Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

colorado school of public health

COVID Best Performers:

Identifying factors and actions that enabled Public Health Systems to Bend the Case Curve faster than expected in the First Phase of the Pandemic

Research in Progress Seminar
July 2022

Presenter

Beth A. Resnick, DrPH is a Senior Scientist at the Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management. She is Assistant Dean for Public Health Practice and Training and Director of the MSPH Program in Health Policy. Her research and practice interests include assessing and improving the public health infrastructure, enhancing knowledge of potential environment and health connections, and developing effective public health policies.

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Alison Gemmill, PhD is a demographer and epidemiologist with expertise in maternal, perinatal, and reproductive health and fertility. Her current research involves four overlapping arms: the demography of fertility and reproductive outcomes; environmental and macrosocial stressors and perinatal health; stress and health throughout the lifespan; and estimating maternal mortality and maternal cause of death.

Her previous and current work on U.S. fertility examines fertility intention dynamics, state-level variation in fertility responses to the Great Recession, and explanations for the unprecedented, recent decline in non-marital fertility. Her other recent research studies how women's risk preferences and perceptions impact contraceptive use behavior, the relationship between macrosocial stressors and perinatal health, and global and regional patterns of maternal health indicators. She is a former NICHD and NIA predoctoral fellow in demography and has published lead-authored and collaborative work in journals such as Demography, Proceedings of the National Academy of Sciences, Lancet, Lancet Global Health, Population and Development Review, and JAMA Network Open.

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Commentary

Ruth Maiorana – the first Executive Director at the Maryland Association of County Health Officers (MACHO).

System Alignment Problem

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RQ: What were the core factors and public health system alignments that allowed for some counties/cities to respond more effectively than others to COVID-19 in the first phase of the pandemic?

Key study considerations:

- Specifically, looking at baseline, not supplemental capacity:
  - Responding more effectively at baseline reflects sustained public health capacity (as opposed to temporary surge funding)
  - Effective initial response requires pre-existing awareness of and engagement with at-risk populations and capacities to address needs

Research Design

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Quant Analysis

- Identified positive deviants who bent case curves fastest

Health Dept Outreach for Qualitative Input

- Outreach to positive deviants
- 3x contact points

Qualitative Analysis

- 14 interviews secured
- Interview responses double-coded

Quantitative methods: Identifying best-performing counties

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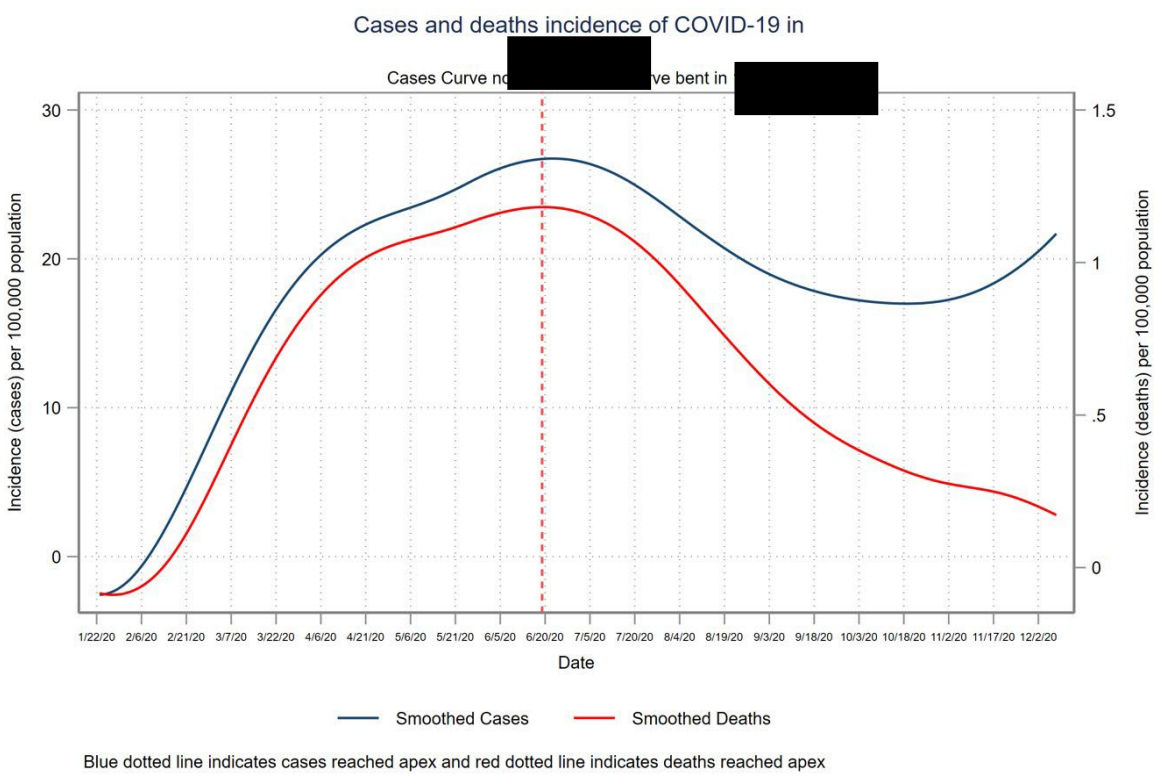
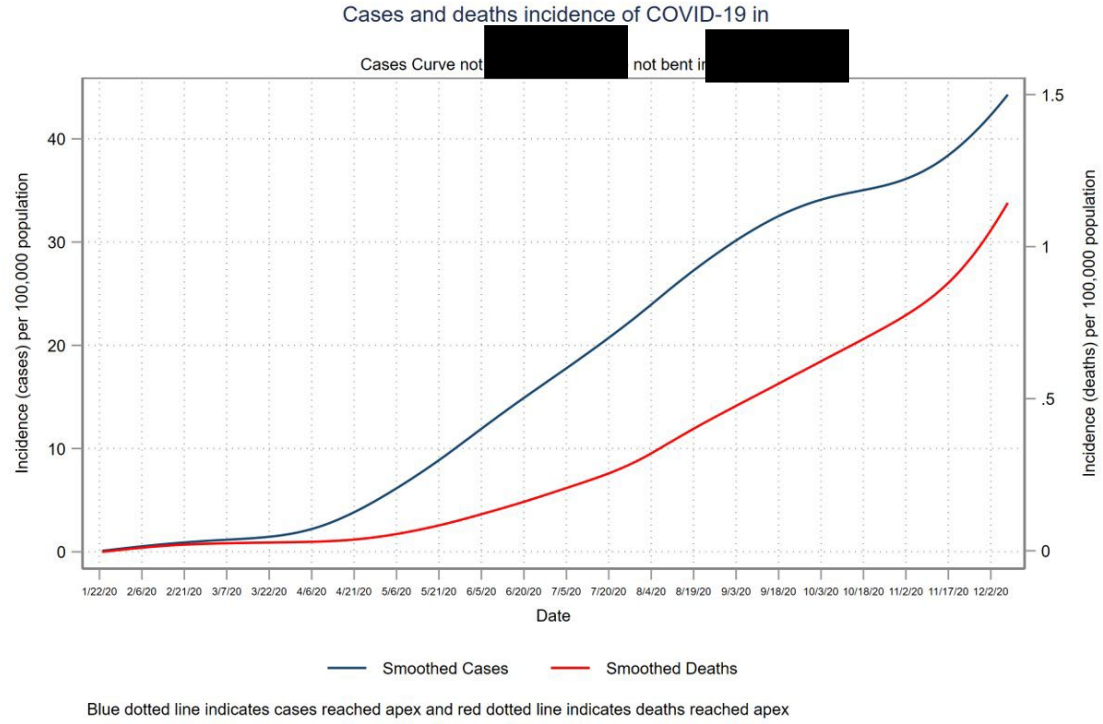
- Need to identify counties that did *better than expected* compared to other counties with similar characteristics
  - Used a total of 28 characteristics in our model, including population size, urban/rural, demographics [race/ethnicity; level of education], % uninsured, etc.

- Performance was measured by the time elapsed in days between a county's 10^{th} case and the day of peak incidence of a county's local epidemic, among counties that bent their case curves
  - Restricted analysis to time elapsed between start of pandemic and February 2021

Which counties bent their curve?





Days between 10th case (death) and the highest bent curve of 2020

(*Provided there is no sign of a later surge in 2020*)

Identifying best performers

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1. Data are from the NY Times daily COVID-19 case database
2. Used survival analysis with time to “bending” the curve as a dependent variable
3. Controlled for a range of demographic, socioeconomic, population health, and health system level characteristics
4. Calculated deviance residuals to identify counties that reached their case peaks sooner than we would have expected
5. Analyses were stratified by density of population per sq mile

Identifying best performers

- After models were run, we identified around 20 best performing counties in each NCHS urban/rural grouping
  1. ~~Large central metro~~ (none identified)
  2. Large fringe metro
  3. Medium metro
  4. Small metro
  5. Micropolitan
  6. Non-core

Interview Reach Outs

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Research Public County Sentiments

- Researched news articles, public websites from potential counties to identify specific governmental public health covid protection actions

Outreach to County

- Researched PH staff, or PH adjacent staff
  - 1 email
  - 3x phone calls to staff
  - 14/78 of counties successfully interviewed

Interviews Conducted

- 30-45 min interview; 8 questions transcribed on Zoom
- Uploaded to Dedoose for double coding

Interview Reach Outs

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	NCHS Classification	Total Identified	% of urban or rural	# Removed	# interviewed	% of urban or rural interviews
Rural	micropolitan	22	56.41%	0	3	75%
Rural	noncore	17	43.59%	1	1	25%
Urban	large fringe metro	14	25.93%	3	2	22%
Urban	medium metro	17	31.48%	5	4	44%
Urban	small metro	23	42.59%	6	4	44%

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COVID BEST PERFORMERS

SUCCESS METRICS

297
Days to Bend Case Curve

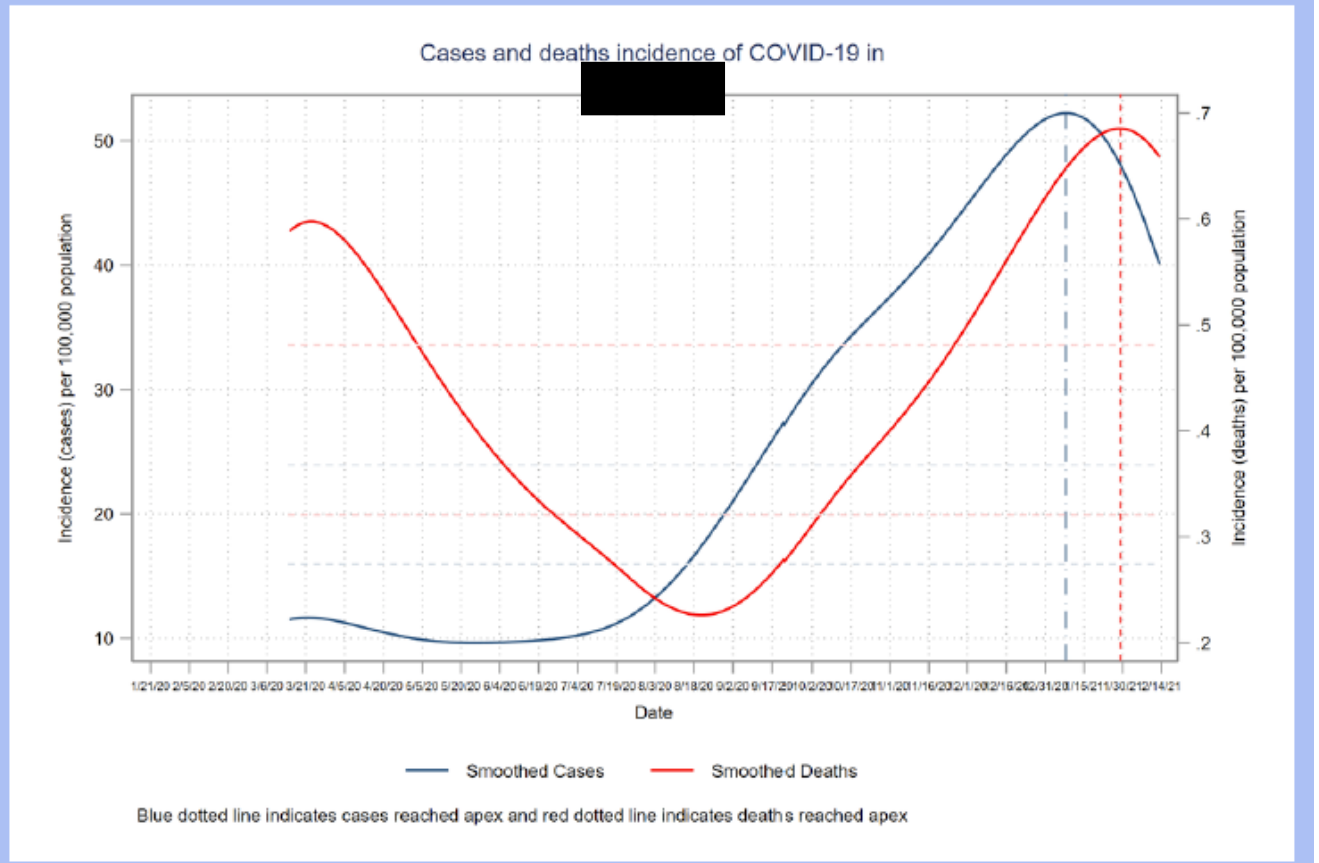
According to New York Times Data, it took [redacted] County 297 Days to bend their case curve or begin the decline in the number of positive cases documented. We use this measure to identify how quickly a county controlled COVID-19 spread

16th
in Large Fringe Metros

The National Center for Health Statistics provides standardized size categories for counties. Among other Large Fringe Metro sized counties with similar demographics, income, and other characteristics, [redacted] County ranked 16th out of 162.

What makes [redacted] COUNTY A COVID Best Performer?

n our analysis, a COVID-19 Best Performer county was found to hav controlled COVID-19 better than expected compared to similar counties over the time period January 21, 2020 – February 20, 2021



Findings

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Strengths of Positive Deviants

Pre-Existing Partnerships across Sectors

- Businesses, elected officials, health care providers, community, government agencies
- Diverse in both size & type of partner

Prior Emergency Response Experience

- Incident management able to be quickly activated
- Prior experiences gave foresight to identify and act to address needs & inequities
- Had retained specific skilled personnel that are critical to quick response (epi, PH nurse, communications, etc)

Proactive & Early Communications & Engagement

- **Nursing** homes
- Public at-large
- **Communities most at risk**
- Businesses, large employers

Challenges

Workforce Capacity and Mental Health Concerns

- **Overworked:** Stress and long-term shift **to new, increasing, and unexpected responsibilities, inability to take time off**
- **Burnout and mental health impacts on workforce and overall capacity**
- Unexpected Pushback/ Harassment from the public
- Lack of support from some elected leaders

Federal, State, vs Local Policy Interactions

- Lack of coordination, consistency & advanced communication among 3 governmental levels challenging
- Some cases, state action/policies **bolstered** local responses
- Some cases, state action/policies worked in **opposition** to local responses

National Recommendations to Transform the Public Health System

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Study Findings

Upgrades Needed to Maintain Core Capacities

- Investment needs to be sustained over time
- Individual community contexts and needs critical to assure adequate capacity and services for all populations and to address inequities

Managerial Capability for Staffing Surge if Needed

- Incident management needs to be quickly activated
- Current staff training and funding mechanisms need to allow for quick shift in responsibilities
- Staff burnout and time off considerations need to be addressed

Core capabilities needed in epi, communications, partnerships

- Need to maintain specific skilled personnel that are critical to quick response (epi, PH nurse, communications, etc)
- Surge capacity in core capabilities needs to be available for high impact/high need situations
- Coordination of messages and data comparability critical

National Recommendations*

Sustained funding to assure adequate public health infrastructure

- Include accountability mechanisms to assure sustained core capacity and consider inequities
- Allow for flexible funding to support resource and staffing shifts to meet immediate needs and allow funding to community groups and other critical partners to meet individual community needs

Coordination Across Level s of Government

- Create structure and processes to support coordination of efforts, data and messaging across all levels of government
- Review and modernize laws as to provide public health authority for needed public health protections

Core Capabilities

- Modernize and assure sustained and interoperable data systems
- Engage with key stakeholders to build trust and sustained partnerships
- Maintain adequate staffing levels for core capabilities and representative of communities to be served

*National Recommendations: Public Health Forward and Commonwealth Fund Comission

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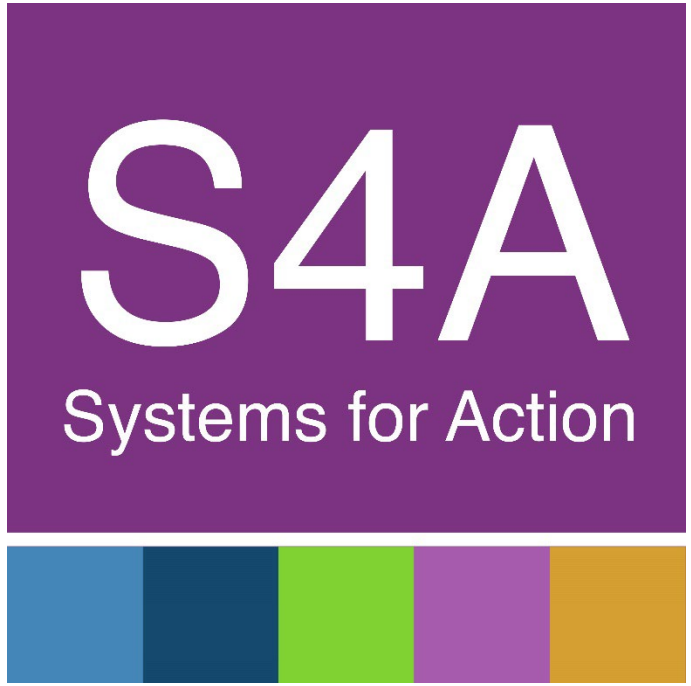
MD Association of County Health Officers
Office at the Johns Hopkins Bloomberg School of Public Health

Questions?



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