Victoria Dupuy
Founder & Exec Dir.
vdupuy@sbcglobal.net
+1-408-981-1744

Bob Trine
CEO & Co-Founder
bob@trineomics.com
+1-818-519-0888

Chronic Disease Prevention Re-imagined
In a HeartBeat - Silicon Valley Pilot Study

1. Public Health Goals
   • Support prevention objectives
   • Improve early detection of heart disease

2. Operational Proof of Concept, combining
   • Health Risk Assessment used by Corporate Wellness
   • Biometrics and Biomarkers available via finger stick
   • Mobile CT Scan to make CAC scoring more affordable and accessible
   • Polygenic Risk Scoring for a first look at Pre-dispositional Lifetime Risk

3. Pilot for Multi-Variable Research comparing
   • BioMarkers and BioMetrics
   • CAC Scores
   • ASCVD 10 year risk
   • MetaGRS for life-time pre-dispositional risk (research only)
It takes a village…

Field Work

Process

Analysis

Georgia Tech Center for Integrative Genomics
Study Metrics

• Screening Criteria - over 40 with at least 1 risk factor but no diagnosis of heart disease

• 104 participants in the field work;
  • mean age of 55.1
  • 53% male

• 39 (37%) had a positive CAC score (>0)
• 65 (63%) had CAC score = 0
• 2.7 needed to screen to find CAC >0
  • Cardia study suggested target of 2.2 needed to screen

• 50 also took the HRA
• 46 supported calculation of a 10 year ASCVD Risk Score
• 9 (18%) had a 10 year risk score between 5% and 20%
# CAC Risk Study Results (N=104)

<table>
<thead>
<tr>
<th>CAC Score</th>
<th>Study</th>
<th>%total</th>
<th>Cumulative CT Ops to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAC &gt; 0</td>
<td>39</td>
<td>38%</td>
<td>115 (32 % of total of 361)</td>
</tr>
<tr>
<td>CAC &gt;0 and &lt;100</td>
<td>26</td>
<td>67%</td>
<td>69 (19% of 361)</td>
</tr>
<tr>
<td>CAC greater than 100</td>
<td>13</td>
<td>33%</td>
<td>46 (13% of 361)</td>
</tr>
<tr>
<td>CAC 100-199</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAC 200-299</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAC 300-399</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAC 400-499</td>
<td>0</td>
<td>3</td>
<td>15 (4% of 361 with positive CAC over 400)</td>
</tr>
<tr>
<td>CAC 500-599</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAC 600-699</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAC 700-799</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Preliminary results
## CAC Measure & Risk % Study Results by Age group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
<th>CAC &gt; 0</th>
<th>CAC &gt; 100</th>
<th>CAC &gt; 400</th>
<th># &gt; 75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 30-50</td>
<td>25</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Age 50-65</td>
<td>63</td>
<td>23</td>
<td>8</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Age &gt; 65</td>
<td>16</td>
<td>11</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>104</td>
<td>38</td>
<td>13</td>
<td>3</td>
<td>15</td>
</tr>
</tbody>
</table>

Preliminary results
## ASCVD Risk Level Results

<table>
<thead>
<tr>
<th>ASCVD</th>
<th>10 year risk calculator</th>
<th>Total HRA responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>78%</td>
<td>39 below 7.5% 10 year risk</td>
</tr>
<tr>
<td>9</td>
<td>18%</td>
<td>9 between 5% and 20% 10 year risk</td>
</tr>
<tr>
<td>6</td>
<td>12%</td>
<td>6 between 7.5% and 20% 10 year risk</td>
</tr>
<tr>
<td>1</td>
<td>2%</td>
<td>1 over 20% risk</td>
</tr>
<tr>
<td>4</td>
<td>8%</td>
<td>NA or unable to calculate</td>
</tr>
</tbody>
</table>

Preliminary

Lundquist Institute is currently summarizing the results
Ongoing community-based CAC Score screening operations

• Screen for over 40 without Heart Disease diagnosis
• 11 additional screening days to date
• Additional 257 participants (361 total)

• Locations
  • Community Centers
  • Fire Departments
  • Business locations

• Consistently finding 32 % of participants with CAC>0
What’s next on the research front?

- Polygenic Risk Use Cases @Preventive Cardiology (under development)
  - 7 Academic Medical Center Preventive Cardiology clinics
  - Multiple use cases – primarily focused on motivation
- MultiOmic Triangulation Study of Heart Disease (under development)
  - DNA based Polygenic Risk Score (MetaGRS) - @GT
  - RNA Transcript panel (250) (validated @ GT/Emory)
  - Influx - Lipids plus Lp(a) (@UCSF)
  - Efflux – PreBeta 1 HDL (@UCSF)
  - Inflammatory Factor Panel plus hs-CRP (@UCSF)
  - N=150; 50@ Low Risk, 50@intermediate, 50@high