

# Mapping Answers to Child Care Questions: Comparing Your Administrative Data with Other Data

October 30, 2019

Webinar Series on

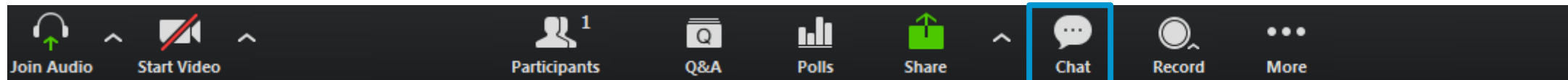
*Building Your Capacity as a CCDF Lead Agency  
to Use Data in Policy Decisions*

# Overview of webinar

1. Welcome and introductions
2. Mapping 101
3. Hear two panelists share their experience in mapping answers to policy questions
4. Open to your questions and reflections

# Web logistics

- Webinar is being recorded
- The recording will be posted online after the webinar
- All participants are muted
- Type your **questions** or **comments** into the Chat box at any time.
  - We encourage you to send messages to **all panelists** and **attendees**.



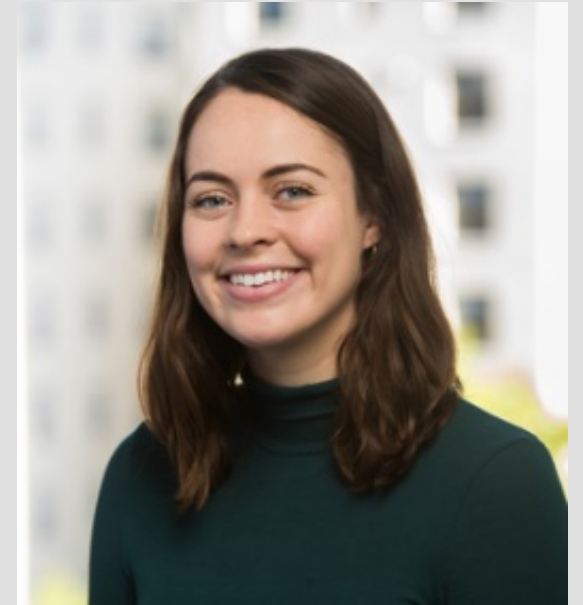
# Center Staff Supporting Webinar



Julia Isaacs  
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# Center for Supporting Research on CCDBG Implementation

Supported through the Office of Planning, Research, and Evaluation (OPRE) in the Administration for Children and Families (ACF) and managed through a contract with the Urban Institute

*Meryl Barofsky and Alysia Blandon, OPRE Project Officers*

**Goal:** Support CCDF Lead Agencies in building research and evaluation capacity

## Activities:

- Develop webinar series
- Develop written resources
- Support grantees with CCDBG Implementation Research and Evaluation Planning and Implementation Grants



# Recap of Administrative Data Tips from Webinar 1

- Webinar 1: A Dozen Policy Questions You Can Answer with Your Agency's **Administrative Data**
  - Data are available at lower cost than other data
  - Staff are knowledgeable of data
  - Data may be available over time
  - Data quality varies
  - Limitations in data systems
  - Information limited to program participants

# Webinar 2: Mapping Answers to Child Care Questions

## Comparing Your Administrative Data with Other Data

### Comparing **SUPPLY**

and

### **POTENTIAL DEMAND**

- Agency administrative data about child care providers

- Licensing data
- Subsidy data
- Other program lists

- Population data about families with children

- American Community Survey
- Other Census Bureau data sets
  - How to define children and families?
    - Limit by age?
    - Family income?
    - Parental work status?

Both types of data have limitations.

# Webinar 2: Mapping Answers to Child Care Questions

- Mapping can be a powerful way to analyze and show differences between supply and demand
- Multiple maps are possible, depending on data and type of map
  - Map differences in demand (i.e., counts of children in different regions)
  - Map location of providers
  - Map supply and demand together
    - Child care deserts
    - Other examples



# Mapping 101



Erica Greenberg  
Senior Research Associate  
Urban Institute

# Purposes of mapping

## 1. Powerful tool for **data visualization**

- Administrative, census, and other quantitative data
- Goal: to boost understanding of existing information

## 2. Powerful tool for **spatial analysis**

- Administrative, census, and other quantitative data
- Goal: to create new understanding of spatial patterns using geographic information

# Key terms

- **Geographic information system (GIS)**, a system that holds, analyzes, and visualizes spatial information and facilitates spatial thinking
- **Shapefile**, a data file that includes geographic information
- **Geocoding**, a process that takes address information (street number, city, state, and zip code) and converts it into latitude and longitude coordinates for mapping
- **Projection**, a transformation that converts our 3-D world into a 2-D map (or converts one type of 2-D map to another)

# Key terms

- Census geographies  
(simplified)

Nation

States

Counties

Census Tracts

Block Groups

Census Blocks

Zip Code Tabulation  
Areas (ZCTAs)

Congressional Districts, School Districts,  
Public Use Microdata Areas (PUMAs)

# Key software programs

- Excel (powered by Bing)
- Tableau
- ArcGIS
- QGIS
- MapInfo
- Google maps
- And many more

# Common types of maps

## Choropleth

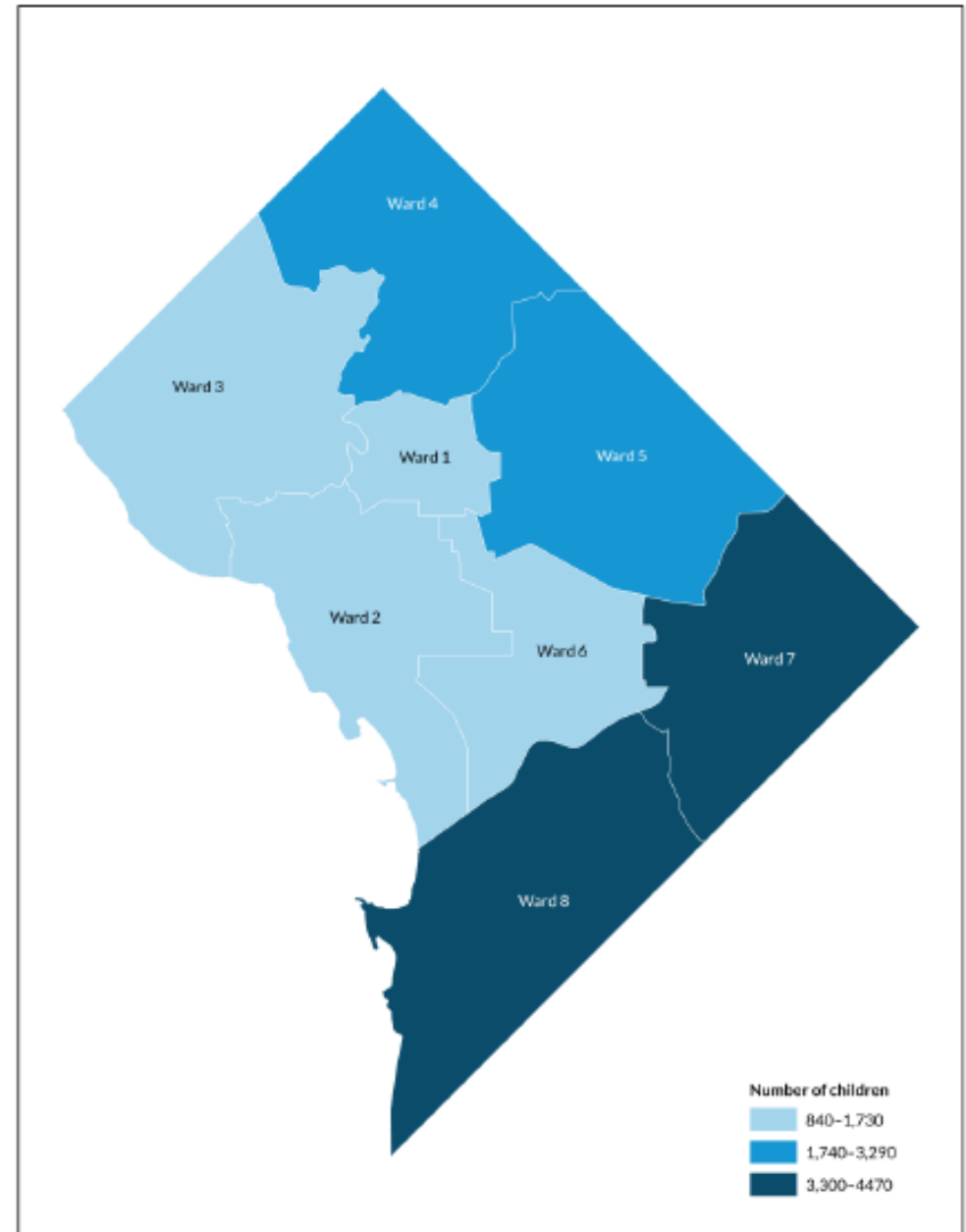
Map primarily for *data visualization* in which geographic areas are colored or shaded according to underlying data

Source: Sandstrom, Greenberg, Derrick-Mills and others. (2018). *Nontraditional-Hour Child Care in the District of Columbia*. Washington, DC: Urban Institute.

FIGURE 1

Potential Demand for NTH Care, by Ward, Number of Children

Children ages 12 and under whose parents work or commute nontraditional hours



# Common types of maps

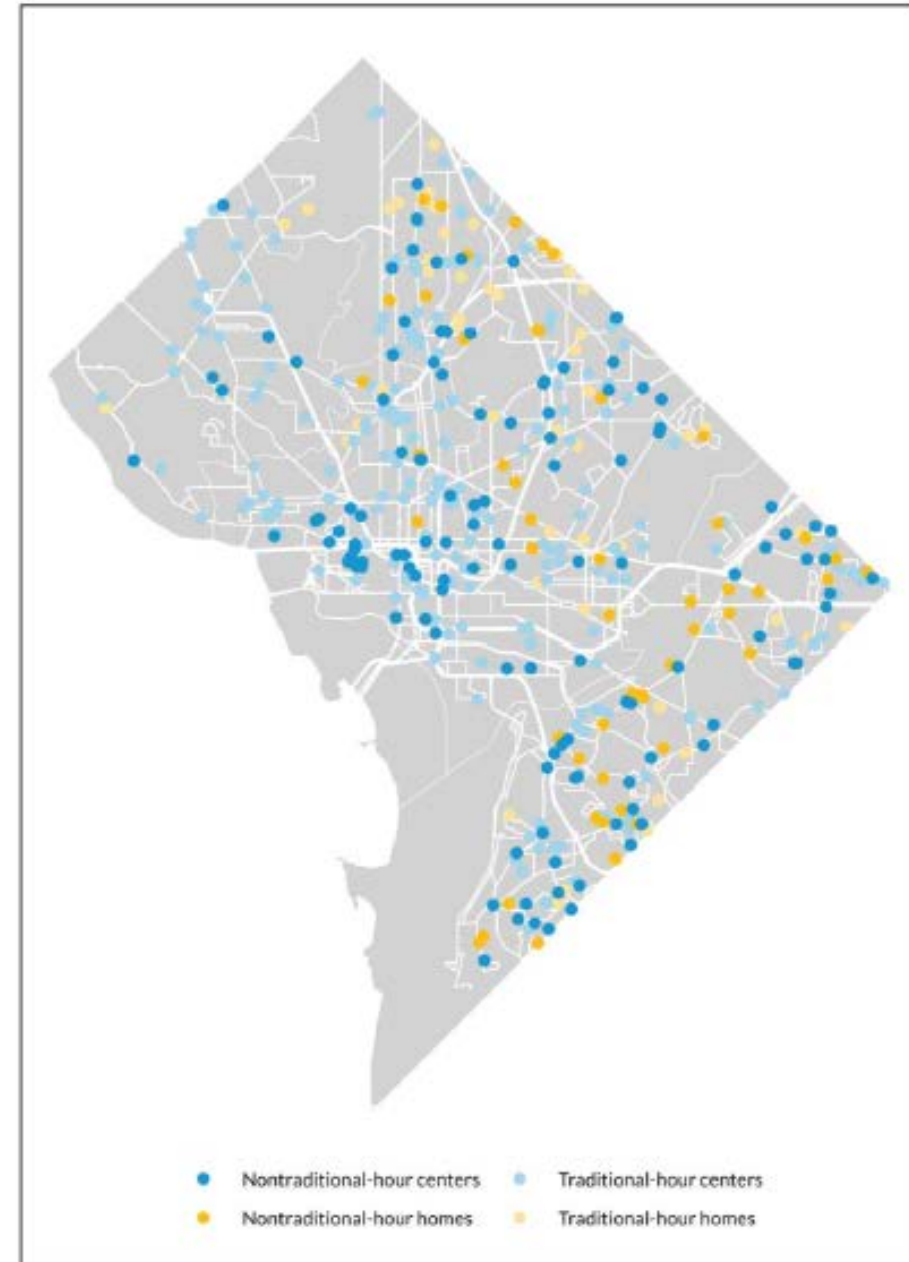
## Dot or Dot density map

Map primarily for *data analysis* in which dots represent one or many data points

Source: Sandstrom, Greenberg, Derrick-Mills and others. (2018).  
*Nontraditional-Hour Child Care in the District of Columbia*.  
Washington, DC: Urban Institute.

FIGURE 4

Supply of Full-Time Child Development Facilities in the District, by Care Hours and Facility Type  
Facilities listed in My Child Care DC as of March 20, 2018



# Common types of maps

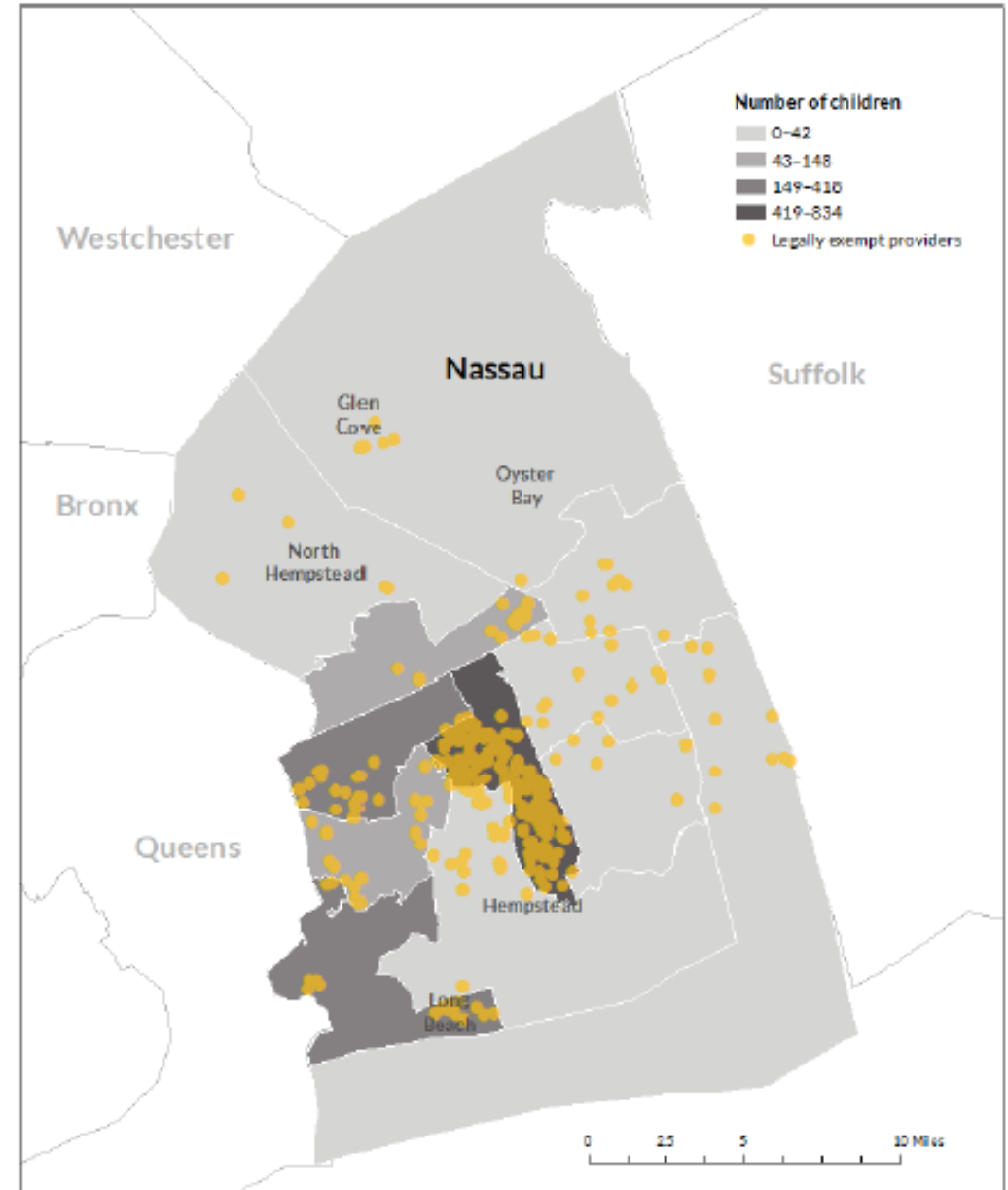
## Combined

Map with one or more purposes using on or more mapping techniques

Source: Sandstrom et al. (2018). *Mapping Child Care Demand and the Supply of Care for Subsidized Families: Illinois-New York Child Care Research Partnership*. Washington, DC: Urban Institute.

FIGURE A.1

Legally Exempt Home-based Providers Accepting Subsidies near Subsidy-Eligible Children with Parents Working Early Mornings, Nassau County, New York



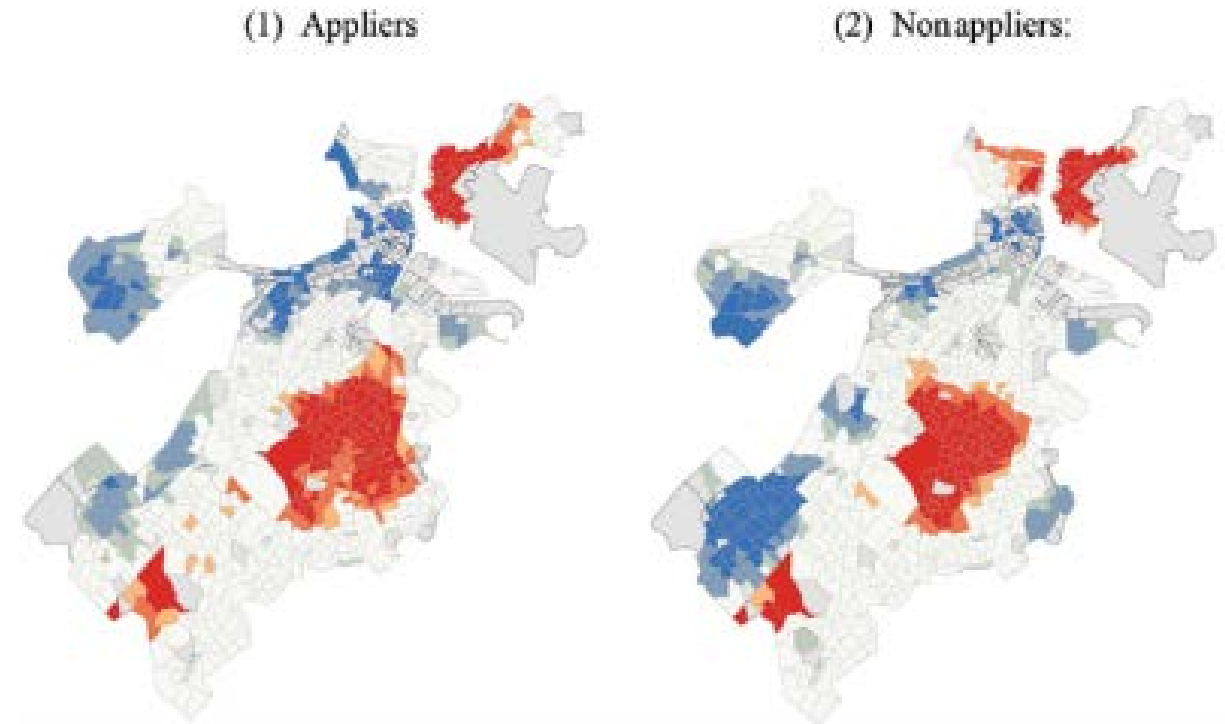


# Common types of maps

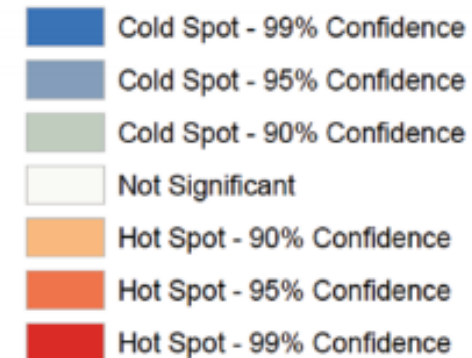
## Heat map

Map primarily for *data analysis* in which color represents the intensity of occurrence of data points

Source: Shapiro et al. (2019). *If You Offer It, Will They Come? Patterns of Application and Enrollment Behavior in a Universal Prekindergarten Context*. AERA Open 5(2), 1-22.



### Legend



# Implications

Mapping can help researchers inform broad and diverse audiences, including policymakers and providers.

- Consider tailoring maps and related writing to each audience.
- When possible, “pilot” maps to check for understanding.
- Be mindful of accessibility in print and on screen, including for people who are colorblind.

# Caveats

1. Mapping is powerful! Take care.
  - Be clear about data and other limitations.
  - Assess color gradients, symbols used, and geographic scale to ensure appropriate interpretation.
2. Mapping is not always the best approach to visualizing data.
  - Ask: are the scale, complexity, and patterns in the data well suited to mapping?
  - Consider alternative approaches, including other forms of data visualization and tabling.

# Questions?

Please type your questions into the Chat box, and we will read them to the group.

# Mapping Experiences in Pennsylvania and Wisconsin



**Chad Dorn**

Research and Policy  
Advisor  
Propulsion Squared



**Kathryn Pergande**

Research Analyst  
Wisconsin Department of  
Children and Families



# Mapping Early Care and Education Supply and Demand

- **Chad Dorn, PhD.**
- Research and Policy Advisor
- Propulsion Squared

# Mapping Cycle of Inquiry



## 1 Review resources and examples

- Used our networks to gather input from other states and looked at examples from the Center for American Progress, Child Care Aware, and the Urban Institute.

## 2 Decide technical aspects of the inquiry

- Demand can vary by the intended audience (e.g., age group, below an economic threshold, working parents).
- Various tools that can be used depending on complexity of the inquiry and budget (e.g., Tableau, ArcGIS, QGIS).

## 3 Collect and clean appropriate data

- Administrative Data, American Community Survey, Surveys of Providers
- Review geo-locations for inconsistencies (e.g., P.O. Box, afterschool programs)



## 4 Analyze and map

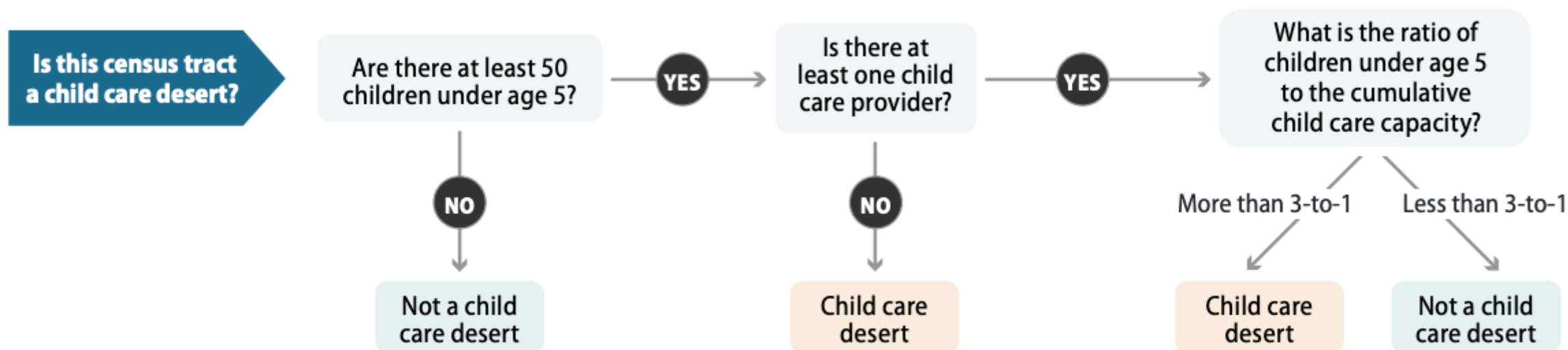
Repeat



# Child Care Desert

FIGURE 1

## A working definition for child care deserts



Note: Child Care Aware of America defines child care deserts as "areas or communities with limited or no access to quality child care."

Source: Rasheed Malik and Katie Hamm, "Mapping America's Child Care Deserts" (Washington: Center for American Progress, 2017), available at <https://www.americanprogress.org/issues/early-childhood/reports/2017/08/30/437988/mapping-americas-child-care-deserts>.



# Estimate Supply and Demand



## Supply/Capacity

- Number of licensed spaces
- Used administrative data from OCDEL on all certified child care providers.
- Removed child care that only serve school-age children (ages 6+).

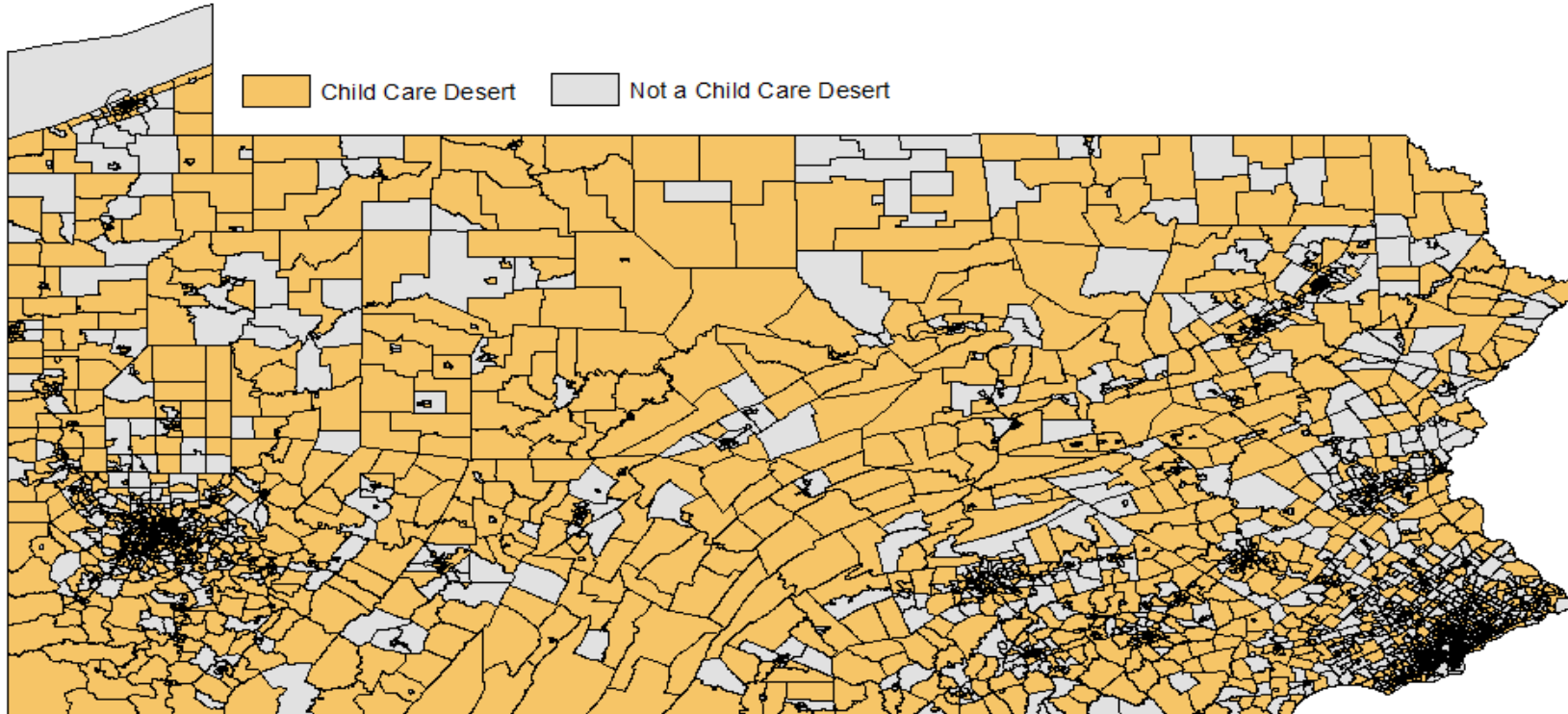
## Demand

- 2010 Decennial Census
  - Children ages 0-5
- American Community Survey
  - Children below 200% of Federal Poverty Level

## Geo-location

- Census tract
- Geolocated providers using ArcGIS.

## Example 1: Establish supply and demand estimates for access to child care

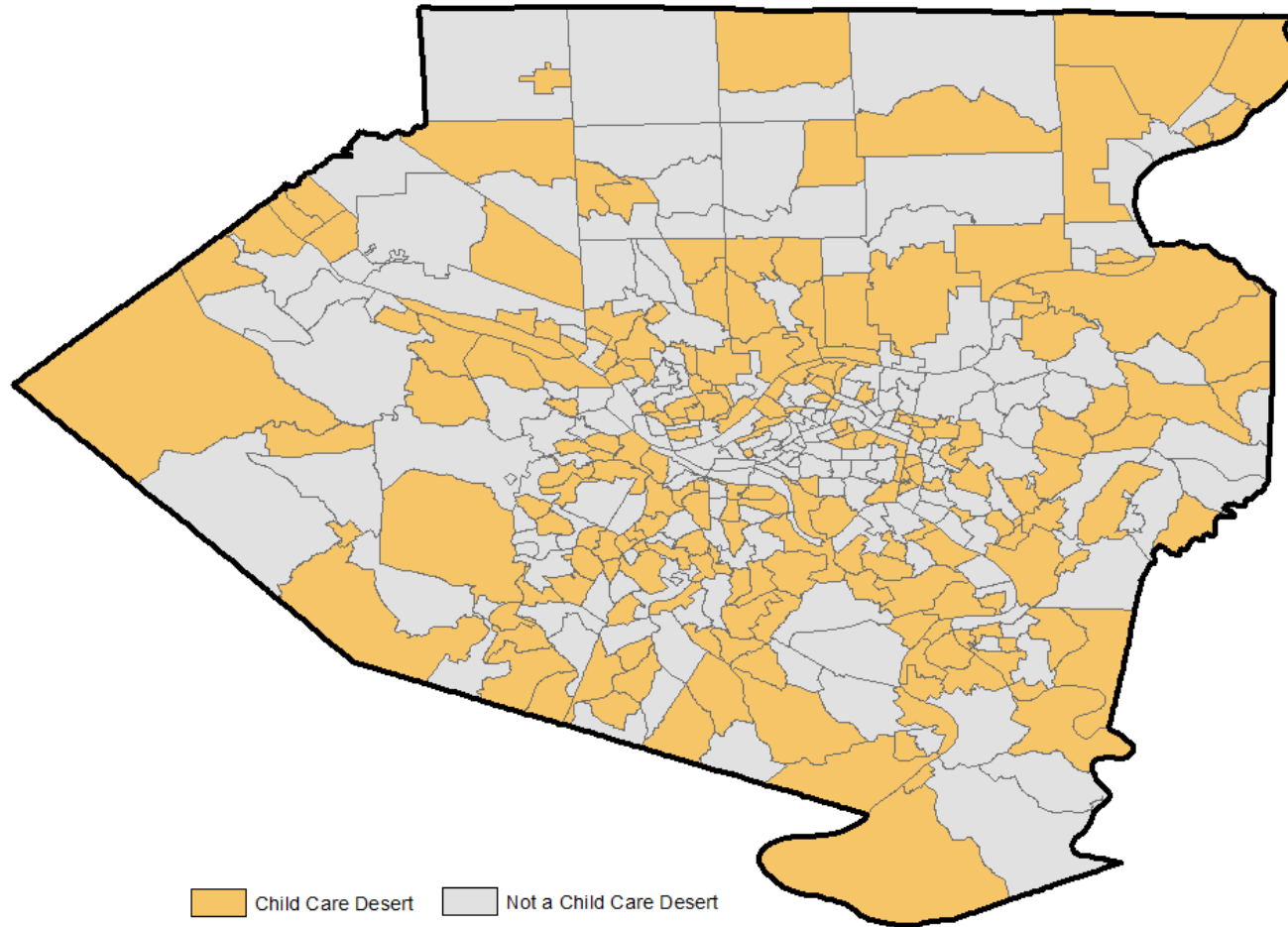


State level maps are great tools for identifying where we should zoom in.

**52%** of census tracts are child care deserts

Note: In this statewide map, one cannot really see which of the census tracts in densely populated areas are child care deserts; one only sees the black boundary lines.

## Early Learning Resource Center (ELRC) Region 5 – Allegheny County



- 19 ELRC regions across Pennsylvania
- ELRC structure presents the opportunity to incorporate local input and analysis to better understand and utilize the data, and develop localized solutions

**50%** of census tracts are child care deserts

**54%** of children ages 0-5 live in a child care desert

**56%** of children in households making below 200% of Federal Poverty Level live in a child care desert

# Comments and Reception

- Results shared with an internal working group at OCDEL.
- Confirmed what people thought.
- Concern that licensing estimates are used and not true capacity counts.
- Highlighted areas for additional inquiry.
  - Capture the entire early childhood ecosystem, which includes Head Start and state funded programs.
  - Incorporate demand and use of private pay.
  - Focus on capacity of specific populations (e.g., age groups).
- Can inform capacity building strategies.



## **Example 2: Informing the planning stage of Pennsylvania's Infant/Toddler contracted slots pilot program**

### **CCDBG Implementation Research and Evaluation Grant**

Pennsylvania utilized the grant to examine the potential use of contracted slots for infants and toddlers:

- Examine the infrastructure needed to effectively implement a contracted spaces pilot.
- Identify the areas of need whereby contracts could be applied to close the gaps.
- **Develop supply and demand estimates for Pennsylvania counties and census tracts.**



# Obstacles to Estimating Infant and Toddler Supply and Demand

## Supply/Capacity

- Age-specific capacity not currently collected and overall capacity numbers are based on occupancy estimates.

## Demand

- American Community Survey - Women 16 to 50 years of age who gave birth in past 12 months (2014-2016).
- Difficult to include income eligibility in population estimates of children ages 0-3.

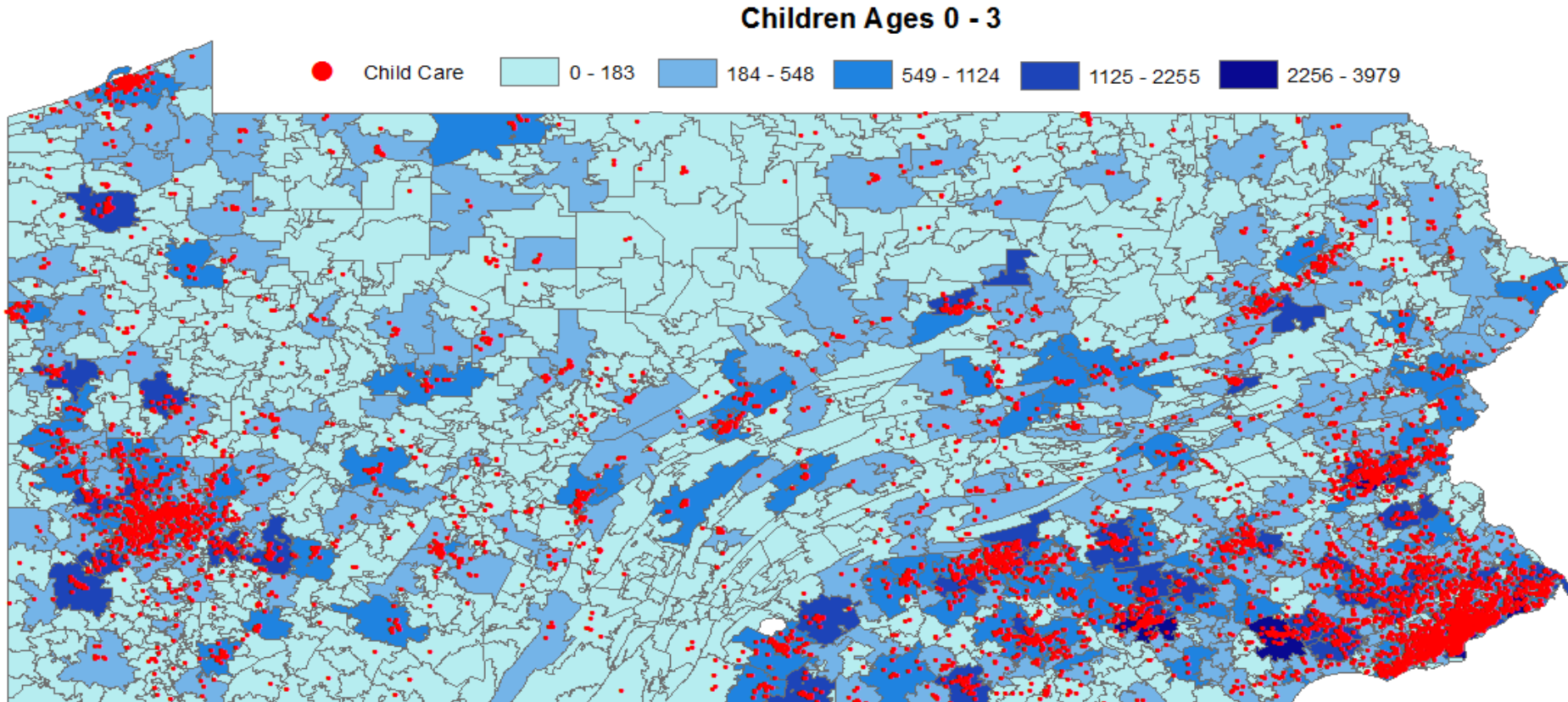
## Geography

- Zip Code Tabulation Area (ZCTA)— similar to zip codes and larger than Census tracts





# Demand for Infant/Toddler Care



- Care options congregate in metropolitan areas
- Identify areas of need that do not have child care providers
- The analysis is one component of where to locate pilot programs.

# Implications

- The strength of mapping is multiplied when it is combined with localized input to analyze and interpret the results and inform local action plans.
  - Need to develop mechanisms to engage and collect feedback from local/regional partners.
- Mapping is an effective tool to inform the planning stage of program implementation.
  - Identify areas where infrastructure is needed or developed.
- Mapping will highlight inconsistencies in your administrative data.
  - Develop strategies to collect better data on child care access.





# Using Maps to Drive Discussions in Wisconsin

## Kathryn Pergande

Using Maps to Drive Discussions in Wisconsin  
Kathryn Pergande



WISCONSIN DEPARTMENT OF  
CHILDREN AND FAMILIES

# Wisconsin's Maps

## What is Wisconsin mapping?

Access to child care for all families in Wisconsin

- Child Care Deserts
- Location and quality of regulated providers

## Trends

- Decline of in-home providers
- Wisconsin Shares Child Care subsidy participation

## Other mapping activities

- Major employer location to child care providers
- Market Rate Survey responses





# From Request to Maps



## 1. Request

How has the availability of regulated child care changed over time in Wisconsin?

## 2. Gather Data

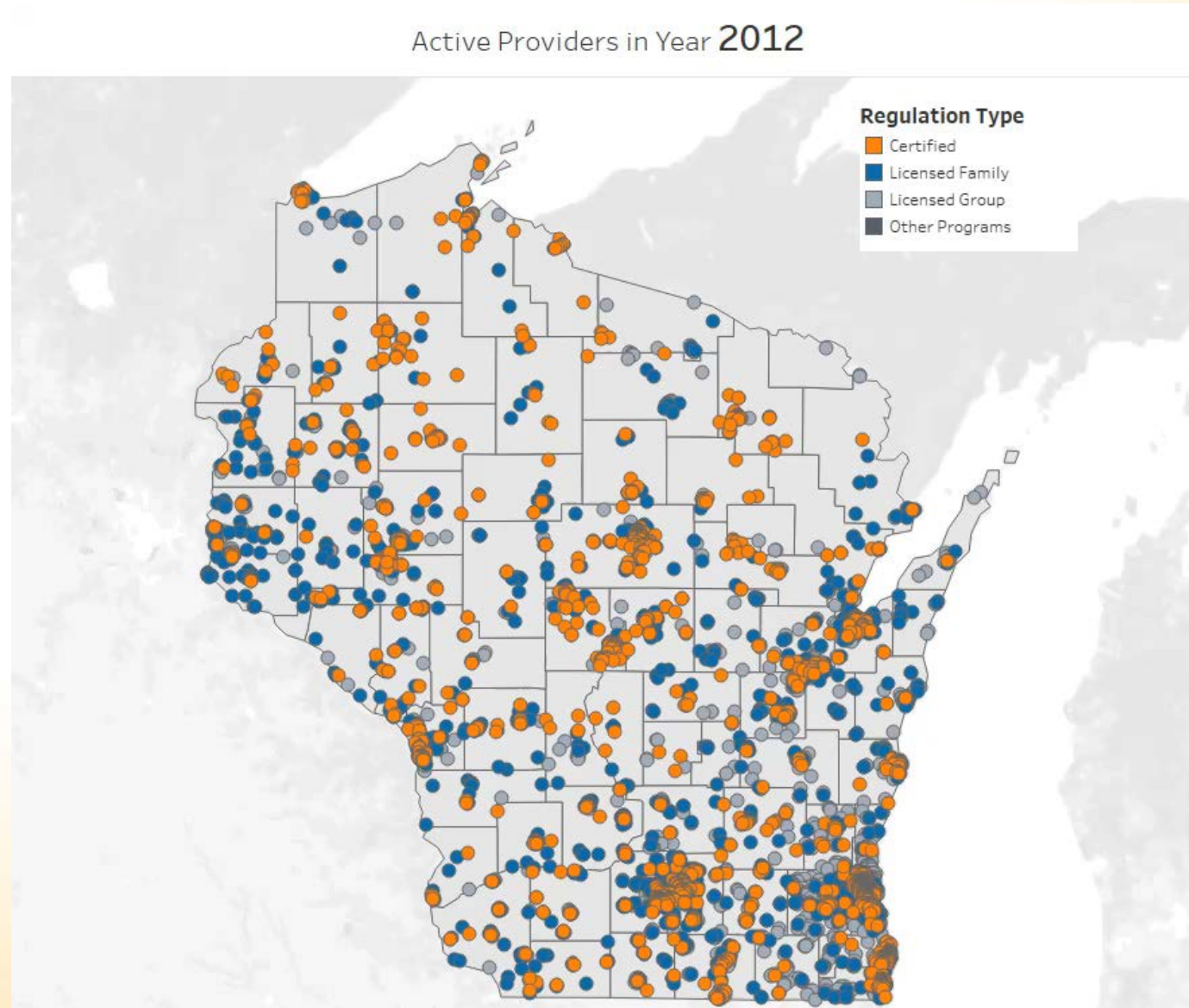
- Regulated Providers
  - Internal data warehouse. List of all regulated child care providers from March 2012 to March 2019.
- Match to latitude and longitude coordinates.

## 3. Visualize

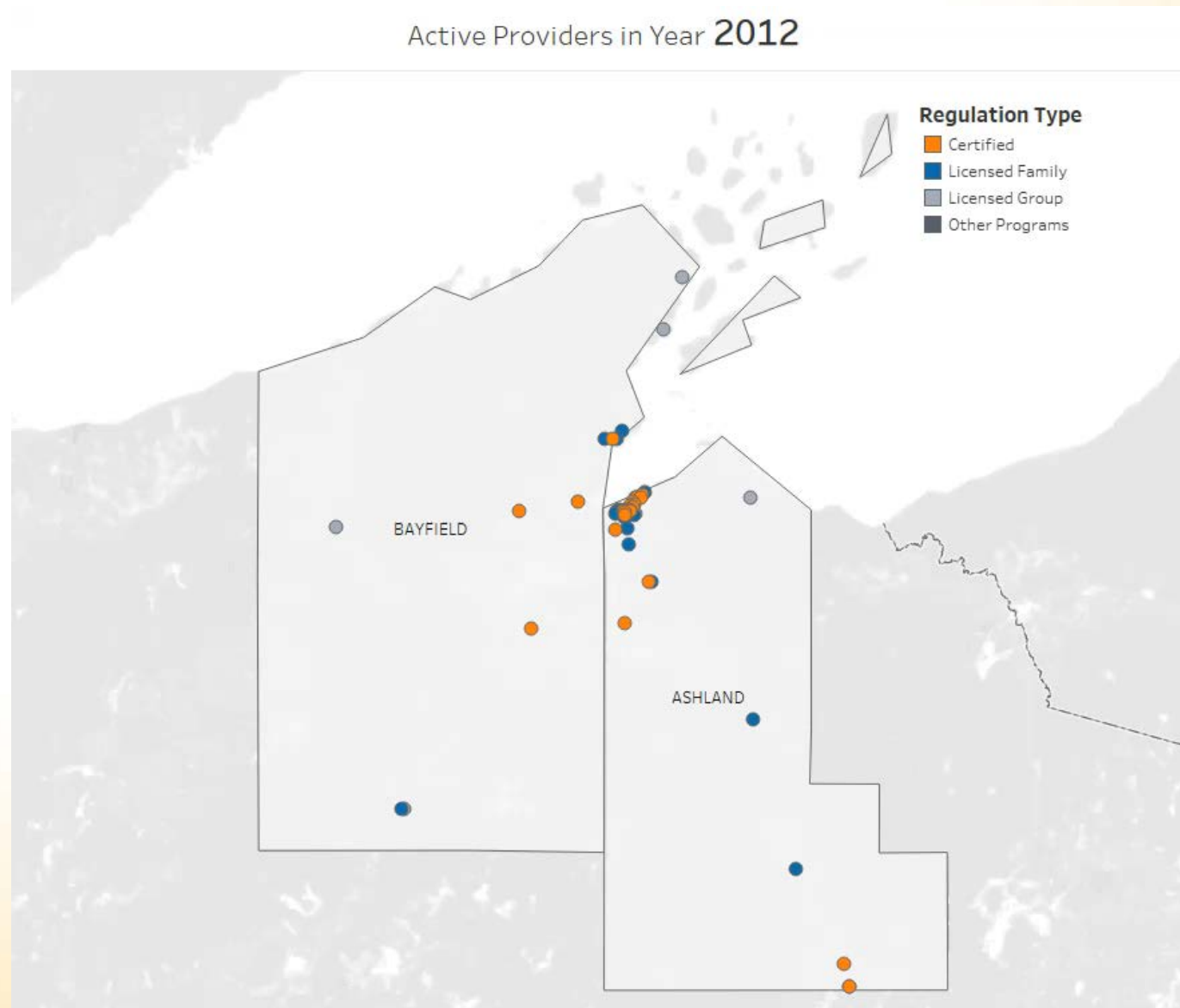
- Tableau
- Work with the data to determine how to best view data points.



# Wisconsin Active Provider Locations



# County Focus of Active Provider Locations



# Mapping for Policy Engagement

## Using maps to add to research

### ■ Beginning with descriptive statistics

- This can be the best way to understand what is in your data set.
- Identifies type of map that is useful.
- Helps guide what area(s) of the state should be highlighted.
  - Count, percent, bar graphs, etc..

### ■ Adding context and understanding with maps

- State and Regional views to compare trends
  - Ex: Subsidy participation, provider declines, child care deserts
- County and ZIP code views to decode questions
  - Ex: Bayfield and Ashland provider movement, child care deserts, major employers, market rate survey participation

# Future Opportunities in Wisconsin

- Data driven decisions

- Effectively engage a variety of stakeholders.
- Improve understanding of data.

- Data collection enhancements

- Capacity and enrollment by age.
- Vacancy and waitlist details of active providers.

- More informative maps

- Incorporate the use of ArcGIS software.
- Spatial analysis.
  - Ex: distance between major employers and providers. Mapping tribal boundaries.



More questions! More discussions! More curiosity!

# Questions and Reflections

Please type into the Chat box any questions you have for the panel of presenters.

We also welcome your comments and reflections.



# Resources

For mapping census data:

- [IPUMS National Historical Geographic Information System](#) (NHGIS)

For mapping tutorials:

- [ArcGIS](#)
- [Center for Geographic Analysis](#) at Harvard University
- [Center for Spatial Data Science](#) at the University of Chicago
- [Stanford Geospatial Center](#)

# Resources, continued

The [OPRE web site](#) has:

1. [Brief on spatial analysis](#)
2. [Slides, audio recording and transcript of first webinar](#)

The [Center for Supporting Research on CCDBG Implementation](#) has:

1. [Slides](#) from first webinar
2. [Research and Evaluation Capacity Building: A Resource Guide for Child Care and Development Fund Lead Agencies \(Revised 2019\)](#)
3. Other resources, including a [research and evaluation capacity self-assessment tool](#) for CCDF lead agencies and a forthcoming research brief on procuring research and evaluation services.
4. Plans for a third national webinar in the winter of 2020.

If you have questions, feel free to email me (Julia Isaacs) [Jisaacs@urban.org](mailto:Jisaacs@urban.org)