Identification of Patients with Rare & Emerging Diseases Utilizing Real-World Data

African and American Trypanosomiasis

Poster SA63 Supplemental Information

BACKGROUND

African Trypanosomiasis

- Also known as Sleeping Sickness
- Caused by microscopic parasites of the species *Trypanosoma brucei*
    - Two subspecies, *T. b. gambiense* and *T. b. rhodesiense* cause disease in humans
        - *T. b. gambiense* (West African sleeping sickness) is endemic in western and central Africa and accounts for majority of cases
        - *T. b. rhodesiense* (East African sleeping sickness) is endemic in eastern and southeastern Africa
- Transmitted by the tsetse fly, found only in sub-Saharan Africa (**Figure S1a**)
    - Can also be passed mother-to-baby (congenital), through sexual transmission, through contaminated blood transfusions, an organ transplanted from an infected donor, and accidental laboratory exposure
- People living in rural, woodland areas or near streams where the tsetse flies inhabit are at greatest risk
- Infection occurs in two stages
    - Haemolymphatic stage – initial stage
        - Non-specific, generalized symptoms occurring 1-3 weeks after the bite, including headache, malaise, weakness, fatigue, pruritis, and arthralgia, with weight loss and intermittent fevers lasting one day to a week
    - Meningoencephalitic stage – occurring after the trypanosomes invade the central nervous system (CNS)
        - *T. b. gambiense* progresses to second stage in an average of 300-500 days while *T. b. rhodesiense* progresses after an estimated 21-60 days
        - Invasion of the CNS causes a variety of neuropsychiatric manifestations: the wake/sleep cycle becomes reversed, with sudden urges to sleep, accompanied with mental, motor, sensory, and neurologic signs and symptoms

American Trypanosomiasis

- Also known as Chagas disease
- Caused by the parasite *Trypanosoma cruzi*
- Most commonly spread through contact with an infected triatomine bug (kissing bug) in parts of Mexico, Central America, and South America (**Figure S1b**).
    - Can also be passed mother-to-baby (congenital), through contaminated blood transfusions, an organ transplanted from an infected donor, accidental laboratory exposure, and through contaminated food or drink

- People living in rural areas where the kissing bug is present, and those with poor housing conditions (e.g., mud walls) are at greatest risk
- Large-scale population movements from rural to urban areas in Latin America and to other regions of the world have increased the geographic distribution
    - The disease can now be found, but is not endemic in the United States
    - Centers for Disease Control and Prevention (CDC) estimates that more than 300,000 people infected with American trypanosomiasis reside in the United States (US)
        - Majority were infected in parts of Latin America where the disease is found.
- Two phases of American trypanosomiasis
    - Acute – lasts the first few weeks or months of infection
        - Infected individuals may experience no symptoms or have generalized mild symptoms of fever, fatigue, body aches, headache, rash, loss of appetite, diarrhea, and vomiting
    - Chronic – can last for decades or even lifetime
        - Approximately 20-30% develop cardiac complications that can lead to sudden death and/or gastrointestinal complications

RESULTS

Figure S2 shows the patient percentages for regions in the US for both indications.

TABLES AND FIGURES

Figure S1a. African Trypanosomiasis

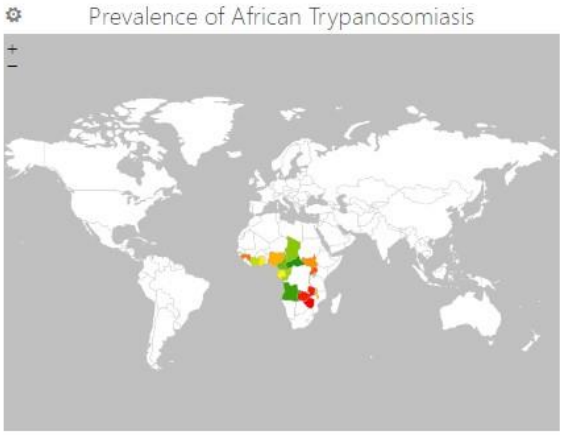
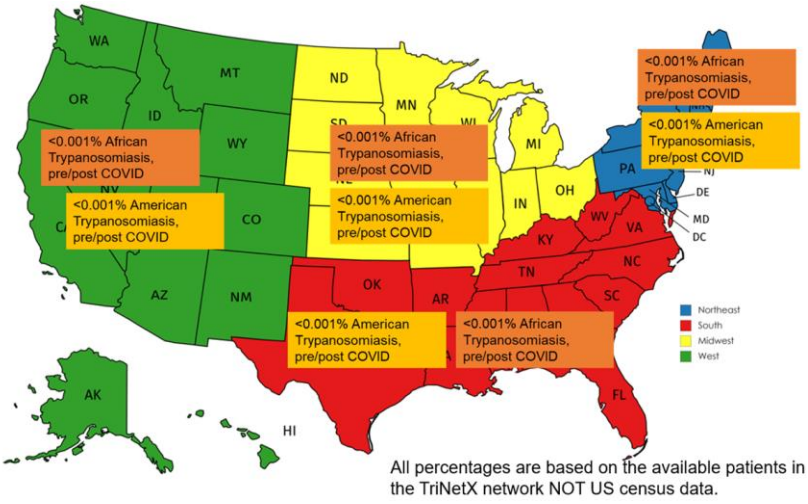


Figure S1b. American Trypanosomiasis

Figure S2. Patient Percentage Map for African & American Trypanosomiasis Pre & Post COVID in the US (by region)



Data sourced from TriNetX, LLC

REFERENCES

1. Centers for Disease Control and Prevention (CDC). *Parasites – American Trypanosomiasis (also known as Chagas Disease).* Retrieved from https://www.cdc.gov/parasites/chagas/
2. CDC. *Parasites – African Trypanosomiasis (also known as Sleeping Sickness).* Retrieved form https://www.cdc.gov/parasites/sleepingsickness/