Chagas’ disease (Trypanosoma cruzi infection) is increasing in recognition as an important emerging infectious disease and cause of severe heart disease in the United States. Houston is a major gateway city in the Americas and projected to be central to the emerging Chagas epidemic in North America. Screening of blood donors in the greater Houston area for T. cruzi began in 2007. This study aimed to describe any cardiac abnormalities among Chagas (T. cruzi positive) blood donors using a cross-sectional study design.

Methods:
Institutional review boards at Baylor College of Medicine and the Gulf Coast Regional Blood Center approved this study. 70 blood donors who tested repeat reactive on Ortho EIA took part. The one-time assessment included 1) a questionnaire to evaluate risk factors for infection, 2) blood draw to confirm infection, and 3) an electrocardiogram. A cardiologist confirmed the electrocardiogram findings. T. cruzi specific antibody testing was previously performed by the Gulf Coast Regional Blood Center using Ortho EIA and RIPA: the Ortho EIA is FDA approved for diagnostic use of blood donor samples, and a supplemental radioimmunoprecipitation assay (RIPA) may be performed. Our lab tested for T. cruzi infection with Chagatest ELISA, Tc24 ELISA, Chagas STAT-PAK Rapid Assay, and DPP Chagas Confirmatory Assay. Chagatest ELISA tests for recombinant T. cruzi antigens (Wiener Laboratories, Rosario, Argentina). Tc24 ELISA is an in-house assay based on recombinant T. cruzi Tc24 antigen. STAT-PAK and DPP are rapid immunochromatographic assays (Chembio Diagnostic Systems, Inc., Medford, New York).

Conclusions
• T. cruzi infection can cause cardiac manifestations even in persons without traditional risk factors
• Blood donor screening is an effective tool for identifying locally acquired Chagas cases
• Rural areas seem to be associated with increased risk for Chagas disease

Acknowledgements:
We would like to thank the Cardiovascular Research Institute at Baylor College of Medicine for their funding of this project and their generous support.

<table>
<thead>
<tr>
<th>Participant ID</th>
<th>Locally Acquired?</th>
<th>Electriccardiogram finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas-001</td>
<td>No</td>
<td>Inferior infarct, normal sinus rhythm</td>
</tr>
<tr>
<td>Texas-002</td>
<td>Probable</td>
<td>Sinus rhythm with 1st degree AV block; right bundle branch block; left anterior fascicular block; premature ventricular complexes</td>
</tr>
<tr>
<td>Texas-003</td>
<td>No</td>
<td>Left bundle branch block; T wave abnormality</td>
</tr>
<tr>
<td>Texas-004</td>
<td>Yes</td>
<td>Sinus rhythm with 1st degree AV block; left anterior fascicular block</td>
</tr>
<tr>
<td>Texas-005</td>
<td>Yes</td>
<td>Sinus rhythm with 1st degree AV block; inferior-posterior infarct; T wave abnormality</td>
</tr>
<tr>
<td>Texas-006</td>
<td>Yes</td>
<td>Sinus rhythm with 1st degree AV block; left anterior fascicular block</td>
</tr>
</tbody>
</table>

Results
• 66% (20/30) of Blood Donors had Two or More Positive Tests
• 40% (8/20) had a related abnormal Electrocardiogram finding
• 40% (8/20) were suspected locally acquired cases
• 63% (5/8) locally acquired cases had cardiac abnormalities

Location of Houston Area Blood Donors with Two or More Positive Test Results

Multiple Testing Results for Houston Area Chagas Blood Donors

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Ortho EIA</th>
<th>RIPA</th>
<th>Chagatest</th>
<th>STAT-Pak</th>
<th>DPP</th>
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</thead>
<tbody>
<tr>
<td>Hispanic Male</td>
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<td>Hispanic Female</td>
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<tr>
<td>White Male</td>
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<td>White Female</td>
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<td>Black Male</td>
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<tr>
<td>Black Female</td>
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</tbody>
</table>

Potentially Chagas Related Electrocardiogram Findings of Blood Donors with Two or More Positive Chagas Tests

Cardiac Manifestations of Chagas Disease in Texas Blood Donors
An Unanticipated Focus on Autochthonous Transmission
Melissa N Garcia¹, Kristy O Murray¹, Peter J Hotez¹, Susan Rossmann², Rodion Gorchakov¹, Laila Woc-Colburn¹, Maria Elena Bottazzi³, Charles E Rhodes³, Christie M Ballantyne⁴ and David Aguilar³

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