POINT OF CONTACT METERS
Validations of 3 Point-of-Service Meters

- **CardioChek** – compared to venous blood
  - Total Cholesterol
  - HDL
  - 90 people age 50+

- **Cholestech** – compared to venous
  - Lipid panel (Total cholesterol, HDL, LDL, Triglycerides)
  - CRP
  - 50 people age 45-85

- **Hemocue** – compared to DBS
  - Hemoglobin
  - 90 people age 50+
Cardiochek-PA – Total and HDL Cholesterol

CHARLS pilot

MXFLS
CardioChek – Total Cholesterol

N=88  
CardioChek mean=172.5, range 104-263

R²=0.65  
Venous  mean=191.7, range 122-285
CardioChek – HDL

N=89  CardioChek  mean=44.8, range 17-100
R²=0.76  Venous  mean=53.1, range 24-98
CardioChek

• Comparability with venous is reasonable
• Portability excellent
  – Battery power possible
  – Unit and test cartridges lightweight
• Pipette collection system takes practice

• Cautions???? Josh Snodgras recommends replacing after 150 -200 uses
Cholestech
Total Cholesterol - Cholestech

Cholestech mean=191.6, range 99-284
Venous mean=194.7, range 101-292

$R^2=0.82$
<table>
<thead>
<tr>
<th>Measure</th>
<th>Cholestech Mean (Range)</th>
<th>Venous Mean (Range)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>191.6 (99-284)</td>
<td>194.7 (101-292)</td>
<td>0.82</td>
</tr>
<tr>
<td>HDL</td>
<td>46.5 (22-77)</td>
<td>50.6 (31-79)</td>
<td>0.72</td>
</tr>
<tr>
<td>LDL</td>
<td>103.2 (35-187)</td>
<td>109.7 (31-196)</td>
<td>0.88</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>191.1 (60-487)</td>
<td>197.0 (55-551)</td>
<td>0.87</td>
</tr>
<tr>
<td>C-reactive Protein*</td>
<td>1.7 (0.3-5.1)</td>
<td>1.3 (0.2-3.9)</td>
<td>0.92</td>
</tr>
</tbody>
</table>

* Smaller sample due to change in lab assay
Cholestech

- Comparability with venous quite good
- Validation test occurred within community research clinic under ideal conditions
  - Air conditioning
  - Refrigeration available for test cassettes
- Field use less practical
  - Requires DC power (no battery pack)
  - Test cassettes can be costly
  - Control samples must be run each day of use (requiring test cassettes & control liquid)
  - Pipette collection system takes practice
Hemocue - Hemoglobin Analyzer
Hemocue Meter versus CHARLS DBS

Equation: Hemocue value = 5.4 + 0.7 x CHARLS value

$R^2$ for regression equation: 0.36
Hemoglobin - CHARLS DBS vs. HemoCue meter

<table>
<thead>
<tr>
<th></th>
<th>Average (SD) (mg/dL)</th>
<th>Range (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARLS DBS</td>
<td>13.3 (1.4)</td>
<td>11.0 - 16.5</td>
</tr>
<tr>
<td>HemoCue</td>
<td>14.0 (1.5)</td>
<td>11.2 – 16.9</td>
</tr>
</tbody>
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