Utilizing Local Data to Catalyze Coalitions, Address Disparities, and Improve Health

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Association for Community Health Improvement Conference
March, 2016
Learning Objectives

Utilize public health resources to meet CHNA requirements:

- **Local measures of population health & determinants**
  - Identify “hot spots” of health disparities;
  - Understand underlying social determinants driving disparities
  - Catalyze collective actions
  - Raise awareness on the role of place-based factors in creating health

- **Select & evaluate interventions**
  - Strongest evidence
  - Higher impact
  - Cost effective
The hospital must “solicit” and “take into account” input from a state or local health department and members of medically underserved (disparately impacted), low-income, and minority populations.

The hospital may use any criteria to prioritize the significant health needs it identifies including:
- burden, scope, severity, or urgency of the health need;
- the estimated feasibility and effectiveness of possible interventions;
- the health disparities associated with the need; or
- importance the community places on addressing the need.

Health needs may include “financial and other barriers to accessing care, preventing illness, ensuring adequate nutrition, or social, behavior and environmental factors that influence health in the community.”

2016 CHNAs must include an impact evaluation of the actions in the previous CHNA.
State Public Health Resources for Community Health Needs Assessments
Sustainable Population Health Improvement: Tools for the Journey

NEIGHBORHOOD-LEVEL MEASURES OF POPULATION HEALTH AND SOCIAL DETERMINANTS IN FLORIDA

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ASSOCIATION FOR COMMUNITY HEALTH IMPROVEMENT
2016 NATIONAL CONFERENCE
MARCH 2, 2016
Life Expectancy Project

- CDC/Council of State and Territorial Epidemiologists (CSTE) Workgroup

- Goal: Develop, pilot, and disseminate a stakeholder driven, easy-to-use Guide for Calculating Life Expectancy Estimates at the Sub-County Level that allows states and local health departments to create small-area life expectancy to examine health disparities and compare across localities.

- Sub-County Assessment of Life Expectancy (SCALE) Phase 1

- Timeline: October 2014 –June 2015

- Phase I Participants
  - CDC: Population Health Metrics Team
  - State/local: Florida, Los Angeles County, Maine, Massachusetts, New York State, Seattle & King County, Washington, Wisconsin
Life Expectancy – Part II

- SCALE Phase II

- Goals
  - Recruit states/locals to test the tool and Guide
  - Expand coverage for areas without sufficient populations
  - Engage subject matter experts on best practices for life expectancy visualization (mapping) and messaging

- Timeline: August 2015 – June 2016

- Approximately 25 state and local health departments participating
Why Life Expectancy?

- Life expectancy at birth
  - Number of years a newborn can expect to live if current age specific mortality rates in that population remained the same over time
- Allows us to look at disparities by place
- Identify areas where underlying health behaviors, social determinants, and other community factors may be targeted for public health intervention
ZIP Code-Level Life Expectancy Estimates, Both Genders, FL, 2009-2013

State-Level Life Expectancy Estimate: 79.96 years (95% CI: 79.93, 80.00)

Legend
Life Expectancy at Birth
- 68.4 - 76.1
- 76.1 - 77.9
- 78.0 - 79.6
- 79.7 - 81.7
- 81.8 - 90.2
- Suppressed ZIP Codes
- No data available

ZIP code suppression rules: life expectancy estimate <= 66 or standard error >2; CI = Confidence Interval
Example: Leon County
ZIP Codes = 10, Population = 276,000

<table>
<thead>
<tr>
<th>Gender</th>
<th>County-Level Estimate (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both</td>
<td>79.39</td>
</tr>
<tr>
<td>Males</td>
<td>76.97</td>
</tr>
<tr>
<td>Females</td>
<td>81.62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Min/Max</th>
<th>ZIP Code</th>
<th>ZIP Code-Level Estimate (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both</td>
<td>Min</td>
<td>32310</td>
<td>74.16</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>32312</td>
<td>81.72</td>
</tr>
<tr>
<td>Males</td>
<td>Min</td>
<td>32310</td>
<td>70.42</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>32312</td>
<td>80.36</td>
</tr>
<tr>
<td>Females</td>
<td>Min</td>
<td>32310</td>
<td>78.13</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>32309</td>
<td>84.18</td>
</tr>
</tbody>
</table>

Legend
Life Expectancy at Birth
- 68.4 - 76.1
- 76.1 - 77.9
- 78.0 - 79.6
- 79.7 - 81.7
- 81.8 - 90.2
- No data available

ZIP code suppression rules: life expectancy estimate <= 66 or standard error >2;
LE = Life Expectancy Estimate
Rural South Florida
Counties = 5, ZIP Codes = 19, Population = 214,600

<table>
<thead>
<tr>
<th>Gender</th>
<th>DeSoto</th>
<th>Glades</th>
<th>Hardee</th>
<th>Highlands</th>
<th>Okeechobee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both</td>
<td>80.53</td>
<td>80.44</td>
<td>79.55</td>
<td>79.42</td>
<td>77.10</td>
</tr>
<tr>
<td>Males</td>
<td>79.14</td>
<td>78.25</td>
<td>77.64</td>
<td>76.79</td>
<td>75.35</td>
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<tr>
<td>Females</td>
<td>82.29</td>
<td>83.56</td>
<td>81.68</td>
<td>82.17</td>
<td>79.18</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Min/Max</th>
<th>County</th>
<th>ZIP Code</th>
<th>ZIP Code-Level Estimate (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both</td>
<td>Min</td>
<td>Okeechobee</td>
<td>34972</td>
<td>75.73</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>DeSoto</td>
<td>34269</td>
<td>84.12</td>
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<tr>
<td>Males</td>
<td>Min</td>
<td>Glades</td>
<td>34974</td>
<td>74.36</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>DeSoto</td>
<td>34269</td>
<td>80.96</td>
</tr>
<tr>
<td>Females</td>
<td>Min</td>
<td>Okeechobee</td>
<td>34972</td>
<td>77.02</td>
</tr>
<tr>
<td></td>
<td>Max</td>
<td>DeSoto</td>
<td>34269</td>
<td>87.07</td>
</tr>
</tbody>
</table>

ZIP Code-Level Life Expectancy Estimates, Both Genders, Rural Counties, FL, 2009-2013
Life Expectancy: Limitations

- Suppression based on low numbers of deaths and/or population
  - Geographic aggregation
  - Mapping special facilities or populations (e.g., universities, prisons, assisted living facilities)
- ZIP Code to ZCTA (ZIP Code Tabulation Area) linkage
- Changing ZIP Code boundaries
Incorporating Social Determinants of Health (SDoH)

- SDoH variables are factors in the social and/or built environment that may improve or diminish the health of individuals and communities.
- These factors have repeatedly been found to be associated with heart disease and stroke in the U.S.
- Such area-level factors have been used to match prevention programs and policies to the needs of communities.
Example: SDoH & Acute MI Morbidity

- To characterize the relationship between neighborhood-level characteristics and rate of acute MI
  - Florida residents
  - Years 2008-2012
  - ZIP Code level
  - Using emergency department (ED) and inpatient hospitalizations
- Examine variables individually and combined for the outcomes of interest
- Understand both the global and local relationship of these variables with chronic disease morbidity/mortality
Social Determinants of Health

Demographic
- Male (%)
- Race/ethnicity (%): African American, Hispanic, minority
- Age 65 years and older (%)
- Married (%)

Socioeconomic
- Median household income ($)
- Below poverty level (%)
- Unemployed (%)
- Education (%): less than high school, high school, college
- Rural (%)

Housing/Built Environment
- Median household value ($)
- Owner-occupied housing units (%)

Acute Myocardial Infarction
- Number of MI-related ED and hospital visits
- Crude rate per 100,000
- Age-adjusted rate per 100,000
Where is the greatest impact of acute MI in FL?

Rural areas in central and north Florida and the Panhandle
## Bivariate OLS Associations Between SDoH Variables and MI Rates

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>p-value</th>
<th>Robust p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Male</td>
<td>46.5899</td>
<td>6.1996</td>
<td>&lt;0.0001</td>
<td>0.0205</td>
</tr>
<tr>
<td>% African American</td>
<td>7.4856</td>
<td>1.7879</td>
<td>&lt;0.0001</td>
<td>0.0017</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>1.4084</td>
<td>1.5336</td>
<td>0.3587</td>
<td>0.3710</td>
</tr>
<tr>
<td>% Minority</td>
<td>8.0421</td>
<td>1.6418</td>
<td>&lt;0.0001</td>
<td>0.0160</td>
</tr>
<tr>
<td>% Aged 65 Years and Older</td>
<td>-7.5539</td>
<td>2.6205</td>
<td>0.0040</td>
<td>0.0056</td>
</tr>
<tr>
<td>% Married</td>
<td>-14.3978</td>
<td>2.3866</td>
<td>&lt;0.0001</td>
<td>0.0010</td>
</tr>
<tr>
<td>Median Household Income ($)</td>
<td>-0.0172</td>
<td>0.0013</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>% Below Poverty Level</td>
<td>32.7632</td>
<td>2.9563</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>% Unemployed</td>
<td>14.1161</td>
<td>10.9829</td>
<td>0.1990</td>
<td>0.5201</td>
</tr>
<tr>
<td>% Less than High School Diploma</td>
<td>44.4410</td>
<td>2.6415</td>
<td>&lt;0.0001</td>
<td>0.0002</td>
</tr>
<tr>
<td>% High School Diploma</td>
<td>-44.4410</td>
<td>2.6415</td>
<td>&lt;0.0001</td>
<td>0.0002</td>
</tr>
<tr>
<td>% College Degree</td>
<td>-27.0983</td>
<td>1.9233</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>% Rural</td>
<td>6.3550</td>
<td>0.8169</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Median Household Value ($)</td>
<td>-0.0027</td>
<td>0.0002</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>% Owner-Occupied Housing</td>
<td>-2.4367</td>
<td>1.9230</td>
<td>0.2054</td>
<td>0.1546</td>
</tr>
</tbody>
</table>
Local Statistics

Rural Population (%) by ZCTA
-6.08 to -2.49
-2.49 to 0.14
0.14 to 1.11
1.11 to 2.37
2.37 to 3.87
3.87 to 5.32

Population with a High School Diploma (%) by ZCTA
-51.11 to -37.13
-37.13 to -29.61
-29.61 to -22.12
-22.12 to -13.83
-13.83 to -6.53
-6.53 to -0.68
Florida Environmental Public Health Tracking

works in partnership with the US Centers for Disease Control and Prevention to track diseases that may be related to environmental exposures. This website provides data sets on environmental hazards and associated health outcomes. The purpose of these efforts is to inform communities about disease trends and to design interventions that lead to better health outcomes. Learn more

What's new?

- Updated asthma and heart attack data
- Occupational health indicators
Example: Sub-County Data Tools
Customized Community Profiles – by Topic

### Tabular View

<table>
<thead>
<tr>
<th>Health Topic</th>
<th>Time</th>
<th>Chart</th>
<th>Florida (FIPS: 12)</th>
<th>Pensacola Health Region (FIPS: 12-01)</th>
<th>Tallahassee Health Region (FIPS: 12-02)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asthma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of asthma hospitalizations</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>323.14</td>
<td>71.95</td>
<td>141.13</td>
</tr>
<tr>
<td>Number of asthma emergency department visits</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>34.66</td>
<td>126.39</td>
<td>400.58</td>
</tr>
<tr>
<td><strong>Cancer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of breast cancer cases</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>203.7</td>
<td>315.24</td>
<td>358.21</td>
</tr>
<tr>
<td>Number of bladder cancer cases</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>182.5</td>
<td>399.48</td>
<td>193.20</td>
</tr>
<tr>
<td><strong>Heart Attacks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of heart attack hospitalizations</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>197.86</td>
<td>169.20</td>
<td>136.88</td>
</tr>
<tr>
<td>Number of heart attack emergency department visits</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>286.30</td>
<td>380.19</td>
<td>165.78</td>
</tr>
<tr>
<td><strong>Indoor Air</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Obesity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of adults who are obese</td>
<td>1998 - 2015</td>
<td>[View Chart]</td>
<td>269.50</td>
<td>347.49</td>
<td>389.86</td>
</tr>
</tbody>
</table>

Showing 1 to 8 of 8 entries
End User Aggregation

### Tabular View

- **Open in New Tab**
- **Topics as Rows**
- **Ungroup**
- **Download CSV**

#### Filter:

**Show** 25 entries

<table>
<thead>
<tr>
<th>Geography</th>
<th>FIPS</th>
<th>Age-adjusted rate of asthma hospitalizations (2000 - 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32301 Zip</td>
<td>32301</td>
<td>135.58</td>
</tr>
<tr>
<td>32302 Zip</td>
<td>32302</td>
<td>128.70</td>
</tr>
<tr>
<td>32303 Zip</td>
<td>32303</td>
<td>191.94</td>
</tr>
<tr>
<td>32304 Zip</td>
<td>32304</td>
<td>247.43</td>
</tr>
<tr>
<td>32305 Zip</td>
<td>32305</td>
<td>239.45</td>
</tr>
</tbody>
</table>

**Zip Code Regions**

Florida HEALTH
Future Work

- Incorporate life expectancy and SDoH measures into existing community profile reports and data visualization tools
  - Collaboration with other public health programs (e.g., chronic disease, lead) and local health departments
  - Combine data on environmental hazards, health outcomes, and social vulnerability
- Support more local activities
  - Community health assessments
  - Community health improvement plans
  - Health impact assessments
- Continue discussions on limitations and concerns with sub-county data and solutions
www.FloridaHealth.gov

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Senior Environmental Epidemiologist
(850) 245-4577
Melissa.Jordan@FLHealth.gov

To protect, promote, & improve the health of all people in Florida through integrated state, county, & community efforts.
Local Public Health Resources for Community Health Needs Assessments

Eva Wong, PhD
Public Health - Seattle & King County
Eva.wong@kingcounty.gov
Impact on Population Health

- **Health Behaviors**: 30%
  - Tobacco use
  - Diet and exercise
  - Alcohol use
  - Unsafe sex

- **Health Care**: 20%
  - Access to care
  - Quality of care

- **Physical Environment**: 10%
  - Environmental quality
  - Built environment

- **Socio-economic factors**: 40%
  - Education
  - Employment
  - Income
  - Family/social support
  - Community safety
Life expectancy, by county, compared to the world’s 10 best countries
Life Expectancy in King County by Census Tract

- Difference of 30 years! (Low of 66; High of 96)
- King County Average: 81.6
- Tracts with the lowest life expectancy are more than 40 years behind the longest lived countries
## Communities of Opportunity

<table>
<thead>
<tr>
<th>Measures</th>
<th>Lowest decile</th>
<th>Highest decile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy</td>
<td>74 years</td>
<td>87 years</td>
</tr>
<tr>
<td><strong>Health, broadly defined</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse childhood experiences</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>Frequent mental distress</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>Smoking</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>Obesity</td>
<td>33%</td>
<td>14%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>Preventable hospitalizations</td>
<td>1.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor housing condition</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Economic opportunity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-income, below 200% poverty</td>
<td>54%</td>
<td>6%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>13%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Health, social and economic measures by census tract

Legend
- City Boundaries
- Ranking:
  - Lowest Decile
  - Decile 2
  - Decile 3
  - Decile 4
  - Decile 5
  - Decile 6
  - Decile 7
  - Decile 8
  - Decile 9
  - Highest Decile
Shared Measurement Supported Prioritization of Goals and Communities

- Policy and system change
- Place-based investment in neighborhoods
- Toolkits and Learning Community to support all of King County
Using Results Based Accountability

- **Shared result:** All children, adults, and communities in King County are healthy, have quality/affordable homes, thrive economically, and feel like they are part of a community.

<table>
<thead>
<tr>
<th>Health</th>
<th>Housing</th>
<th>Economic Opportunity</th>
<th>Connection to Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consumption healthy foods</td>
<td>• Households paying &lt; 50% income on</td>
<td>• Unemployment</td>
<td>• Youth who have adult to turn to</td>
</tr>
<tr>
<td>• Active living</td>
<td>housing</td>
<td>• Income above 200% of poverty</td>
<td>for help</td>
</tr>
<tr>
<td>• Use of preventive care</td>
<td>• Housing stability (prevent</td>
<td>• Business stability (prevent</td>
<td>• Adults who have emotional</td>
</tr>
<tr>
<td>(physical/mental/dental)</td>
<td>involuntary displacement)</td>
<td>involuntary displacement)</td>
<td>support</td>
</tr>
</tbody>
</table>

Public Health
Seattle & King County
Why RBA?

RBA is a framework that offers a disciplined way of thinking and taking action that:

• Communities can use to improve the conditions of well being for children, youth, families and the whole community, and

• Leaders can use to improve the quality and effectiveness of programs, policies, agencies and service systems.
Economic Opportunity: Baseline

Percent of adults age 16+ who were employed, King County 2007-2013, 5-year rolling averages

Percent of households with moderate or high income (≥200% of poverty), King County 2007-2013, 5-year rolling averages

Source: American Community Survey
Prepared by Public Health - Seattle & King County, APDE, 12/2015.
What’s the Story Behind the Curve?

Economic and housing indicators, King County, 2009-2013

<table>
<thead>
<tr>
<th>Area</th>
<th>≥Moderate income</th>
<th>Employment Rate</th>
<th>Secure Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainier Valley</td>
<td>61</td>
<td>61</td>
<td>69</td>
</tr>
<tr>
<td>White Center</td>
<td>53</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>SeaTac/Tukwila</td>
<td>54</td>
<td>58</td>
<td>71</td>
</tr>
<tr>
<td>Rest of King Co</td>
<td>75</td>
<td>62</td>
<td>78</td>
</tr>
</tbody>
</table>

Source: American Community Survey
Prepared by Public Health - Seattle & King County, APDE, 12/2015.
Communities Contributing Data

• Sites are supplementing the COO baseline data report with community data
  – Community survey/program data
  – Qualitative data

• Data for indicators that cut across the sites:
  – Housing affordability and quality
  – Employment
  – Wages
  – Business ownership and stability
  – Education
Next Questions

- Partners come to the table
- Develop the shared measurement system
- Determine what works to turn the curve
- Propose actions
- Evaluate performance measures:
  - What did we do?
  - How well did we do it?
  - Is anyone better off?
### How Do You Measure Change?

<table>
<thead>
<tr>
<th>Policy change</th>
<th>Infrastructure change</th>
<th>System change</th>
<th>Environment and social change</th>
<th>Behavior change</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Written laws, regulations, programs, procedures or budget commitments, as adopted by a formal governing body</td>
<td>• Sustainable changes in practices &amp; protocols <em>within</em> institutions</td>
<td>• New, ongoing interactions <em>across</em> sectors</td>
<td>• Physical, economic and social surroundings</td>
<td>• Current smoker, 2nd hand smoke</td>
</tr>
<tr>
<td>• Smoke-free multi-unit housing, parks, and other settings</td>
<td>• Routinely training cafeteria staff on whole food cooking</td>
<td>• Farm to schools/childcare/senior centers</td>
<td>• Hydration stations</td>
<td>• Obesity, overweight</td>
</tr>
<tr>
<td>• Swimming pool scholarship program</td>
<td>• Increase f/v purchasing by 20% per year</td>
<td>• City planning and public health departments</td>
<td>• Placement of items in school cafeterias</td>
<td>• Physical activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Promoting foods using superhero themes</td>
<td>• Healthy eating</td>
</tr>
</tbody>
</table>
Beware of Data Issues for Small Areas

- BRFSS data concerns
  - Standard reporting guidelines would result in data suppression for some indicators at certain sites
  - 5-year rolling averages limits ability to make conclusions about change over time
  - Which indicators of use of preventive care are most relevant?
  - Missing information on some residents (given in English and Spanish only)

- Need relationships with school districts for permission to release school district-level data
Federal Public Health Resources for Community Health Needs Assessments Overview

Vickie Boothe, MPH
Acting Senior Evaluator
Division of Community Health
Centers for Disease Control and Prevention
Sub-County Assessment of Life Expectancy (SCALE) Project

- **Three Year Project**
  - CDC, Council for State and Territorial Epidemiologists, 8 Health Departments

- **Goal**
  - Develop and disseminate a stakeholder driven, easy to use *Guide for Calculating and Visualizing Life Expectancy Estimates at the Census Tract Level*

- **Status: Draft Guide & Software Pilots**
  - 25 State & Local Health Departments
  - Completion June ‘16

- **Practice & Research Applications**
  - Identify and monitor community hot spots of health disparities
  - Investigate associated behavioral, social and environmental factors
  - Catalyze multi-sector actions on place based SDOH
Area-based Socioeconomic Measures

Health Disparities by Census Tract Poverty
Harvard Geocoding Projects I & II

- **MA and RI 1990 Data**
  - 5 Leading Causes of Death and Cancer Sites, HIV, Homicide
  - Different area sizes and SES measures

- **Census Tract (CT) Poverty Detected Disparities**
  - Missed by other measures
  - > Disparities by race/ethnicity
  - Within race/ethnic groups

CSTE Pilot: Harvard Geocoding Project

- CSTE Disparities Pilot Project
  - 11 States and localities
  - Multiple health outcomes

- CT > 20% in poverty
  - Consistently associated with greatest disparities
  - Reflect confluence of neighborhood risk factors including unemployment, deteriorated housing, violent crime, material resource access, behavioral factors, access to care, and pollution.

CSTE Pilot: New York City Example

Age-adjusted Mortality Rate by % in census tract who live below poverty, NYC, 2000

Death Rate per 1000

Source: Hadler J. Analysis of Public Health Data Using Census Tract-level Poverty
CSTE Pilot: New York City Example

Age-adjusted Mortality Rate by % in census tract who live below poverty by race/ethnicity, NYC, 2000

<table>
<thead>
<tr>
<th>Percent below poverty in census tract</th>
<th>Death Rate per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5%</td>
<td>White (non-H)</td>
</tr>
<tr>
<td>5-9%</td>
<td>Black (non-H)</td>
</tr>
<tr>
<td>10-19%</td>
<td>Hispanic</td>
</tr>
<tr>
<td>20-29%</td>
<td>Asian</td>
</tr>
<tr>
<td>30-39%</td>
<td></td>
</tr>
<tr>
<td>40+%</td>
<td></td>
</tr>
</tbody>
</table>
Baltimore Poverty vs Life Expectancy

Joint Center for Political and Economic Studies. Place Matters for Health in Baltimore: Ensuring Opportunities for Good Health for All. Sept. 2012
NEW SCIENTIFIC RESOURCES FOR SELECTING AND EVALUATING INTERVENTIONS
3 Buckets of Prevention

1. Traditional Clinical Prevention
   - Increase the use of evidence-based services

2. Innovative Clinical Prevention
   - Provide services outside the clinical setting

3. Total Population or Community-Wide Prevention
   - Implement interventions that reach whole populations

Bucket 3 List: Methods

- **Highest evidence level rating:**
  - University of Wisconsin County Health Rankings & Roadmaps What Works for Health

- **Secondary source (QA/QC)**
  - The Guide to Community Preventive Services

- **Excluded all clinical interventions**
  - Bucket 1: Traditional Clinical
  - Bucket 2: Innovative Clinical
    - 6/18 Initiative

- **Results: 150 Potential Interventions**
  - One or more systematic reviews
Bucket 3 List: Methods

- **Intervention Inclusion Criteria**
  - 5 Year Timeframe
    - Measurable outcomes, or
    - Surrogate measures
      - Causally linked to outcomes
      - Readily available
  - Costs data
    - Cost savings or neutral
  - Lack of saturation
    - Implemented $\leq 50\%$ of States

- **CDC Program Review**
  - Additional interventions considered
Bucket 3 List: Results

- **26 Interventions met all criteria**
  - Total population
  - Subpopulations
    - behavioral risk factors (e.g., smoking)
    - low income
  - Social determinants of health
- **Organized by life stage**
  - Before birth & infancy
  - Early childhood
  - School Age
  - Young Adults
  - Adults
  - Older Adults
  - All Life Stages/SDOH
Bucket 3 List: Results

- Before Birth & Infancy
  - Breastfeeding (Baby-Friendly Hospitals)
  - Pregnancy Peer Support Programs (Entering Pregnancy)
  - Early Childhood Home Visitation Programs

- Early Childhood
  - Head Start
  - Center-Based Early Childhood Education
  - Pre-kindergarten

- Early Adult & Adult
  - Worksite obesity prevention
  - Universal Motorcycle Helmet Laws
  - Alcohol Unit Price Increase
  - Tobacco Unit Price Increase
  - Comprehensive statewide tobacco program
  - Mass Reach Health Communication Interventions for Tobacco
  - Syringe Exchange Program

- School Age
  - Multi-component obesity prevention
  - Safe Routes to School
  - Family Group Program (Family and Schools Together)
  - Multidimensional Foster Care Treatment
  - School Based Violence Prevention Programs

- Older Adult
  - Activity Programs for Older Adults (includes Multi-component fall prevention)
Bucket 3 List: Results

- Social Determinants of Health
  - Public Transportation: System Introduction or Expansion
  - Clean Diesel Technology Fleet Transition
  - Smoke-free policies: Indoor areas
  - Housing Choice Voucher Program
  - Housing Rehabilitation Loan and Grant Programs
  - State/Local Earned Income Tax Credits (EITC)
  - Pre-kindergarten (Universal or Targeted)
  - Head Start

COMING SOON
Health Pyramid & Bucket 3

1. Social Determinants Of Health
2. Changing Context Total & Subpopulations
3. Wrap Around Services High Risk Populations
4. Clinical Interventions
5. Counseling and Education

- Socioeconomic Factors
- Changing the Context to Make Individuals' Default Decisions Healthy
- Long-Lasting Protection Interventions
- Clinical Interventions
- Counseling and Education

Frieden T. American Journal of Public Health | April 2010, Vol 100, No. 4
CDC FUNDED COMMUNITY HEALTH PROGRAMS: BUCKET 3 EXAMPLE
Division of Community Health Programs

- **PICH – Partnerships to Improve Community Health (38 Awardees)**
  
  Supports multi-sectoral community coalitions in:
  - Large Cities and Urban Counties (with populations of 500,000 or more)
  - Small Cities and Counties (with populations between 50,000-499,999)
  - American Indian tribes and Alaskan Native villages and tribal organizations

- **REACH – Racial and Ethnic Approaches to Community Health (49 Awardees)**
  
  - 15-year old program
  - Implementing locally tailored evidence- and practice-based population-wide improvements in priority populations

- **Policies, Systems, Environmental Strategies**
  - Tobacco, Nutrition, Physical Activity, Community Clinical Linkages
Issue: No safe level of exposure to second-hand smoke (SHS)

- Each year, among non-smokers* SHS exposure
  - ~ 34,000 heart disease-related deaths
  - > 8,000 deaths from stroke
  - > 7,300 lung cancer deaths

- MUH SHS spread from units, common areas, decks
  - Air vents, hallways, electrical outlets, cracks in ceilings & walls

- U.S. residents of multi-unit housing (MUH)**
  - ~ 70 of 80 million in MUH without smoke-free policies
  - ~ 45% higher cotinine levels among children living in MUH

- Public Housing**
  - 88% MUH
  - 52% are older adults or disabled residents; 43% are children

* HHS 2014  **King et al. 2013
Smoke Free Policies: Indoor Air

Evidence-based, Cost Effective Intervention

- Community Guide Systematic Review*
  - 82 studies
  - Strong evidence of effectiveness
  - Across varied populations and settings

- Short-term Health Benefits
  - 50% reduction people exposed to SHS
  - 3.8 percentage point increase smoking cessation
  - 5.1% reduction CVD hospital admissions
  - 20.1% reduction asthma-related hospital admissions

- Economic Analysis
  - Health care savings $700 - $1,297 per person
  - $18M annual cost savings for MUH in CA
    - Cleaning; Repairs; Maintenance

*Community Guide 2012
PICH & REACH Smoke Free Multi-unit Housing: Estimated Impact

Year 1 Actual & Year 2 Projected Reach = 470,286

- **88,786 Low Income Residents**
  - 38,178 children
  - 46,169 older or disabled adults

- **381,500 Private/Market Rate Residents**
  - 152,600 children

- **Public Health Impact**
  - 9,898 fewer smokers*
  - 32 fewer CVD hospitalizations
  - 115 fewer asthma hospitalizations

- **Annual Cost Savings**
  - $48.7M SHS-related healthcare
  - $1.14M renovations
  - $3.79M fire loss

* Cessation impacts & cost savings not included

Methods from King et al. 2013
Take Away Messages

- **Available sub-county data**
  - Identify minority, low income, & disparately impacted populations
  - Target upstream determinants for action
  - Catalyze multi-sector partnerships

- **Existing frameworks (Collective Impact, Results Based Accountability)**
  - Establish shared vision
  - Coordinate multisector actions
  - Focus on quality of life/well being
  - Monitor results focused indicators

- **Evidence-based intervention resource**
  - Impactful, measurable & cost effective
  - Total populations and subpopulations
  - Upstream determinants, contextual changes, high risk population services


Questions?

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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.