Looking for Chagas

Nancy Piper Jenks MS,CFNP,MFTM RCPS (Glasg),FAANP

Sun River Health, Peekskill, NY

January 10, 2024

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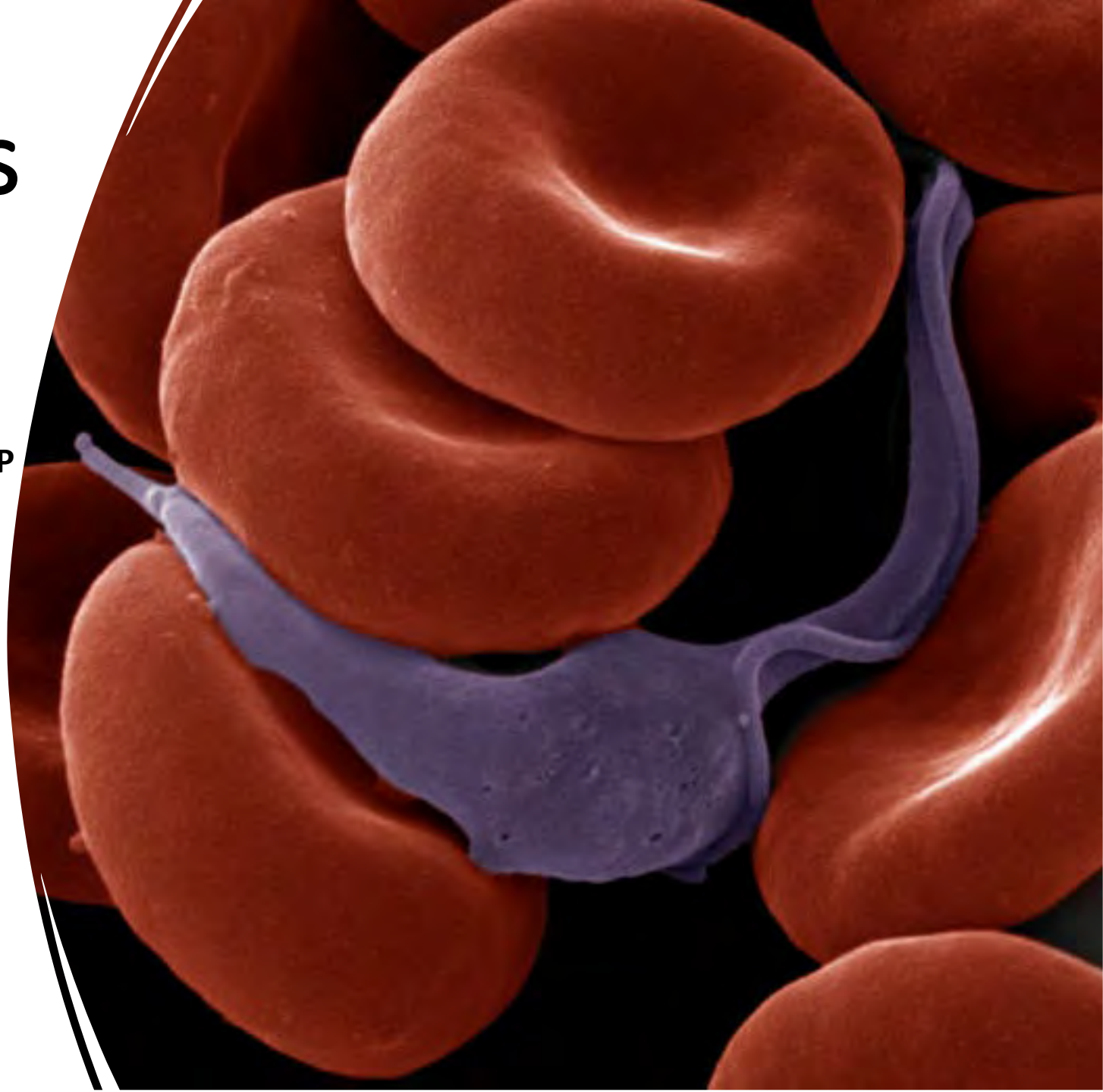

Overview

- Introduce Sun River Health
- How did screening for Chagas come to us
- Describe our quality improvement project to screen OB patients at one SRH site
- Two recent cases

Sun River Health

From Left to Right: Willie Mae Jackson, Pearl Woods, Rev. Jeannette Phillips, Anne K. Nolon, Mary Woods.

In the early 1970's a group of residents and religious leaders addressed the lack of appropriate health services in their community. In particular, a group of four women, fondly referred to as our founding mothers, spearheaded the efforts and have remained committed to the organization since its inception.

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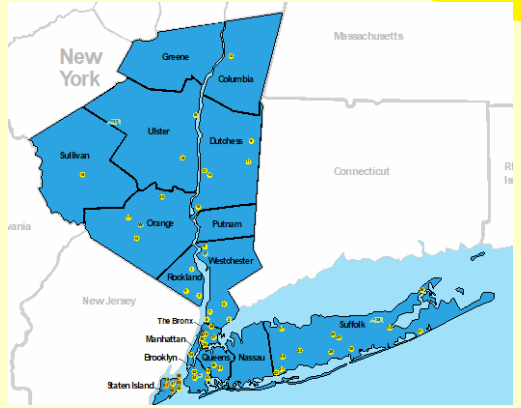
Health Center Locations

Across 3 diverse regions of New York, the Hudson Valley, New York City, and Long Island, providing comprehensive primary, behavioral and women's health among other services.



Patient Population

60% of our patient population is on Medicaid, 49% have a primary language other than English and special populations include agricultural workers, homeless individuals, veterans, public housing individuals and others.

250,000

2,000

Staffing

Providers, Nurses, and Health Professionals are key in making Sun River Health a leader in providing comprehensive care to our patient population.

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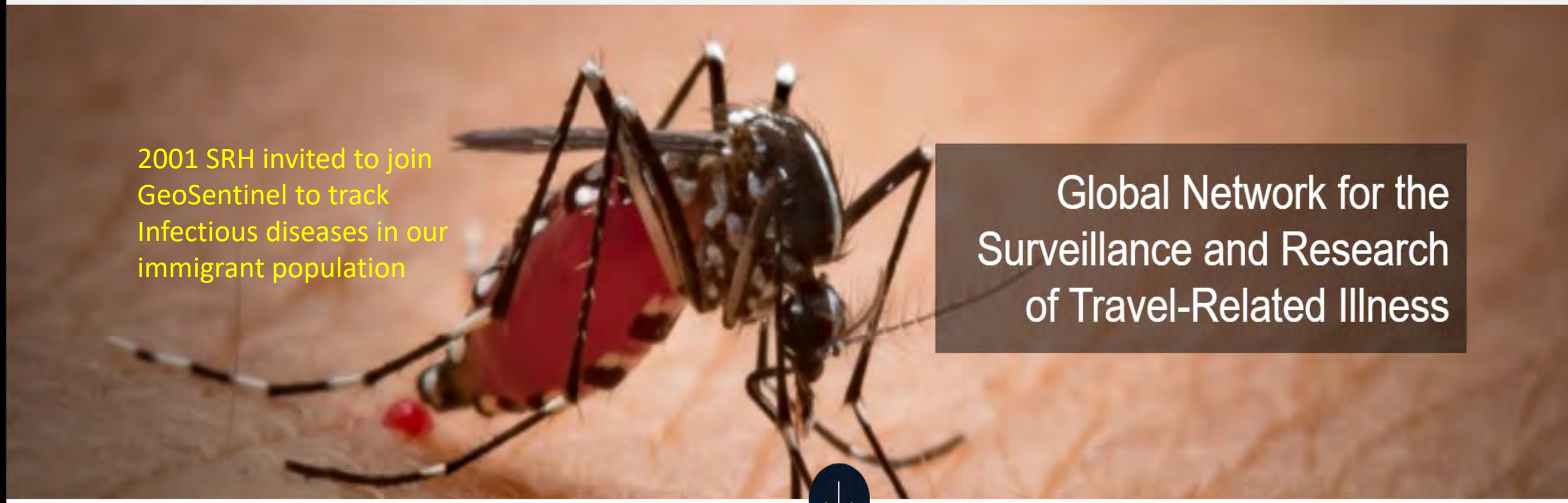
GeoSentinel

About Sites Projects Alerts Publications Collaborations Funding

The Global Surveillance and Research Network



2001 SRH invited to join GeoSentinel to track Infectious diseases in our immigrant population

Our Vision

A worldwide community of travel, tropical medicine, and infectious disease experts devoted to promoting quality healthcare delivery systems and patient care.

› Travel Med Infect Dis. 2023 Nov-Dec:56:102653. doi: 10.1016/j.tmaid.2023.102653. Epub 2023 Oct 17.

Infections with long latency in international refugees, immigrants, and migrants seen at GeoSentinel sites, 2016–2018

Elizabeth D Barnett [1], Alyse B Wheelock [2], William B MacLeod [3], Anne E McCarthy [4], Patricia F Walker [5], Christina M Coyle [6], Christina A Greenaway [7], Francesco Castelli [8], Rogelio López-Vélez [9], Federico G Gobbi [10], Elena Trigo [11], Martin P Grobusch [12], Philippe Gautret [13], Davidson H Hamer [14], Susan Kuhn [15], William M Stauffer [16]

Affiliations + expand

PMID: 37852594 PMCID: PMC10760402 (available on 2024-11-01)
DOI: 10.1016/j.tmaid.2023.102653

Abstract

Background: The continued increase in global migration compels clinicians to be aware of specific health problems faced by refugees, immigrants, and migrants (RIM). This analysis aimed to characterize RIM evaluated at GeoSentinel sites, their migration history, and infectious diseases detected through screening and diagnostic workups.

Methods: A case report form was used to collect data on demographics, migration route, infectious diseases screened, test results, and primary infectious disease diagnosis for RIM patients seen at GeoSentinel sites. Descriptive statistics were performed.

Results: Between October 2016 and November 2018, 5,319 RIM patients were evaluated at GeoSentinel sites in 19 countries. Africa was the region of birth for 2,436 patients (46 %), followed by the Americas (1,644, 31 %), and Asia (1,098, 21 %). Tuberculosis (TB) was the most common infection screened and reported as positive (853/2,273, 38 % positive by any method). TB, strongyloidiasis, and hepatitis B surface antigen positivity were observed across all migration administrative categories and regions of birth. Chagas disease was reported only among RIM patients from the Americas (393/394, 100 %) and schistosomiasis predominantly in those from Africa (480/510, 94 %). TB infection (694/5,319, 13 %) and Chagas disease (524/5,319, 10 %) were the leading primary infectious disease diagnoses.

GeoSentinel Data from Sun River Health 2001-2022

Chagas Disease – one case in Mexican immigrant who donated blood and was then informed of infection, came to us for treatment, significant heart disease

Quality Improvement Project

Presented to our QI council and approved January 2023

Importance of identifying and treating Chagas in our at-risk patients

Framing initiative as quality improvement, not research

Organizing our pilot

Choosing a site and cohort

Putting together a team

Training and educating team members and staff

Working with IT to create templates for EMR

Choosing a site and cohort

Small in number

- Starting small as we design process

Right population

- Patients from Chagas endemic areas
- Obstetric patients: captured audience who come in regularly, patients who have health insurance, greater ease in tracking

Mission focus

- Impact on lives: treating young mothers, treating babies, treating other family members, LOOKING FOR CHAGAS

Countries of Origin OB Patients SRH Brentwood Site, Long Island, NY

Informatic system review 1/9/2023

• El Salvador	63	(59%)
• Honduras	17	(16%)
• Ecuador	9	(8.4%)
• Colombia	6	(5.6%)
• DR	3	(2.8%)
• Peru	2	(1.8%)
• Mexico	2	(1.8%)
• Chile	2	(1.8%)
• USA	3	(2.8%)

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Our Team

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Nancy Piper Jenks, MS, CFNP, MFTM RCPS (Glasg), FAANP

Quratulain Zeeshan, MD, Quality Medical Director WH

Aarathi Nagaraja, MD, CPH, Medical Director HIV/Hep C

Vasanthi Arumugam, MD, Infectious Diseases

Marianne Boyce, RN, VP Infection Prevention, Lab Services

Roberta Kelly, FNP-BC, CIC, Chief Nursing Officer, SVP

Carlos Ortiz, Deputy Chief Operating Officer

Amanda Ascher, MD, CMO

Rachel Barnett, Program Director

Organization of pilot (January 2023)

- Guidance from experts
- Training/educating staff
- Creating protocols for screening and tracking
- Working with IT to create EMR templates for Chagas screening
- Organizing system to bring in family members and spouses of patients for screening

Screening

Pregnant women at our Brentwood site beginning July 2023

Case presentations

Case 1

March 2016

23-year-old woman from Honduras presents to our health center for prenatal care

P2011 Has an 8-year-old child

Has been in USA for 10 months

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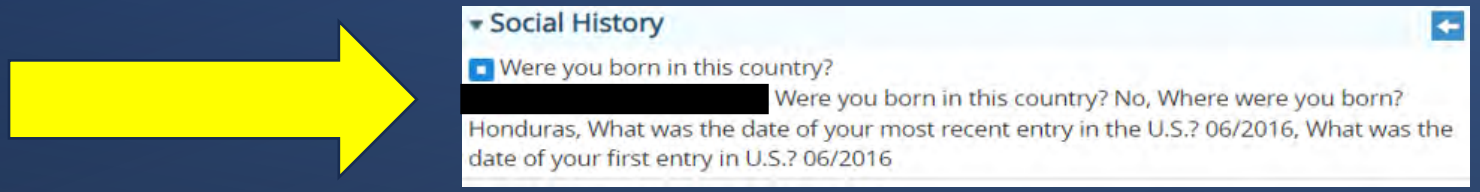

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April 2016

Assessment:

Assessment:

1. Encounter for supervision of other normal pregnancy, first trimester - Z34.81 (Primary)

Plan:

1. Encounter for supervision of other normal pregnancy, first trimester

Start Prenatal Tablet, 28-0.8 MG, as directed, Orally, once a day, 90 days, 1 bottle, Refills 0 .

LAB: CYSTIC FIBROSIS SCREEN MUTATION (DNA)

LAB: PRENATAL PANEL 1 (P283-5)

LAB: QUANTIFERON-GOLD TB ASSAY

LAB: HIV AB/AG 4th Gen

Imaging: US (OB) FIRST TRIMESTER TA/TV

[redacted]

Labs:

Lab: CYSTIC FIBROSIS PANEL EXPANDED

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Case 1

Normal delivery October 2016

7.3 pound baby; apgars 8/9

March 2020 – COVID-19 infection

March 2022 – ER visit for numbness in face and extremities, chest pain and palpitations. Negative work up at ER
Referred to cardiology, normal ECG, ECHO.
Neuro symptoms resolved

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Case 1

February 2023

Pt returns to health center for prenatal care

P3012

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Case 1

- July 2023 Patient is screened for T Cruzi AB, sent to commercial lab

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July 2023

Reason for Appointment

1. EOB 28.6 WKS- Tdap Accepted
2. Pre-Visit Planning done for visit
3. *Attained By: RSantana CA
4. Nursing-Urinalysis (SCREEN)
5. Interpreter

Assessments

1. Encounter for screening, unspecified - Z13.9
2. 28 weeks gestation of pregnancy - Z3A.28 (Primary)
3. Encounter for immunization - Z23

Treatment

1. 28 weeks gestation of pregnancy

LAB: URINE CULTURE, ROUTINE
LAB: GLUCOSE,1HR.PP(PREG.)w/glucola
LAB: CBC W/DIFF, PLATELET CT. (0053-9)
LAB: Syphilis Reverse Algorithm (J275-9)
LAB: TRYPANOSOMA CRUZI,AB TOTAL 6199-4

2. Encounter for screening, unspecified

LAB: Urinalysis W/O Microscopy, In House

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Case 1

Commercial serology positive 7/2023
2 tubes of whole blood and serum sent to NYS DOH Wadsworth 10/2023

Test	Interpretation
T. cruzi AB EIA*	Reactive

Comments and Disclaimers
* Reference value: Non-reactive/negative

Test	Result
T. cruzi AB IB (TESA)*	Weak Positive

Comments and Disclaimers
* Reference value: Non-reactive/negative

Test	Result
T. cruzi Interpretation	Positive*

Comments and Disclaimers
* The test results are considered **Positive** and are consistent with T. cruzi infection.
Diagnosis of chronic Chagas disease is established after concordant positive results are obtained with at least two different types of T. cruzi serologic assays. Clinical consultation is available at CDC (phone: 404-718-4745; parasites@cdc.gov) for interpretation of these serologic results and other diagnostic indicators, in the context of additional information.

T. cruzi AB EIA Test Comments: This test detects antibodies against T. cruzi recombinant antigens.

T. cruzi AB IB (TESA) Test Comments: This test is an immunoblot assay which detects antibody reactivity to the 150-160kDa transialidase antigens of T. cruzi.

The performance characteristics of the T. cruzi AB IB (TESA) and T. cruzi AB IFA tests were determined by validations performed at the Division of Parasitic Diseases and Malaria (DPDM) at the Centers for Disease Control and Prevention. They have not been cleared or approved by the U.S. Food and Drug Administration.

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October 2023

4 weeks (Reason: for follow up)

History of Present Illness

General:

spanish translator# 1101036

This is 30 yr old female with no significant PMhx ,1 month postpartum, she is refered for positive T.cruzi antibody

She born in Hunduras Us for last 8yrs [redacted]

She lives in Hunduras vilaage

As per patient her house with thatched roof, she also says lots of holes and crackes in the house

She denies any blood transfusion or surgery

She denies any family h/o heart/Gi problem

She denies any complaints now, not taking any medication

She has 3 heqalthy children.

T. Cruzi/Chagas Disease:

Screening

Screening : *Adult* ..

Counseling information *The patient is from an endemic region of North, South, or Central America and is requesting screening for T.cruzi., The patient/ parent or care giver verbalized understanding that screening positive will require further evaluations, including diagnostic testing and possible treatment.*

Country of origin/birth: *Honduras, undefined* ...

Region: ...

Prior treatment or testing in the past? *No* ...

Do other family members want to be screened? *Yes* ...

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Case 1

T. Cruzi/Chagas Disease:

Screening

Screening : *Adult* ..

Counseling information *The patient is from an endemic region of North, South, or Central America and is requesting screening for T.cruzi., The patient/ parent or care giver verbalized understanding that screening positive will require further evaluations, including diagnostic testing and possible treatment.*

Country of origin/birth: *Honduras, undefined* ...

Region: ...

Prior treatment or testing in the past? *No* ...

Do other family members want to be screened? *Yes* ...

Diagnostic Evaluation and Treatment

Diagnostic evaluation and treatment for: *Adult*

Why was the patient referred for testing: ...

Did other family members test positive on screening or diagnostic labs: ...

Country of origin/birth: *Honduras, undefined* ...

Housing: *Mud, Thatch, Palm leaves, undefined* ...

Location of bathroom: *Outside of the home, suggest strongyloides* ...

Does the patient or parent/care giver recognize a kissing bug? *No* ...

Does the patient or parent/care giver recall family with Chagas disease or heart disease in their country of origin? *No* ...

Is the patient currently pregnant or recently delivered ? *Recently Delivered* ...

Date of delivery: [redacted]

Mode of delivery: *Vaginal*

The patient was counseled that the recently delivered child needs to be tested. *Yes*

Lab Results:

Bio-Reference: T. Cruzi Screening Date: [redacted]

Bio-Reference: T. Cruzi Screening Results: *Reactive* ...

NYS Wadsworth: T. Cruzi Total Antibody ELISA Wiener Date: [redacted]

NYS Wadsworth: T. Cruzi Total Antibody ELISA Wiener Results: *Reactive* ...

NYS Wadsworth: T. Cruzi IgG ELISA (Hemagen) Date: 10/20/2022

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Case 1

delivered healthy baby girl

September 2023

January 2024

follow up with cardiologist from previous visits

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November 2023

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CHIEF COMPLAINT: History of palpitations.

Subjective:

The patient is a 29-year-old female, now mother of a 3-month-old healthy child, baby girl. She previously was seen for palpitations. Her HeartSmart monitor performed in January of this year did not reveal any sustained arrhythmias. In the past, there was question of patent foramen ovale and she underwent a transesophageal echo on May [redacted] 2022 with no evidence of PFO. She feels well without any chest discomfort or respiratory difficulty. There has been no palpitations, PND, orthopnea, dizziness or syncope.

Past Medical History:

Diagnosis Date

- Hyperlipidemia
- Pregnancy
  6 weeks

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Assessment:

is now a mother of a 3-month-old health baby girl. Her palpitations have resolve
are no active symptoms to suggest acute coronary syndrome or hemodynamic compromise.

Plan:

1. There was no evidence of PFO by Bubble study or contrast with transesophageal echo.
2. Palpitations have resolved.
3. She has history of preserved left ventricular function.
4. Hyperlipidemia. Atorvastatin 40 mg daily will be maintained without change of dosage.
5. We will repeat an echocardiogram.

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Case 2

33 year old patient from El Salvador

2015 Arrived USA

2015: CPE at center, family history: father died age 50 cardiac disease, cardiomegaly, uncle with same illness

2/2017: +pregnancy test, delivered healthy baby 9/2017 C-sec

2/2020: + pregnancy;

4/2020 COVID-19 infection,

8/2020 delivered a healthy baby

C-section

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Case 2

- 11/2022: + pregnancy test
- 2023: Tested as part of our screening for T Cruzi

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TRYPANOSOMA CRUZI,AB TOTAL 6199-4

	NAME	VALUE	
F	TRYPANOSOMA CRUZI,TOT (24)	REACTIVE	A

REFERENCE RANGE: NONREACTIVE

The enzyme immunoassay for T. cruzi (Chagas disease)

antibodies is sensitive and specific for acute or

chronic American trypanosomiasis. However,

crossreactivity may be observed in patients with

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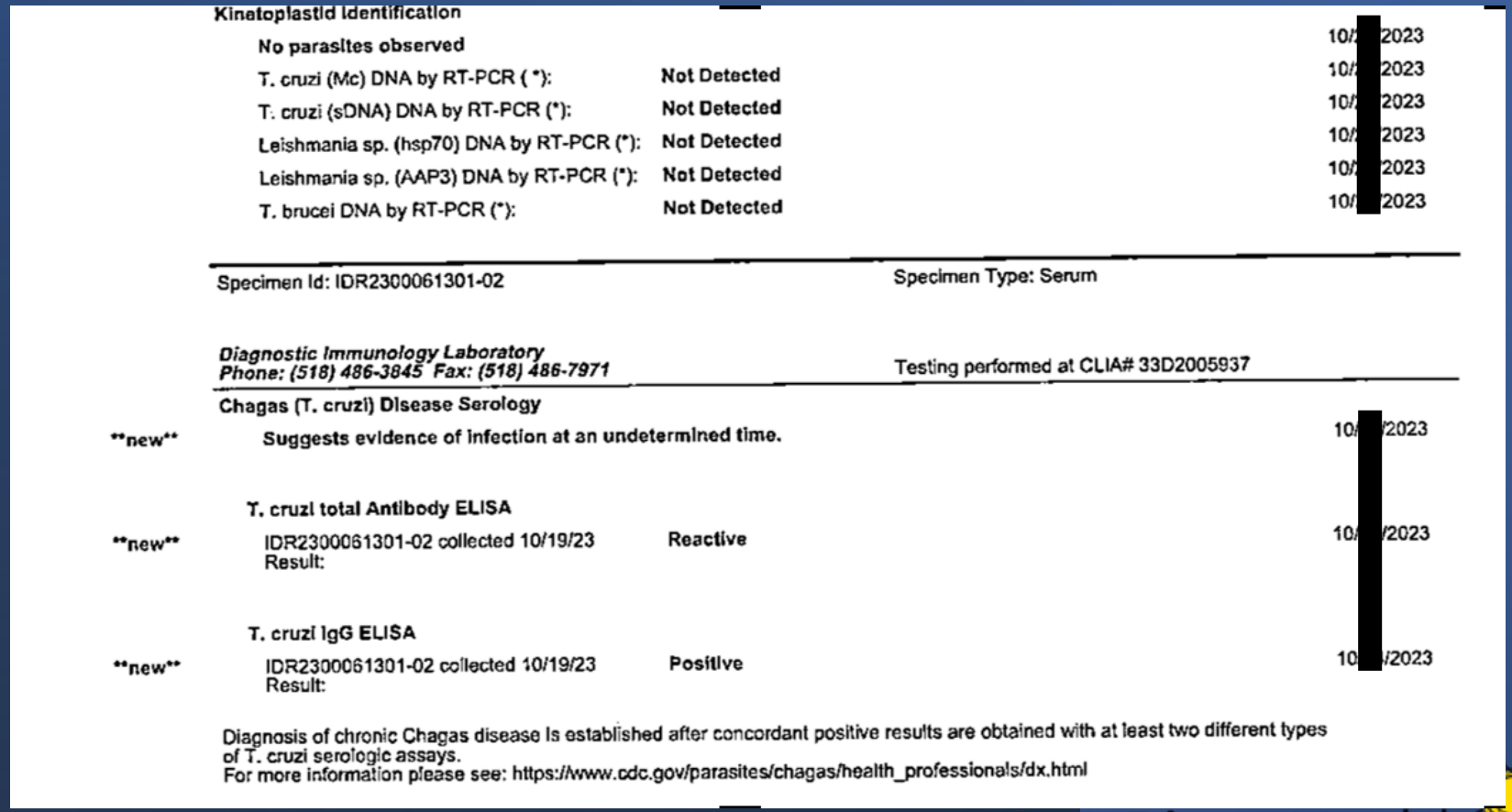
2

Whole blood and serum sent to Wadsworth



Kinetoplastid Identification

No parasites observed

T. cruzi (Mc) DNA by RT-PCR (*):	Not Detected	10/[redacted]/2023
T. cruzi (sDNA) DNA by RT-PCR (*):	Not Detected	10/[redacted]/2023
Leishmania sp. (hsp70) DNA by RT-PCR (*):	Not Detected	10/[redacted]/2023
Leishmania sp. (AAP3) DNA by RT-PCR (*):	Not Detected	10/[redacted]/2023
T. brucei DNA by RT-PCR (*):	Not Detected	10/[redacted]/2023

Specimen Id: IDR2300061301-02 Specimen Type: Serum

Diagnostic Immunology Laboratory
Phone: (518) 486-3845 Fax: (518) 486-7971

Testing performed at CLIA# 33D2005937

Chagas (T. cruzi) Disease Serology

new	Suggests evidence of infection at an undetermined time.		10/[redacted]/2023
	T. cruzi total Antibody ELISA		
new	IDR2300061301-02 collected 10/19/23 Result:	Reactive	10/[redacted]/2023
	T. cruzi IgG ELISA		
new	IDR2300061301-02 collected 10/19/23 Result:	Positive	10/[redacted]/2023

Diagnosis of chronic Chagas disease is established after concordant positive results are obtained with at least two different types of T. cruzi serologic assays.
For more information please see: https://www.cdc.gov/parasites/chagas/health_professionals/dx.html

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Assessments

1. Diabetes mellitus without complication - E11.9
2. Chagas disease - B57.2 (Primary)
3. Urinary tract infection without hematuria, site unspecified - N39.0

Treatment

1. Chagas disease

Start Benznidazole Tablet, 100 MG, 2 tab, Orally, Twice a day, 30 days, 120 Tablet, Refills 1

IMAGING: ECHOCARDIOGRAM

Notes: She is here for treatment

Start benzinidazole 200mg po q12 x 60 days

Side effects (rash, metalic taste, stomach upset, pins and needle in the hands and feeet, muscle and joint pain, headache extensively explain to the pain)

Advise her to reach us if she develop any side effects

She says she underwent tubal ligation during third delevery and she isays she is not breast feeding

She is going bring her husband and 2 children for chagas t

2. Diabetes mellitus without complication

LAB: STRONGYLOIDES IgG, AB.

Assessments

1. Diabetes mellitus without complication - E11.9
2. Chagas disease - B57.2 (Primary)
3. Urinary tract infection without hematuria, site unspecified - N39.0

Treatment

1. Chagas disease

Start Benznidazole Tablet, 100 MG, 2 tab, Orally, Twice a day, 30 days, 120 Tablet, Refills 1

IMAGING: ECHOCARDIOGRAM

Notes: She is here for treatment

Start benzinidazole 200mg po q12 x 60 days

She denies any complaints.

T. Cruzi/Chagas Disease:

Screening

Screening : *Adult* ..

Counseling information *The patient is from an endemic region of North, South, or Central Am and is requesting screening for T.cruzi., The patient/ parent or care giver verbalized understanding screening positive will require further evaluations, including diagnostic testing and possible treatm*

Country of origin/birth: *El Salvador, undefined* ...

Region: ...

Prior treatment or testing in the past? *No* ...

Do other family members want to be screened? *Yes* ...

Diagnostic Evaluation and Treatment

Diagnostic evaluation and treatment for: *Adult*

Why was the patient referred for testing: *screening during pregnancy*

Did other family members test positive on screening or diagnostic labs: *Yes* ...

Details: *Father died of cardiomyopathy at age 50 (told T.cruzi infection)*

Country of origin/birth: *El Salvador, undefined* ...

Housing: *Mud, Adobe, Thatch, undefined* ...

Location of bathroom: *Outside of the home, suggest strongyloides* ...

Does the patient or parent/care giver recognize a kissing bug? *Yes* ...

How does the patient refer to the kissing bug ? *El bicho besador*

Does the patient or parent/care giver recall family with Chagas disease or heart disease in their country of origin? *Yes* ...

Details: *Father and uncle died of cardiomyopathy and told because of T.Cruzi infection*

Is the patient currently pregnant or recently delivered ? *Recently Delivered* ...

Date of delivery: *07/[redacted]2023*

Mode of delivery: *C-Section*

The patient was counseled that the recently delivered child needs to be tested. *Yes*

Lab Results:

Bio-Reference: T. Cruzi Screening Date: *10/[redacted]2023* ...

Take home points

Start	Start small with screening initiatives in order to organize process
Consider	Consider costs associated with screening, prenatal and pediatric patients have benefit of insurance
Take	Take advantage of tremendous resource networks and individuals to support Chagas screening and treatment
LOOK	LOOK for Chagas

Questions??