



# Increasing Screening of Chagas Disease in the United States: Needs and Challenges



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# Disclosures

- None

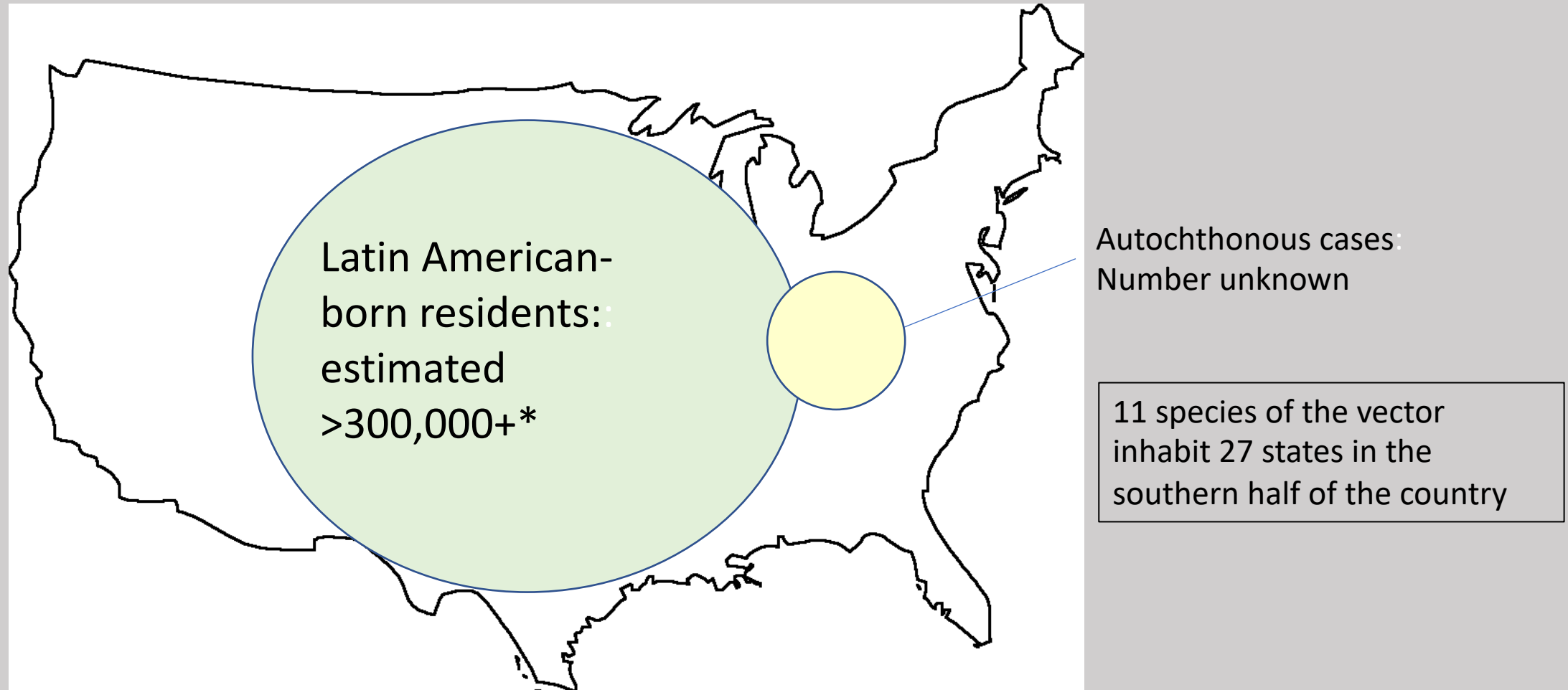


*Triatoma rubida*, California Chagas disease vector

# Chagas: A Neglected Disease in the US

- Chagas disease has received little attention from the U.S. health system
  - Believed to be primarily a disease of Latin America and not clinically relevant in the US
  - Considered a disease of the poor
  - Primarily affects Latin American immigrants, a group with very limited access to healthcare
  - Disease burden unknown in U.S.-born population

# The Burden of Chagas Disease in the United States



\*Sources: Bern and Montgomery 2009, Manne-Goehler et al. 2016

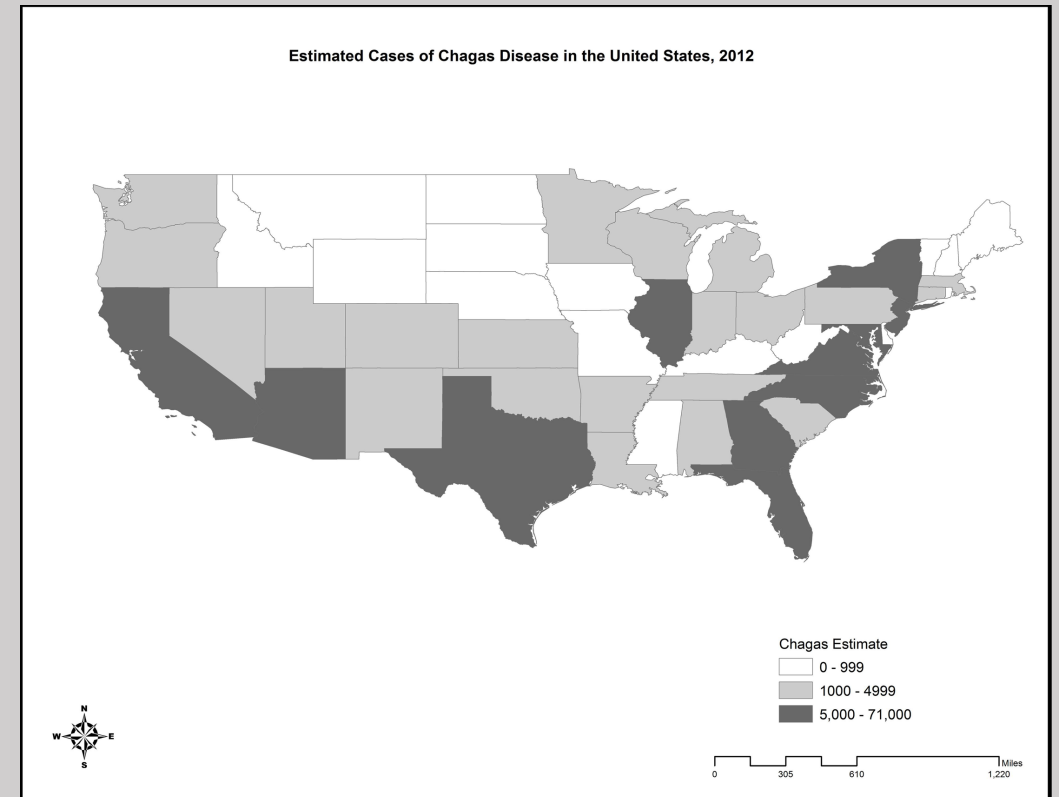
# U.S. Chagas Disease: Burden by State

- Estimate by Manne-Goehler et al.\*
- Total burden 326-347,000
- State ranking by estimated cases $\infty$ :
  1. California 70,000
  2. Texas 37,000
  3. Florida 18,000
  4. New York 17,000

$\infty$  doesn't include undocumented immigrants



*Triatoma protracta*,  
California vector species.  
Photo by James Gathany



\*Manne-Goehler J, Umeh CA, Montgomery SP, Wirtz VJ (2016) Estimating the Burden of Chagas Disease in the United States. PLoS Negl Trop Dis 10(11): e0005033.

# Ultimate Goals of Early Screening, Diagnosis and Treatment

## ❑ **Prevent congenital transmission**

- Screening and treatment of maternal carriers/infants
- Estimated 63-315 infected babies born every year
- Define risk and cost-effective screening and treatment strategies

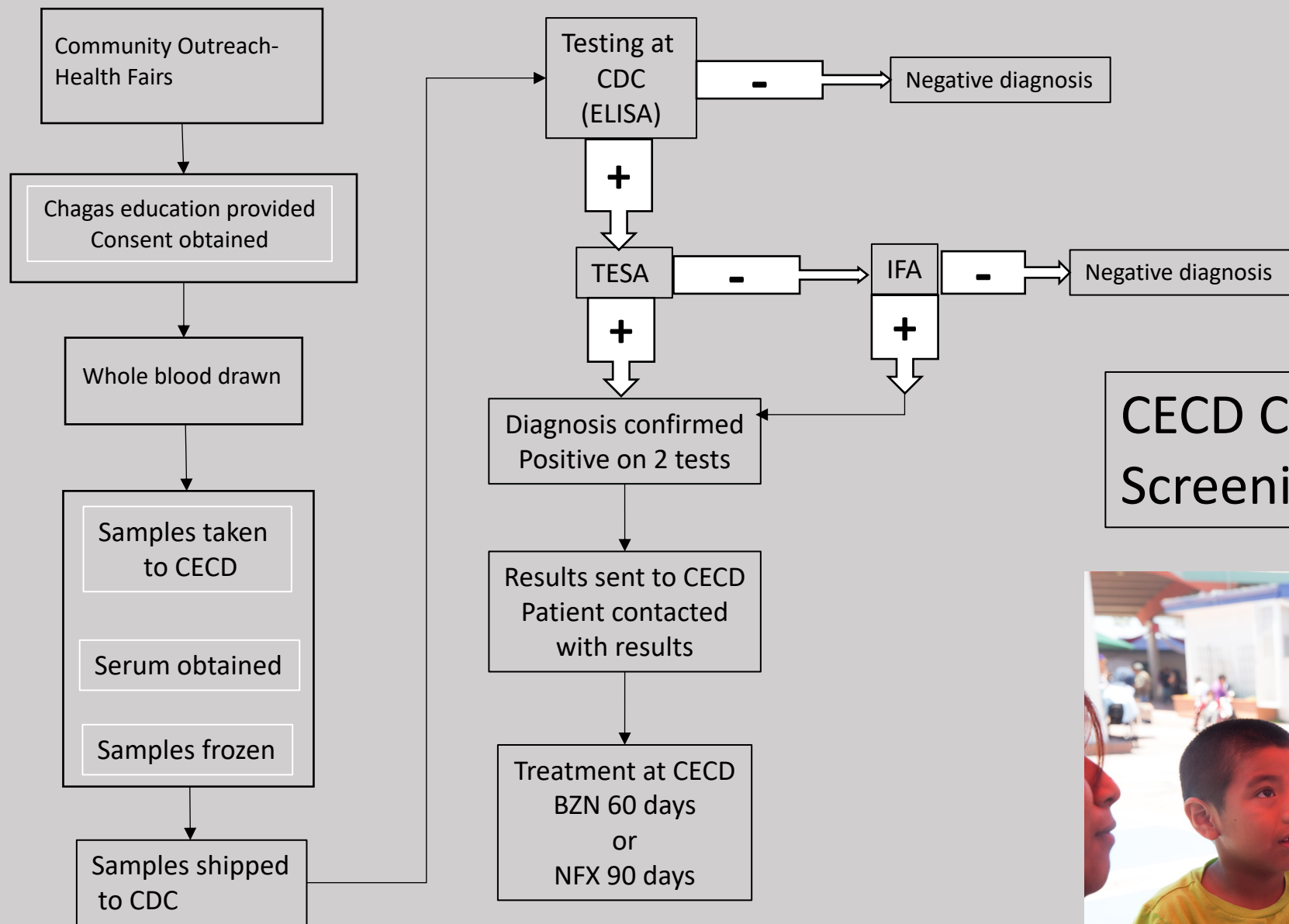
## ❑ **Reduce cardiovascular disease due to Chagas**

- Estimated 50,000-100,000 patients with Chagas cardiac disease
- Quantify Chagasic heart disease burden, develop strategies to screen and treat those at risk

## ❑ **Prevent U.S. vector-borne transmission of *T. cruzi***

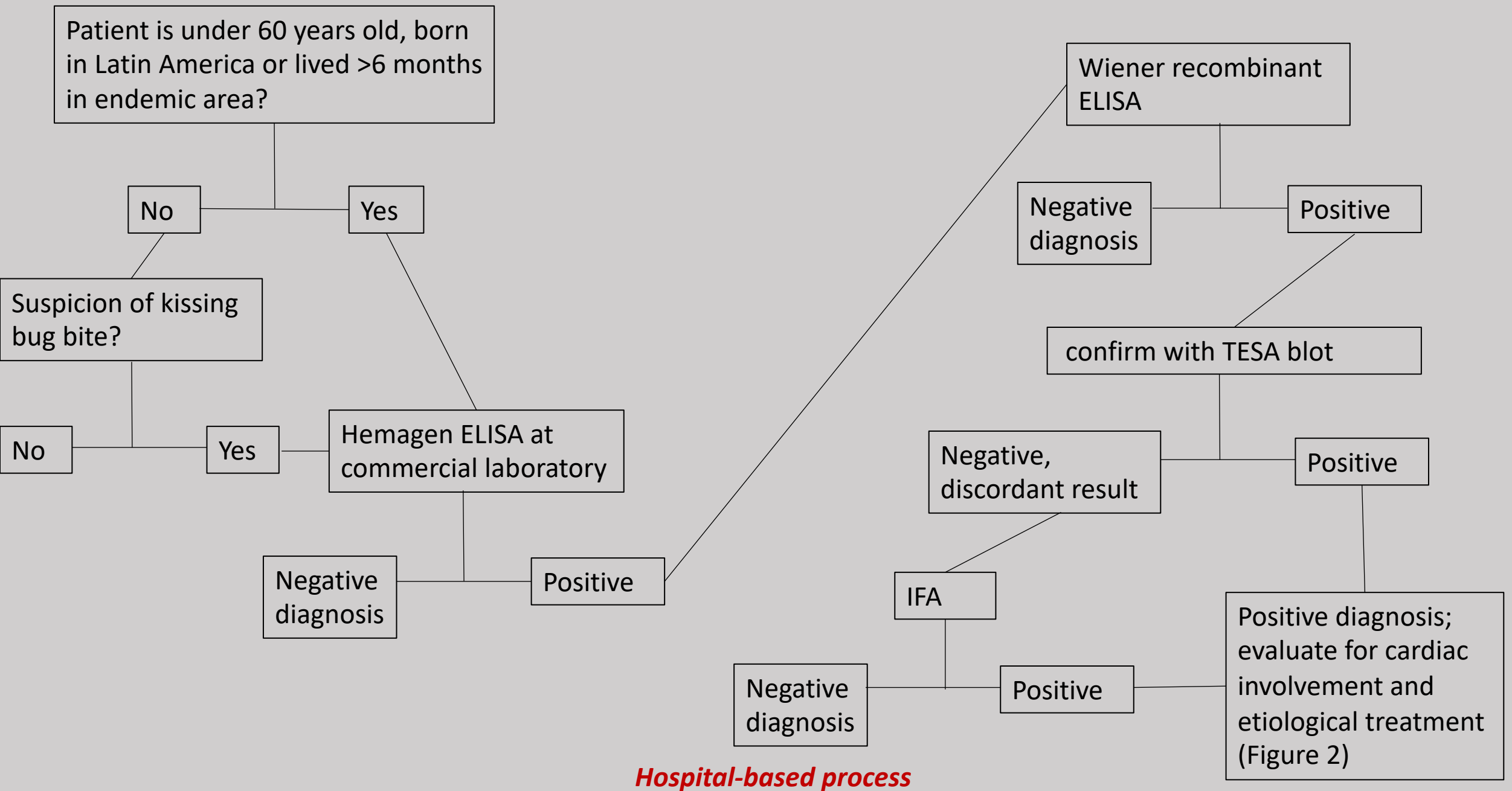
- Assess risk of vector-borne transmission in the United States, develop interventions to prevent human infection from triatomine bugs
- protocols





## CECD Community-Based Screening Process







# U.S. Chagas Disease Prevalence

- 1987: Study of 205 Central American immigrants in Washington D.C. found a 4.9% prevalence of Chagas disease.<sup>1</sup>
- 2006 survey<sup>2</sup>: 1/2000 donors in Southern California have Chagas disease.
  - (Compare to HIV prevalence of 1:7500 donors).
  - If limited to individuals who lived in Latin America, prevalence is about 1:200.

1. Kirchoff LV, Gam AG, Gilliam FC. American trypanosomiasis (Chagas' disease) in Central American immigrants. American Journal of Medicine 1987; 82: 915-920.
2. Blood donor screening for Chagas disease—United States, 2006–2007. Centers for Disease Control;2007.

# Chagas Disease Prevalence in the Latin American-born Population of LA County: CECD Research

Group	N	<i>T. cruzi</i> +	prevalence
All	4,755	59	1.24
El Salvador	811	28	3.45
Mexico	3,182	25	0.79
Oaxaca	86	4	4.65
Zacatecas	225	4	2.20
<high school education	3104	45	1.45
Heard of Chagas disease	394	13	3.30
Lived in thatch roof house	407	11	2.70

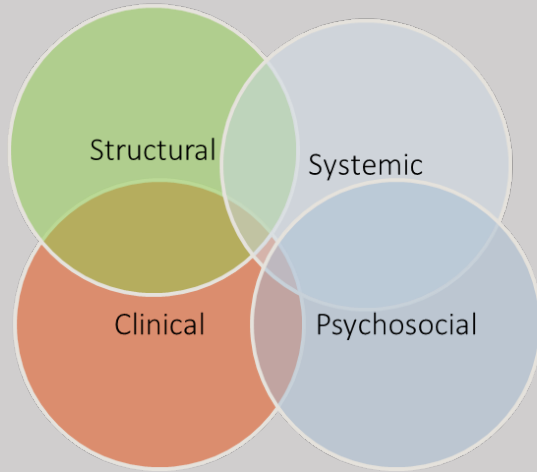
- Community screening program\*
  - 89 health fairs 2008-2014
  - 4,755 Latin American-born individuals screened
  - Significant risk factors:
    - Heard of Chagas disease
    - Lived in thatch+adobe+mud housing
    - Salvadoran

## Other CECD prevalence studies:

Nonischemic Cardiomyopathy	19%
EKG Conduction Abnormalities	5.2%
Pacemakers	7.5%
Family members of patients	7.4%

\*Source: Meymandi, Sheba K. et al. "Prevalence of Chagas Disease in the Latin American-born Population of Los Angeles." *Clinical Infectious Diseases*: 64.9 (2017): 1182–1188.

# Barriers to Treatment Access, USA



- Structural
  - Immigration status
  - Income disparities
  - Employment concerns
  - Threats to Medicaid, ACA
- Systemic
  - Provider awareness
  - Public awareness
  - Language differences
  - Lack of routine screening
- Clinical
  - Diagnosis
  - Safety of bz, nfx
  - Test of cure
- Psychosocial
  - emotional impact
  - “normalization”
  - stigma

# Impact of Low Provider Awareness of Chagas Disease

- Patients who test positive for Chagas disease through blood donations have difficulty initiating treatment
- Primary care providers and others do not screen at-risk patients for Chagas disease (>99% of patients undiagnosed!)
  - Therefore, they miss an opportunity to treat patients before the onset of cardiac involvement
- Providers may encounter difficulty getting approval for procedures, tests, etc. from insurers
- Chagas disease is not considered as a risk factor even for at-risk patients who exhibit classic cardiac involvement

# Other barriers to providing patient care

- Insurance coverage may limit the clinical evaluation
- Maintaining long term follow-up to monitor for possible disease progression
- Keeping up with changes in standard of care (e.g., increasing evidence for benefit of treatment during chronic phase)
- Need for multidisciplinary approach
  - Primary care
  - Women's health, treat prior to pregnancy
  - Pediatric assessment for congenital transmission risk
  - Cardiac and gastrointestinal disease expertise

# How to increase Awareness????

- Providers may encounter difficulty getting approval for procedures, tests, etc. from insurers
- Chagas disease is not considered as a risk factor even for at-risk patients who exhibit classic cardiac involvement

## Potential Solutions:

Continuing Medical Education (online, conferences, workshops...)

Medical Journal advertising for benznidazole

Public Service Announcement directed to subjects on TV

Medical Schools curriculum

Television shows as part of narrative

Television advertising for drug

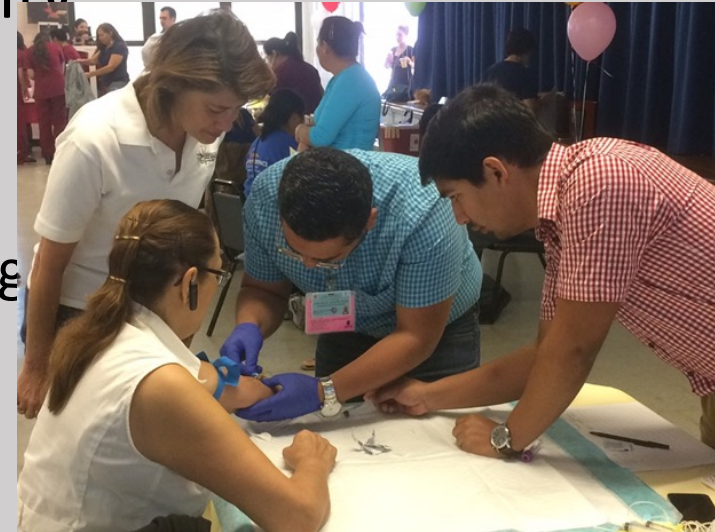
IDEAS??????





# The CECD Plan for Fighting Chagas Disease in LA County

- Ramp up education of healthcare staff and community members
- Screening
  - Insert screening process into primary care facilities' existing operational flow
  - Target population=Latin American-born patients
  - Use a simple checklist to determine which patients need testing
  - Take blood samples/order testing at primary care visit
- Guide/train providers on how to treat; CECD serves as a reference center
- Use telemedicine if providers are untrained

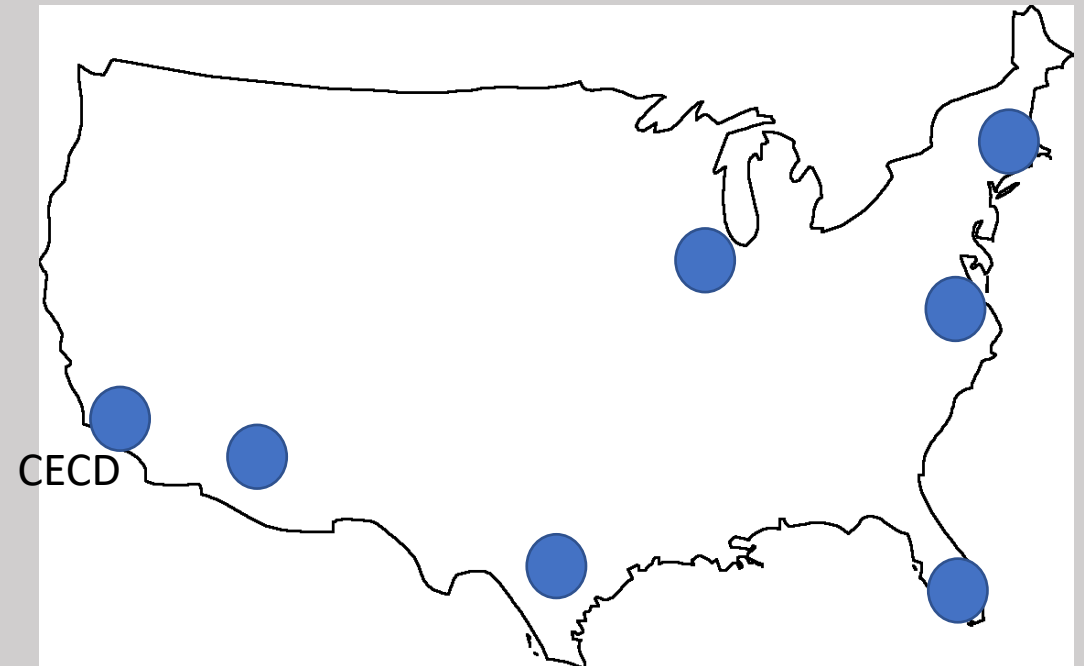
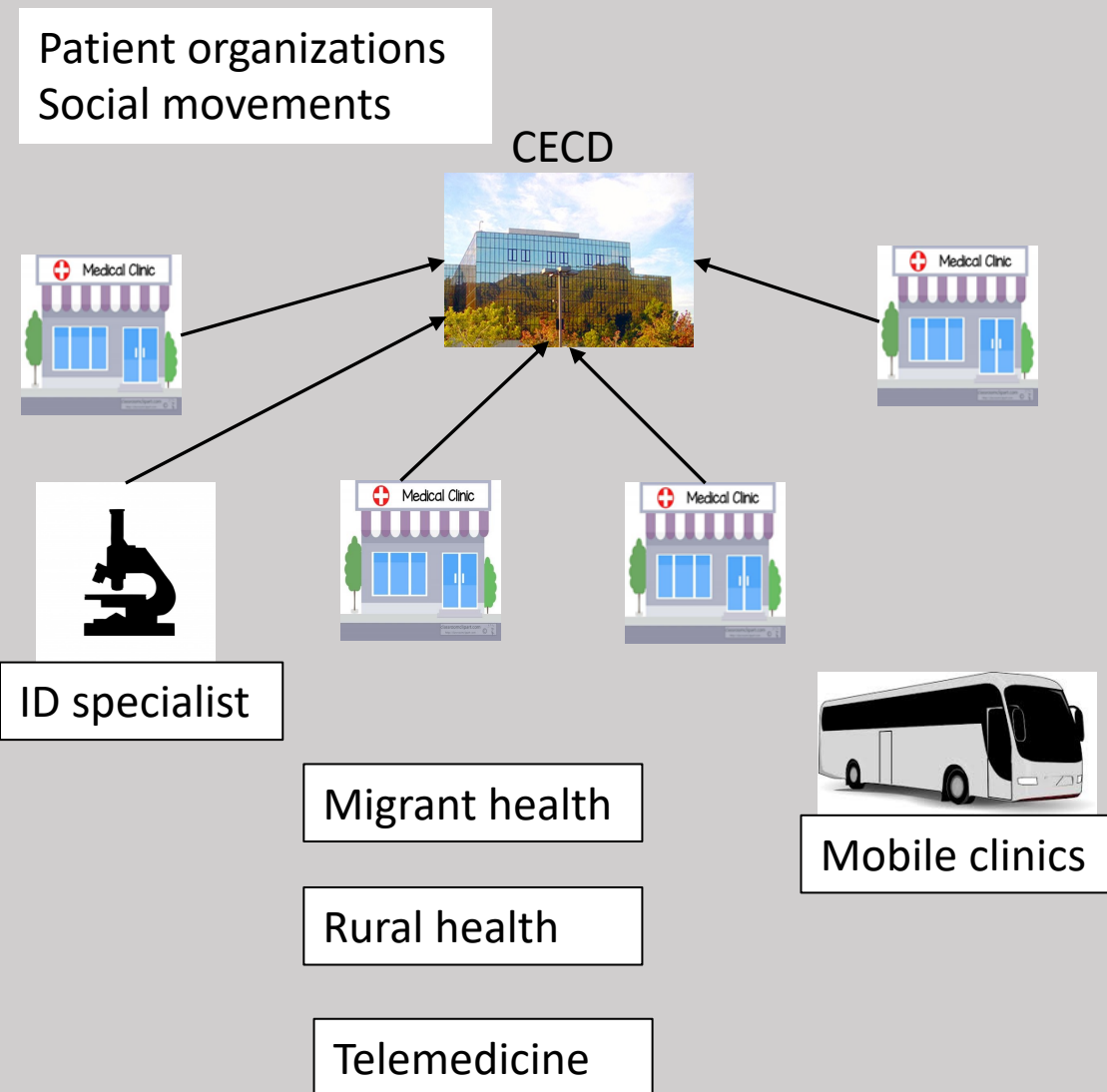


# Future needs: Chagas Disease in the US

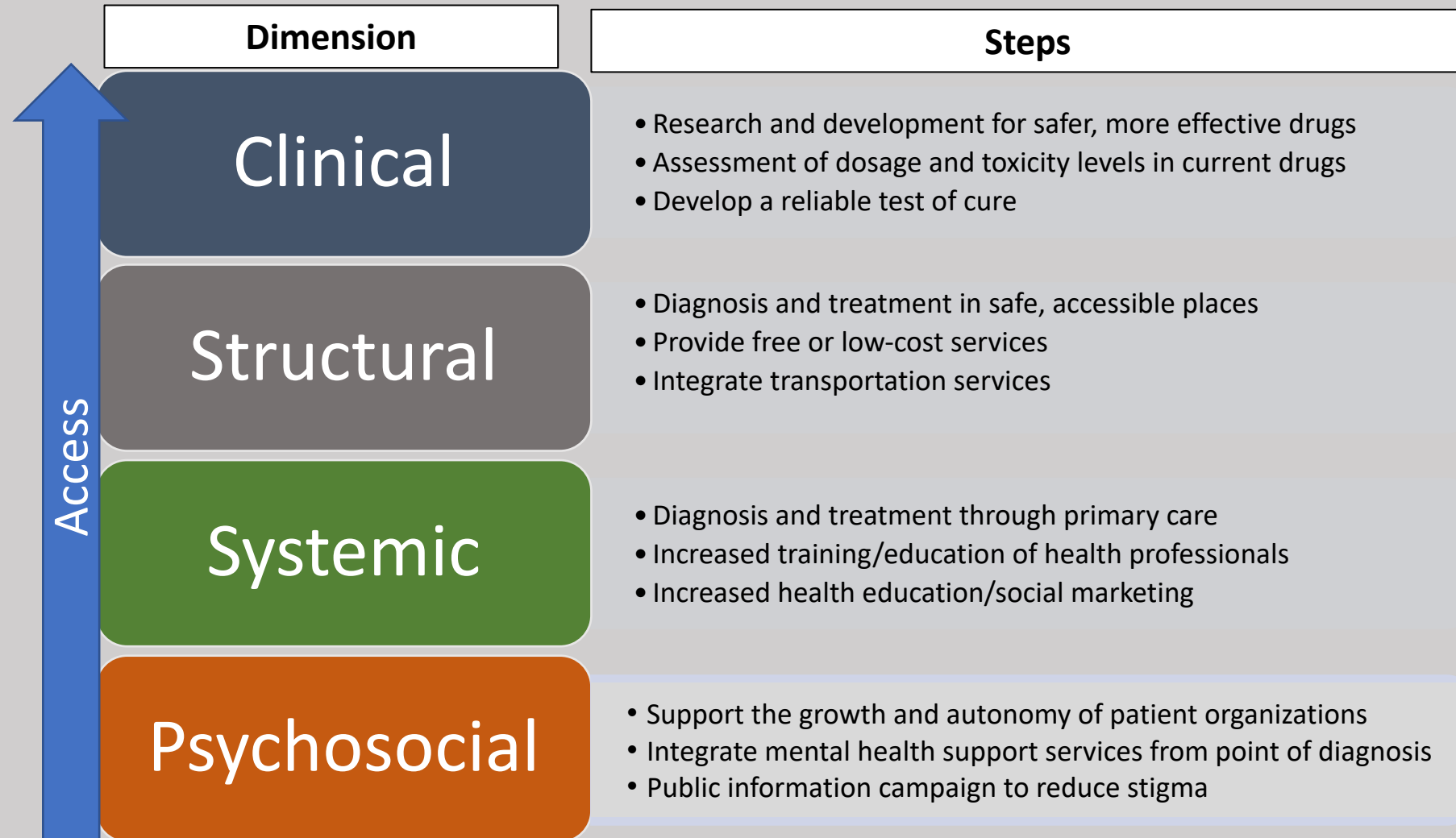
1. Screen population at risk in primary care
2. Expand treatment of indeterminate or early-stage chronic disease with antiparasitic therapy.
3. Screening and treatment of maternal carriers/infants
4. Better tests
  - a) diagnostic test for chronic Chagas disease
  - b) screening test for bedside use
  - c) test of cure after treatment
5. Better treatment drugs
  - a) accessible
  - b) FDA-approved
  - c) produce minimal side effects



# Building a System of Care to End the Neglect



# Comprehensive Model to Eliminate Barriers and Increase Access to Treatment for Chagas Disease



# Overview: Chagas disease needs in the United States

- ❑ **Improve health care provider awareness, knowledge and expertise with Chagas disease**
- ❑ **Screen population at risk in primary care for early diagnosis and treatment**
- ❑ **Treatment of indeterminate or early-stage chronic disease with antiparasitic therapy**
- ❑ **Improve guidelines for screening, diagnosis, and treatment**
- ❑ **Build laboratory capacity**
  - Commercial lab test performance variable
  - CDC currently provides reference diagnostic testing including PCR for early detection of acute infection but long delay ...
- ❑ **Ensure treatment drug available**
  - Benznidazole and Nifurtimox are FDA approved
    - Do providers know? How are they getting this info?
    - little marketing, advertising (Bayer directed to health care providers via email.
    - Internet search, order and treat?
- ❑ **Better tests**
  - Diagnostic test for chronic Chagas disease
  - Screening/rapid test for bedside/clinic use
  - Test of cure after treatment
- ❑ **Better treatment drugs**
  - Effective, minimal side effects, convenient for pediatric and adult use
  - Easily accessible and (for the US) FDA approved for all age groups
  - Minimal side effects

# Thank you

