Challenges of Sub-County Life Expectancy in Maine

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Overview

Maine population and geographies

Data and Method

Results
  – Case study

Lessons learned/next steps
Population and Geographies

Population
- 1.3 million
- 94.4% non-Hispanic White

Geographies
- Counties (16)
  - Smallest = 17,000
- MCDs (533)
  - Largest = Portland, 67,000
  - 2nd largest = Lewiston, 36,000
  - 11th largest = Augusta (capital), 18,000
Geographies: MCDs

Unincorporated townships

Census-designated MCDs

MCDs by Pop2010
- 0
- 1 - 999
- 1000 - 3999
- 4000 - 5999
- 6000 - 7999
- 8000+
Vital Statistics Data - Data provided by Maine’s ODRVS

- **Death**: MCD (town)-level
- **Population**: Annual intercensal, postcensal town-level estimates

Method

- SEPHO (Chiang II, Adjusted)
- County-level → town-level
  - Exploratory analyses

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**Diagram**

- LE Estimate – Stable?
  - Yes
  - No
  - **Display Results**

- **Suppress or Aggregate?**
~3% (~400) of Maine resident deaths (~16,000) each year occur out-of-state.

*Percent of Out-of-State Deaths by Place of Occurrence*

- New Hampshire, 34%
- Massachusetts, 28%
- Florida, 16%
- Canada, 0.3%
- Other, 22%

Other = 46 states, international, unknown
Life Expectancy by Town, 2001-2010

LE by Town (MCD), 2001-2010
Difference from state (yrs)

-15.4
-8.6
-7.7 to -2.1
-2.0 to +2.0
2.1 to 5.0
5.1 to 7.4
8.1
SE >=3

LE by Town (MCD), 2001-2010
Difference from state (yrs)

-38.7 to -15.3
-15.2 to -8.1
-8.0 to -2.1
-2.0 to +2.0
2.1 to 5.0
5.1 to 8.0
8.1 to 17.7
SE >=3
SE >=2 or Deaths <60
Contact Information:
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Introduction
Health outcome maps with fine geographic resolution can be useful tools for public health officials to track disease trends and allocate resources. However, these maps can be too fine for public health officials to interpret, and the New York State Department of Health Section developed the Geographic Aggregation Tool (GAT) to define geographic units of analysis that are more appropriate for these purposes.

The tool allows for aggregation of data at various levels, such as county, city, or zip code. It can be used to create maps that are more meaningful for public health decision-making.

The tool has been tested in R 3.0.2 and Python environments, and it provides a user-friendly interface for public health officials to use. The tool is available at www.albany.edu/faculty/ttalbot/GAT/
### Geographic Aggregation Tool

**Original Block Data †**

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**Regions**

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<td>5</td>
<td>C</td>
</tr>
</tbody>
</table>

**SAS or R Tool**

Cases Region
- 13 A
- 20 B
- 14 C
MCD standard errors by population-years,
Aggregation: deaths

**Standard error by number of deaths**

![Graph showing standard error by number of deaths.](image-url)
GAT Results

- LE range ~ 15 years (Low = 71.6, High = 86.6)
- Assessing Stability
  - SE range: Min = 0.2, Max = 2.4

Life Expectancy, Maine 2001-2010
By GAT Area

n = 310
Aggregated to 10,000 population-years

- LE range ~ 15 years
  (Low = 71.6, High = 86.6)

n = 310
Aggregated to 10,000 Population-years

LE by Area, 2001-2010

Difference from state (yrs)

-6.9 to -5.0
-4.9 to -3.0
-2.9 to -2.1
-2.0 to +2.0
2.1 to 3.0
3.1 to 5.0
5.1 to 8.1
Results

The curious kind
Assessing Stability

**Limington**
- Highest LE in Maine: **86.6**
- 218 deaths
- 37,326 population-years
- SE = **2.4**

**Wayne**
- 3rd highest LE in Maine: **83.8**
- 81 deaths
- 11,445 population-years
- SE = **1.6**

→ *Why is Limington’s SE >2?*
Case Study: Limington

- 4.8% in group quarters (2000) → <1% (2010)
- Low death rate in last age group, high interval width
Discussion

• Next steps
  • LE & social determinants
    • Challenge: data availability
  • Update results
    • Challenge: geographic vs temporal aggregation
  • Environmental Public Health Tracking (EPHT) content workgroup for LE, development of best practices
  • Continue exploring challenges and solutions related to LE as a measure of health disparities
Thanks!

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