Epidemiologic Resources for Community Health Assessment and Improvement

*Community Health Status Indicators Re-Launch Community Opinion Survey*

Vickie Boothe, MPH
Kenya Murray, MPH

Population Health Metrics Team
Epidemiology and Analysis Program Office
Outline

- Population Health Metrics Team Logic Model
- Population Health Framework
- Epi Resources for CHA/I
  - Outcomes and Determinants
  - Community Opinion Surveys
- Overview CHSI Redesign Project
Data reflects holistic model of population health where health outcomes and disparities are the result of complex interactions between health determinants and individual biology and genetics.
Effective Community Health Assessments

- **4 Products**
  - **Secondary data analysis** *(already collected and analyzed data)*
    - Compare outcome and determinant indicators against peer communities, national averages, HP 2020 benchmarks
    - Examine trends
    - Identify the most prevalent, severe and important subset of health outcomes and determinants
  
  - **Community opinions**
    - Primary data *(qualitative and quantitative)*
    - Collected through key interviews, town halls, listening sessions, and surveys
    - Identify community’s prioritized set of outcomes and determinants
  
  - **Assessment of health disparities**
    - Examine secondary data by sex, race/ethnicity, SES, and geography
  
  - **Assets of the Health System and Community**
CHA/I Outcomes & Determinants

- Synthesized 10 seminal sources
  - 2 IOM Reports
  - 3 Published Guidance Reports
  - 2 Professional Organization Web-based Guidance
  - 3 State Health Department Web-based Guidance

- 42 Most Frequently Recommended
  - Health Outcomes
    - Mortality
    - Morbidity
  - Health Determinants
    - Health Care Access/Quality
    - Personal Behaviors
    - Social Factors
    - Physical Environment
<table>
<thead>
<tr>
<th>Health Outcome Metrics</th>
<th>Health Care (Access &amp; Quality)</th>
<th>Health Behaviors</th>
<th>Demographics &amp; Social Environment</th>
<th>Physical Environment</th>
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<tbody>
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*Numbers in parentheses indicate the number of 10 Guidance Documents that recommended that specific outcome or determinant/correlate.*
CHA/I MOST FREQUENTLY RECOMMENDED HEALTH OUTCOMES AND DETERMINANTS

- Health Outcomes & Determinants Linked to Indicator Sources
  - Comparable, Valid, Reliable
  - MSA, County, Sub-county

- History and Need for a Common Set of Metrics

- Utility of Population Health Framework

- Systematic Review Methods

- Sensitivity Analysis

- IOM Call for Research & Consensus Process
DEVELOPMENT OF A COMMUNITY OPINION SURVEY USING EPI INFO 7

Kenya Murray, MPH, CPH

ORISE Fellow, Population Health Metrics Team
Epidemiology and Analysis Program Office
Office of Surveillance, Epidemiology, and Laboratory Services

June 2013
Objectives

- Identify high priority training needs and interests of health officials related to selected areas of community health assessment and improvement

- Identify pre-tested data tools used during community health needs assessments

- Introduce a resource that can assist organizations with conducting community health assessments and improvement plans
Stakeholder Training Needs Assessment

To determine:
- High priority training interests and needs related to CHA/CHIP

Areas of focus:
- Data/indicators to assess current community health status
- Analysis and interpretation of data to identify most important health outcomes
- Identification of underserved populations based on income and race/ethnicity
- Collection and analysis of community opinion survey data
Stakeholder Organizations

*N=64 respondents

- CDC CTG Recipient: 1.7%
- Local, tribal, territorial health department: 32.8%
- Non-profit Hospital: 13.8%
- Non-profit Organization: 6.9%
- State health department: 41.4%
Community Opinion Questions

- Health Officials self-rated need for training
  - Developing or identifying valid survey instruments/questions
  - Analyzing and interpreting survey data
  - Use of tools to visualize and communicate survey results
  - Integrating survey data results with results of secondary data
Results of Training Needs Assessment

- **64% response rate (64/100)**
  - 2 CDC CTG Recipients
  - 19 Local, tribal, territorial, health departments
  - 26 Non-profit Hospitals
  - 5 Non-profit Organizations
  - 4 State Health Departments
  - 8 Other

- **Percentage reporting ‘Moderate-High’ need for training**
  - 85.1% - developing or identifying valid survey instruments/questions
  - 83% - analyzing and interpreting survey data
  - 81.3% - use of tools to visualize and communicate survey results
  - 83% - integrating survey data results with results of secondary data

*Five of 64 respondents did not respond to survey item 1  *Six of 64 respondents did not respond to survey item 2
*Four of 64 respondents did not respond to survey item 3  *Five of 64 respondents did not respond to survey item 4
Methods

- **Environmental scan of community opinion surveys**
  - Conducted in the U.S.

- **Systematic search of Google Scholar, PubMed**
  - “community opinion survey”
  - “community health assessment survey”
  - “community health needs assessment survey”

- **Categorized surveys**
  - Pre-tested
  - Not tested
  - Widely used

Environmental Scan Results

- **98 Community Opinion Surveys**
  - Majority of the questions from Healthy Carolinians Template
  - Multnomah County
  - Orange County

- **21 surveys pre-tested**
  - 7 utilized a complete or modified version of Healthy Carolinians Template

- **59 not tested or did not specify testing**

- **18 widely used**
Module Description

- **71 questions**
  - 9 parts

- **Mode**
  - Web or tablet
  - (Interviewer assisted telephone or face-to-face)

- **Analysis Capabilities**
  - Frequency tables
  - Cross tabulation
  - Chart Display
Module Pages

Part 1: Quality of Life Statements

These first questions are about your general wellbeing in your community. Please tell us whether you “strongly agree”, "agree", "disagree" or "strongly disagree" with each of the statements.

1. How do you feel about this statement, "There is good healthcare in my community"? Consider the cost and quality, number of options, and availability of healthcare in the county.

2. How do you feel about this statement, "My community is a good place to raise children"? Consider the quality and safety of schools and child care programs, after school programs, and places to play in this county.

3. How do you feel about this statement, "My community is a good place to grow old"? Consider the county's elderly-friendly housing, transportation to medical services, recreation, and services for the elderly.

4. How do you feel about this statement, "There is plenty of economic opportunity in my community"? Consider the number and quality of jobs, job training/higher education opportunities, and availability of affordable housing in the county.

5. How do you feel about this statement, "My community is a safe place to live"? Consider how safe you feel at home, in the workplace, in schools, at playgrounds, parks, and shopping centers in the county.

6. How do you feel about this statement, "There is plenty of help for people during times of need in my community"? Consider social support in your community/neighbors, support groups, faith community outreach, community organizations, and emergency monetary assistance.

Part 2: Health Outcomes

The next question is about health outcomes in your community. Remember, your answers will remain anonymous.

Health Outcomes

7. In your opinion, which of the following community health issues require the most attention? Check all that apply.

- [ ] Asthma and other respiratory diseases
- [ ] Cancer
- [ ] Heart Disease
- [ ] HIV/AIDS
- [ ] Heroin
- [ ] Infant deaths
- [ ] Injury-related deaths
- [ ] Low birth weight
- [ ] Motor vehicle-related deaths or injuries
- [ ] Obesity
- [ ] STDs (chlamydia, gonorrhea, syphilis)
- [ ] ISSUES
- [ ] Tuberculosis
- [ ] Other Please specify (write in responses): ___________
Frequency Output

62. What is your sex? = a. Male

<table>
<thead>
<tr>
<th>Crime</th>
<th>Frequency</th>
<th>Percent</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Problem</td>
<td>26</td>
<td>33.33%</td>
<td>22.86%</td>
<td>45.17%</td>
</tr>
<tr>
<td>Minor Problem</td>
<td>7</td>
<td>9.33%</td>
<td>3.84%</td>
<td>14.86%</td>
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<tr>
<td>Not a Problem</td>
<td>4</td>
<td>5.33%</td>
<td>1.47%</td>
<td>13.10%</td>
</tr>
<tr>
<td>Problem</td>
<td>39</td>
<td>52.00%</td>
<td>40.15%</td>
<td>63.69%</td>
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<tr>
<td>TOTAL</td>
<td>75</td>
<td>100.00%</td>
<td>100.00%</td>
<td></td>
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</tbody>
</table>

62. What is your sex? = b. Female

<table>
<thead>
<tr>
<th>Crime</th>
<th>Frequency</th>
<th>Percent</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Problem</td>
<td>9</td>
<td>28.13%</td>
<td>13.75%</td>
<td>46.75%</td>
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<tr>
<td>Minor Problem</td>
<td>0</td>
<td>0.00%</td>
<td>0.00%</td>
<td>10.89%</td>
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<tr>
<td>Not a Problem</td>
<td>2</td>
<td>6.25%</td>
<td>0.77%</td>
<td>20.81%</td>
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<tr>
<td>Problem</td>
<td>32</td>
<td>100.00%</td>
<td>46.81%</td>
<td>81.43%</td>
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<tr>
<td>TOTAL</td>
<td>32</td>
<td>100.00%</td>
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<td></td>
</tr>
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</table>

"Do you engage in physical activity or exercise that lasts at least 30 minutes?"

- Yes 37.33%
- No 62.67%
Means Output

Means Table:

<table>
<thead>
<tr>
<th>Age x Gender</th>
<th>Obs</th>
<th>Total N</th>
<th>Mean</th>
<th>Var</th>
<th>Std Dev</th>
<th>Min</th>
<th>25%</th>
<th>Median</th>
<th>75%</th>
<th>Max</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>43</td>
<td>2161</td>
<td>50.3</td>
<td>321.2</td>
<td>17.9</td>
<td>180</td>
<td>200</td>
<td>240.0</td>
<td>240</td>
<td>260</td>
<td>250</td>
</tr>
<tr>
<td>Female</td>
<td>52</td>
<td>1526</td>
<td>47.8</td>
<td>300.6</td>
<td>17.3</td>
<td>190</td>
<td>240</td>
<td>44.5</td>
<td>61.5</td>
<td>27.6</td>
<td>22.0</td>
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</tbody>
</table>

T-Test:

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean Diff</th>
<th>95% CL</th>
<th>Std Dev</th>
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</thead>
<tbody>
<tr>
<td>Equal</td>
<td>2.5295</td>
<td>5.6534</td>
<td>10.7237</td>
</tr>
<tr>
<td>Unequal</td>
<td>2.5295</td>
<td>5.6534</td>
<td>10.7237</td>
</tr>
</tbody>
</table>

ANOVA, a Parametric Test for Inequality of Population Means:

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>22,928.092</td>
<td>73</td>
<td>322.4972</td>
<td>0.3958</td>
</tr>
<tr>
<td>Within</td>
<td>111,348.8</td>
<td>65</td>
<td>1,704.479</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22,928.092</td>
<td>64</td>
<td>350.1292</td>
<td></td>
</tr>
</tbody>
</table>

P-Value: 0.5419

Bartlett's Test for Inequality of Population Variances:

<table>
<thead>
<tr>
<th>Test</th>
<th>Chi Square</th>
<th>Degrees of Freedom</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0356</td>
<td>1</td>
<td>0.8443</td>
</tr>
</tbody>
</table>

A small p-value (e.g., less than 0.05) suggests that the variances are not homogeneous and that the ANOVA may not be appropriate.

Mann-Whitney/Wilcoxon Two-Sample Test (Kruskal-Wallis test for two groups):

<table>
<thead>
<tr>
<th>Test</th>
<th>Kruskal-Wallis H</th>
<th>Degrees of Freedom</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.2870</td>
<td>1</td>
<td>0.5621</td>
</tr>
</tbody>
</table>
Crosstabulation Output

The image shows a crosstabulation output with the following data:

### Age Group

- **18 - 24**: Yes - 2, No - 4, TOTAL - 6
- **24 - 30**: Yes - 0, No - 6, TOTAL - 6
- **30 - 36**: Yes - 2, No - 4, TOTAL - 6
- **36 - 42**: Yes - 0, No - 6, TOTAL - 6
- **42 - 48**: Yes - 0, No - 6, TOTAL - 6
- **48 - 54**: Yes - 0, No - 6, TOTAL - 6
- **54 - 60**: Yes - 1, No - 5, TOTAL - 6
- **60 - 65**: Yes - 1, No - 5, TOTAL - 6
- **65 - < HVALUE**: Yes - 1, No - 5, TOTAL - 6
- **TOTAL**: Yes - 6, No - 10, TOTAL - 16

### Physical Activity

- **Yes**: Yes - 17, No - 26, TOTAL - 43
- **No**: Yes - 11, No - 32, TOTAL - 43

### Chi-square

- Chi-square: 9.0047
- Probability: 0.03419
Charting

Pie Chart

How large of a problem is crime in your community?

- Major Problem: 25 (33%)
- Minor Problem: 7 (9%)
- Not a Problem: 4 (5%)
- Problem: 39 (52%)

Pie Chart

- Major Problem: 28 (37%)
- Minor Problem: 1 (2%)
- Not a Problem: 4 (5%)
- Problem: 42 (56%)
Next Steps

- Pilot module within communities

- Make changes based on recommendations
  - Enhance functionality
  - Content usability

- Release for use

National Survey On Drug Use and Health: SAMSHA. Available at: http://www.samhsa.gov/data/nsduh/2k8mrb/2k8Q.pdf


Orange County Health Department and Healthy Carolinians of Orange County. Available at: http://www.orangecountync.gov/healthycarolinians/Publications.asp. Accessed on [date].

REDESIGNING THE COMMUNITY HEALTH STATUS INDICATORS WEB-APPLICATION
Community Health Status Indicators

- 2000 - released as paper reports
- HRSA lead
  - Partners (PHF, ASTHO, NACCHO, and advisory panel)
- 2008 – released in web format
  - Added CDC, NLM, NALBHO, RWJF
- 2009 – data update
- 2012 – transferred to CDC lead
Community Health Status Indicators

- A collection of nationally available health indicators for all 3,141 counties, helping to present a “total picture” of local health.

- A resource for monitoring and analyzing community health status and its determinants at the county level.

- Unique from other applications
  - Overall population health outcomes & determinants
  - Compares indicators to demographically similar counties
Redesigning CHSI

- **Scheduled for launch - early 2014**
  - Updated & refined set of peer counties
  - Reorganized in a population health framework
  - New and updated indicators
  - Peer county comparisons for all indicators
  - Summary comparison page
  - Improved user interface
  - Improved indicator visualization

- **Annual Release Strategy**
  - Biannual updated data release
  - Biannual improved functionality release
## Community Health Assessment for Population Health Improvement: Most Frequently Recommended Health Metrics*

### Health Outcomes Metrics

<table>
<thead>
<tr>
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<th>Morbidity</th>
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### Health Correlates and Determinates Metrics

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Numbers represent total # of 10 guidance documents recommending that outcome or determinant.
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<td>Physical Activity</td>
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<td>Education</td>
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<td>Air Quality</td>
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<td>Radon</td>
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</tbody>
</table>
## Related Measures of Birth

**Cobb County, GA**

*Indicates a status favorable to peer county median value*

*Indicates that a closer look and perhaps reduction to the percent or rate may be needed. Blank indicates no comparison.*

<table>
<thead>
<tr>
<th>County Percent</th>
<th>Status</th>
<th>Peer County Range</th>
<th>Birth Measures</th>
<th>U.S. Percent 2005</th>
<th>Healthy People 2010 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.8</td>
<td>🍎</td>
<td>6.7 - 8.4</td>
<td>Low Birth Wt. (&lt;2500 g)</td>
<td>8.2</td>
<td>5.0</td>
</tr>
<tr>
<td>1.5</td>
<td>🍎</td>
<td>1.1 - 1.8</td>
<td>Very Low Birth Wt. (&lt;1500 g)</td>
<td>1.5</td>
<td>0.9</td>
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<tr>
<td>11.7</td>
<td>🍎</td>
<td>9.9 - 12.3</td>
<td>Premature Births (&lt;37 weeks)</td>
<td>12.7</td>
<td>7.6</td>
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<tr>
<td>2.4</td>
<td>🍎</td>
<td>1.2 - 2.9</td>
<td>Births to Women under 18</td>
<td>3.4</td>
<td>No objective</td>
</tr>
<tr>
<td>2.9</td>
<td>🍎</td>
<td>2.8 - 5.8</td>
<td>Births to Women age 40-54</td>
<td>2.7</td>
<td>No objective</td>
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<tr>
<td>29.8</td>
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<td>18.3 - 35.3</td>
<td>Births to Unmarried Women</td>
<td>36.9</td>
<td>No objective</td>
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<tr>
<td>8.5</td>
<td>🍎</td>
<td>8.5 - 18.6</td>
<td>No Care in First Trimester²</td>
<td>16.1</td>
<td>10.0</td>
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</table>

<table>
<thead>
<tr>
<th>County Rate</th>
<th>Status</th>
<th>Peer County Range</th>
<th>Infant Mortality²</th>
<th>U.S. Rate 2005</th>
<th>Healthy People 2010 Target</th>
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</thead>
<tbody>
<tr>
<td>5.5</td>
<td>🍎</td>
<td>4.2 - 7.6</td>
<td>Infant Mortality</td>
<td>6.9</td>
<td>4.5</td>
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<tr>
<td>3.7</td>
<td>🍎</td>
<td>3.0 - 5.8</td>
<td>White non Hispanic Infant Mortality</td>
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<td>4.5</td>
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<tr>
<td>9.4</td>
<td>🍎</td>
<td>6.8 - 15.1</td>
<td>Black non Hispanic Infant Mortality</td>
<td>13.6</td>
<td>4.5</td>
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<tr>
<td>4.0</td>
<td>🍎</td>
<td>3.8 - 8.5</td>
<td>Hispanic Infant Mortality</td>
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<td>4.5</td>
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<td>3.8</td>
<td>🍎</td>
<td>2.7 - 5.4</td>
<td>Neonatal Infant Mortality</td>
<td>4.5</td>
<td>2.9</td>
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<tr>
<td>1.6</td>
<td>🍎</td>
<td>1.1 - 2.1</td>
<td>Post-neonatal Infant Mortality</td>
<td>2.3</td>
<td>1.2</td>
</tr>
</tbody>
</table>
Measures of Poverty by Census Tract

This indicator reports the percentage of the population living in households with income below the Federal Poverty Level (FPL).
Questions?

For more information please contact Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, GA 30333
Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov  Web: www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.