

# Identifying Health Bright Spots in the Northeastern Region

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# Key Information about the Project

# Definition

“Bright Spot”

A county which is experiencing better-than-expected health outcomes

# Literature Review

## Counties of Interest (2011):

- The Institute for Healthcare Improvement (IHI)
- 90-day R&D project
- Area of Focus: United States
- Identified 17 counties Bright Spots
  - Franklin County, ME

Map of Counties of Interest with Better-Than-Expected Health Outcomes (Bright Spots)

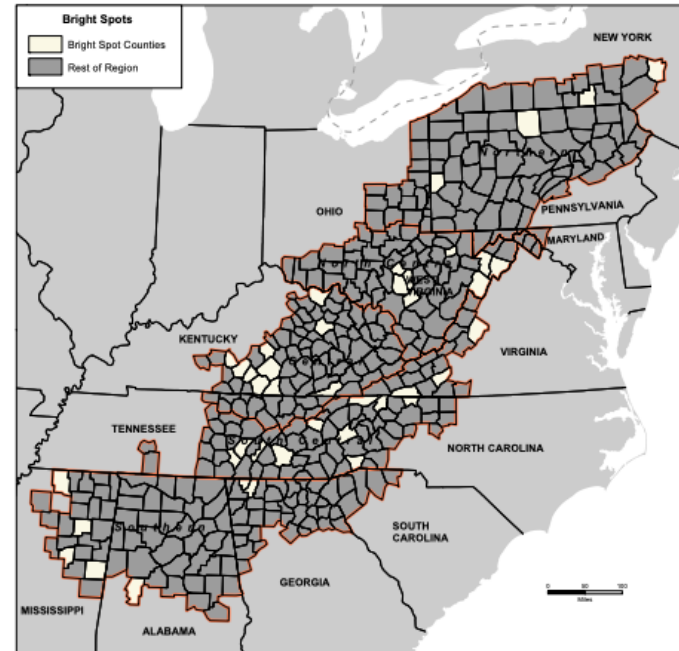


# Literature Review

## Identifying Bright Spots in Appalachian Health (2018):

- Robert Wood Johnson Foundation; the Appalachian Regional Commission; and the Foundation for a Health Kentucky
- “Creating a Culture of Health in Appalachia: Disparities and Bright Spots” research initiative
- Area of Focus: Appalachian Region
- Identified 15 Urban Bright Spots
- Identified 27 Rural Bright Spots

Map of the Bright Spot Counties in Appalachia



# Purpose & Rational

## **Purpose:**

The purpose of this analysis was to identify Bright Spot counties in the Northeastern region of the U.S..

## **Rational:**

This analysis identified Bright Spot counties using the most recent data available, using two different methodologies. This analysis provides information necessary for further research to explore the driving factors of health outcomes that vary across counties. It will also lend a resource to researchers who are interested in investigating the causes and reasons for outlying (Bright Spot) counties.



# Methodology

## Data source(s) and collection:

Data for health factors and health outcomes were collected via publicly available data files from the 2020 County Health Rankings website.

## Q1 analysis: Outlying Counties of Interest

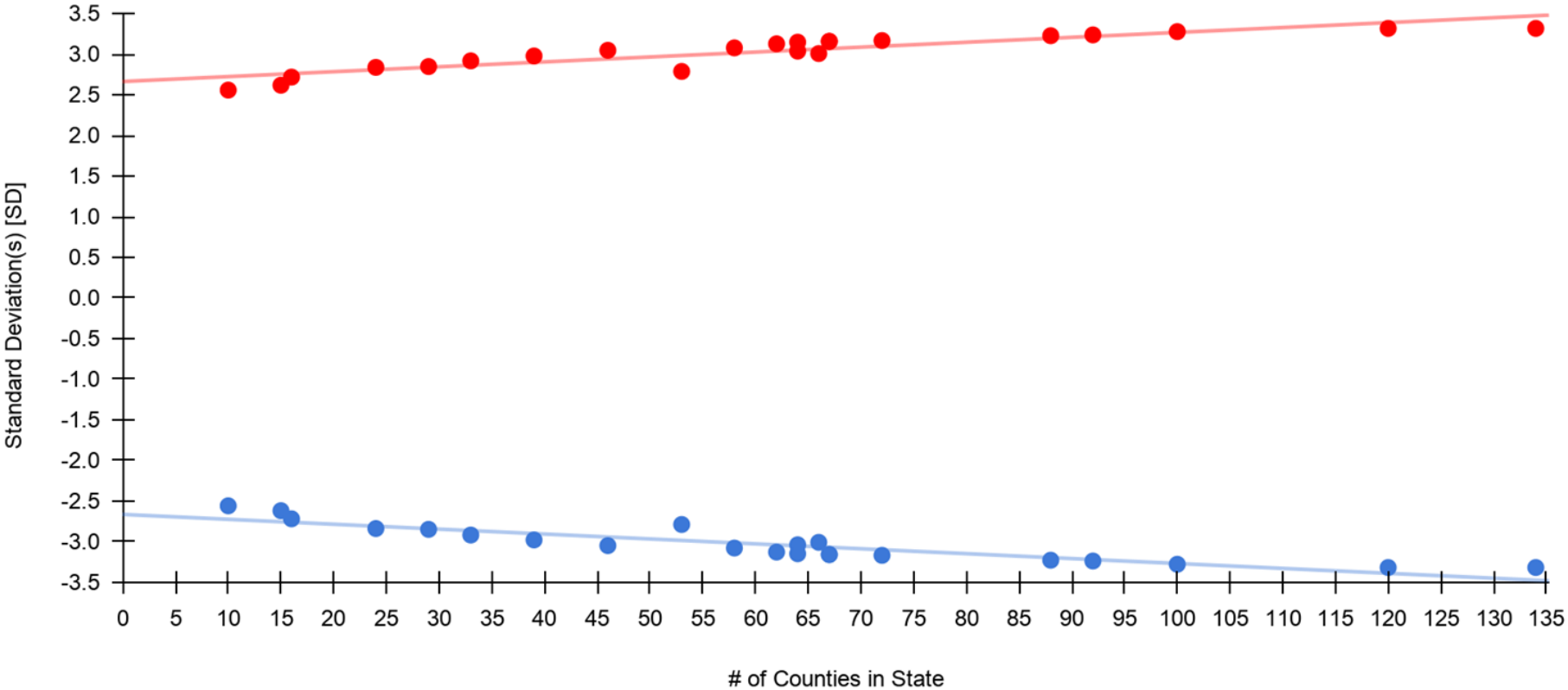
- Based on the IHI report method
- Linear regression models by state, with health outcomes Z-score in relation to SES factors Z-score, the observed value was compared to the predicted value to get residuals for each county
- Bright Spot = better-than-expected residuals with a 90% significance level

## Q2 analysis: Top Decile of Counties

- Based on the Appalachian report method
- Separately examined urban & rural counties
- Linear regression models by rurality, determine residuals for each of 5 outcomes per county based on 26 factors for each county; averaged standardized residuals
- Bright Spot = If a county's average standardized residual value is in the top decile

# Methodology Question #1: Determining State Residual Cut-off

● IHI Residual Cut-off for "Worse"    ● IHI Residual Cut-off for "Better"





# Methodology: Question #1 - SES Health Factors

<b>Focus Area</b>	<b>Measure</b>	<b>Description</b>
Education	High school graduation	Percentage of ninth-grade cohort that graduates in four years.
	Some college	Percentage of adults ages 25-44 with some post-secondary education.
Employment	Unemployment	Percentage of population ages 16 and older unemployed but seeking work.
Income	Children in poverty	Percentage of people under age 18 in poverty.
	Income inequality	Ratio of household income at the 80th percentile to income at the 20th percentile.
Family and Social Support	Children in single-parent households	Percentage of children that live in a household headed by single parent.
	Social associations	Number of membership associations per 10,000 population.
Community Safety	Violent crime	Number of reported violent crime offenses per 100,000 population.
	Injury deaths	Number of deaths due to injury per 100,000 population.

# Methodology: Question #2 - 26 Health Factors

## Health Behaviors

- Adult smoking
- Adult obesity
- Food environment index
- Physical inactivity
- Access to exercise opportunities
- Excessive drinking
- Alcohol-impaired driving deaths
- Sexually transmitted infections
- Teen births

## Clinical Care

- Uninsured
- Mental health providers
- Preventable hospital stays
- Mammography screening
- Flu vaccinations

## Physical Environment

- Air pollution
- Drinking water violations
- Severe housing problems
- Driving alone to work
- Long commute - driving alone

## Social & Economic Factors

- Some college
- Unemployment
- Children in poverty
- Income inequality
- Children in single-parent households
- Social associations
- Injury deaths

# Methodology: Health Outcomes

Focus Area	Measure	Description
Length of Life	Premature death	Years of potential life lost before age 75 per 100,000 population (age-adjusted).
Quality of Life	Poor or fair health	Percentage of adults reporting fair or poor health (age-adjusted).
	Poor physical health days	Average number of physically unhealthy days reported in past 30 days (age-adjusted).
	Poor mental health days	Average number of mentally unhealthy days reported in past 30 days (age-adjusted).
	Low birthweight	Percentage of live births with low birthweight (< 2,500 grams).

# Findings

# Question #1 Bright Spot Counties

<b>State</b>	<b>County</b>	<b>Deleted T Residual</b>	<b>Residual Cut-off for State</b>	<b>Health Outcomes Z-Score</b>	<b>Social and Economic Factors Z-Score</b>	<b>NCHS Rural-Urban Classification</b>	
Connecticut	Fairfield	-7.67	-2.72	-1.21	-0.04	Urban	Medium Metro
Maine	Oxford	-2.77	-2.72	0.06	0.3	Rural	Non-core
Massachusetts	Dukes	-3.35	-2.75	-1.07	0.07	Rural	Micropolitan
Pennsylvania	Forest	-4.45	-3.16	-0.33	0.58	Rural	Non-core
Rhode Island	Providence	-2.84	-2.71	1.05	0.62	Urban	Large Central Metro
Vermont	Grand Isle	-2.77	-2.75	-1.23	-0.04	Urban	Small Metro

# Question #1 Bright Spot Counties' Demographics

<b>County, State</b>	<b>Population</b>	<b>% Non-Hispanic White</b>	<b>% Non-Hispanic Black</b>	<b>% Hispanic</b>	<b>% Other</b>	<b>% Pop. 18 years &amp; Under</b>	<b>% Pop. 65 years &amp; Older</b>
Fairfield, CT	943,823	61.5	11.0	20.2	6.4	22.5	15.9
Oxford, ME	57,618	95.2	0.6	1.4	1.3	18.4	21.7
Dukes, MA	17,352	87.3	4.1	3.8	2.5	17.5	24.3
Forest, PA	7,279	72.0	20.3	6.6	0.8	10.7	22.6
Providence, RI	636,084	60.9	8.7	23.4	6.2	20.5	15.3
Grand Isle, VT	7,090	92.4	0.7	2.1	2.2	18.0	20.8

## Question #2 Rural Bright Spot Counties

<b>Rank</b>	<b>State</b>	<b>County</b>	<b>Avg. Std. Residual Score</b>	<b>Highest Individual Residual</b>	
1	Franklin	New York	-1.29	Average Physical Unhealthy Days	-2.57
2	Coos	New Hampshire	-1.02	Average Mental Unhealthy Days	-3.09
3	Knox	Maine	-0.98	Average Physical Unhealthy Days	-2.45
4	Sullivan	Pennsylvania	-0.96	Premature Death	-1.28
5	Somerset	Pennsylvania	-0.89	Average Mental Unhealthy Days	-1.80
6	Litchfield	Connecticut	-0.88	Average Physical Unhealthy Days	-3.13
7	Addison	Vermont	-0.74	Average Mental Unhealthy Days	-1.47
8	Kennebec	Maine	-0.70	Poor or Fair Health	-1.52
9	Wyoming	New York	-0.70	Average Physical Unhealthy Days	-1.56

## Question #2 Urban Bright Spot Counties

<b>Rank</b>	<b>State</b>	<b>County</b>	<b>Avg. Std. Residual Score</b>	<b>Highest Individual Residual</b>	
1	Fairfield	Connecticut	-1.66	Average Physical Unhealthy Days	-3.06
2	Allegheny	Pennsylvania	-1.64	Average Physical Unhealthy Days	-2.51
3	Orange	New York	-1.45	Average Physical Unhealthy Days	-2.04
4	Somerset	Maryland	-1.37	Fair or Poor Health	-2.73
5	Kings	New York	-1.23	Fair or Poor Health	-2.46
6	Chemung	New York	-1.18	Average Mental Unhealthy Days	-1.61
7	Bristol	Rhode Island	-1.05	Premature Death	-3.37
8	Montour	Pennsylvania	-1.04	Premature Death	-2.21
9	Middlesex	Connecticut	-1.01	Low Birthweight	-1.98
10	New London	Connecticut	-0.93	Average Mental Unhealthy Days	-1.67

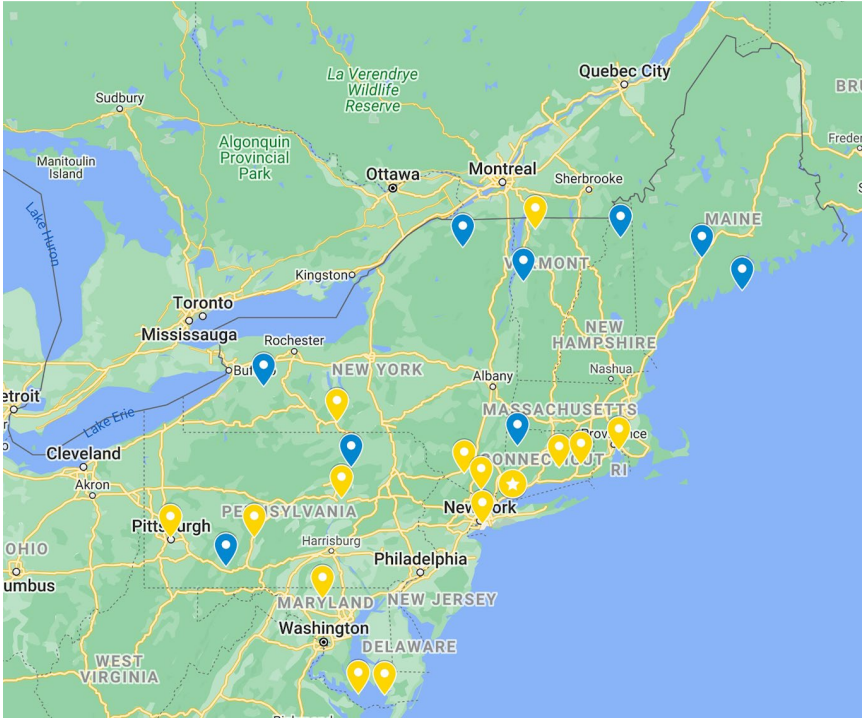
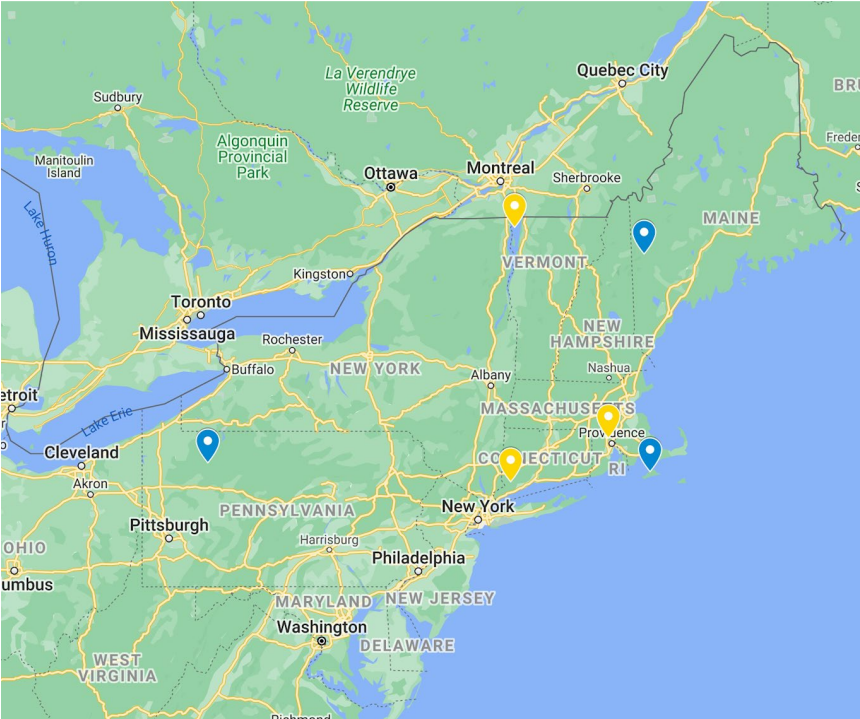


## Question #2 Urban Bright Spot Counties, cont'd

<b>Rank</b>	<b>State</b>	<b>County</b>	<b>Avg. Std. Residual Score</b>	<b>Highest Individual Residual</b>	
11	Rockland	New York	-0.88	Low Birthweight	-2.27
12	Carroll	Maryland	-0.87	Low Birthweight	-2.13
13	Blair	Pennsylvania	-0.83	Fair or Poor Health	-1.40
14	St. Mary's	Maryland	-0.81	Average Mental Unhealthy Days	-1.66
15	Franklin	Vermont	-0.79	Fair or Poor Health	-1.68

# Comparing Bright Spot Maps

## Question #1



# Implications and Recommendations

## Further Research...

- The Bright Spots can change
- Potential to provide a model or strategies for other countries
- Use Question #1's methodology to identify Bright Spot counties throughout the United States
- Explore health and confounding factors (i.e. SES, environmental, health initiatives and interventions) and their relative impact on health outcomes
- Monitor health outcomes of counties of interest and pinpoint any influencing factors.

# References

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Thank You.