The West Virginia CARDIAC Project

- Coronary
- Artery
- Risk
- Detection
- In
- Appalachian
- Communities

“To reduce cardiovascular disease mortality in West Virginia through research and intervention in children”
What does the CARDIAC Project Do?

• Offers CVD screening to all 20,000 5th grade students throughout West Virginia in the school setting

• Sends results home to parents with recommendations for lifestyle changes or referral to clinic

• Initiates interventional strategies
Within 5 years, CARDIAC began operating in all WV counties!

CARDIAC Project
Year 1
1998 - 1999

CARDIAC Project
2003 - present
WHAT HAPPENS WHEN WE VISIT THE SCHOOL ON SCREENING DAY?

- Measure height and weight (in private)
- Calculate Body Mass Index (BMI)
- Check blood pressure
- Examine neck for Acanthosis Nigricans (AN)
- Measure blood cholesterol, glucose, and insulin

*Parents of children screened are also eligible for free cholesterol screening.*
CARDIAC Screening Results 5th Grade (1998-2015)

• 95,228 students screened
• 47.1% BMI > 85th percentile
• 23.2% hypertensive
• 7.3% LDL ≥ 130 (6,952 5th graders)
• 5% have Acanthosis Nigricans
  – 40% of AN students were hyperinsulinemic
CARDIAC Screening Results (1998-2015)

- LDL ≥ 160 mg/dL: 637 (1.1%)
- LDL ≥ 175 mg/dL: 248 (0.4%)
- LDL ≥ 190 mg/dL: 122 (0.2%)

n=60,404
Risk Factor Clustering Among Obese Children
Exploring the Morbidly Obese Diagnosis

<table>
<thead>
<tr>
<th>RISK FACTOR</th>
<th>NORMAL OR UNDERWEIGHT</th>
<th>OVERWEIGHT</th>
<th>OBESE</th>
<th>MORBIDLY OBSESE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated Blood Pressure</td>
<td>14.4%</td>
<td>20.8%</td>
<td>29.8%</td>
<td>51.0%</td>
</tr>
<tr>
<td>Low HDL</td>
<td>9.7%</td>
<td>18.7%</td>
<td>30.5%</td>
<td>42.7%</td>
</tr>
<tr>
<td>Elevated LDL</td>
<td>5.9%</td>
<td>10.2%</td>
<td>13.3%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Elevated Triglycerides</td>
<td>4.4%</td>
<td>12.4%</td>
<td>25.0%</td>
<td>31.3%</td>
</tr>
<tr>
<td>Positive for AN</td>
<td>.9%</td>
<td>3.5%</td>
<td>13.6%</td>
<td>39.6%</td>
</tr>
</tbody>
</table>

* Ice et al., International Journal of Pediatric Obesity, 2009
Universal versus Selective Screening: Testing Current NCEP Guidelines

20,266 Subjects Tested (5th Graders)

14,468 met NCEP screening Guidelines (71.4%)

- 170 warrant pharmacologic tx (1.2% of those who met NCEP guidelines)

5,798 did not meet NCEP Screening guidelines (28.6%)

- 98 warrant pharmacologic tx (1.7% of those who did not Meet NCEP guidelines)
Mean non-HDL by year of screening