

Conducting Rapid Analyses for Data-Based Decisionmaking during the COVID-19 Crisis

October 16, 2020

Webinar Series on

Building CCDF Lead Agencies' Capacities to Use Data to Inform Policy Responses to COVID-19

Housekeeping

- The webinar is being recorded.
- The recording, slides, and transcript will be posted online.
- All participants are muted.
- Type your **questions** or **comments** into the chat box at any time. We'll have time for questions and a discussion with our panelists at the end of the webinar.

Child Care Research and Evaluation Capacity Building Center

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 in partnership with Mathematica

Meryl Barofsky and Alysia Blandon, OPRE Project Officers

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Goal: Assess and build the research and evaluation capacity of CCDF Lead Agencies

To learn more, see our [Building Child Care Research Capacity](#) web page

The Case for Rapid Analysis for Data-Based Decisionmaking

- Time of crisis requires quick, but informed, response
- Analysis for decisionmaking allows for creativity and use of “good enough” data
 - Not making determinations about effectiveness
- Opportunity to build on and organize data you are already collecting and improve systems for the long term

What We Will Cover

1. Elements of data-based decisionmaking, [Jesse Chandler, Mathematica](#)
2. [Reflect](#): Decisions on your mind
3. School openings: Example of defining the problem and identifying and evaluating solutions, [Brian Gill, Mathematica](#)
4. State experiences using data to understand problems and make decisions for child care. [Natasha Nicolai, California Department of Social Services](#); [Nick Mader, Chapin Hall](#)
5. [Brainstorm](#): Data that could inform your decision
6. Revisiting the framework
7. Your questions

Elements of Data-Based Decisionmaking

Jesse Chandler

Data Analytics Lead,
Education and Employment Division,
Mathematica



Using data for decisionmaking



- / **Data as a source of information**
- / **Data-based decisionmaking as a *process***
- / **Using *rapid analysis* to support decision-making**
 - Avoid bottlenecks
 - Put time where its most needed

Using data to identify problems



/ **Data helps us understand what is happening**

- Change over time
- Variation across centers

/ **Data can make a case for action**

Using data to define a problem



- / **Invest time in defining the problem**
- / **Problems are differences between “the world as it is” vs. “The world as it ought to be”**
 - Discourages defining the problem based on a solution
 - Encourages using data to track if the problem gets solved

Using data to define a problem: cautions



- / Too much focus on the data and not what its supposed to represent
- / Problems exist even in the absence of data

Using data to identify solutions



/ Deciding what information is needed

- How is it related to the problem?
- What data is “good enough”?
- How much data is “enough”?

/ Sources of information

- Administrative records
- Research literature
- Data held by others
- New data collection

Using data to evaluate solutions



/ **Data can point to solutions that work**

- Helps when measures that define success also helped define the problem
- Rapid analysis can show whether program or policy changes are “moving the needle”
- Can use past data and some assumptions to predict what might happen in the future

Using data to make decisions easier



- / **Data help address challenging decisions (and not avoid them)**
- / **Focus on the data that matter**
- / **Use data to limit options**
 - Understand best-case and worst-case scenarios
- / **Each decision includes lessons for next time**

Reflect

Take one minute to think about and write down two decisions that are on the top of your mind right now

Operating Schools in a Pandemic: Using Data to Define the Problem and Identify and Evaluate Solutions

Brian Gill

Senior Fellow,
Education and Employment Division,
Mathematica



Defining the problem: How and under what conditions can school buildings reopen without adding to COVID-19 spread?

- / **Schools are faced with wrenching tradeoffs in reopening decisions**
- / **Need to understand the tradeoffs between health risks and educational costs**
- / **Pennsylvania Department of Education wanted to provide data-driven guidance to schools to inform tradeoffs in communities with low to moderate infection rates**

Emerging research and stakeholder views helped *identify possible solutions*

/ **How to limit spread based on what we know about:**

- Shrinking the number of contacts
- Limiting risk with each contact

/ **Stakeholders around Pennsylvania suggested potential solutions:**

- Physical distance and masks
- Limit mixing of students
- Part-time in-person instruction in small groups

We evaluated options using available data to predict disease spread in schools

- / **Modeled interactions in classrooms, during lunch and recess, on buses, during meetings, using available evidence on virus spread**
- / **Conducted thousands of simulations under many different circumstances:**
 - Low/moderate/high community infection rate
 - Full-time building operation vs part-time hybrid with small groups
 - With or without precautions such as masks
 - School type and size
 - Approach to containing infection: partial quarantine vs temporary school closure
- / **Report includes 108 combinations of scenarios, so that any school—not only in Pennsylvania but across the country—can find information relevant to its own circumstances**

Using data that is “good enough” when there is a lot of uncertainty

/ **Used the best information available from emerging research on transmission**

- Much remains unknown about disease spread
- Much remains uncertain about what staff and children will do in schools

/ **We did a range of analyses**

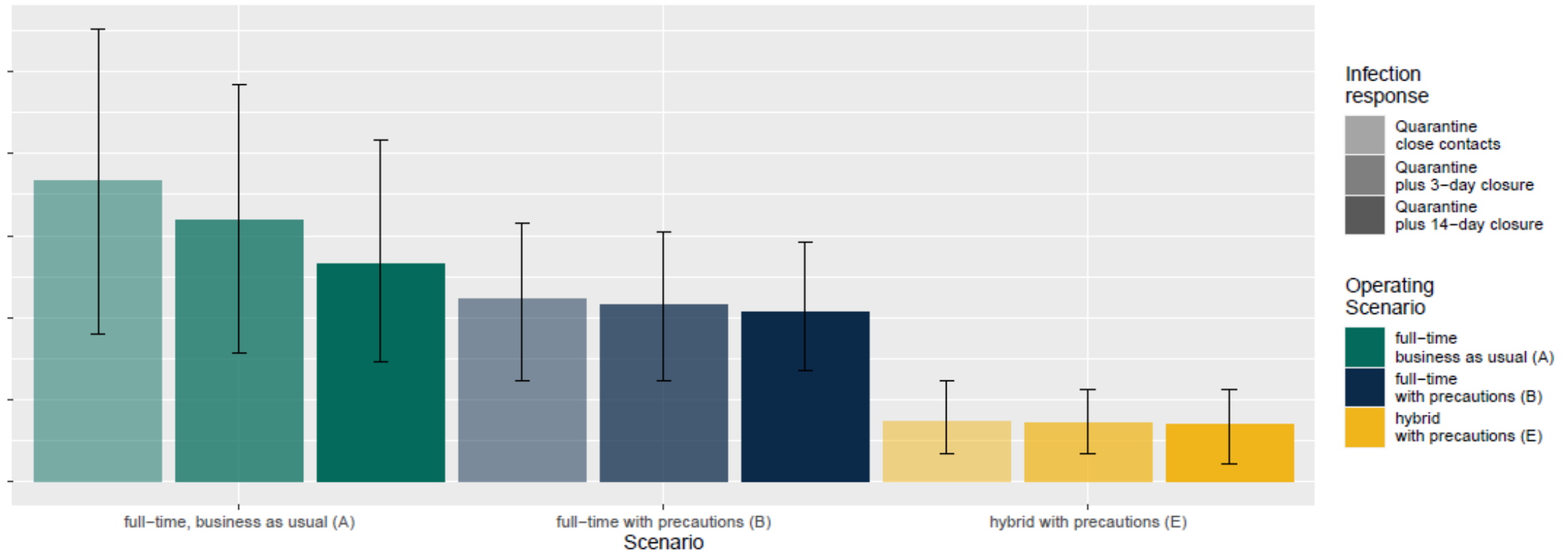
- To test different assumptions
- To provide upper and lower bound estimates (in case assumptions are wrong)

Precautions and part-time hybrid operation reduce infections with less need for school closures

School Type: Elementary (non-departmentalized)

Community infection (per 100,000 per week): 100

Cumulative COVID-19 infections among students and staff, relative to no precautions

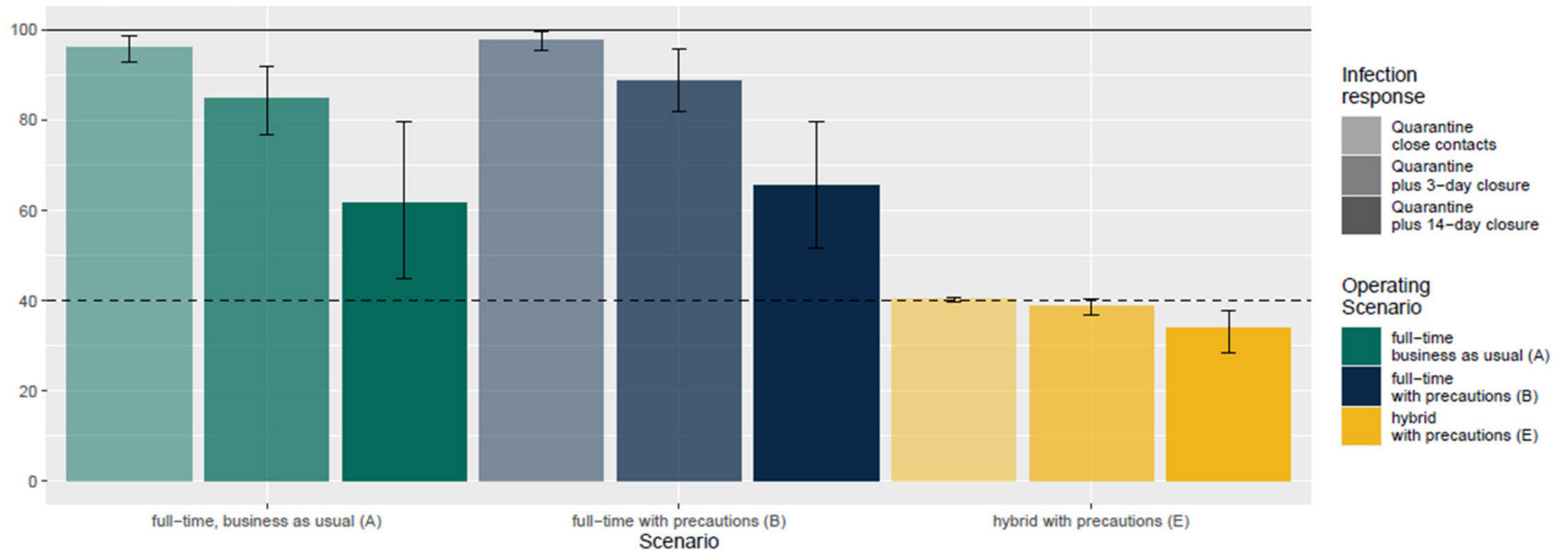


Part-time hybrid approaches can increase predictability of schedule

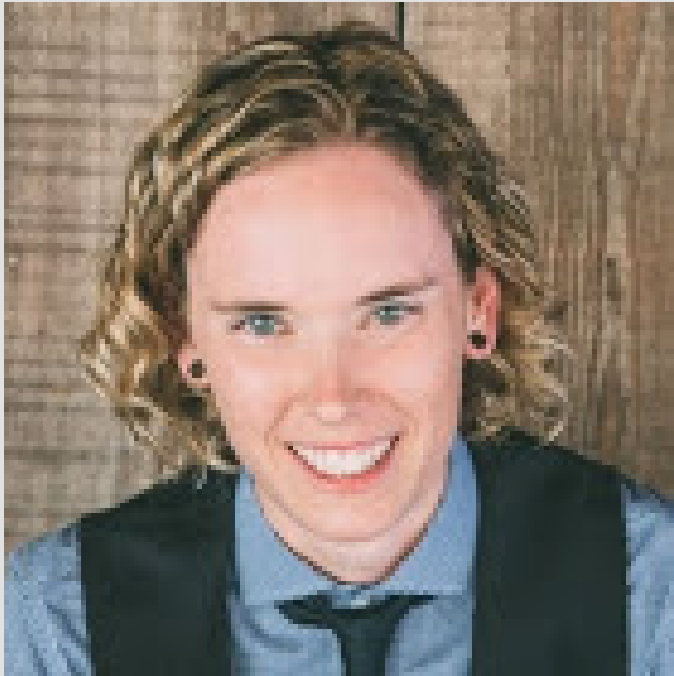
School Type: Elementary (non-departmentalized)

Community infection (per 100,000 per week): 100

Average percentage of school days in-person, with lines for full-time and hybrid maximums



State experiences using data to understand problems and make decisions for child care during COVID-19



Natasha Nicolai

Chief Data Strategist,
Research, Automation,
and Data Division,
California Department
of Social Services



Nick Mader

Senior Researcher,
Chapin Hall at the
University of Chicago

The Gaps

Defining the Problem



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SOCIAL SERVICES

- (1) Reliable, real-time **COVID tracking** in Licensed Facilities
- (2) **Facility status** in response to COVID – Especially Critical for Child Care and Residential Facilities for the Elderly
- (3) Early **modeling** to understand case trajectories and essential frontline worker needs; modeling now is showing us **predictive factors** for transmission, case accelerations, and recovery
- (4) **Guidance and policies** to safely support capacity needs by providing COVID protocol technical assistance, cleaning supply and personal protective equipment distribution, visitation restrictions, and COVID testing strategies
- (5) **Data sharing** and partnership

(1) Reliable COVID tracking in Licensed Facilities

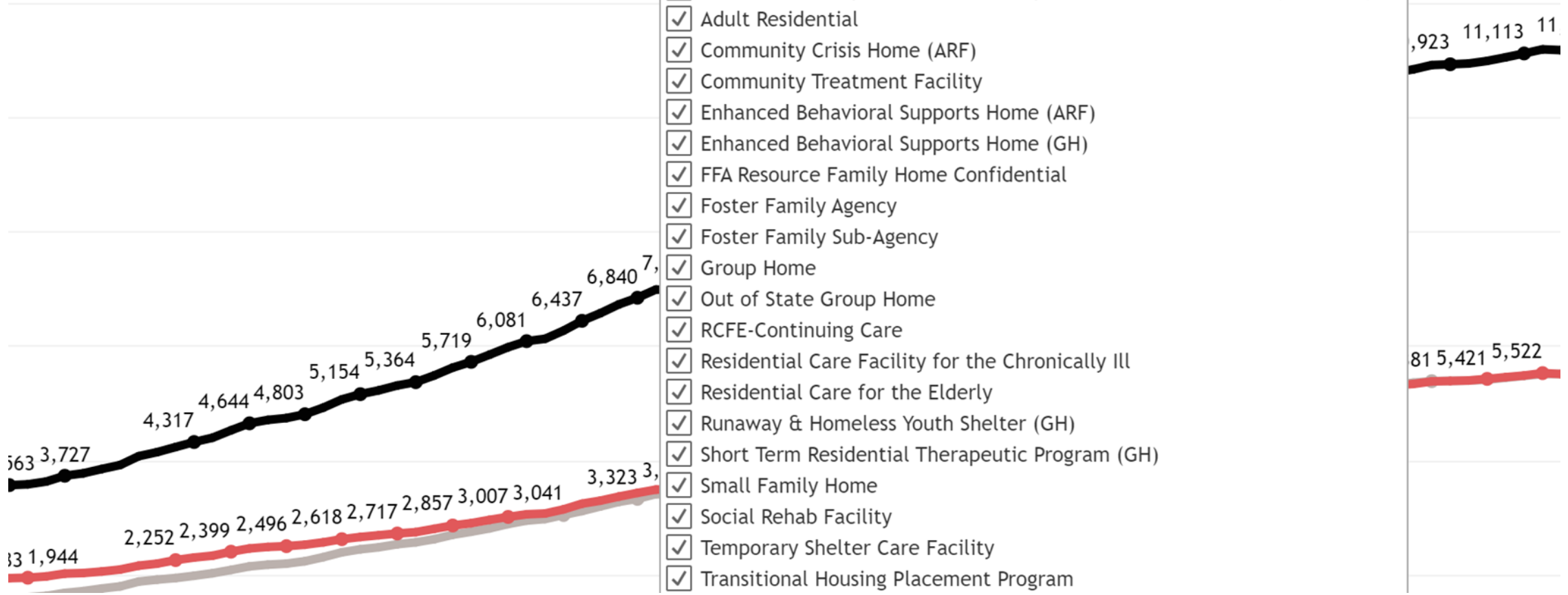
- Understand current data infrastructure
 - History of narrative-based incident reports
- Modify for (a) speed and (b) accuracy
 - Remove open text fields
 - Create meaningful categories
 - Build in validity checks
- Coach, coach, and then coach some more about data best practices
 - Importance to quality check processes
 - Data dictionaries and governance
 - End-use cases to keep staff motivated and grounded
- Find regular space to review data and analytics
- Learn program needs, make improvements, rinse and repeat



County
Program Type
Facility Type
Facility Name

(All)
(All)
(All)
(All)

19 Cases by Client, Staff, Parent, Unknown, and D



(2) Facility status – Open, Closed, Need Help

For day-use type facilities, Adult-Day and Child-Day Care, needed to know status:

- Open, Closed-desire to open, Closed Permanently

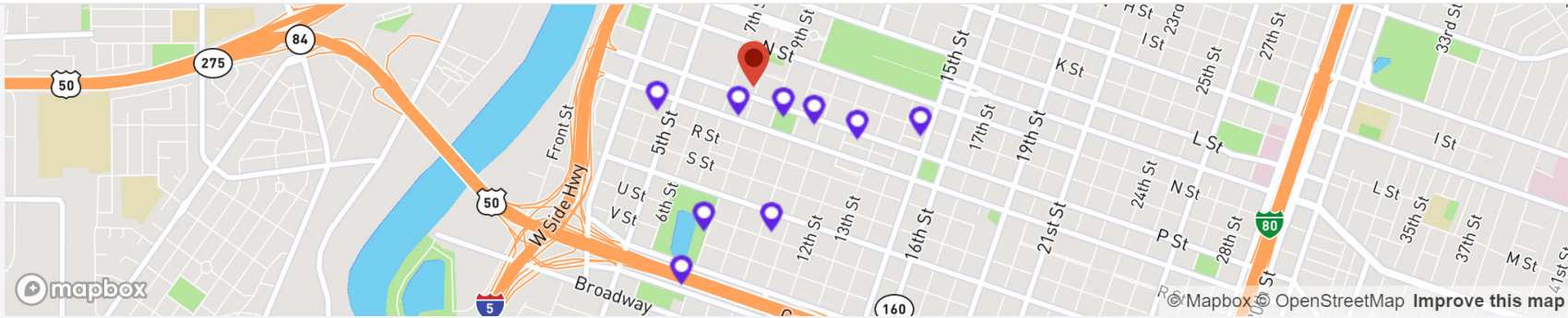
Solution:

- Repurposed mass notification, emergency system as survey tool to populate our technology solution – [MyChildCare.ca.gov](https://mychildcare.ca.gov)



🔍 744 P Street, Sacramento, California 95816, United States

✕



Sort by distance

[Refine Search](#)

Kindercare Learning Center - Capitol City (inf)

0 mi

Child Care Center
Sacramento, CA
Infant (0 - 2 yrs)
Booked

Kindercare Learning Center - Capitol City (ps)

0 mi

Child Care Center
Sacramento, CA
Child (2+ yrs)
Booked

Rainbow Day Care

0.1 mi

Child Care Center
Sacramento, CA
Child (2+ yrs)
Spots Open

[MyChildCare.Ca.Gov](https://mychildcare.ca.gov)



(3) Modeling and capacity-projections

- In near real-time, the state needed to understand COVID cases projections ASAP for purposes of staffing, policy changes, executive orders, stipends, incentives, and technical assistance
- CDSS explored many modeling techniques for projecting case numbers in different facilities
 - Learned staff/resident ratios and facility size were key drivers
- Looking for comparable examples was critical!
- Simple rolling averages consistently proved most accurate over time, and were easiest for program staff to interpret



Click the name of the convention or developmental center below for a list of available childcare facilities

No.	Click place names below for a list of available	City	City	ZIP	Child Care within 3 miles
1	Santa Clara Convention Center	Santa Clara	Santa Clara	95054	88
2	Vacant Sears Building	Riverside	Riverside	92504	57
3	LA Convention Center	Los Angeles	Los Angeles	90015	136
4	San Mateo County Event Center	San Mateo	San Mateo	94403	128
5	The Craneway Pavilion	Contra Costa	Richmond	94804	75
6	Civic Auditorium	Shasta	Redding	96001	49
7	Enloe Medical Center	Butte	Chico	95926	77
8	Fresno Convention and Entertainment Center	Fresno	Fresno	93721	57
9	Palomar Medical Center	San Diego	Escondido	92029	65
10	Seton Hospital	San Mateo	Daly City	94015	141
11	St. Vincent's	Los Angeles	Los Angeles	90057	196
12	Part 1 IDD Fairview Developmental Center	Orange	Costa Mesa	92626	97
13	Part 2 Orange County CO. Fairview Developmental Center	Orange	Costa Mesa	92626	97
14	Part 3 Medsurge Fairview Developmental Center	Orange	Costa Mesa	92626	97
15	Part 1 IDD Porterville Developmental Center	Tulare	Porterville	93257	23
16	Part 2 ACF SNF Porterville Developmental Center	Tulare	Porterville	93257	23
17	ARCO Sleep Train Arena	Sacramento	Sacramento	95834	164
18	Riverside County Fairgrounds	Riverside	Indio	92201	86
Click HERE for the location MAP of childcare facilities near 18 convention and developmental centers					



(4) Guidance and Policy Updates and Public Information

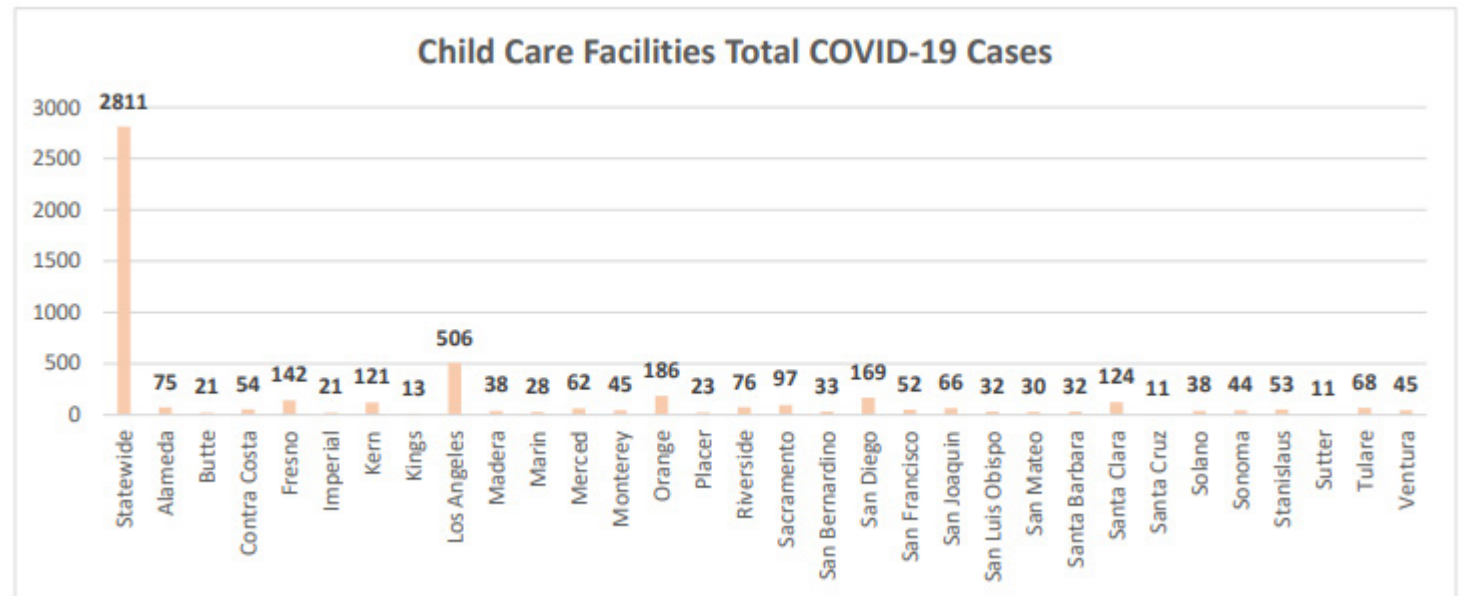


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- Regularly use data to inform policy decisions, guidance, emergency funding, incentives, stipends, and PPEs

Total Facilities	Licensed Capacity for Allocation	Number of Children in CDE Programs in License-Exempt FFN & Centers	Total Capacity for Allocation	Supply Funding Allocation Amount	Mask Allocation License Capacity ONLY
926	17,513	470	17,983	\$1,184,844	123,519
811	17,579	1173	18,752	\$1,235,511	123,985
364	8,776	72	8,848	\$582,967	61,897

- In Child Care alone, Community Care Licensing has released 27 Provider Information Notices, and counting, in response to COVID



(5) Data Sharing and Partnerships – Lessons learned

- Internal executives meet weekly to discuss data analyses, trends and Agency level COVID response
- Key state agencies meet weekly to discuss current data trends and collaborate on modeling techniques and data visualization
- Current models inform county ratings and recommendations for schools, businesses and licensed facilities
- Data, community trends, and joint models across agencies are currently informing policies related to mobile testing and vaccine planning

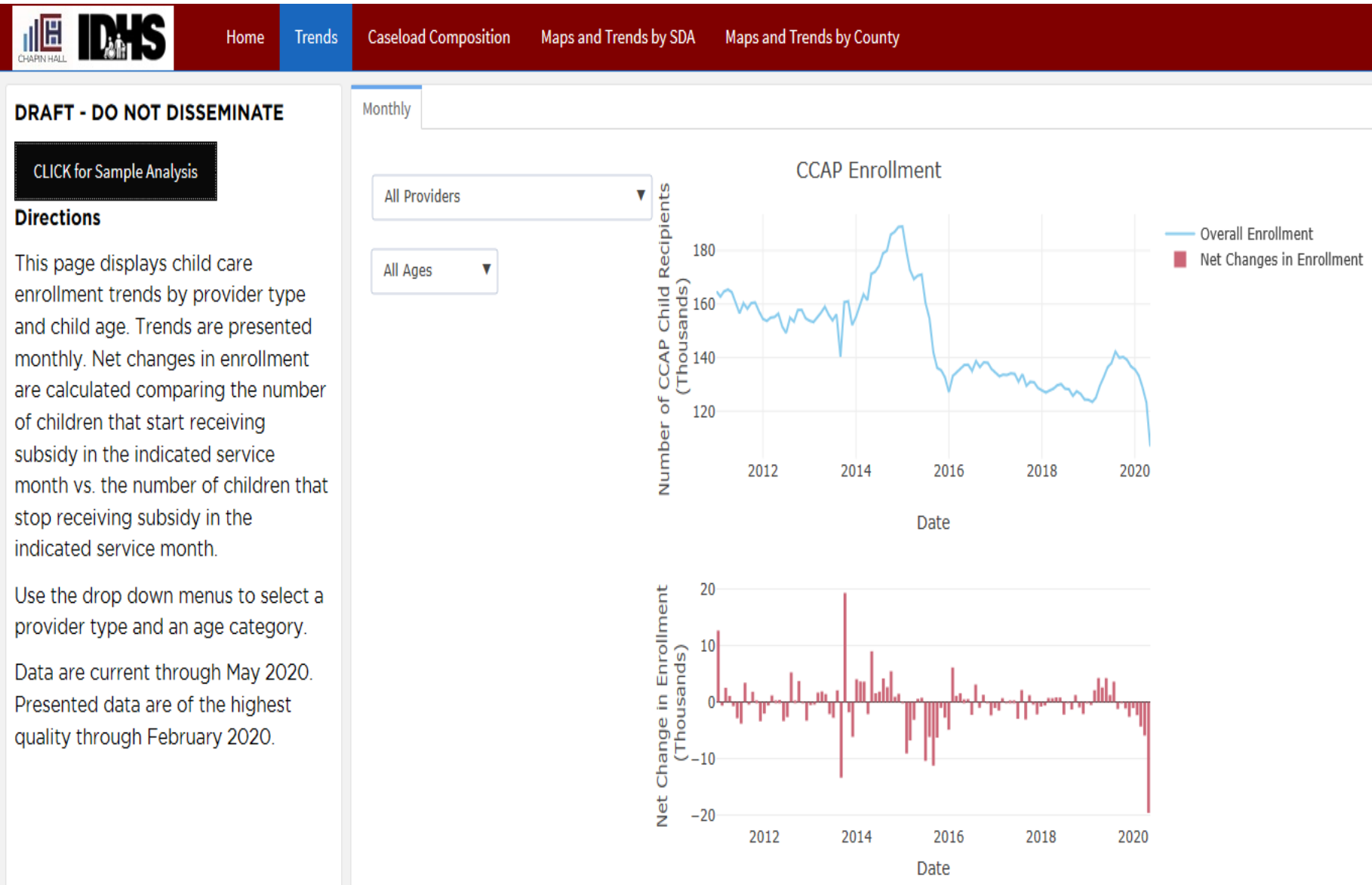


COVID-19 Challenges

Chapin Hall at the University of Chicago is an applied research center with a range of projects that are joint with agencies. Key COVID-era questions are:

- What is happening?
- How do we respond?
- Our focus is –
 - Less on immediate, day-to-day response
 - More on planning into the months (and years) ahead

“What is happening?” – Dashboard Solutions



Broadly, dashboards:

- are digestible
- have context-specific cues for use
- allow for exploration

We use R—an open source programming language—to automate their generation

“What is happening?” – Dashboard Process

- But: data and visualization aren't meaningful unless they match intended use
- This requires an iterative process of:
 - Articulating specific intended uses
 - Designing tools to meet that use
 - Testing with users

A key tool for this is the **use case sentence**:

“In my role as _____, having information on _____
allows me to take action _____ which furthers the goal of _____.”

“What is happening?” – Define the problem

- We have data on enrolled children, but not on all eligible children
- Administrative data has a blind spot around those who are **not** engaged in systems
- For neighborhood-level planning decisions to determine adequate childcare capacity, we need to know (1) presence of young children, and (2) employment/income of adults for (3) small geographies, (4) as of last month.

This information doesn't exist.

“What is happening?” – Identify solutions

- Estimate, at a baseline point in time, how many families **may become eligible** for subsidies at the neighborhood level
- Estimate, went from “may become eligible” to “did become” eligible, between baseline and “now”

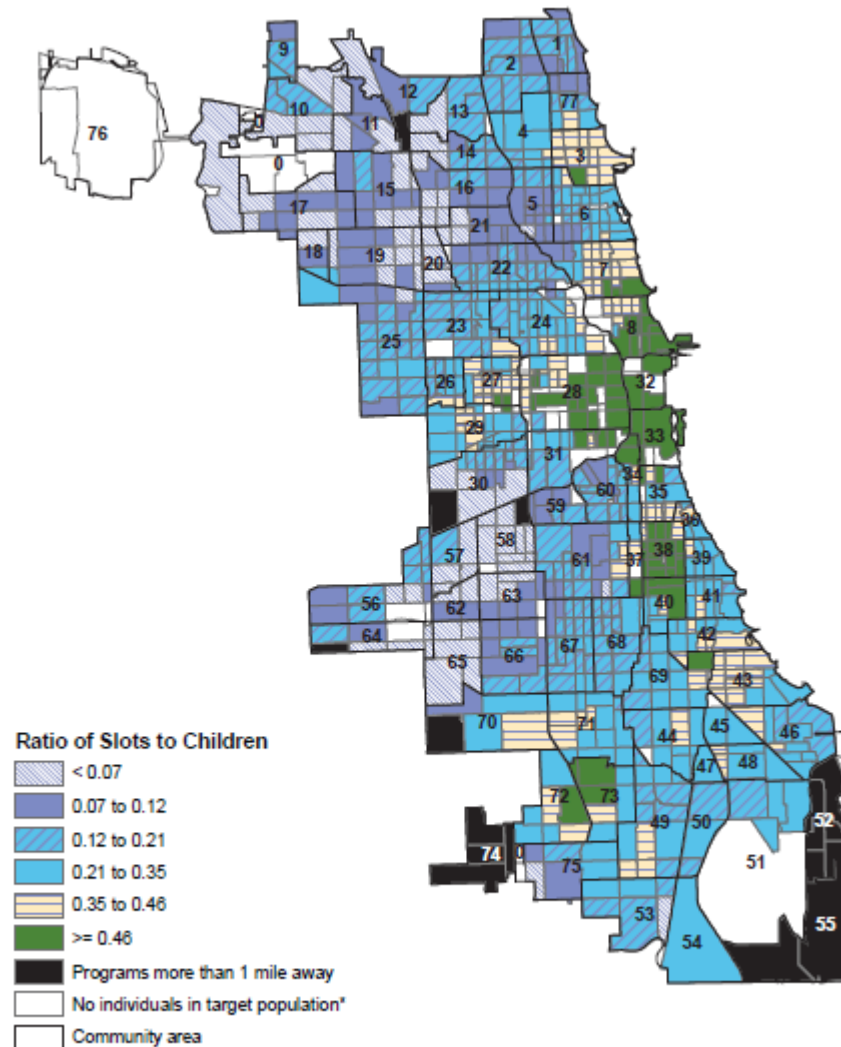
“What is happening?” – Evaluate solutions

- A best guess is better than nothing, but decision-makers need to know what the high and low estimates are. So: need to track formal measures of upper and lower bounds.
- Involves as much art and science, but reliable work does require scientists.

“How do we respond?” – Define problems

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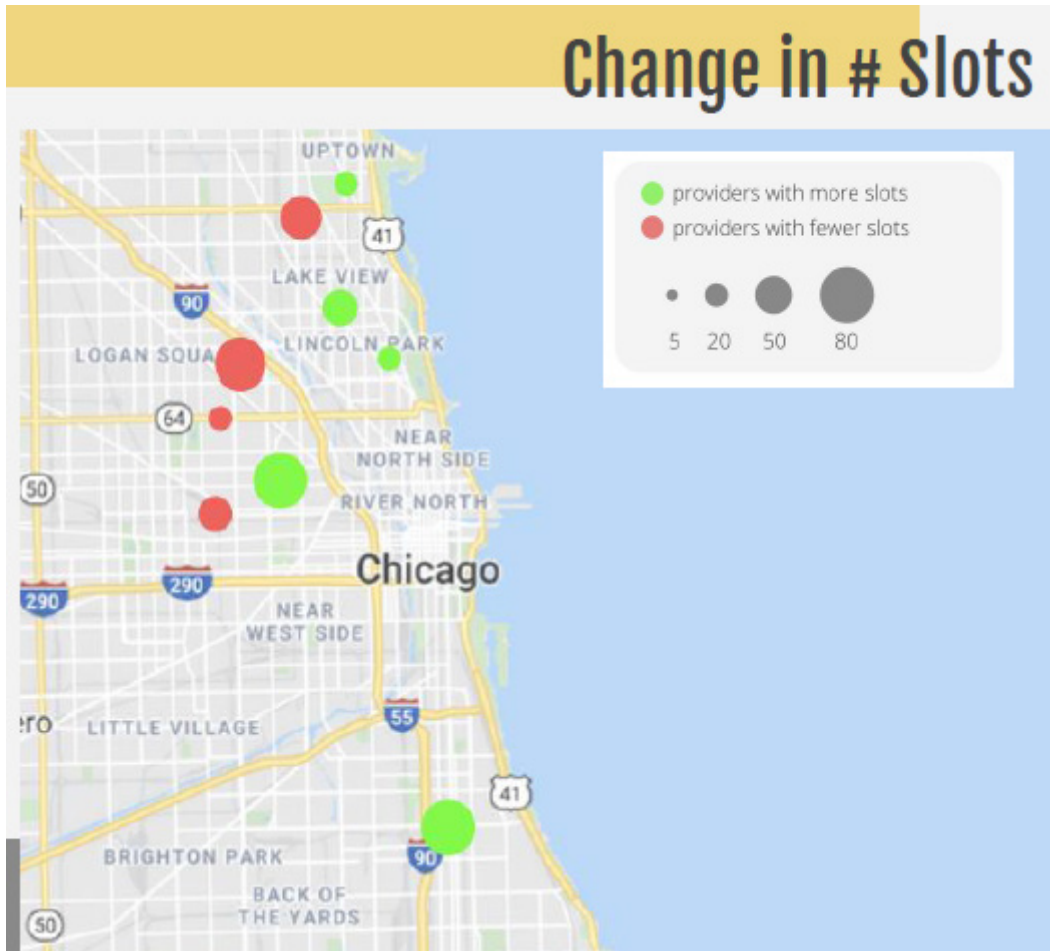
- Descriptive work—like this map—is critical to start the discussion, but doesn’t translate to action.
- Existing research reports can give guidelines for action, but may not be sufficiently detailed or generalizable.
- The ideal is evidence from our own context—time, place, and population--that informs specific decisions.



*Green borders denote community area. White sections within green borders may represent, for example, census tracts that are parks, industrial areas, or not part of the city.

Source: Goerge et al. 2007; *Chicago Children and Youth 1990-2010 report*

“How do we respond?” – Identify Solutions



The CANOPY project is a policy research partnership with the Chicago DFSS

1. Study historical patterns of household takeup of slots, to understand how—and which—families would respond to expansions of supply
2. Articulate explicit policy goals
3. Use recommendation engine to identify policy actions that best achieve goals
4. Develop dashboard to make recommendations useful in planning discussions

Brainstorm

Take one minute to brainstorm about data sources that could inform the decisions you identified at the start of the webinar

Revisiting the framework: Lessons from the states

Define the Problem

- Differences in problem statements are important to decisionmaking
- Trying to understand the problem can uncover data quality issues
- Unmet needs are often unmeasured needs

Identify Solutions

- Combining data from different sources to help fill gaps
- Use what you know from other relevant analyses
- Dashboards make data accessible

Evaluate Solutions

- Test the consequences of decisions under a variety of assumptions
- Different goals can lead to different “best” decisions
- Data analysis and decision making is iterative

Questions and Open Discussion

We welcome questions you have for the panel of presenters. To ask a question, please type your question into the chat box.

Related Resources

See the [Building Child Care Research Capacity](#) web page for:

- [“A List of COVID-19 Child Care Surveys and Data Analyses”](#) (September 2020)
- [Using Child Care Provider Surveys to Inform Policy Responses to COVID-19](#) (July 2020)
- Other resources

See [18F Methods for Design](#) for ideas about how to expand the use of User-Centered Design to connect the data and research to policy and practice

See the [OPRE website](#) for slides, audio recordings, and transcripts of webinars, (posted a few months after each webinar)

If you have questions, feel free to email me (Gretchen Kirby) at gkirby@mathematica-mpr.com

Thank you for joining us!