

# Oral Health Need Assessment

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Center for Health Workforce Studies  
School of Public Health | University at Albany, SUNY

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# Center for Health Workforce Studies

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- An academic research center established in 1996 and based at the School of Public Health at the University at Albany, State University of New York
- Committed to collecting and analyzing data to understand workforce dynamics and trends
- Goal to inform public policies, the health and education sectors and the public
- Broad array of funders in support of health workforce research including development of shortage designations in New York State (NYS), the completion of **primary care, oral, and mental health Need Assessment studies** with support from the NYS Department of Health

# Topics Covered

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- Objectives of the study
- Methods
- Findings
- Conclusion
- Limitations

# Objectives

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## **Objectives of this Need Assessment study:**

1. Identify Rational Service Areas (RSAs) with the highest need for Oral Health (OH) services in NYS
2. Describe the composition and degree of contribution of each indicator to the high need OH RSAs

# Methods

The study encompassed several sequential steps:

1. Establish  
Statewide  
RSAs



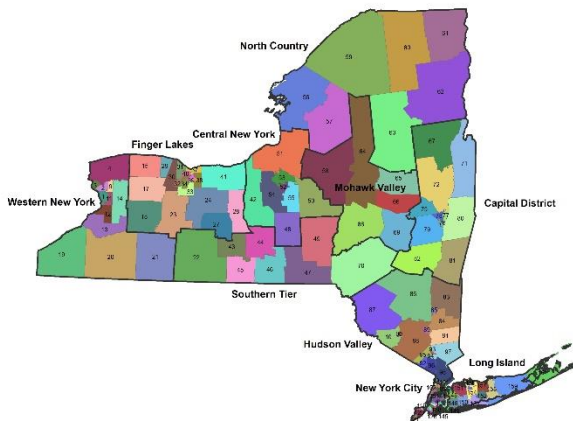
2. Identify the  
most pressing  
OH needs and  
establish list of  
indicators



3. Rank RSAs and  
identify High  
Need RSAs (*first  
objective*)



4. Identify indicators'  
composition and  
contribution to high  
need RSAs (*second  
objective*)



# Methods: Establish Rational Service Areas

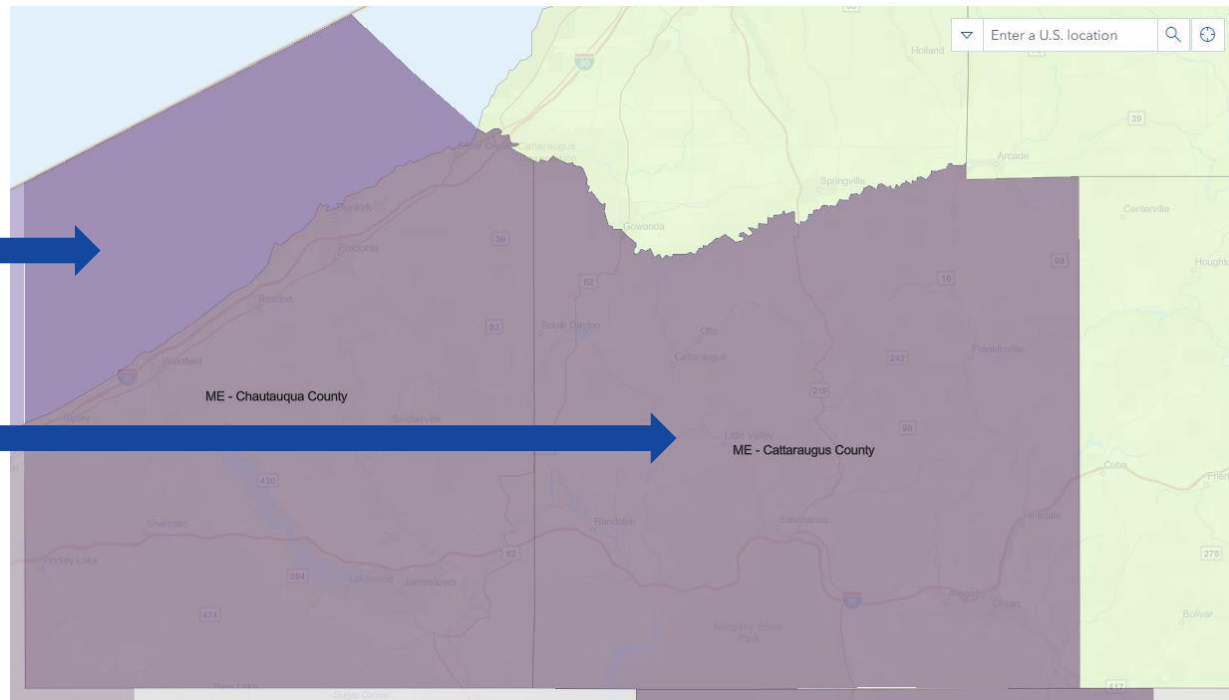
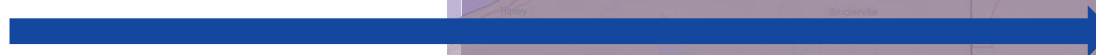
## What are Rational Service Areas?

- A geographic area, community, and or population group with distinct characteristics (race/ethnicity, poverty)
- Defined and used by Health Resource and Services Administration (HRSA) for shortage designations including Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas/Populations (MUA/Ps)

***RSA = ME Chautauqua County HPSA***



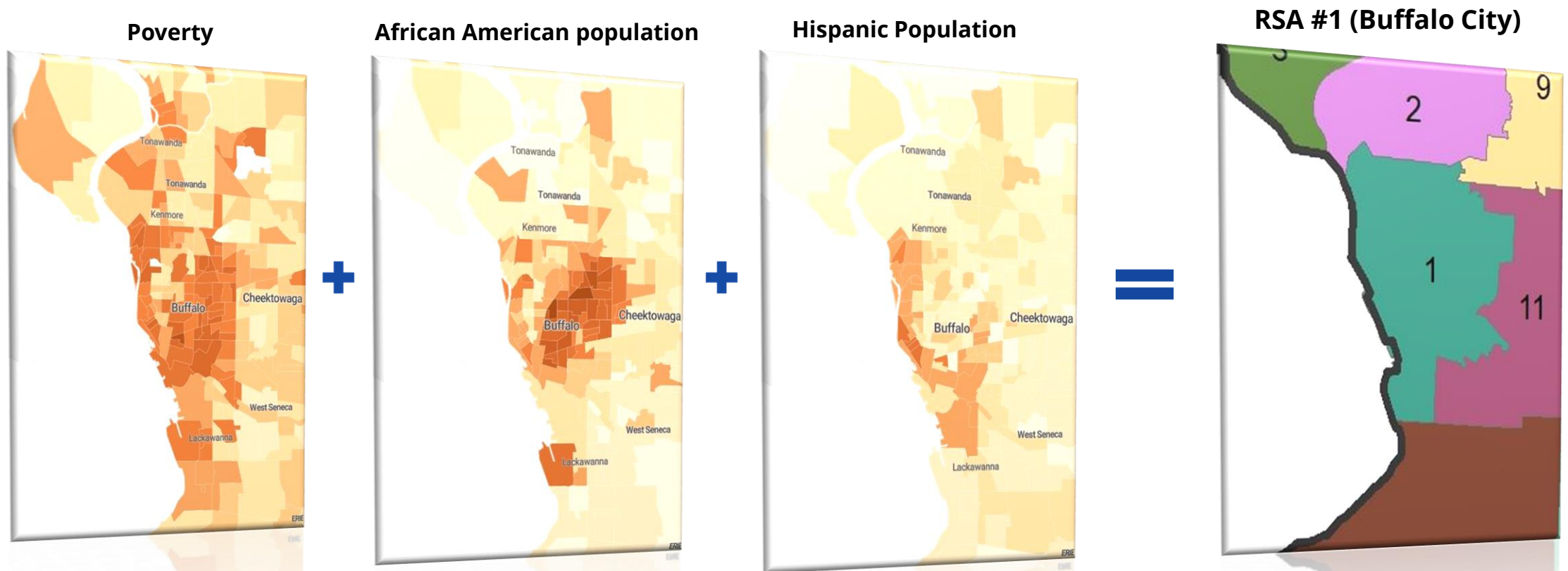
***RSA = ME Cattaraugus County HPSA***



Source: HRSA Map Tool

# Methods: Establish Rational Service Areas (cont.)

RSAs are composed of Census Tracts, and are combined to form **county or sub-county level RSAs**



Source: ACS 5-year data 2022

[www.chwsny.org](http://www.chwsny.org)

# Methods: Indicators

The study encompassed several sequential steps:

1. Establish Statewide RSAs



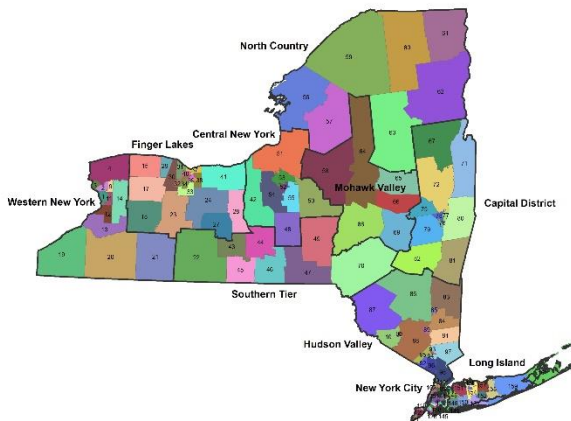
2. Identify the most pressing OH needs and establish list of indicators



3. Rank RSAs and identify High Need RSAs (*first objective*)



4. Identify indicators' composition and contribution to high need RSAs (*second objective*)



**Indicators:**

- Age 65+
- Minorities
- Fluoridated water
- .
- .
- .
- Fertility
- Disability

# Methods: Indicators (cont.)

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Based on literature review, initially, a total of 8 demographic related indicators describing the population of the RSAs were established:

1. Percent of population who are 65 years of age and older (**Age 65+**)
2. Percent of Hispanic, non-Hispanic Blacks, and non-Hispanic American Indians and Alaska Natives (**Minorities**)
3. Percent of population below 200% poverty level (**Poverty 200 FPL**)
4. Percent of households with female-headed household (**Female-headed**)
5. Percent of population 16 years and older who are unemployed (**Unemployment**)
6. Percent of population with Medicaid only coverage (**Medicaid**)
7. Percent of population who are 25 years and older without an Associate degree or higher (**Education**)
8. Percent of population who speak languages other than English at home (**English Proficiency**)

# Methods: Indicators (cont.)

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- To ensure the independence and non-redundancy among the indicators, a correlation analysis was conducted
- Based on this analysis, four socio-economic indicators were high correlated
- As a result, an index indicator named “Poverty index” was created which combines the highly correlated indicators
- The final list of demographic indicators included the followings:
  1. **Age 65+**
  2. **Minorities**
  3. **Poverty Index** (*Poverty 200 FPL, Female-headed, Unemployment, and Medicaid*)
  4. **Education**
  5. **English Proficiency**

# Methods: Indicators (cont.)

Based on literature review, a total of 10 oral health related indicators were established:

1. Population-to-Dentist ratio (***Dentist ratio***)
2. Dental Hygienists Ratio (***Dental Hygienists Ratio***)
3. Percent of residents served by community water systems that have optimally fluoridated water (***Fluoridated water***)
4. Percent of adult current smokers (***Smoking***)
5. Percent of adult heavy drinking (***Drinking***)
6. Oral cavity and pharynx cancer incidence rate per 100,000 population (***Cancer***)
7. Caries outpatient visit rate per 10,000 population aged 3-5 years (***Caries***)
8. Percentage of children (aged 2-20 years) with at least one dental visit in government sponsored insurance programs (***Preventative visit***)
9. Disability (***Disability***)
10. Fertility (***Fertility\*\****)

\* A Correlation analysis was conducted on DH indicators and no highly correlated indicators were found.

\*\* Women with births in the past 12 months

# Methods: Indicators (cont.)

## A total of 15 indicators were analyzed including 5 demographic and 10 Health related indicators

- Demographic indicators
  1. Age 65+ (ACS)
  2. Minorities (ACS)
  3. Poverty Index (Poverty 200 FPL, Female-headed, Unemployment, and Medicaid) (ACS)
  4. Education (ACS)
  5. English Proficiency (ACS)
- Oral Health indicators:
  1. Dentist ratio (SDMS)
  2. Dental Hygienists Ratio (NYS ED)
  3. Fluoridated water (SDWIS)
  4. Smoking (BRFSS)
  5. Drinking (BRFSS)
  6. Cancer (NYS Cancer Registry)
  7. Caries (SPARCS)
  8. Preventative visit (NYS Medicaid and Child Health Plus)
  9. Disability (ACS)
  10. Fertility (ACS)

## Data was obtained from:

- The American Community Survey (ACS)
- Shortage Designation Management System (SDMS)
- NYS Education Department (NYS ED)
- Safe Drinking Water Information System (SDWIS)
- NYS Behavioral Risk Factor Surveillance System (BRFSS)
- NYS Cancer Registry
- Statewide Planning and Research Cooperative System (SPARCS)
- NYS Medicaid and Child Health Plus

# Methods: Identify High Need RSAs

The study encompassed several sequential steps:

1. Establish Statewide RSAs



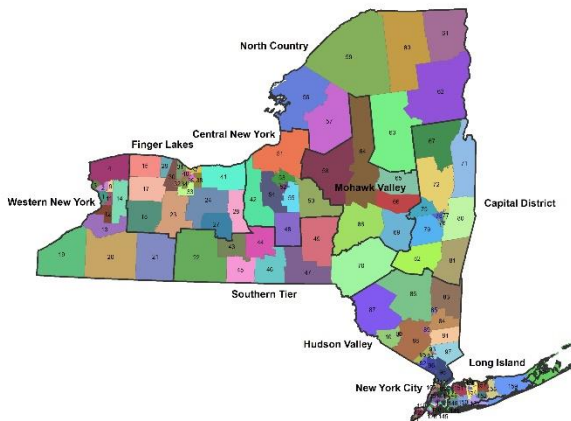
2. Identify the most pressing OH needs and establish list of indicators



3. Rank RSAs and identify High Need RSAs (*first objective*)

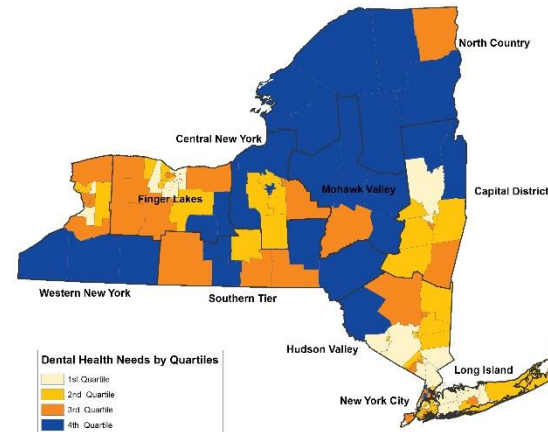


4. Identify indicators' composition and contribution to high need RSAs (*second objective*)



**Indicators:**

- Age 65+
- Minorities
- Fluoridated water
- Fertility
- Disability



# Methods: Identify High Need OH RSAs

## Rankings were established as follows:

1. Each indicator was ranked between 1 and 151 (151 = total RSAs)
2. Each Indicator's ranking was categorized by quartiles
3. Quartiles were summed to generate the composite score
4. Composite score categorized by quartiles

RSA#	Step 1		Step 2		Step 3	Step 4		
	Disability (%)	Fertility (%)	Disability (Ranked)	Fertility (Ranked)	Disability (quartile)	Fertility (Quartile)	composite score	composite score (quartile)
1	14	6	130	130	4	4	8	4
2	10	3	100	55	3	2	5	3
3	18	7	151	140	4	4	8	4
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
151	3	4	1	6	1	1	2	1

A higher ranking indicating a greater need, therefore the 4<sup>th</sup> quartile = high need OH RSA  
(Objective 1)

# Methods: Indicators' composition and contribution

The study encompassed several sequential steps:

1. Establish Statewide RSAs



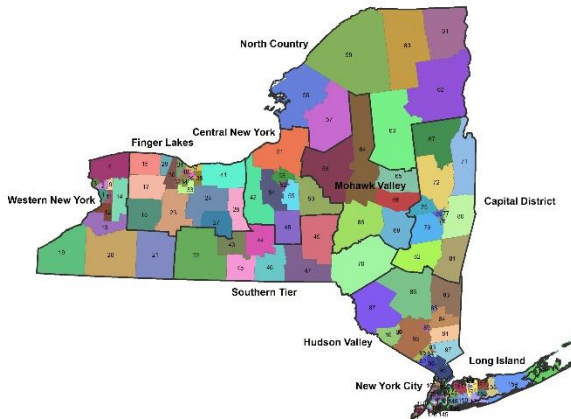
2. Identify the most pressing OH needs and establish list of indicators



3. Rank RSAs and identify High Need RSAs (*first objective*)

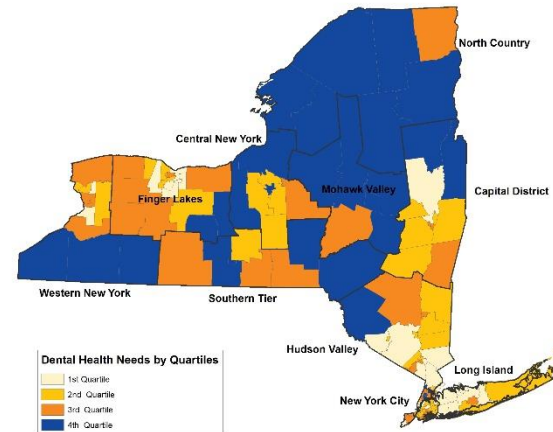


4. Identify indicators' composition and contribution to high need RSAs (*second objective*)



**Indicators:**

- Age 65+
- Minorities
- Fluoridated water
- .
- .
- .
- .
- Fertility
- Disability



#	Indicator	Quartile Average
1	Indicator 1 (Disability)	3.8
2	Indicator 3	3.1
3	Indicator 2 (Fertility)	2.8
.	.	.
.	.	.
15	Indicator 15	2.7

# Methods: Indicators' composition and contribution

- Averages of 15 indicators quartiles were calculated
- The averages were sorted and revealed the contribution of each to the high need OH RSAs (group)
- Higher average value indicates higher contribution to the needs

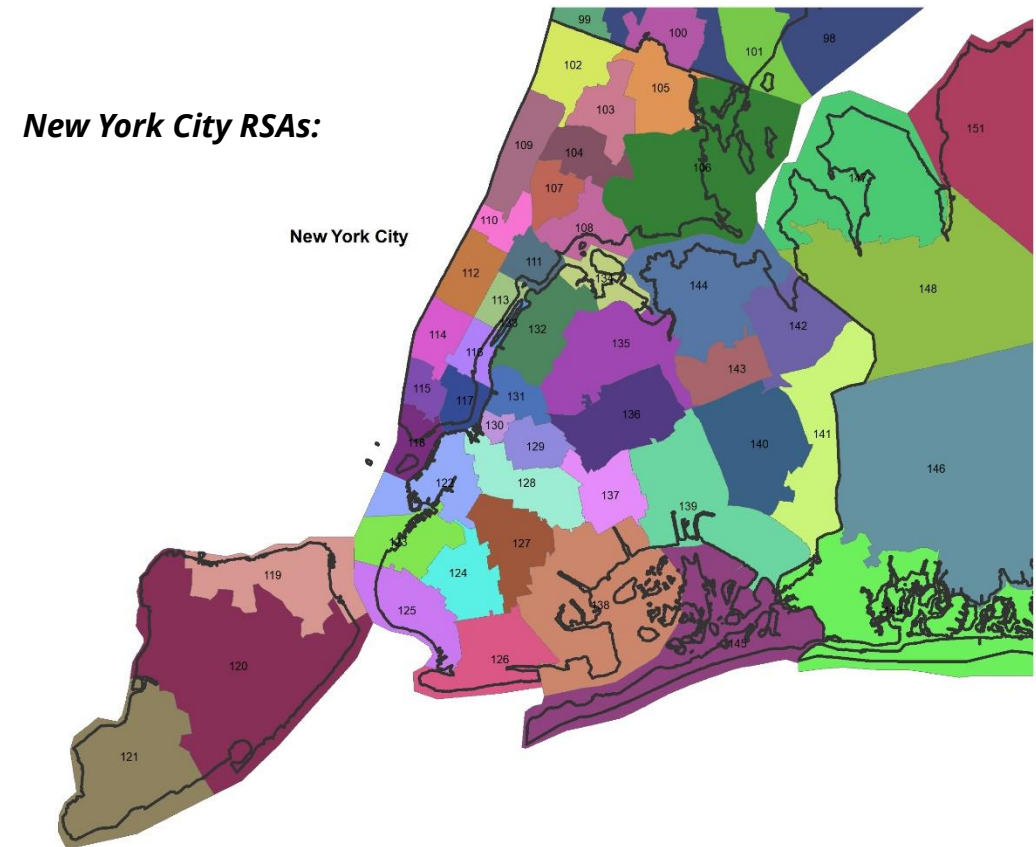
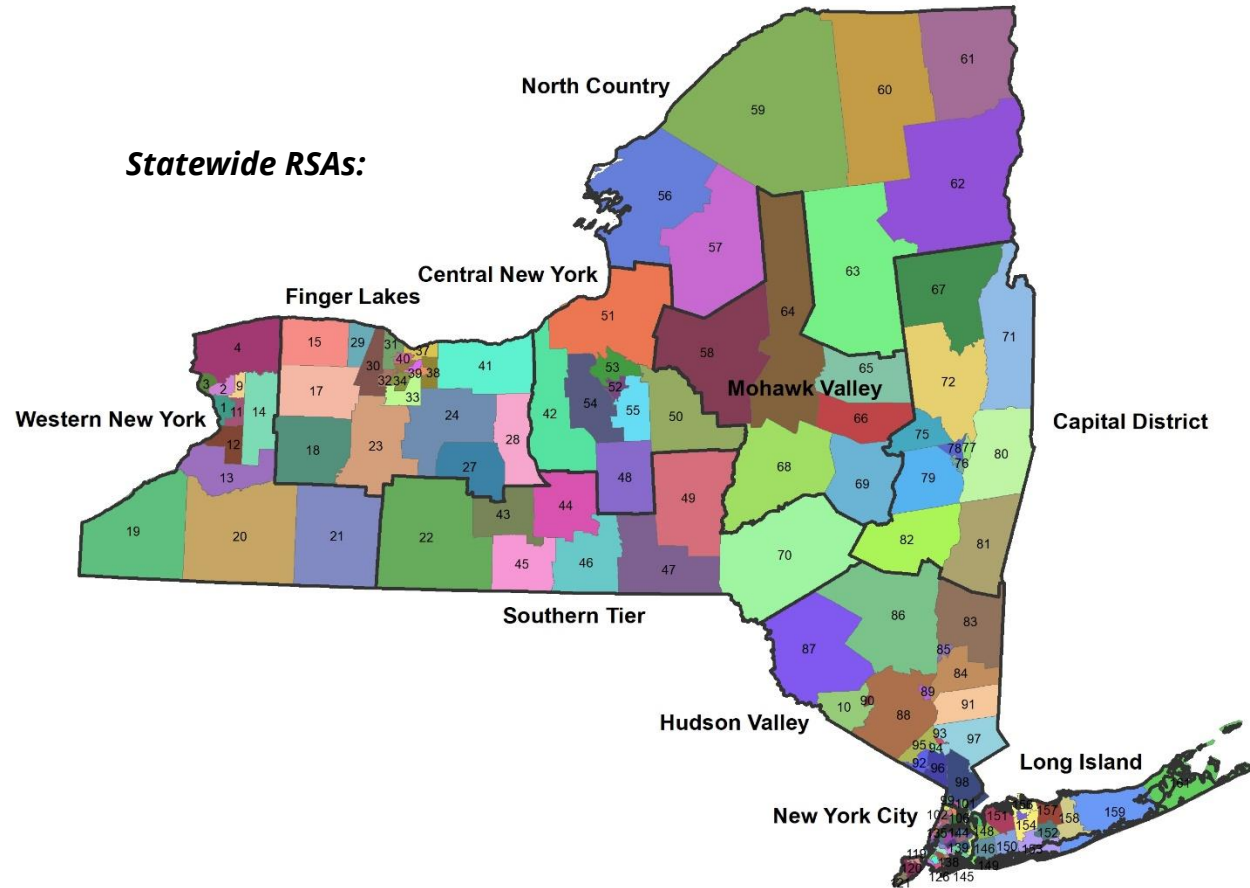
High need RSA#	Indicator 1 (Disability)	Indicator 2 (Fertility)	Indicator 3	.	.	.	Indicator 15
1	4	4	.2	.	.	.	4
10	3	2	4	.	.	.	4
124	4	4	3	.	.	.	4
.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.
60	2	3	3	.	.	.	1
<b>Quartile Average</b>	<b>3.8</b>	<b>2.8</b>	<b>3.1</b>	.	.	.	<b>2.7</b>



#	Indicator	Quartile Average
1	Indicator 1 (Disability)	3.8
2	Indicator 3	3.1
3	Indicator 2 (Fertility)	2.8
.	.	.
.	.	.
.	.	.
15	Indicator 15	2.7

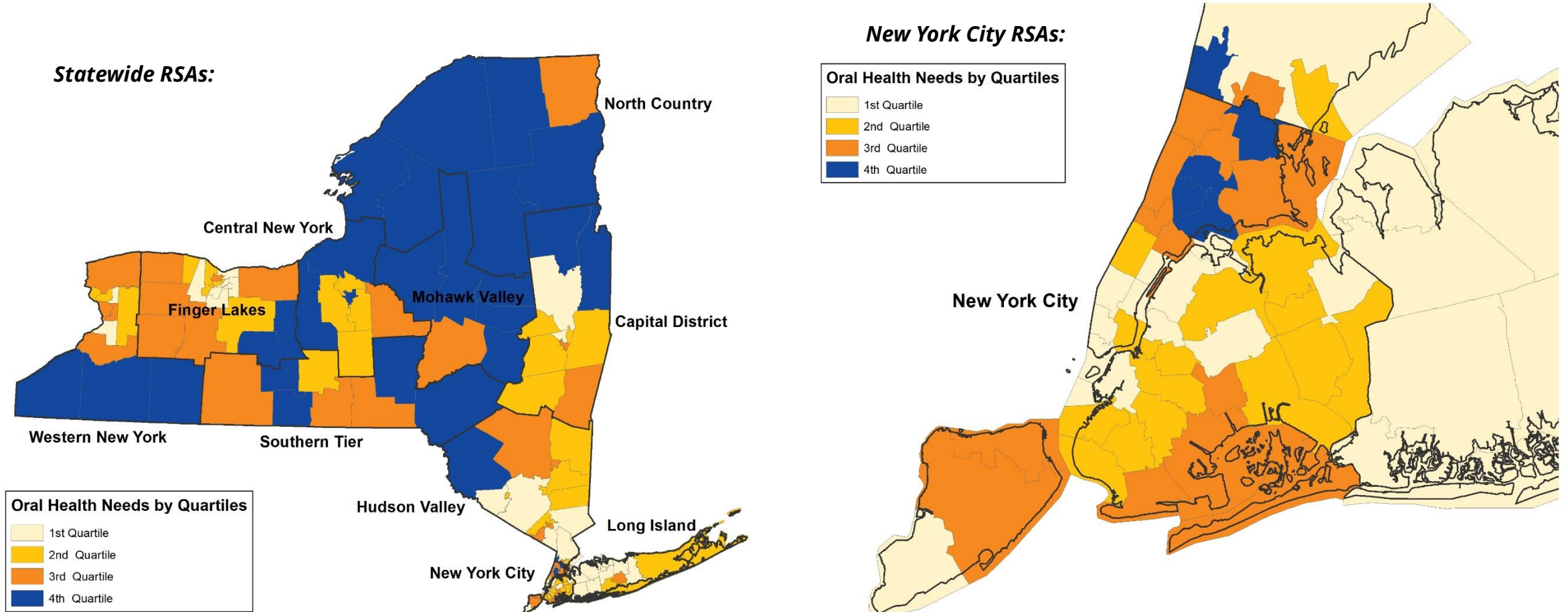
# Findings: Rational Service Areas

- A total of 151 RSAs were created covering NYS
- 47 RSAs were at county level (in rural areas) and 104 were at sub-county level mainly in urban areas



# Findings: High Needs OH RSAs

A total of 31 RSAs were identified as high need OH RSAs



# Findings: High Needs OH RSAs (cont.)

- The concentration of high need OH RSAs occur in regions dominated by rural areas
- More than 2.8 million individuals live within high need OH RSAs

**Number of RSAs by Department of Labor Regions**

DOL Region	# of RSAs	# of High Needs RSAs	% of High Need OH RSAs
Capital District	11	2	18.5%
Central New York	8	3	37.5%
Finger Lakes	20	2	10.0%
Hudson Valley	20	2	10.0%
Long Island	15	0	0.0%
Mohawk Valley	6	5	83.3%
New York City	44	4	9.1%
North Country	7	6	85.7%
Southern Tier	8	4	50.0%
Western New York	12	3	25.0%
<b>New York State</b>	<b>151</b>	<b>31</b>	<b>20.5%</b>

**Population counts in RSAs by Department of Labor Regions**

DOL Region	Total population in RSAs	Total population in High Needs OH RSAs	% population in High Needs OH RSAs
Capital District	1,108,289	126,994	11.5%
Central New York	781,620	355,826	45.5%
Finger Lakes	1,219,052	58,364	4.8%
Hudson Valley	2,391,754	54,570	2.3%
Long Island	2,913,646	0	0.0%
Mohawk Valley	483,900	424,222	87.7%
New York City	8,622,467	871,569	10.1%
North Country	422,507	342,668	81.1%
Southern Tier	636,020	193,172	30.9%
Western New York	1,415,124	251,662	17.8%
<b>New York State</b>	<b>19,994,379</b>	<b>2,805,678</b>	<b>14.0%</b>

# Findings: Indicators' composition and contribution

- Indicators' quartile averages ranged from **3.74** to **1.81** within the high need OH RSAs group
- The median of Indicators' quartile averages is **2.87**
- *Disability, education, fertility, Dentist Ratio, Dental Hygienists Ratio, Poverty Index, and Fluoridated Water* found to be the factors that contributed most to OH needs

## Indicators' contribution to high need OH RSAs:

#	Indicator	Quartile Average
1	Disability	3.74
2	Education	3.65
3	Fertility	3.48
4	Dentist Ratio	3.48
5	Dental Hygienists Ratio	3.23
6	Poverty Index	3.1
7	Fluoridated Water	3
8	Preventative Visits	2.87
9	Smoking	2.81
10	Age 65+	2.81
11	Caries	2.81
12	Drinking	2.68
13	Cancer	2.45
14	Minorities	1.9
15	English Proficiency	1.81

# Conclusion

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- The majority of high need OH RSAs occur in rural areas
- More than 2.8 million individuals live within high need OH RSAs
- The top 5 indicators that contribute to unmet OH need are:
  1. Disability
  2. Education
  3. Fertility
  4. Dentist Ratio
  5. Dental Hygienists Ratio

# Limitations

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- Data for 7 health-related indicators (*Dental Hygienists Ratio, Fluoridated water, Smoking, Drinking, Cancer, Caries, and Preventative visit*) was not available at the census tract level, therefore county level data were used
- County level data limits accuracy in sub-county level RSAs
- The indicators used in the study may not necessarily reflect all aspects of need within individual RSAs
- All indicators used in the analysis have equal influence on the final rank of the RSAs (no weights were applied)

# Questions

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# Questions?

# Contact Information

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