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  
Project Director

Teresa Derrick-Mills  
Deputy Project Director

Eleanor Lauderback  
Project Manager
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.
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.

Common types of maps

Dot or Dot density map
Map primarily for *data analysis* in which dots represent one or many data points.

Common types of maps

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

Common types of maps

Heat map
Map primarily for data analysis in which color represents the intensity of occurrence of data points.

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
Quality Matters

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
**Child Care Desert**

**FIGURE 1**
A working definition for child care deserts

Is this census tract a child care desert? 

- Are there at least 50 children under age 5? 
  - Yes → Is there at least one child care provider? 
    - Yes → What is the ratio of children under age 5 to the cumulative child care capacity? 
      - More than 3-to-1 
      - Less than 3-to-1 
    - No → Child care desert 
  - No → Not a child care desert

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

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

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 had a 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
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
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

Active Providers in Year 2012

Regulation Type
- Certified
- Licensed Family
- Licensed Group
- Other Programs
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
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.

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