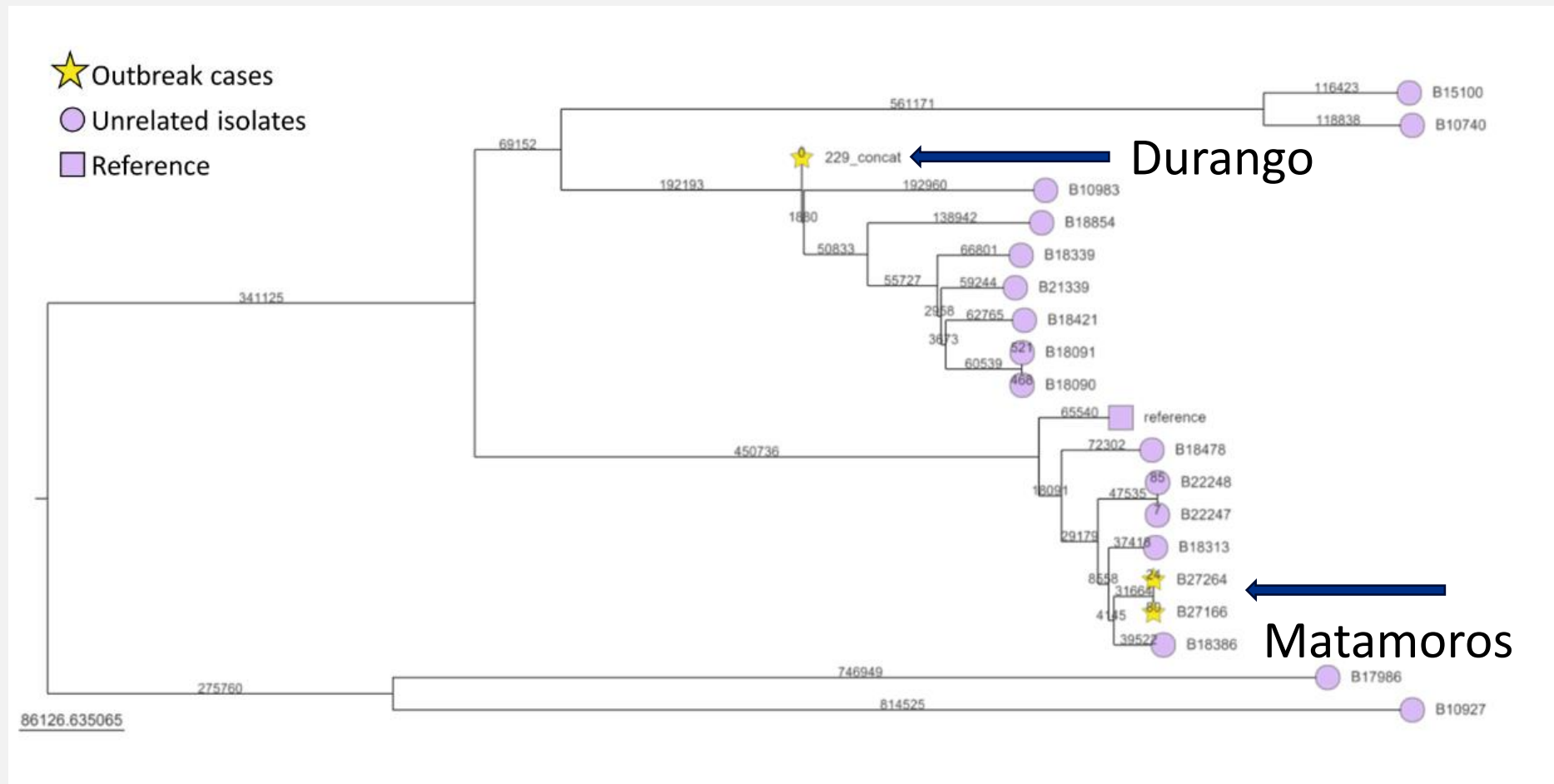
- Liposomal amphotericin B (IV)
- Voriconazole
- Fosmanogepix (FMGX)
 - Became available under an IND (investigational new drug) mechanism effective 07/19/2023.

Treatment – Texas Cases

Of the 23 cases:

- 8 did not receive treatment.
 - 3 received Liposomal amphotericin B.
 - 5 received Liposomal amphotericin B and Voriconizole.
 - 5 received Liposomal amphotericin B, Voriconizole, and FMGX.
 - 2 received FMGX only.
-
- 70 % of cases did not receive FMGX treatment for fungal meningitis.

Genomic analysis showed that isolates from Matamoros were related; isolates from Matamoros and Durango were not highly related



Smith, Dallas. "Fungal Diseases – Emerging Concerns from a Public Health Perspective." Presentation presented at: University of Duke Medical Center ID Grand Rounds, Accessed April 8th, 2024.

Lessons Learned

- 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

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Summary of Resources

- Texas Department of State Health Services. Healthcare Safety Unit. <https://www.dshs.texas.gov/healthcare-safety-unit>, access on 06/06/2024
- Gretchen, R. (2024) Photograph of HSU Team at an annual meeting at the Texas Department of State Health Service. [Photo] Austin, Texas.
- Centers for Disease Control and Prevention. HAIs: Reports and Data <https://www.cdc.gov/healthcare-associated-infections/php/data/index.html>, accessed 06/06/2024.
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Summary of Resources (continued)

- Centers for Disease Control and Prevention. Fungal Meningitis Outbreak Associated with Procedures Performed under Epidural Anesthesia in Matamoros, Mexico. <https://archive.cdc.gov/#/details?url=https://www.cdc.gov/hai/outbreaks/meningitis-epidural-anesthesia.html>, accessed on 06/06/2024.
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- Mexico Ministry of Health. Comunicado Técnico Semanal Meningitis. <https://www.gob.mx/salud/documentos/comunicado-tecnico-semanal-meningitis>, accessed on 06/06/2024.
- Smith, Dallas. “Fungal Diseases – Emerging Concerns from a Public Health Perspective.” Presentation presented at: University of Duke Medical Center ID Grand Rounds, Accessed April 8th, 2024.
- 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 on 06/06/2024.

Thank you!

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