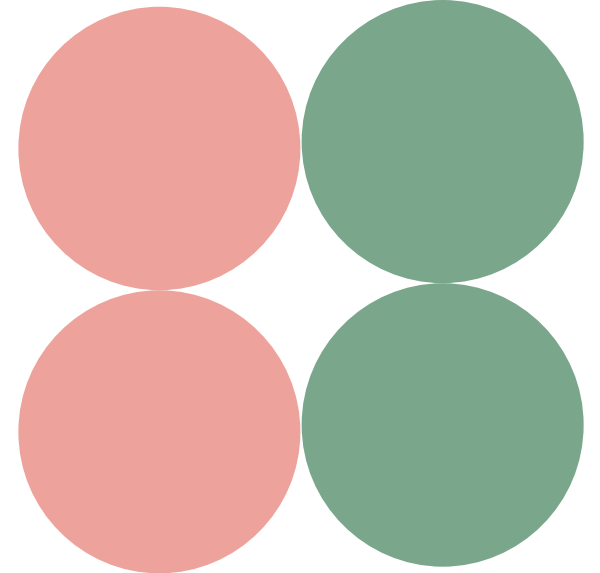# Supporting Data-Driven, Family-Centered CCEE Improvements through Maps

CCEEPRC Meeting

June 29, 2023

Agenda

- **Resource Overview**: Using Maps to Inform Decisions about Child Care and Early Education (Van-Kim Lin)
- **State Spotlight**: Using Maps for Supply Building, Resource Allocation, and Early Learning Decision Making in Oregon (Michaella Sektnan)
- **State Spotlight**: Using Maps to Explore Child Care Access and a Regional System in New Hampshire (Meredith O'Shea and Erin Bumgarner)
- **Q&A**

Child Trends

Using Maps to Inform Decisions about Child Care and Early Education

Van-Kim Lin
Senior Research Scientist

Acknowledgements

Using Maps to Inform Decisions about Child Care and Early Education

Van-Kim Lin, Erin Bumgarner, Dayne Ornelas Gonzalez, and Kelly Maxwell
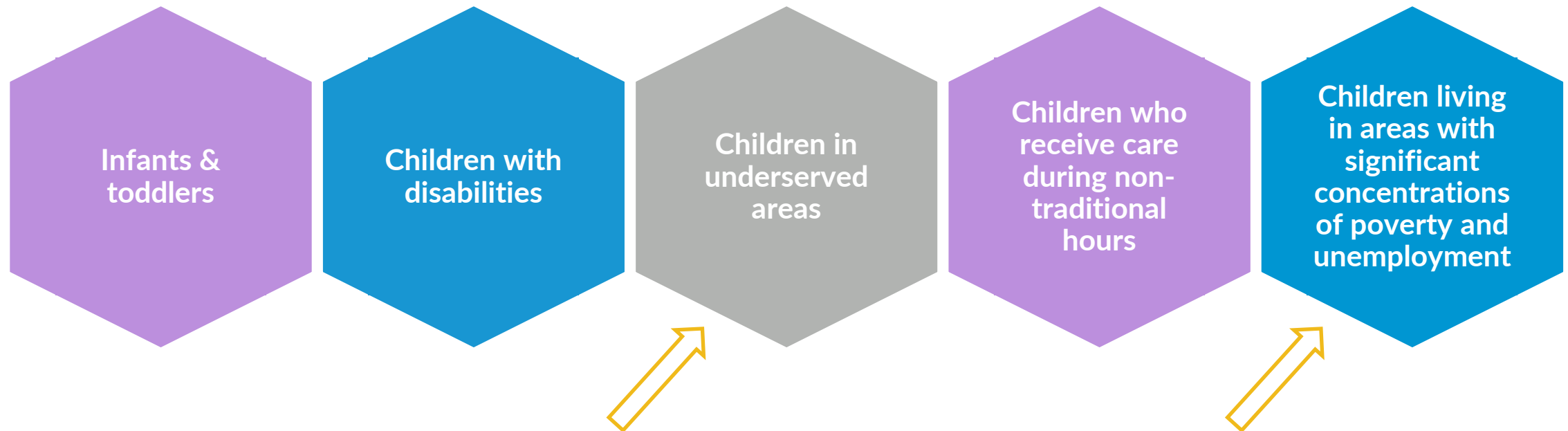
OPRE REPORT 2022-254

October 2022

Lin, V., Bumgarner, E., Gonzalez, D.O., & Maxwell, K. (2022). Using Maps to Inform Decisions about Child Care and Early Education, OPRE Report #2022-254, Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Why use maps to understand CCEE

CCDBG requirements

Federal, state, and local leaders are increasingly focused on improving access to high quality CCEE in part because of requirements outlined in the Child Care and Development Block Grant (CCDBG) Act of 2014.

Infants & toddlers

Children with disabilities

Children in underserved areas

Children who receive care during non-traditional hours

Children living in areas with significant concentrations of poverty and unemployment
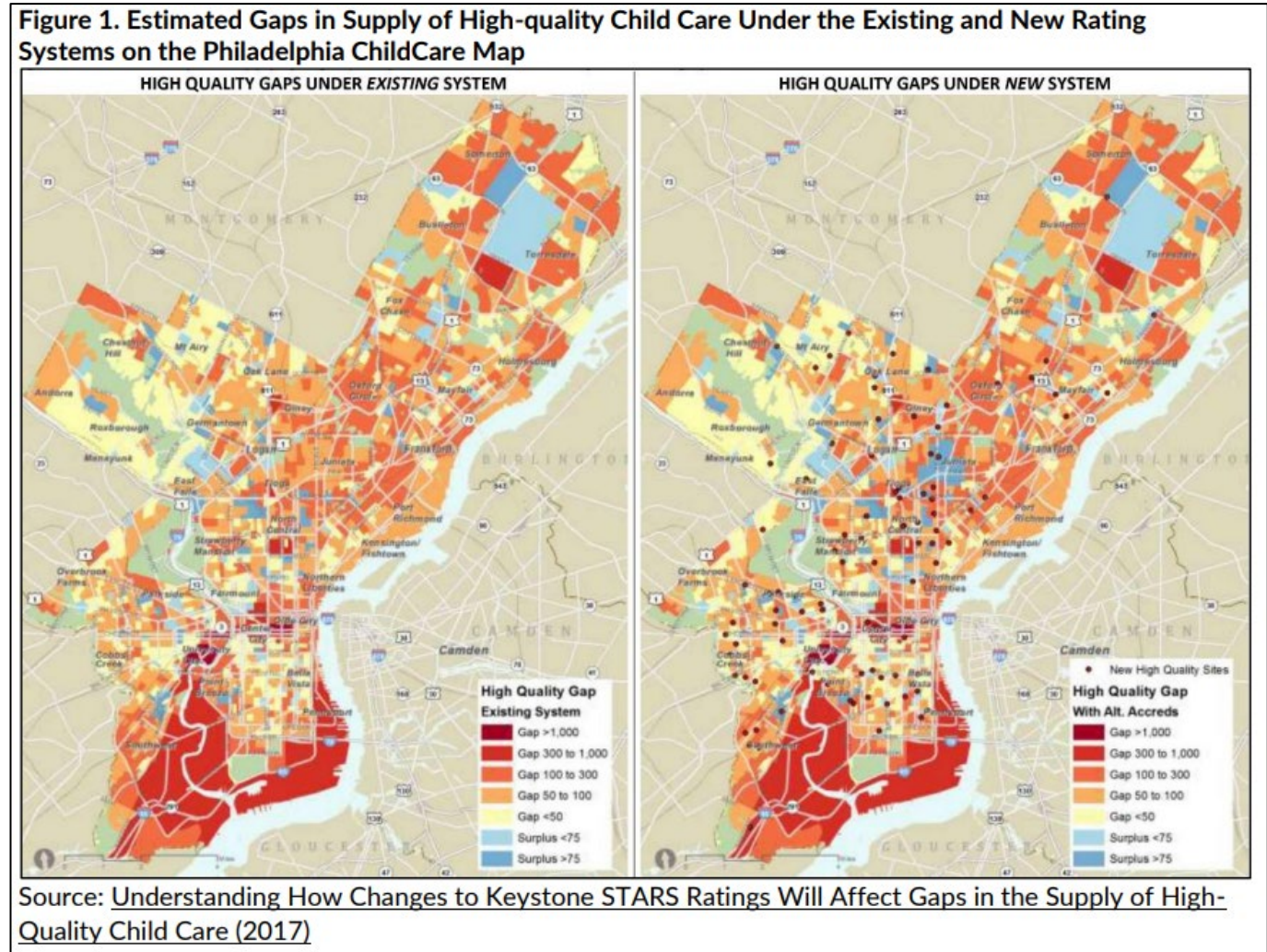
Maps as an existing visual tool

- Almost all states and territories are already using maps to understand CCEE.
  - Between October-December 2021, the study team identified about 75 maps published by nearly all states and territories.
  - Maps included information about multiple CCEE settings (e.g., licensed centers, family child care, pre-K)
  - Some included information about community level characteristics (e.g., income, race/ethnicity) so that users could contextualize access within communities

Four ways to use maps to understand and improve CCEE

Examples of understanding policy effects

- How CCEE policies are implemented differently at the local level
- How policy changes affect target populations differently
- How policy changes affect programs or settings differently

Map Highlight: Philadelphia ChildCare Map

Figure 1. Estimated Gaps in Supply of High-quality Child Care Under the Existing and New Rating Systems on the Philadelphia ChildCare Map

HIGH QUALITY GAPS UNDER *EXISTING* SYSTEM

HIGH QUALITY GAPS UNDER *NEW* SYSTEM

High Quality Gap Existing System
- Gap >1,000
- Gap 300 to 1,000
- Gap 100 to 300
- Gap 50 to 100
- Gap <50
- Surplus <75
- Surplus >75

• New High Quality Sites

High Quality Gap With Alt. Accreds
- Gap >1,000
- Gap 300 to 1,000
- Gap 100 to 300
- Gap 50 to 100
- Gap <50
- Surplus <75
- Surplus >75

Source: Understanding How Changes to Keystone STARS Ratings Will Affect Gaps in the Supply of High-Quality Child Care (2017)
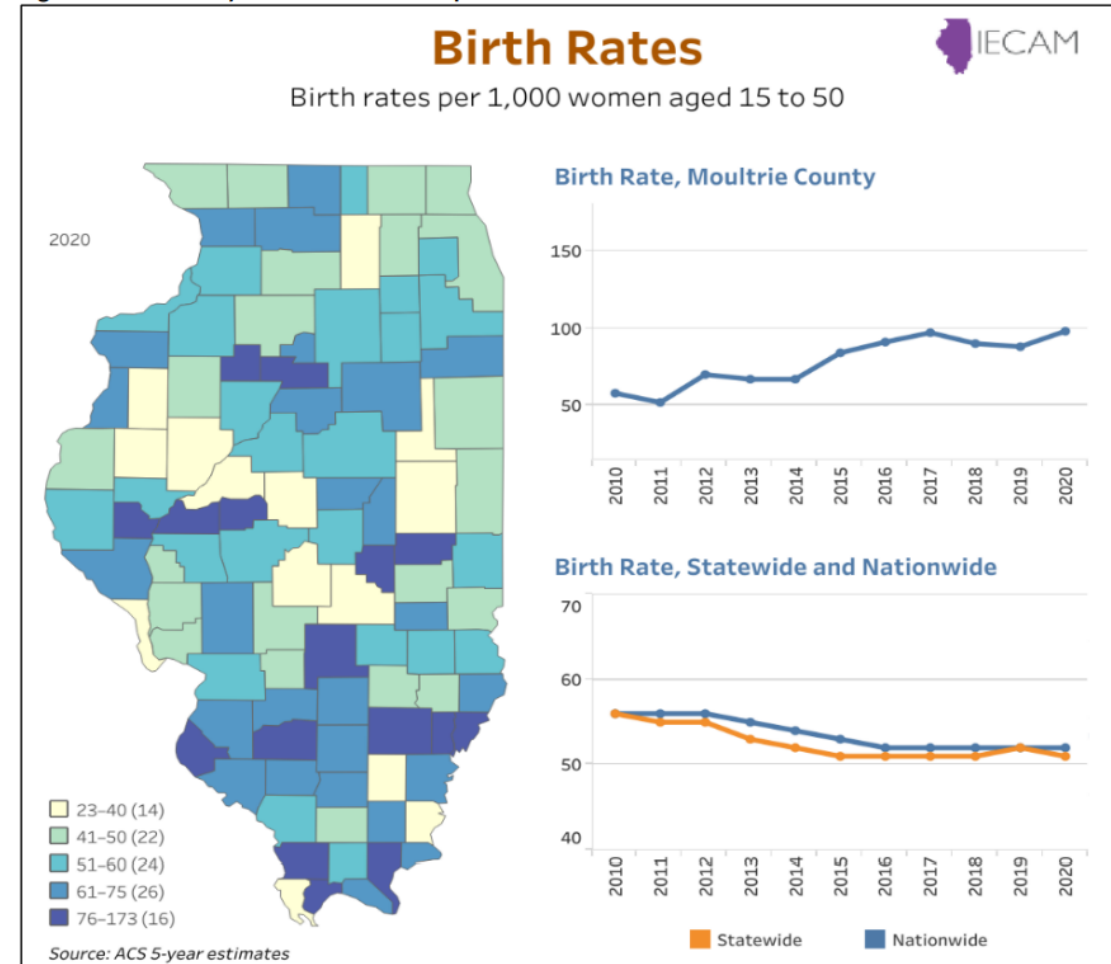
Examples of allocating resources

- Funding additional CCEE slots
- CCEE quality improvement efforts

Map Highlight: Illinois Early Childhood Asset Map

Figure 2. Illinois Early Childhood Asset Map

Birth Rates

Birth rates per 1,000 women aged 15 to 50

IECAM

2020

Birth Rate, Moultrie County

Birth Rate, Statewide and Nationwide

- 23–40 (14)
- 41–50 (22)
- 51–60 (24)
- 61–75 (26)
- 76–173 (16)

Source: ACS 5-year estimates

Statewide   Nationwide

Source: IECAM Birth Rates and Characteristics

Examples of building CCEE supply

- Establishing regional hubs to promote supply building
- Developing collaborative partnerships to increase supply for target populations
- Building the supply of high-quality CCEE

Map Highlight: Oregon Child Care Research Partnership

Figure 3. The percentage of publicly funded slots is greater for children 3-5 years than 0-2 years.

0-2 year olds

3-5 year olds

Percentage of slots that are publicly funded
- >50%
- 25-50%
- < 25%

Source: Oregon's Child Care Deserts: Mapping Supply by Age Group, Metropolitan Status, and Percentages of Publicly Funded Slots (Map 7)

Examples of supporting families

- Family search for CCEE
- Outreach efforts for CCEE

Map Highlight: Virginia Child Care Mapping Project

Figure 4. Virginia Child Care Mapping Project
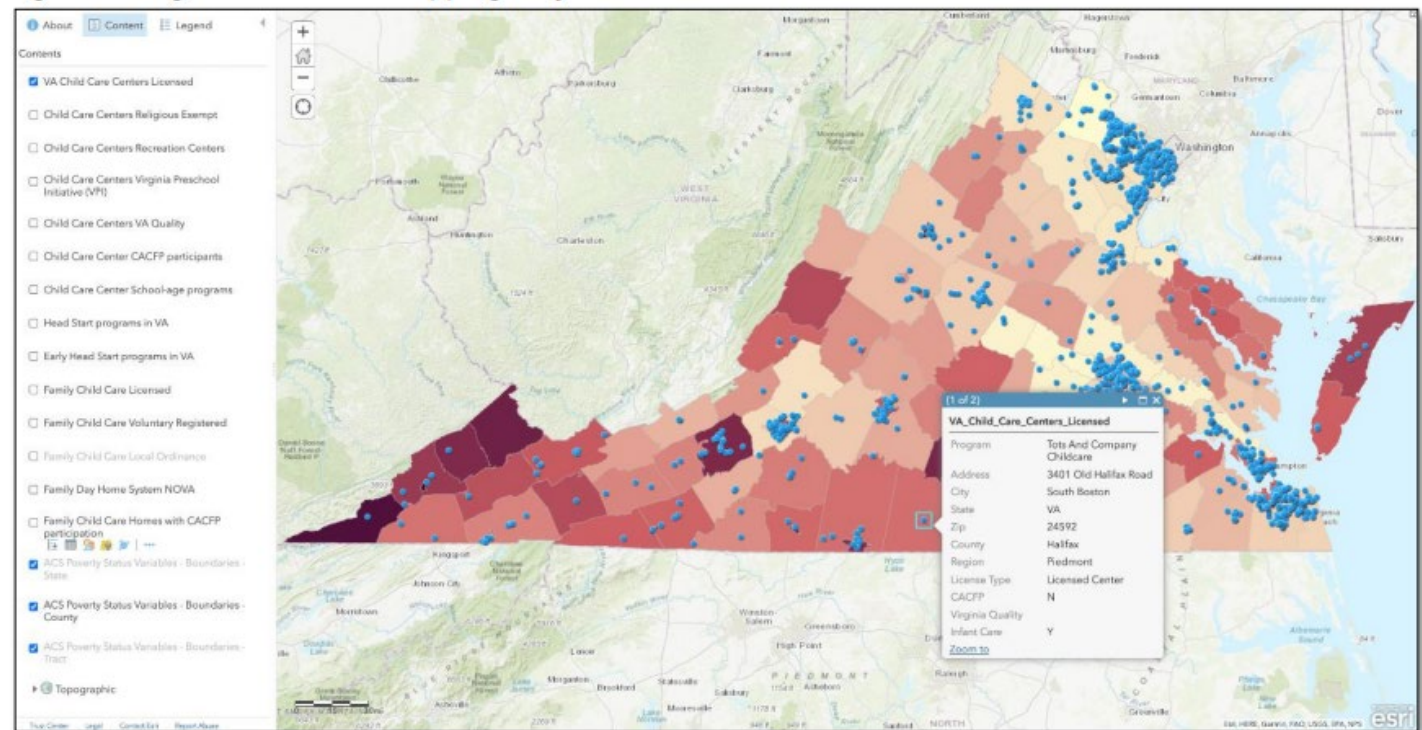
Source: Virginia Child Care Mapping Project

Technical considerations for mapping CCEE

Engage partners in decision-making

- Allow users to provide meaningful input
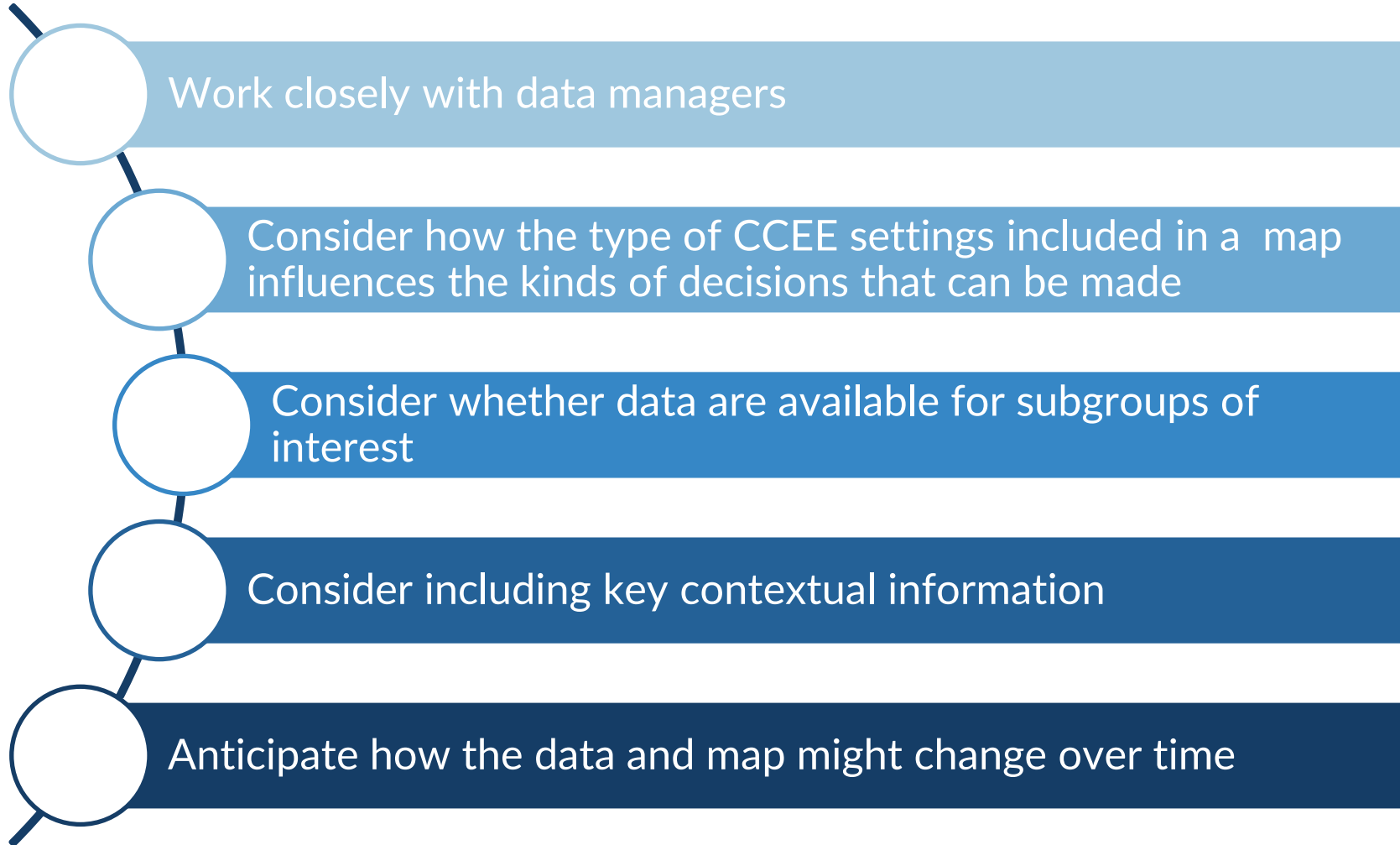- Develop a process for tailored engagement

Research partnerships are a critical way to support state leaders to use maps for decision-making

Table 1. Examples of partners to involve when creating maps to support decision making

Perspective	Example Partners
Families of young children	• Families with children in various setting types • Families using license-exempt care • Families with specific backgrounds
CCEE administrators	• Child care subsidy administrators • Head Start administrators • Public pre-K administrators
CCEE providers	• CCEE providers across setting types • CCEE franchising organizations • Students in Early Childhood degree programs
Community organizations that support children and families	• Child care resource and referrals • Non-profits (e.g., United Way or YMCA) • Community centers • Libraries
Business community	• Chambers of Commerce • Better Business Bureau • Community businesses (e.g., banks, hospitals, other large employers)
State and local CCEE policy leaders	• Child care advocacy organizations • QRIS administrators • Child care licensing staff
Other state and local leaders	• Other early childhood administrators (e.g., home visiting or early intervention) • State agency staff, especially those with previous mapping experience (e.g., department of health, department of natural disasters) • Longitudinal data system managers
Legislators	• Congressional representatives • State and local legislators and staff • Governor's office staff
Funders	• Foundations • Federal agencies (e.g., Administration for Children and Families)
CCEE researchers	• Researchers with CCEE content expertise • Researchers with mapping or geospatial expertise

Select the appropriate data to map

Work closely with data managers

Consider how the type of CCEE settings included in a map influences the kinds of decisions that can be made

Consider whether data are available for subgroups of interest

Consider including key contextual information

Anticipate how the data and map might change over time

Choose how to analyze available data

- Determine whether analyses are needed
  - Data cleaning and manipulation
  - Spatial analysis
- Weigh the pros and cons of conducting selected analyses

Incorporating Spatial Analyses into Early Care and Education Research

Van-Kim Lin and Rebecca Madill

≡OPRE   Child TRENDS

OPRE Research Brief #2019-88 | September 2019

Lin, V. & Madill, R. (2019). Incorporating Spatial Analyses into Early Care and Education Research. OPRE Research Brief #2019-88. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Display map contents to support decision-making

- Decide between an interactive or static map
- Define terms used on maps for the user
- Keep the map as simple as possible
- Carefully consider colors, fonts, and icons
- Offer training or other guidance for using the maps

Resources on Developing or Designing Maps for CCEE Contexts

- **Administration for Children and Families (ACF) Digital Toolbox: Maps**: https://www.acf.hhs.gov/digital-toolbox/drupal/content-types/maps
- **Centers for Disease Control and Prevention (CDC) Map Making Resources:** https://www.cdc.gov/gis/map-making-resources.htm
- **State of Minnesota Map Design Guide Best Practices Ensuring Accessibility/Usability:** https://mn.gov/mnit/assets/map-design-guide_tcm38-375673.pdf
- **ColorBrewer from The Pennsylvania State University to evaluate color schemes in maps:** https://colorbrewer2.org

Questions?

Van-Kim Lin
vlin@childtrends.org

Using Maps for Supply Building, Resource Allocation, and Early Learning Decision Making in Oregon

Michaella Sektnan

Oregon Child Care Research Partnership

Oregon State University

Oregon has been tracking supply for over 20 years

Oregon has used supply adequacy (percent of children with potential access to a slot) as a benchmark since the 1990s

In 2018, a need was identified to look at supply adequacy by age group and explore the role of public funding

In 2022:
75% of slots in centers
25% in family homes (small and large)

49% of slots are for preschool age
24% for infants and toddlers
27% for school age

Oregon Regulated Child Care Supply for Children Under Age 13
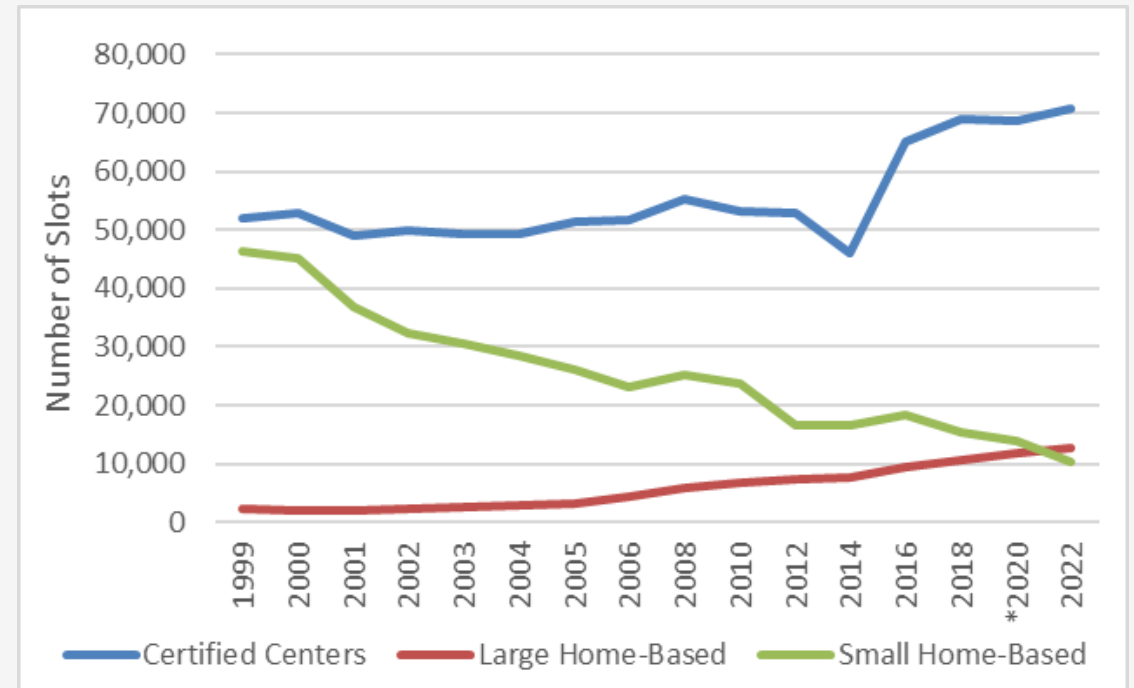
*2020 is pre-COVID

Data Used

Find Child Care Oregon (Child Care Resource and Referral (CCR&R) database)

Every two years a joint Market Price & Supply Survey is collected from providers by CCR&R agencies

Combined with data from:
- Oregon's Child Care Regulatory Information System (licensing)
- Portland State University Population Research Center
- Oregon Department of Human Services, Employment Related Day Care (EDRC)
- Oregon's Early Learning Division programs:
  - Oregon Prenatal to Kindergarten (OPK) (Head Start & Early Head Start)
  - Preschool Promise & Baby Promise
- Federal, Tribal, and Migrant Head Start/Early Head Start
- Spark (Oregon's Quality Improvement Rating System)
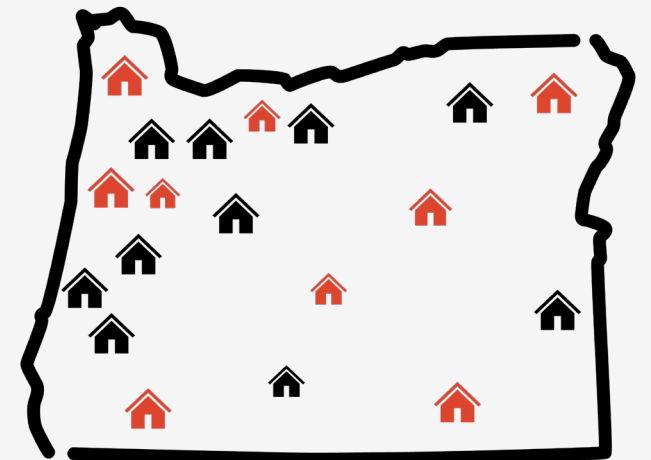
Mapping Supply Adequacy & Child Care Deserts

In 2018, Oregon began mapping the adequacy of child care supply by age group across geographically-defined counties, according to the child care desert metric.

How adequate is Oregon's child care supply for children ages five and under?
What percentage of child care slots are publicly funded?

Using a *regulated* child care sample

Focusing on two age groups:
- Infants and toddlers (0-2 years)
- Preschoolers (3-5 years)

A child care desert is a community with 3 or more children for a single child care slot.

Using Maps to Identify Supply Gaps & Target Resource Allocation

Percent of Young Children with Access to a Regulated Slot
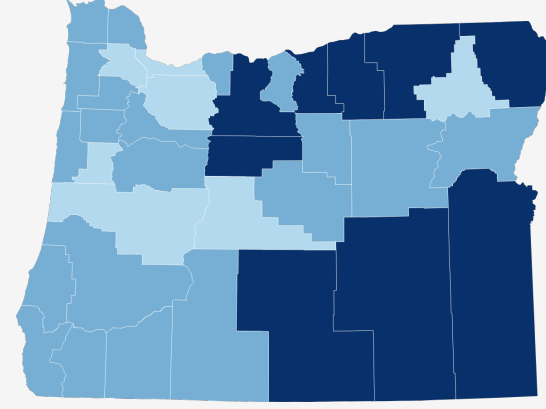
Percent of Publicly Funded Slots

0-2 years old

3-5 years old

0 Severe Desert 10 Desert 33 Not a Desert 50 Adequate Supply 100+

2018

0% 0-25% 25-50% >50%
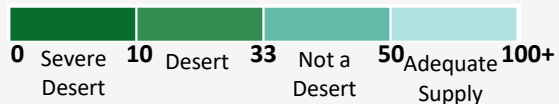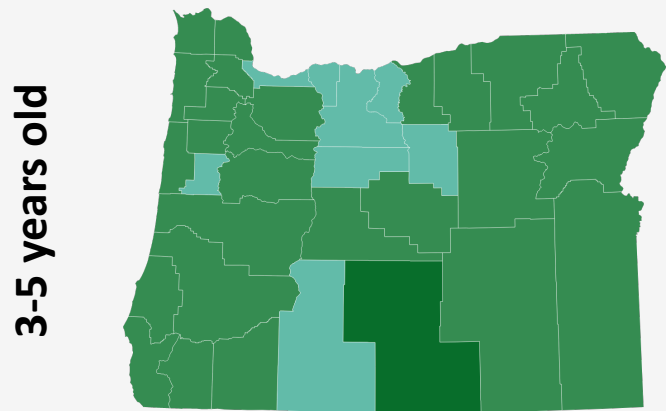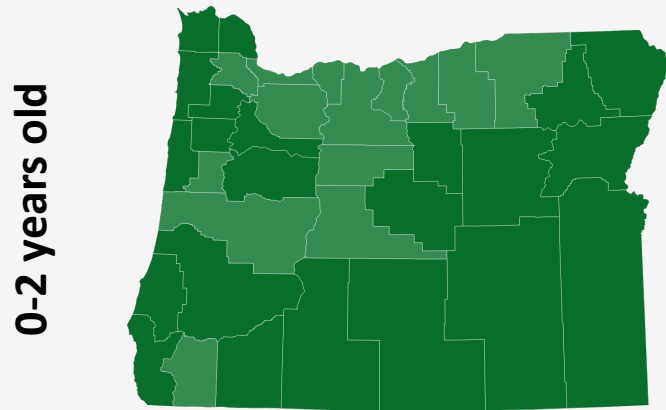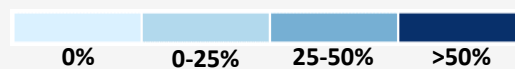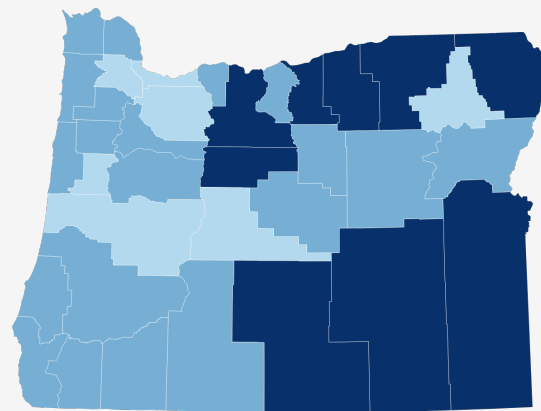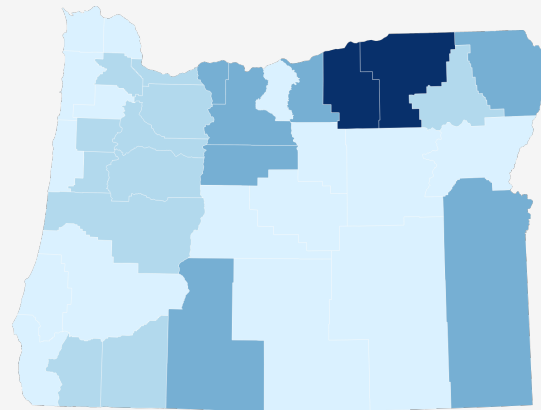
Across Oregon, there is inadequate regulated child care supply – especially for infants & toddlers

Public funding plays a role in creating Oregon's child care supply – especially for preschoolers and in rural areas

BABY PROMISE

Using Maps to Track Supply & Investment over Time

Percent of Young Children with Access to a Regulated Slot

2018

2022

Percent of Publicly Funded Slots

2018

2022

0-2 years old

3-5 years old

0 Severe Desert 10 Desert 33 Not a Desert 50 Adequate Supply 100+
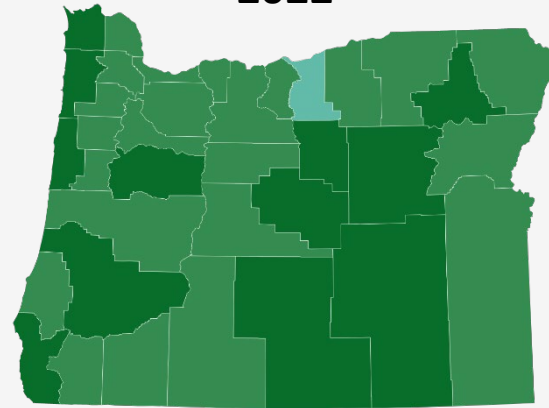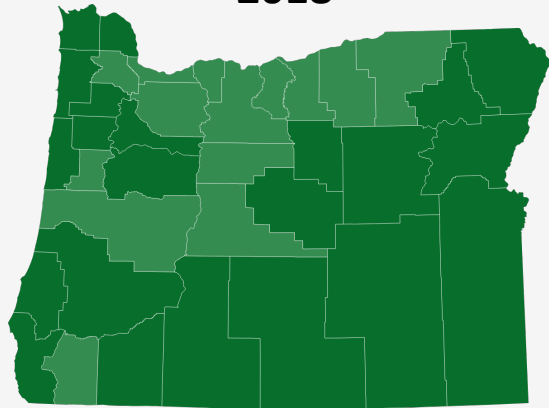
0% 0-25% 25-50% >50%

Maps created using Datawrapper

Using Maps for Early Learning Decision Making

Since 2012, Oregon has integrated child care provider and supply data into an interactive map with other indicators to assist with system decision making at state, regional, and local levels

In 2019, this mapping work was integrated into Oregon's Preschool Development Grant to become the Early Learning Map of Oregon
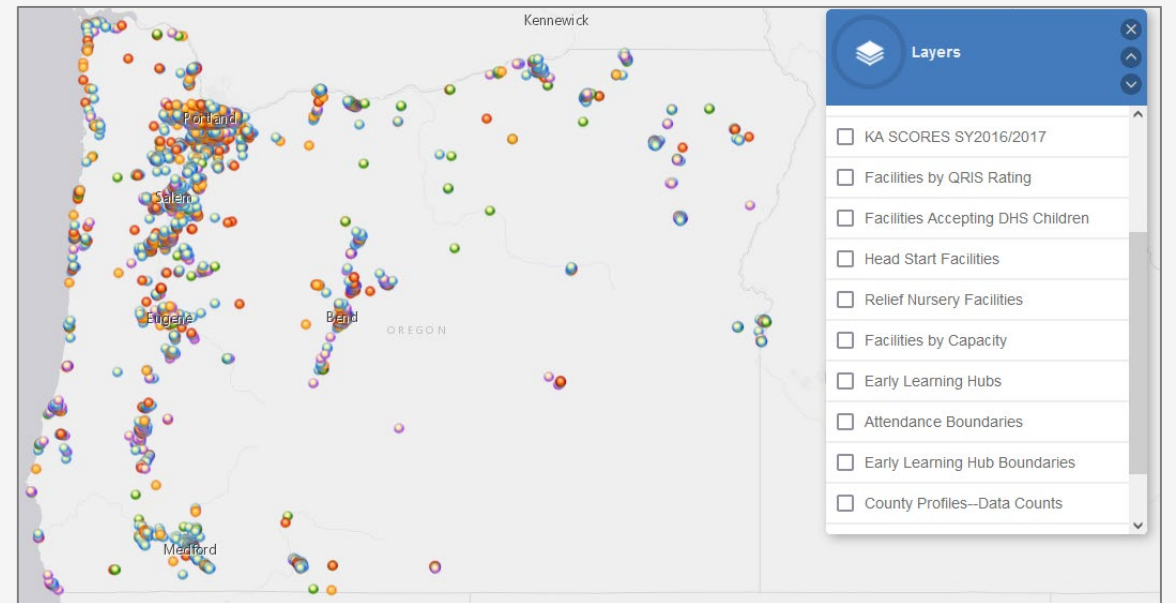
Oregon's PDG B-5 is sponsored by the Department of Health and Human Services, Administration for Children and Families (Award# 90TP0020-01-02)


2016 Interactive Map

Early Learning Map of Oregon (ELMO)

ELMO was created to support Oregon's early learning partners (schools, community and state agencies, Early Learning Hubs, advocacy groups, and others) in their work on planning and improving early care and education in their region

Almost 50 data indicators on:

- Child and family characteristics;
- Early care and education (ECE) program types, quality, capacity, and availability;
- Early learning workforce characteristics;
- School readiness and school success indicators;
- Family participation and availability of other resources; and
- Community risk and resiliency factors

Available by 7 geographic units
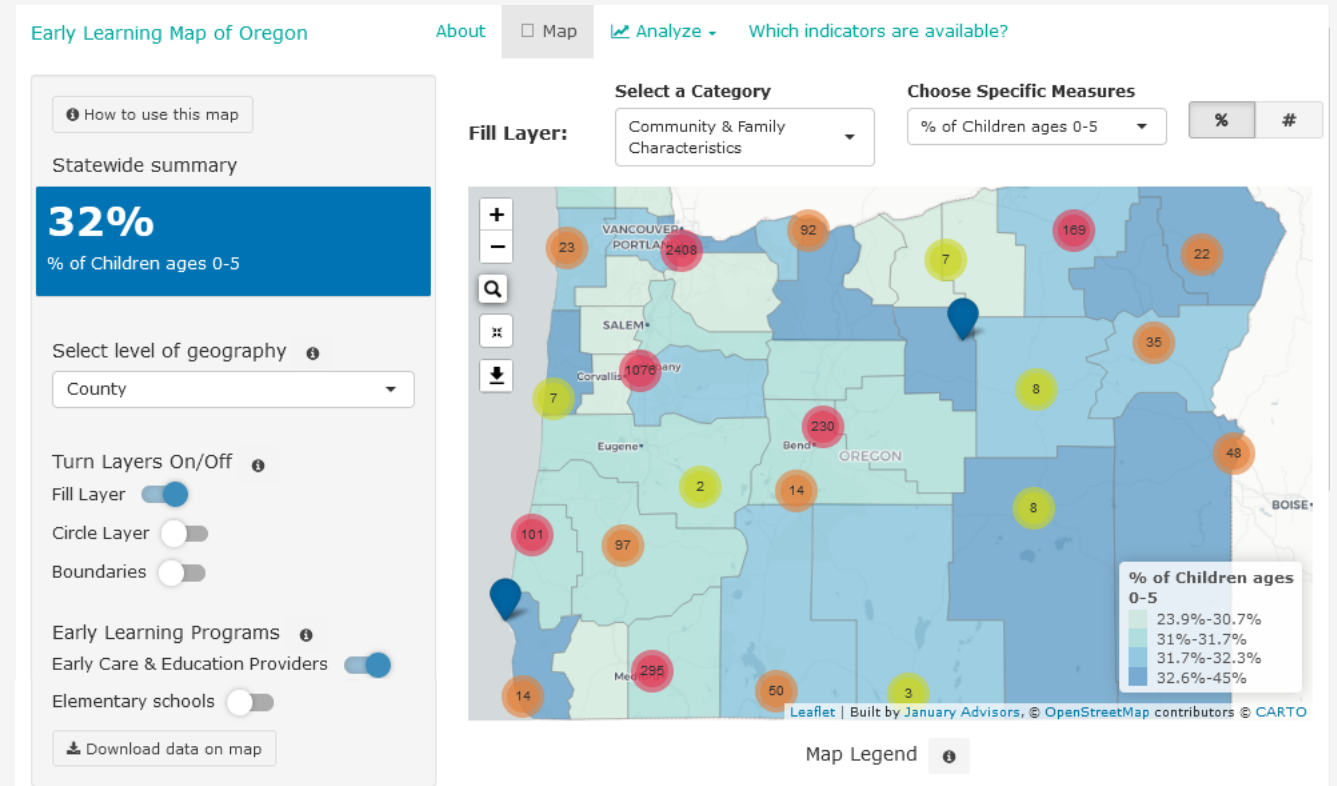
Key Takeaways & Future Directions

Maps have been useful in Oregon for:
- Identifying supply gaps
- Targeting resource allocation
- Tracking supply and investment over time
- Early learning decision making

Simple maps have utility for informing decisions about child care and early education

Planning for data updates and sustainability is important

For more information:

Child Care Desert Report:
health.oregonstate.edu/early-learners/supply

Early Learning Map of Oregon:
oregonearlylearning.com/PDGAssessment#ELMO

Michaella Sektnan

michaella.sektnan@oregonstate.edu

USING MAPS TO EXPLORE CHILD CARE ACCESS &
A REGIONAL SYSTEM IN NEW HAMPSHIRE

CCEEPRC
June 29, 2023
Meredith O'Shea and Erin Bumgarner

NH PRESCHOOL DEVELOPMENT GRANT

- The grant seeks to support New Hampshire's vision that *all families are afforded comprehensive and responsive supports, so they are healthy, learning, and thriving now and in the future.*

- NH's PDG supports efforts to build the state's early childhood care and education (ECCE) system.

- Partnership between the State and the University of NH.

University of New Hampshire

New Hampshire Department of Health and Human Service

New Hampshire Department of Education

GOAL 1: BETTER UNDERSTAND ACCESS IN NEW HAMPSHIRE

- Update existing maps to use more recent data (after COVID started).

- Go beyond plotting program locations to understand the <u>relative availability</u> of ECCE slots to the population of nearby families with young children who might also want to enroll in these programs.

- Use methodology that could factor in family drive time.

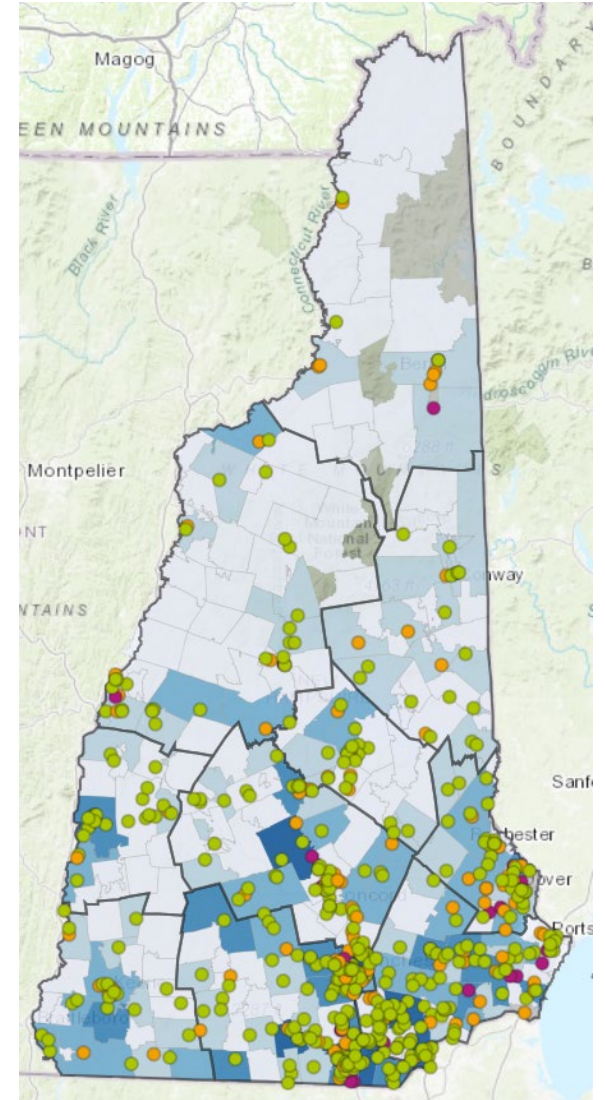# GOAL 2: IMPROVE STATEWIDE COORDINATION AND INTEGRATION

Early Childhood Coalitions

- Quasi-governmental

- Cross-sector: health, early learning, family support

- Geographic region defined by entity
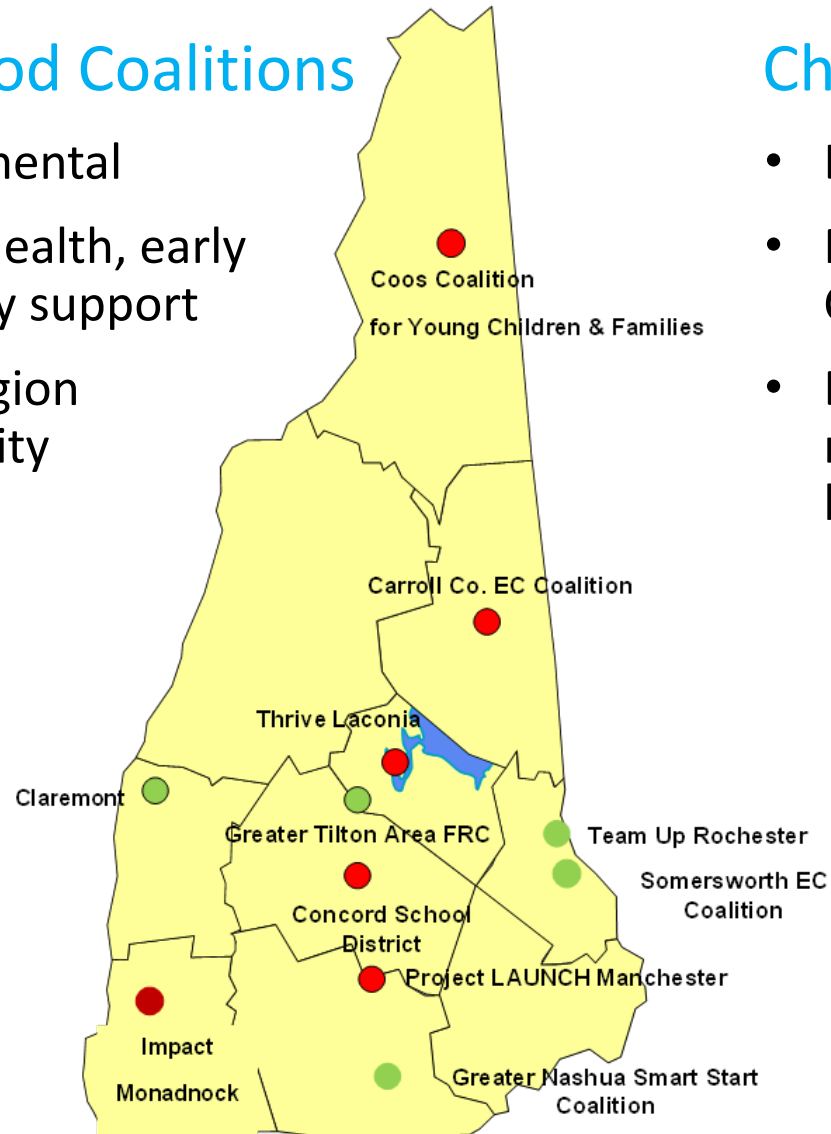
Child Care Deserts

- Licensed providers

- Mapped by Child Care Aware (2018)

- Does not reflect revision of QRIS beyond Licensed+

APPROACH

Primary data sources:

- A list of licensed programs from NH-DHHS, Spring 2021
- Child population data from the Census and American Community Survey (ACS)
- Created a list of locations and catchment areas for 17 early childhood and family support systems

Analytic Approach:

- Python used to generate "access scores" using Enhanced Two-Stage Floating Catchment Area Methodology
- ArcGIS used to plot:
  - Access Scores
  - Locations and catchment areas for 17 early childhood and family support systems
  - Contextual factors from Census data

Legend for Family-Level Access Scores

- ● High Access (Score = 1+)
- ● Moderate, Above Median Access (Score = 0.34 - 0.99)
- ● Low, Below Median Access (Score = 0.01 - 0.33)
- ● No Access (Score = 0)

**Legend for Town- and City-Level Access Scores**

- High Access (Score = 1+)
- Moderate, Above Median Access (Score = 0.34 - 0.99)
- Low, Below Median Access (Score = 0.01 - 0.33)
- No Access (Score = 0)
- Low Population of Young Children

WHAT MAPS TAUGHT US ABOUT ACCESS IN NH

- There was about one licensed slot for every 3 children within a 20 min. drive from home
- Higher access scores tended to be concentrated in urban areas (e.g., Concord, Manchester, Portsmouth)
- Tradeoff between ease of interpretation and replicability vs. precision
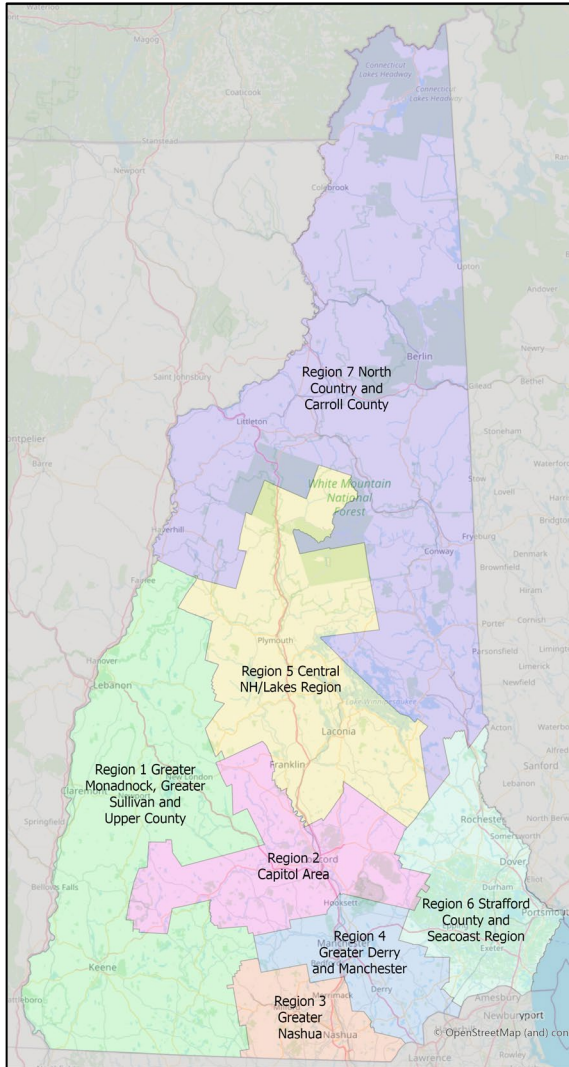

Access to Licensed Child Care
- High Access (Score = 1+)
- Moderate, Above Median Access (Score = 0.34 - 0.99)
- Low, Below Median Access (Score = 0.01 - 0.33)
- No Access (Score = 0)
- Low Population of Young Children
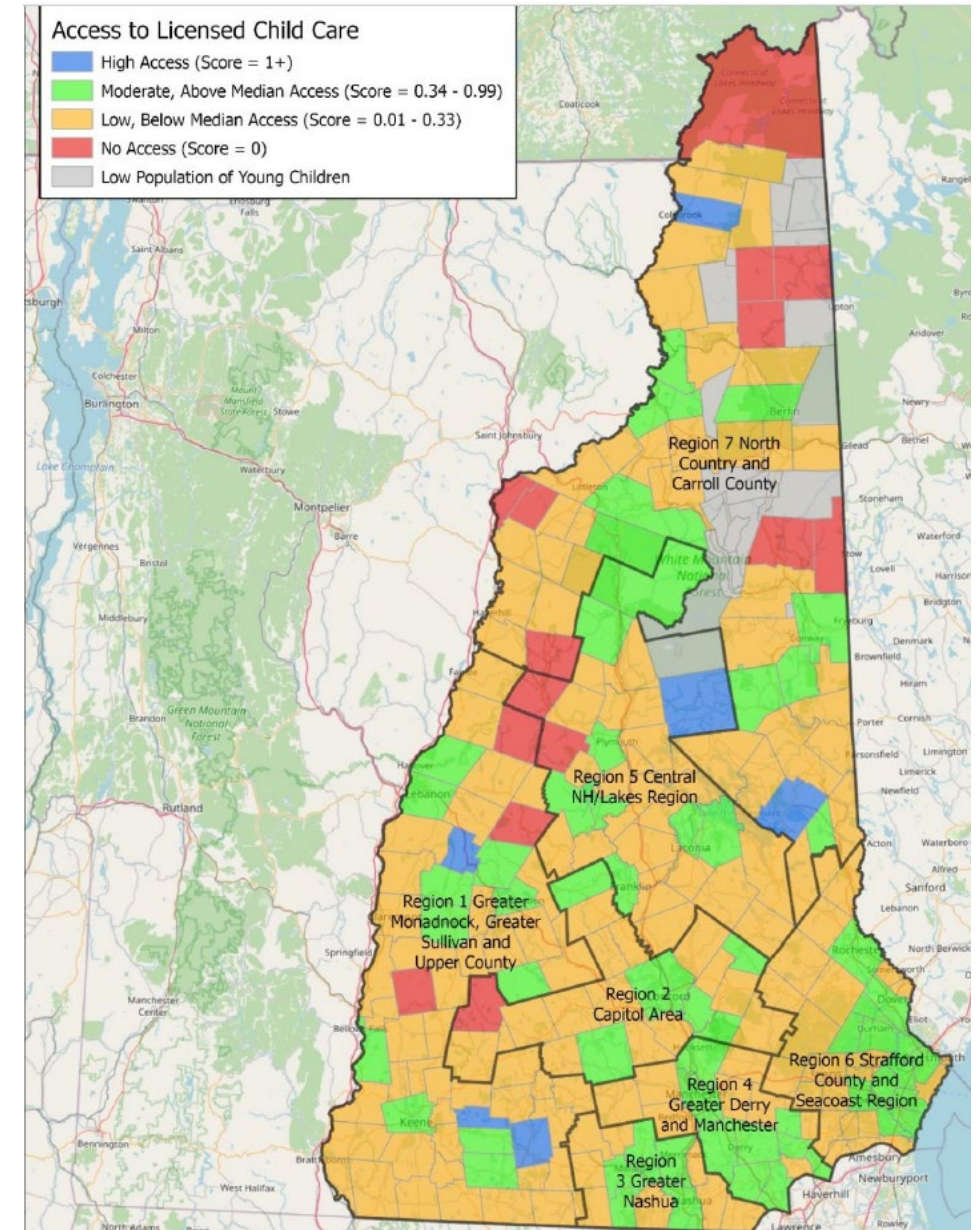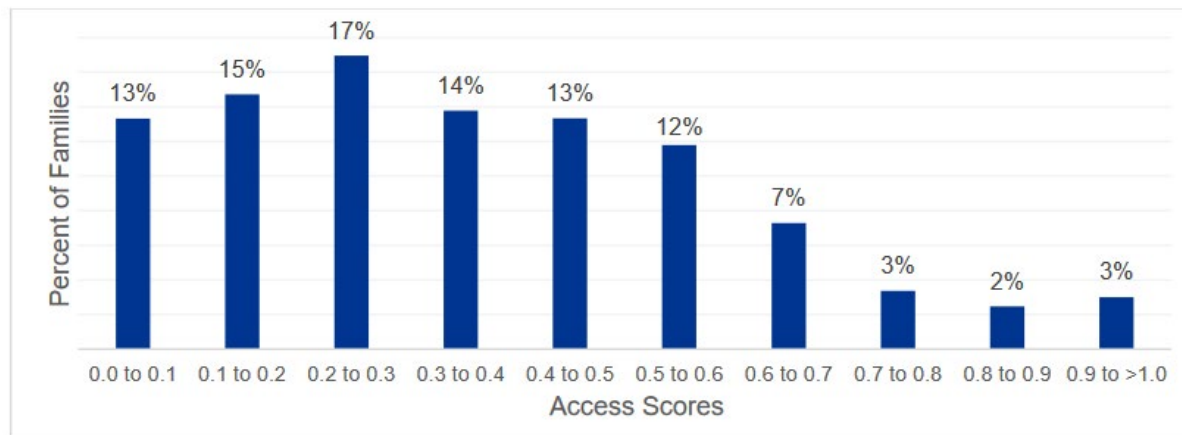
WHAT MAPS TAUGHT US ABOUT FORMALIZING NH'S EARLY CHILDHOOD REGIONAL SYSTEM
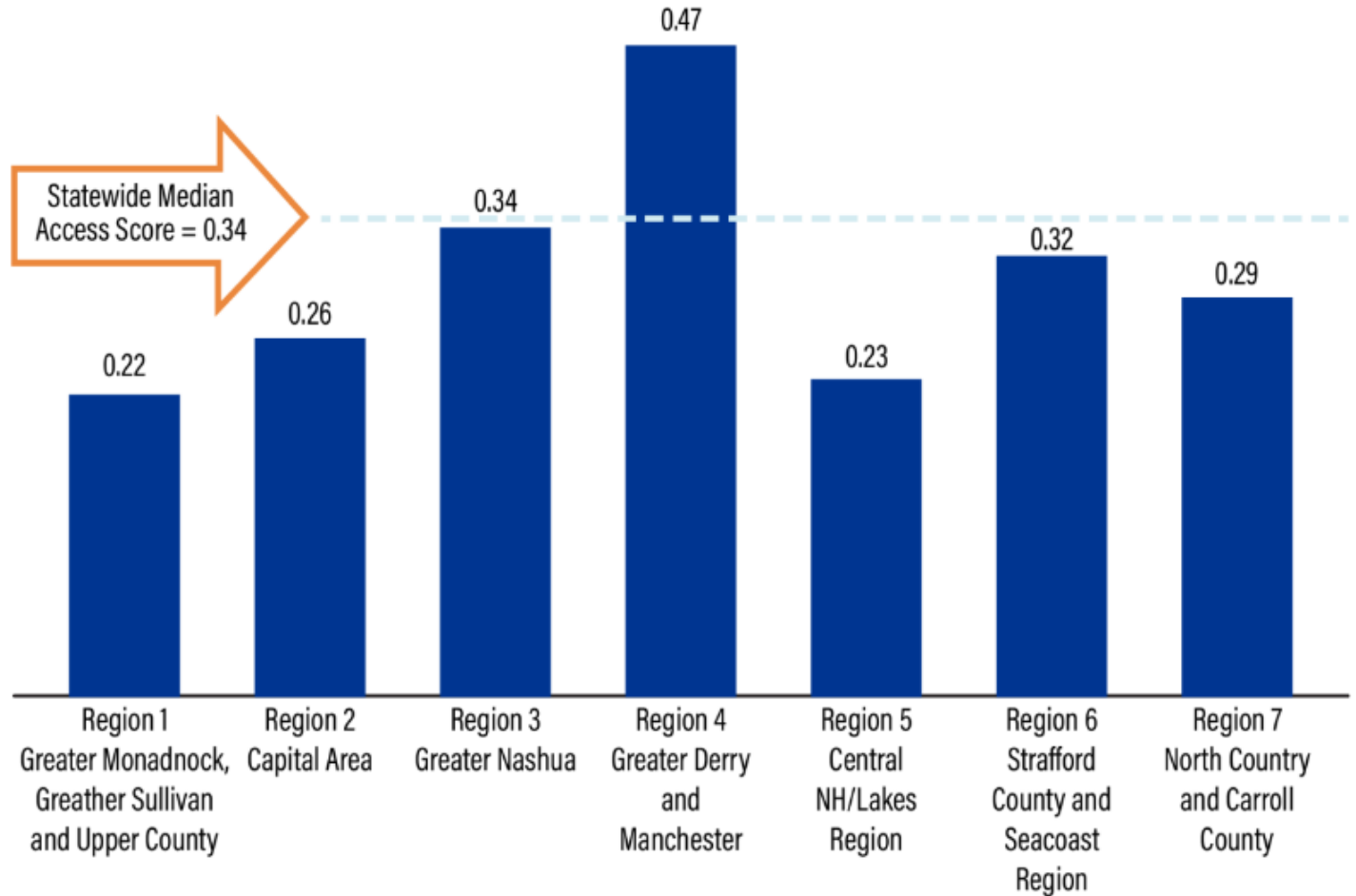
APPLICATIONS AND FUTURE DIRECTIONS

- Informed decisions about investments, resources, and interventions at the state and local levels

- Explored additional opportunities for cross-system collaboration

- Considered sustainability of mapping resources and utility of updates

- Maps do not yet account for key info like cost, quality, ages served

To learn more…

http://chhs.unh.edu/early-childhood/
preschool-development-grant

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UNIVERSITY of New Hampshire

QUESTIONS?