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Rapid-Cycle Community Assessment of Health-Related Social Needs of Children and Families During Coronavirus Disease 2019

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ABSTRACT

OBJECTIVE: To identify unmet health and social resource needs during a county-wide coronavirus disease 19 (COVID-19) stay-at-home order and phased re-opening in Western Pennsylvania.

METHODS: With public health, social service, and community partners connected through an ongoing academic-community collaborative, we developed and fielded a weekly repeated cross-sectional electronic survey assessing usage of and unmet need for health and social service resources. Using 10 weeks of surveys (April 3–June 11, 2020) by Allegheny County residents, we examined variation in responses by week and by sociodemographic characteristics using chi-square tests. We shared written reports weekly and discussed emerging trends with community partners.

RESULTS: Participants ranged from 229 to 1001 per week. Unmet need for at least 1 health or health-related social need resource varied by week, ranging from 55% (95% confidence interval [CI] 50%–59%) of participants in week 2 to 43% (95% CI 37%–49%) of participants in week 9

($P = .006$). Increased use of at least 1 resource ranged from 53% (95% CI 47%–58%) of participants in week 3 to 36% (95% CI 31%–42%) in week 9 ($P < .001$). Unmet need for food and financial assistance peaked early during the stay-at-home order, while unmet need for mental health care rose later. Unmet need for food assistance varied significantly by race and ethnicity and by household prepandemic income.

CONCLUSIONS: Over half of families with children reported unmet health or social service needs during the first month of a county-wide COVID-19 stay-at-home order. Unmet needs varied with race, ethnicity, and income and with duration of the stay-at-home order.

KEYWORDS: children; coronavirus; coronavirus disease 2019; health-related social needs

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WHAT'S NEW

Over half of families with children reported unmet health or social service needs during the first month of a county-wide COVID-19 stay-at-home order. Unmet need for food and financial assistance varied over time and with race, ethnicity, and income.

CORONAVIRUS DISEASE 2019 (COVID-19) and associated public health measures (eg, physical distancing; closure of schools, childcare, and businesses) have the potential to stress and strain the ability of parents, families, and communities to meet children's material, health, emotional, educational, and social needs.^{1,2} Because of historical and current unequal allocation of resources in the United States, these burdens fall most heavily on

children living in poverty and children identifying as Black or Hispanic.^{3,4} While public health, social service, health systems, and community organizations rapidly adapted to support families and children during COVID-19, community organizations in our ongoing academic-community research collaborative expressed a need to ascertain specific unmet needs. The rapidly evolving nature of the pandemic and public health response was expected to result in continuously shifting policies and priorities, with these potentially translating into shifting unmet needs over time.

To inform ongoing multisector efforts to support children and families during COVID-19, we launched an initiative involving weekly surveys of caregivers of children in southwestern Pennsylvania paired with weekly reports to public health, social service, medical, and community

organizations. Survey items were informed by prior community-engaged concept mapping of thriving in childhood⁵ and underwent multistakeholder review. In this report, we summarize health-related social needs and resource use during the first 10 weeks of this ongoing survey as an example of how research infrastructure can support public health and social service response during public health emergency by identifying the evolving consequences of disrupted public infrastructure on children and families.

METHODS

With multisector partners connected through an ongoing academic-community collaborative (The Pittsburgh Study⁶), we developed an online and telephone Family Strengths Survey addressing domains of childhood thriving, health-related social needs, and family demographics in English and Spanish. Regarding resource use and unmet needs, families were asked to identify 1) any resources they had used more than usual in the prior week and 2) any resources with which they needed more help than they were currently getting. Resources included in the responses including food assistance (food banks, school distribution sites, Supplemental Nutrition Assistance Program), financial assistance (cash assistance, unemployment benefits, financial support for utilities), physical health care (medical care, outpatient therapy, medical supplies), mental health care (behavioral health, substance use disorder treatment), child care, and educational support (eg, special education services, Individualized Education Program services).

Starting April 3, 2020, we administered the repeated cross-sectional survey weekly, with weekly distribution occurring via multiple list-servs, social media, local press, community ambassadors, and texts/e-mails to participants from prior weeks who opted into further contact. Responses were anonymous with no longitudinal linking. Participation did not yield access to any specific resources or case management, but respondents were directed to online information about local resources at the end of the survey. Adults in Western Pennsylvania with children under 18 years old in their household were eligible to participate. Every week, 5 participants were randomly selected to receive gift cards. This study was reviewed by the University of Pittsburgh Institutional Review Board and determined to be exempt.

This analysis focuses on resource use and unmet need items among participants residing in Allegheny County, where approximately 18% of children under 6 years old live below the poverty level,⁷ and 16% of children were food insecure in 2018.⁸ Allegheny County was under a stay-at-home order at the beginning of the survey period, and underwent phases of re-opening on May 15, 2020 (yellow phase) and June 5, 2020 (green phase). Sampling weights were applied to align the sample each week to population benchmarks based on county demographics for race, ethnicity, and household income (78% of residents identify as non-Hispanic white, 13% of residents as

non-Hispanic Black, 2% as Hispanic, 4% as Asian, and 2% as 2 or more races; median prepandemic income was \$58,383).⁹ We used chi-squared tests to compare resource use and unmet needs across weeks. We did not perform tests for trends because we did not assume the presence of monotonic trends. We used chi-squared tests to compare unmet needs by sociodemographic variables within individual weeks, limiting such analysis to weeks where absolute number of participants in each category exceeded 30. Write-in responses were qualitatively analyzed using content analysis.

We developed weekly reports to share with public health, social service, and community organizations to inform local responses to the pandemic. We disseminated topic sheets and infographics highlighting family experiences and potential resources online and through community partners. During this 10-week period, we gave virtual presentations about survey results to pediatrician groups, academic medical center leadership, health system service employee leaders, county Department of Human Services and affiliated social service agencies, virtual town hall meetings of Black residents, Latino-serving community organizations, local news, subgroups of The Pittsburgh Study academic-community research collaborative, and myriad other partners. In response to feedback from these presentations, we phased in additional survey modules from week to week and we generated specific reports to share with these partners based on their informational needs. Through these meetings and weekly team meetings, we continually sought to center equity and enhance impact¹⁰ through reflection on our data collection, analysis, reporting, and dissemination.

RESULTS

Weekly participation by residents of Allegheny County ranged from 228 to 1000 individuals (Table). In the weighted sample, most participants were 30 to 44 years old, identified as female, and were from English-speaking households.

Unmet need for at least one resource addressing health or health-related social needs varied by week, peaking at 55% (95% confidence interval [CI] 50%–59%) of participants in week 2 and declining to 43% (95% CI 37%–49%) of participants in week 9 ($P = .006$). Increased use of at least 1 resource was reported by as many as 53% (95% CI 47%–58%) of participants in week 3 and declined to 36% (95% CI 31%–42%) in week 9 ($P < .001$).

Unmet need for specific resources and services followed different trajectories over time (Fig. 1). For example, unmet need for food assistance and financial assistance peaked during early April. For food assistance, unmet need in the absence of resource use continued to decline over subsequent weeks. For financial assistance, unmet need in the absence of resource use began to rise again in May. Still other needs, such as mental health care, rose later during the stay-at-home order and the partial reopening of the county in early May and late May, respectively.

Table. Weighted and Unweighted Participant Characteristics in Weekly Repeated Cross-Sectional Surveys, April 3 to June 11, 2020

	Week 1 Apr 3–9	Week 2 Apr 10–16	Week 3 Apr 17–23	Week 4 Apr 24–30	Week 5 May 1–7	Week 6 May 8–14	Week 7 May 15–21	Week 8 May 22–28	Week 9 May 29–June 4	Week 10 June 5–11
	Weighted % (unweighted n)									
Unweighted n	1001	541	332	395	337	270	263	270	271	229
Participant age										
18–29 years old	5 (42)	6 (42)	5 (19)	8 (28)	4 (16)	5 (15)	4 (11)	4 (11)	3 (8)	4 (8)
30–44 years old	67 (683)	67 (360)	69 (228)	62 (251)	68 (234)	64 (178)	70 (182)	67 (184)	58 (165)	63 (149)
45 years or older	28 (275)	27 (139)	26 (82)	30 (116)	28 (87)	30 (77)	26 (69)	29 (75)	39 (98)	33 (72)
Participant gender										
Female	89 (886)	89 (478)	88 (294)	91 (361)	89 (304)	90 (245)	91 (237)	92 (248)	89 (246)	88 (202)
Participant race/ethnicity										
Black or African American	11 (82)	11 (68)	11 (42)	11 (51)	11 (30)	11 (27)	11 (17)	11 (22)	11 (17)	10 (16)
White	82 (810)	83 (348)	83 (246)	82 (285)	83 (270)	83 (197)	83 (215)	82 (211)	82 (225)	84 (181)
Hispanic//Latino/a/x	2 (25)	2 (75)	2 (19)	2 (25)	2 (17)	2 (22)	2 (10)	2 (17)	2 (13)	2 (14)
Biracial, multiracial, or other	5 (84)	4 (50)	4 (25)	5 (34)	4 (20)	4 (24)	4 (21)	5 (20)	5 (16)	4 (18)
Household prepandemic income										
<\$50,000	28 (193)	29 (196)	29 (95)	28 (105)	29 (86)	29 (83)	28 (72)	28 (72)	29 (58)	29 (55)
\$50,000–99,999	33 (356)	33 (158)	33 (97)	33 (127)	33 (103)	33 (88)	33 (78)	33 (78)	32 (82)	32 (71)
≥\$100,000	39 (452)	38 (187)	38 (140)	39 (164)	38 (148)	38 (100)	39 (113)	39 (120)	39 (131)	39 (103)
English-speaking household	98 (971)	98 (477)	98 (314)	99 (376)	98 (319)	97 (247)	98 (250)	97 (253)	99 (258)	99 (218)
Household has essential worker(s)	-	-	53 (179)	53 (208)	52 (172)	53 (134)	48 (124)	49 (131)	51 (134)	47 (109)

Weighted percentages may not sum to 100 due to rounding, and unweighted numbers may not sum to weekly total due to participant nonresponse to specific items. The item inquiring about essential workers in the household was added in week 3.

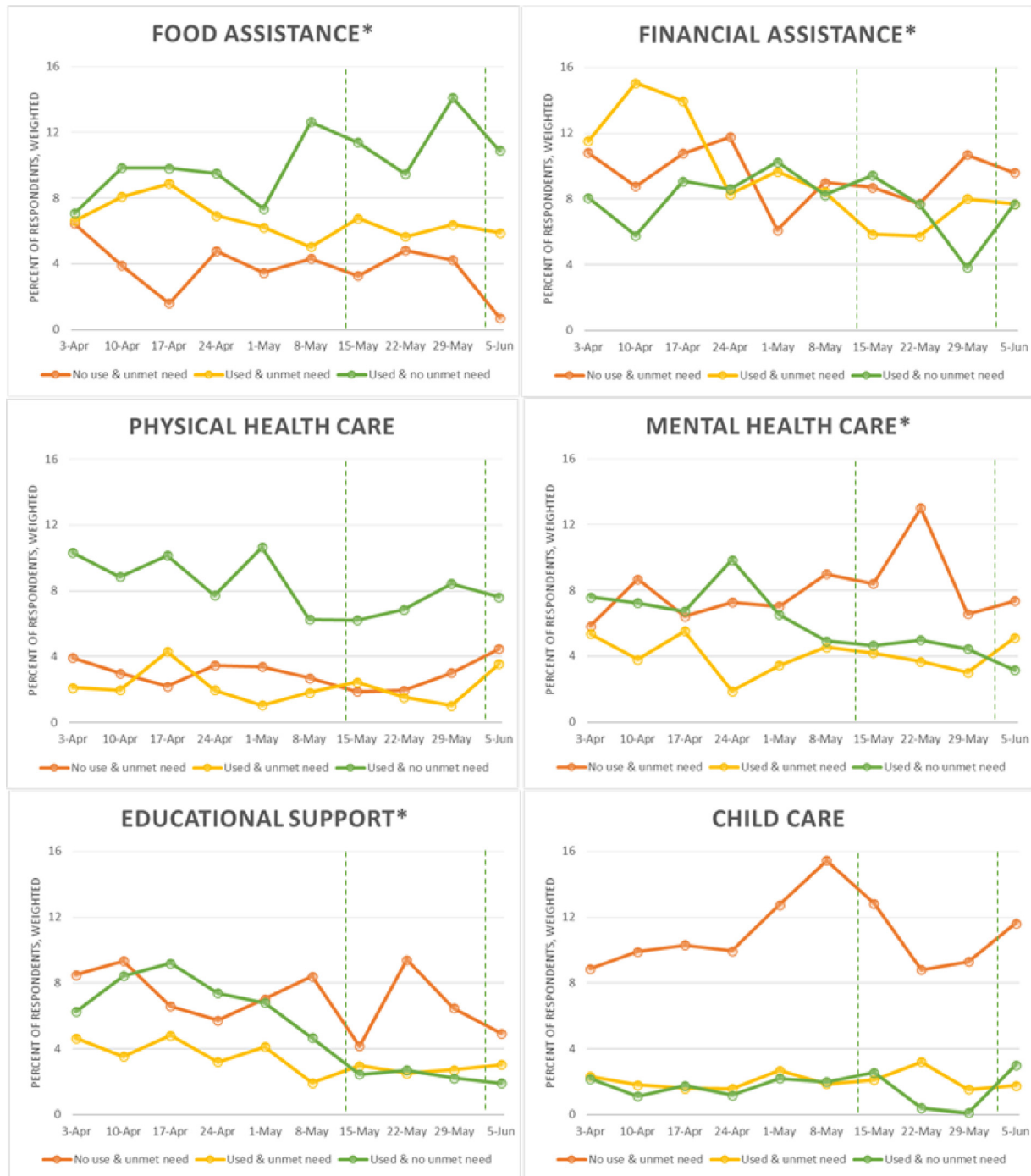


Figure 1. Resource use and unmet need for resource by week, April 3 to June 11, 2020. Percent of participants indicating by resource that they had used the resource in the past 7 days and had no unmet need (green), used the resource in the past 7 days and had unmet need (yellow), or did not use the resource in the past 7 days and had unmet need (red). * $P < .05$ based on chi-squared tests to compare resource use and unmet needs across weeks. Dashed lines indicate phased county re-openings to yellow phase (May 15) and green phase (June 5).

Write-in survey responses provided additional context to these trends, such as the difficulty single parents experienced with grocery shopping even in the context of receipt of Special Supplemental Nutrition Program for Women, Infant, and Children (WIC) benefits:

“I have found that it is very hard to be able to get our WIC benefits. You have to go into the store to purchase WIC which I don’t want to do with the kids. . . I wore

both kids into the store so that they couldn’t touch anything. I wanted to get all of our benefits for the month. . . so that we wouldn’t have to go back. I found that there were many WIC items that were unavailable, especially the bread.” (Week 1)

Families also provided details about difficulty accessing mental health care during the pandemic, even with an established therapist:

“My child is showing all the clinical symptoms for depression. . . I am not able to get him reasonable therapy. His therapist is in the exact same situation we are in. Working from home with kids of her own. She has responsibilities that are just as important as mine. I feel like my kids (all of the kids) mental health is deteriorating. . . I am also stressed because I am high risk

and haven’t worked for a month. . . Everything is hard and isolating.” (Week 5)

Within individual weeks, we also compared unmet needs by prepandemic income and by participants self-identified race and ethnicity (Fig. 2 illustrates the data from week 2). Participants from households with

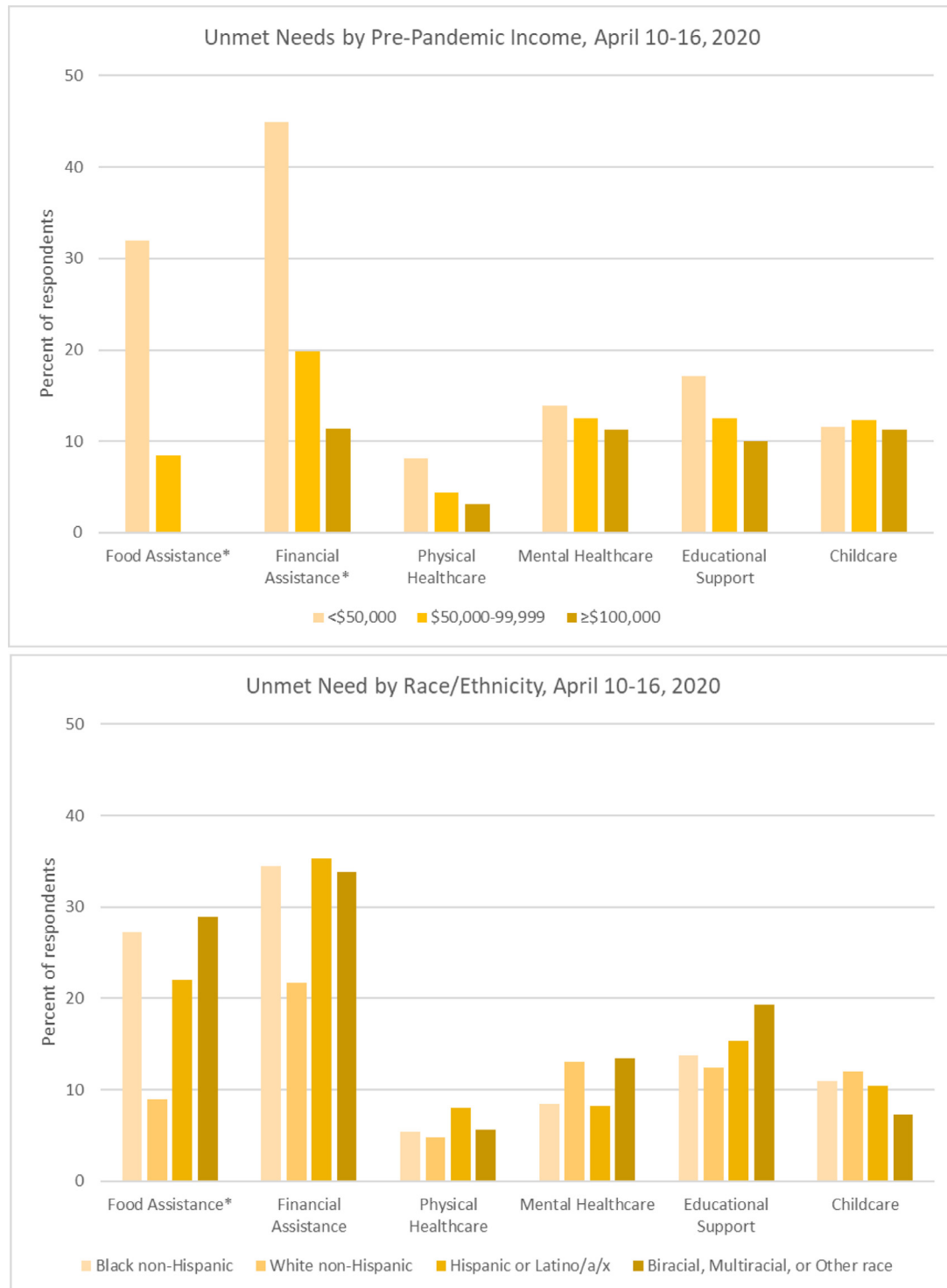


Figure 2. Unmet need for resources by participant household prepandemic income and by participant race and ethnicity, April 10 to 16, 2020. Percent of participants during 1 survey week (April 10–16, week 2) with unmet need for specific resources (regardless of resource use in the prior week) by prepandemic income and by self-identified race and ethnicity. * indicates significant differences in unmet need for resources (P < .05) using chi-squared tests.

prepandemic incomes of less than \$50,000 were significantly more likely to report unmet needs for food assistance (32.0%, 95% CI: 24.5%–40.5%) than individuals reporting higher prepandemic incomes (income \$50,000–99,999: 8.5%, 95% CI: 4.6%–15.1%). Participants from households with prepandemic incomes of less than \$50,000 were also significantly more likely to report unmet needs for financial assistance (44.9%, 95% CI: 36.4%–53.8%) than individuals reporting higher prepandemic incomes (income \$50,000–99,999: 19.9%, 95% CI: 13.8%–27.8%). The percentage of families with unmet needs for physical health care, mental health care, educational support, and childcare during this week did not vary with prepandemic income.

Participants identifying as Black and Latinx were more likely to report unmet need for food assistance than participants identifying as white (27.3% [95% CI: 19.7%–36.6%] of Black participants, 22.0% [95% CI: 14.8%–31.4%] of Latinx participants, and 8.9% [6.4%–12.4%] of white participants). Unmet needs for financial assistance, physical health care, mental health care, educational support, and childcare during this week did not vary significantly by race or ethnicity.

DISCUSSION

During the first month of a county-wide stay-at-home order due to COVID-19, over half of families with children reported unmet health or social service needs. Unmet need for food and financial assistance varied over time and with race, ethnicity, and income. These shifting community needs occurred in the context of evolving local contexts: Local food bank lines drew national coverage during week 1,¹¹ local school districts launched remote learning as late as week 3,¹² and businesses and childcare began a partial re-opening at the beginning of week 7 with expanded re-opening in week 10.¹³ During these weeks, Allegheny County reported relatively low COVID-19 case rates (173 cases per 100,000 residents), and with a 9% case-fatality rate among identified cases.¹⁴ As of September 2020, Allegheny County cases have risen to 982 per 100,000 residents.¹⁴ Through rapid-cycle data collection and analysis, we provided weekly reports of population-level health-related social needs with community partners spanning social services, public health, medical providers, and community organizations to inform local COVID-19 pandemic response.

By sharing weekly written reports and convening virtual meetings with a wide range of partners, these data allowed continued multisector priority-setting focused on the health-related social needs of families. For example, we reviewed in meetings with multiple community partners the characteristics and write-in comments from respondents reporting ongoing barriers to food resources, including that public benefits were only accepted at stores without home delivery, that shopping with young children felt unsafe, and that formal and informal childcare was not available. Community agencies used these data to inform their decision to substantially scale up food home

delivery services for families, which complemented existing community strategies such as Grab-n-Go meals at local schools.¹⁵ As a second example, in response to persistent unmet mental health care needs,¹⁶ we used these data to normalize the need for mental health services for children and parents in our messaging on local news media, social media, and online reports. We also shared results with mental health providers and social service agencies. Together, we developed community-facing materials sharing these data and highlighting available local virtual and tele-mental health services. We also partnered with social service agencies to develop and field a panel of questions about reasons for unmet mental health care needs in a later week of the survey to provide them with further actionable data. Third, the ongoing weekly format of the survey also allowed us to adapt questions to further inform community response. For example, as our county prepared for partial re-opening of businesses and anticipated unmet need for childcare rose, we partnered with local child-serving organizations to include additional childcare-related questions to help plan for potential demand for and concerns about childcare, recognizing that an estimated 21% of the general workforce are individuals with children under 14 years old and no dependable family caregiver options when they return to the workforce.¹⁷

In addition to identifying and acting on these shifting trends across the county, we used these data to highlight need for services by sociodemographic characteristics, providing local context to concerns noted nationally.^{18,19} When examining results by prepandemic income, 1 in 3 families with less than \$50,000 prepandemic income reported unmet food assistance needs and nearly half of families with less than \$50,000 prepandemic income reported unmet financial assistance needs within a single week. These data also demonstrated increased unmet need for food and financial assistance among participants identifying as Black and as Latinx, illustrating disparities in health-related social needs in the midst of a pandemic already unequally impacting these communities.²⁰ We shared these data first with local Black and Latinx community leaders to discuss strategies for disseminating these results and addressing these needs. In partnership with community organizations, materials highlighting local resources intentionally featured Black-led community organizations offering resources in areas ranging from financial assistance to mental health services to virtual doulas. These data were also used to convene multi-partner conversations about improving awareness of and access to pandemic relief services for Spanish-speaking and other low-English proficiency families including improving awareness and experience with local service provider hotlines.

Due to these local findings and national concerns about significant differences in health and financial consequences of the pandemic by race and ethnicity,^{19,20} we worked with community partners to enhance and sustain representative survey participation. Through releasing a Spanish-language version of the survey in week 2 and dissemination of the survey on social media channels by trusted

community members and organizations, weekly participation by individuals identifying as Latinx peaked at 5% of survey participants in week 2 (in a county where 2% of the population identifies as Latinx⁹). Through similar dissemination strategies, the percentage of participants identifying as Black nearly reflected the percent of the county identified as Black during weeks 2 to 4, but were lower in subsequent weeks. By weighting survey responses across race, ethnicity, and prepandemic income, we seek to ensure that Black and Latinx perspectives are represented across weeks, although absolute numbers of participants in later weeks limited our ability to compare weekly results by race and ethnicity. While we sought to make the survey accessible through telephone and online options, English and Spanish versions, and partnering with community ambassadors, clearly ongoing barriers remain. Recommendations from community partners to support more representative participation have included changing participant incentive structure, altering survey items to reduce emotional burden, and on-site paper or tablet-based administration at community resource hubs.

Some limitations of survey data stem from intentional design decisions. We designed the survey to optimize participation and rapidity of results and to capture changes in priorities over time. Based on partner input, the survey was broadly available, was anonymous, did not track individuals over time, and was not limited to individuals in an initial sampling frame. To account for these design limitations, we employed sampling weights to balance shifting sociodemographics from week to week. However, within these weighted strata, there is still the possibility of selection bias overall or from week to week. Additionally, the weekly survey items do not delve into reasons for unmet need, which could be due to not contacting a service, being denied a service, or awaiting decisions on eligibility for a service. Based on results of these initial 10 weeks of data, we worked with partners to field additional questions about specific unmet needs (food, housing, mental health care) in later individual weeks, but these questions were not asked weekly to reduce survey burden to participants.

Despite these limitations, this initiative has provided public health, social service, health system, and community organizations with timely data to inform ongoing response to the physical, mental, educational, and social challenges COVID-19 and stay-at-home orders presented to children and families. These data underscore the magnitude of unmet needs experienced by families during the pandemic-related stay-at-home order, the shifting unmet needs as programs, policies, and responses evolved, and the degree to which these unmet needs were unequally distributed across race, ethnicity, and family income. Our experience also illustrates how research and research infrastructure can pivot to support the crucial work of public health, social service, health system, and community partners during public health crises and demonstrates the value of ongoing academic-community partnerships to support rapid communication of data needs and findings.

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