Exploring ZIP Code-Level Life Expectancy in Florida

SUB-COUNTY ASSESSMENT OF LIFE EXPECTANCY (SCALE)

MELISSA JORDAN
KRISTINA KINTZIGER
CHRIS DUCLOS

Florida Department of Health
Division of Community Health Promotion
Public Health Research Unit

To protect, promote, & improve the health of all people in Florida through integrated state, county, & community efforts.
Methods

- Linked residential ZIP code provided on the death certificate with 2010 Census ZIP Code Tabulation Areas (ZCTAs)
- Used 2010 Census ZCTA population estimates by gender and age for denominator
- Aggregated five years of mortality data (2009-2013)
### Results

- N = 871,920 deaths among FL residents (2009-2013)

<table>
<thead>
<tr>
<th>Category</th>
<th># ZIP Codes</th>
<th># Deaths</th>
<th>% Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-</td>
<td>871,920</td>
<td>100.00%</td>
</tr>
<tr>
<td>Legitimate ZIP Codes</td>
<td>2,122</td>
<td>863,745</td>
<td>99.06%</td>
</tr>
<tr>
<td>Bad ZIP Codes</td>
<td>10</td>
<td>12</td>
<td>0.00%</td>
</tr>
<tr>
<td>Missing ZIP Codes</td>
<td>-</td>
<td>8,164</td>
<td>0.94%</td>
</tr>
<tr>
<td>Non-FL ZIP Codes</td>
<td>93</td>
<td>93</td>
<td>0.01%</td>
</tr>
<tr>
<td>FL ZIP Codes</td>
<td>2,027</td>
<td>863,651</td>
<td>99.05%</td>
</tr>
<tr>
<td>FL ZCTAs</td>
<td>983</td>
<td>859,843</td>
<td>98.61%</td>
</tr>
</tbody>
</table>
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
ZIP Code-Level Life Expectancy Estimates, Males, FL, 2009-2013

State-Level Life Expectancy Estimate: 77.27 years (95% CI: 77.22, 77.32)

Legend
Life Expectancy at Birth
- 64.2 - 73.4
- 73.5 - 75.4
- 75.5 - 77.1
- 77.2 - 79.2
- 79.3 - 86.0

Suppressed ZIP Codes
No data available

0 40 80 160 Miles

ZIP code suppression rules: life expectancy estimate <= 64 or standard error > 2;
CI = Confidence Interval

ZIP Code-Level Life Expectancy Estimates, Females, FL, 2009-2013

State-Level Life Expectancy Estimate: 82.88 years (95% CI: 82.84, 82.93)

Legend
Life Expectancy at Birth
- 72.1 - 78.8
- 78.9 - 80.6
- 80.7 - 82.1
- 82.2 - 84.2
- 84.3 - 93.4

Suppressed ZIP Codes
No data available

0 40 80 160 Miles

ZIP code suppression rules: life expectancy estimate <= 72 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>
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>
</tr>
<tr>
<td>Females</td>
<td>82.29</td>
<td>83.56</td>
<td>81.68</td>
<td>82.17</td>
<td>79.18</td>
</tr>
</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>
</tr>
<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
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)

- 2010 Decennial Census vs. American Community Survey 5-year estimates (2009-2013)

- ZIP Code to ZCTA linkage

- Changing ZIP Code boundaries
Evaluation

- Solicit feedback from local health departments
- Provided ArcGIS online map
- Facilitated focus group discussions
  - Match local public health knowledge
  - How would they use it
  - How can we help them use/explain LE to partners
  - What additional indicators are needed?
  - Are there different geographic boundaries/aggregation they would like to see?
Environmental Public Health Tracking Network

- Environmental Public Health Tracking (Tracking) is the ongoing, systematic collection, integration, analysis, and interpretation of data for:
  - environmental hazards
  - human exposure to environmental hazards
  - health effects potentially related to exposure

- Results must be disseminated to plan, implement, and evaluate public health action.
Environmental Public Health Tracking

1. Hazard
2. Exposure
3. Health Effect

Collection → Integration → Dissemination

Stakeholders*
- Assessment
- Research
- Prevention

*Stakeholders Include
- Federal Agencies
- Business and Industry
- State and Local Agencies
- Policy Makers
- Academia
- Media
- Health Care System
- Public
- Non-Governmental Organizations

Improved Public Health

Ongoing Evaluation
CDC’s National Environmental Public Health Tracking Program

MAP LEGEND
- Current National Tracking Network Grantee (State)
- Current National Tracking Network Grantee (City)
- Former National Tracking Network Grantee

August 2017
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

Notable Projects
- Consuming Fish Safely
- Folic Acid Awareness
- Hernando Arsenic Study
Example: Sub-County Data Tools
## Customized Community Profiles – by Topic

<table>
<thead>
<tr>
<th>Health Topic</th>
<th>Time</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>
</tr>
<tr>
<td>Number of asthma hospitalizations</td>
<td>1998 - 2015</td>
<td>View Chart</td>
<td>323.14</td>
<td>71.95</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>
</tr>
<tr>
<td><strong>Cancer</strong></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>
</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>
</tr>
<tr>
<td><strong>Heart Attacks</strong></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>
</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>
</tr>
<tr>
<td><strong>Indoor Air</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Obesity</strong></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>
</tr>
</tbody>
</table>

Showing 1 to 8 of 8 entries
### Tabular View

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

**Show** 25 entries

<table>
<thead>
<tr>
<th>Geography</th>
<th>FIPS</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Selected Zip Codes [View Map]</td>
<td>All Selected Zip Codes</td>
<td>81</td>
</tr>
<tr>
<td>32710 [View Map]</td>
<td>32710</td>
<td>*</td>
</tr>
<tr>
<td>32712 [View Map]</td>
<td>32712</td>
<td>58</td>
</tr>
<tr>
<td>32751 [View Map]</td>
<td>32751</td>
<td>21</td>
</tr>
<tr>
<td>32777 [View Map]</td>
<td>32777</td>
<td>*</td>
</tr>
</tbody>
</table>

Number of Asthma Hospitalizations

Showing 1 to 5 of 5 entries
Future Work

- Incorporate life expectancy and SDoH measures into existing community profile reports and data visualization tools
- Support more local activities/data in action projects
- Collaborate with Environmental Public Health Tracking grantees on standardized measures, messaging, and data aggregation/visualization
Melissa Jordan
(850) 245-4577
Melissa.Jordan@FLHealth.gov