The coronavirus disease 2019 (COVID-19) pandemic has had a significant impact on the health of people globally. Yet, not all people are being affected by this crisis equally. In the United States, this pandemic has exacerbated long-standing inequities and entrenched structural racism. At the onset of the crisis, few data were available detailing the demographic characteristics of individuals with COVID-19. However, as data emerged, it became apparent that communities of color were disproportionately affected. To illustrate these inequities, we analyzed publicly available race and ethnicity data on COVID-19 cases and deaths and were one of the first groups to compile these findings. We launched a social media campaign to highlight these racial and ethnic inequities and raise awareness among public and elected officials. Given the tremendous amount of missing data, we demanded transparency in state reporting of race and ethnicity data. Using both messaging and mapping tools, we publicized state and city efforts to address these inequities, focusing on the creation of task forces tackling the racial inequities of COVID-19. As racial and ethnic data on COVID-19 cases and mortality became more widely reported, statistics emerged about the downstream effects of these inequities. Despite initial false reassurance that COVID-19 largely spared children, the pandemic has exacerbated many social needs, leading to significant negative impacts on children. For example, as pediatricians, we saw how worsening food insecurity was affecting children. Using social media and infographics, we launched an additional stage of the campaign to illustrate these inequities and highlight advocacy opportunities.
in multiple spheres, including access to housing, economic opportunities, education, transportation, food availability, and health care. The overarching goal of our advocacy work was to use social media as a tool to raise awareness among elected officials, health care professionals, and the public on the differential impact of COVID-19 by race and ethnicity. Our objectives included the following:

- highlight the disproportionate direct impact of COVID-19 on communities of color;
- amplify calls for state reporting and sharing of COVID-19 impacts by race and ethnicity and draw attention to states and cities lagging behind the national trend in reporting;
- publicize the cities and states that created task forces to address reporting on racial and ethnic data and their accompanying recommendations; and
- combat misinformation regarding children being spared from the effects of COVID-19 by sharing the impact of COVID-19 on social determinants of health for children.

METHODS AND PROCESS

Pediatric residents and residency leadership in the Boston Combined Residency Program in Pediatrics (BCRP) created the BCRP Advocacy Group in late March 2020 to foster information sharing and action around COVID-19 advocacy efforts. Under this umbrella, we formed a subgroup of residents focused on data collection and data visualizations to elucidate inequities in COVID-19. Faculty from both Boston Medical Center (BMC) and Boston Children’s Hospital (BCH) served as advisors. Our campaign took place on Twitter and had 3 phases, which leveraged different mediums to illustrate the impact of COVID-19 on racial and ethnic disparities. The rationale, data collection methods, and product for the 3 phases of the campaign are summarized in Fig 1.

Phase I of the campaign began with a compilation of all publicly available state data on COVID-19 cases and mortality by race and ethnicity at different time points. At the time, there were no publicly searchable compilations of such information; therefore, data were obtained from reports released by each state’s department of public health. Given the variable availability of testing and testing standards across states, we focused on the proportion of deaths by race and ethnicity, rather than cases. The initial analysis was focused on the Black population. A chart (Fig 2) was created to reveal the percentage COVID-19 deaths in Black individuals by state (adjusted to exclude deaths for which race was unknown) compared with the percentage of the state’s Black population. Data were displayed as a snapshot rather than a trend over time because they were quickly evolving. The phase I Twitter campaign launched on April 29, 2020.

Phase II of the campaign began by updating state COVID-19 cases and deaths by race and ethnicity. We also collected data for the 50 most populous cities in the United States. Additionally, we looked at 3 other variables for states and cities: creation of a COVID-19 task force focused on racial inequities, recommendations released by these task forces, and percentage of cases and mortalities with unknown race and/or ethnicity. The task forces were identified by using a combination of Google search techniques and looking for announcements on the official governmental Web site for each state and city. We then developed a 0- to 5-point scoring system as follows:

- 0: no reporting of race and/or ethnicity;
- 1: reporting of cases by race and/or ethnicity;
- 2: reporting of mortality by race and/or ethnicity;
- 3: reporting of both cases and mortality by race and/or ethnicity;
- 4: creation of COVID-19 racial inequities task force and reporting

FIGURE 1

Phases of COVID-19 advocacy Twitter campaign.
of both cases and mortalities by
race and/or ethnicity; and
• 5: recommendations released by
COVID-19 racial inequities task
force and reporting of both cases
and mortalities by race and/or
ethnicity.

We combined data from phases I and
II to create a time-lapse map (Fig 3)
that revealed the trend in state
reporting of race and ethnicity over
the span of 3 weeks. The map also
had an interactive component that
allowed users to hover over a specific
state to learn the states’ score per the
aforementioned system and
percentage of data with unknown
race and/or ethnicity and access
a hyperlink to recommendations
released by that state’s task force as
applicable. This dynamic figure both
called attention to states lagging
behind in COVID-19 race and/or
ethnicity data reporting and
highlighted those cities and states
taking swift action to change their
reporting systems and mobilize
COVID-19 task forces focused on
addressing inequities. The phase II
Twitter campaign launched on April

During phase III, we pivoted to
illustrating the broader impact of
COVID-19 on children. Despite many
false reassurances in the media that
children were being spared, as
pediatricians, we witnessed the
impact of COVID-19 on childhood
well-being in ways that were not
always apparent to lawmakers or the
public. This included adverse impacts
on access to food, housing, a stable
family income, and educational
opportunities.4–8 This was
particularly true for children of color.

To highlight one domain of these
effects, we created an infographic (Fig
4) on the child hunger crisis in our
home state of Massachusetts. Because
of the pandemic, the percentage of
children who are food insecure is
expected to double throughout
2020.9,10 A combination of school
 closures, loss of income, and barriers
to food access has led to a situation in
which demand for assistance
outpaced the existing safety-net
programs. We highlighted
government and hospital programs
working to address food insecurity
and included action items to advocate
for increased funding and attention to
this issue. The phase III Twitter
campaign launched on July 6, 2020.

For each phase, we reached out to
residency program leadership as well
as media relations at both of our
institutions, who assisted in
optimizing data visualization and
messaging and provided institutional
logo approval. We shared each of the
figures with accompanying text and
commentary on Twitter, tagging
members of the BCRP Advocacy
Group, residency faculty, state
officials, local and national news
outlets and/or journalists, and other
key stakeholders. These people and
groups were chosen because of their
reach, influence, and positions of
power, with the goal of spreading the
information as far as possible.

Success for all phases was defined by
several analytics for the Twitter posts
(engagements, impressions, likes, retweets, and video views) as well as engagement in advocacy efforts through comments. On Twitter, engagement is defined as the number of times a user interacts with a tweet, and impression is the tally of all the times a tweet has been seen. Challenges during our campaign included assessing nonstandardized methods of data reporting by states, presenting the data in a nonmisleading manner, and choosing the appropriate software to display the data best visually. We addressed these using the same source of data collection (ie, each state’s department of public health) for each data point and relying on the expertise of faculty advisors and hospital media relations teams to provide guidance on the most effective ways to visualize and share the data.

OUTCOMES

The data analysis completed in phase I revealed that COVID-19 disproportionately impacted communities of color. The published chart revealed that Black populations bore an uneven burden of COVID-19 deaths (Fig 1) by state. At the time of reporting, 25 of 29 (85%) states reporting race and/or ethnicity data had a disproportionate amount of COVID-19 deaths among Black populations as compared with their state’s total Black population. This figure was shared on Twitter along with a messaging campaign that voiced structural racism as the cause of this inequity, called for reporting of COVID-19 data by race and/or ethnicity, and urged governments to develop strategies to combat these stark inequities. This information was shared widely, with >325 retweets and >340 likes of the graphic with more retweets, likes, and comments on the accompanying commentary. Overall, the graphic garnered >75 000 impressions and 6800 engagements at the time of this writing (August 24, 2020). It was also subsequently incorporated in the

FIGURE 3

Time-lapse of reported COVID-19 race and/or ethnicity data and establishment of task forces by state.
Phase II continued the call for more reporting of COVID-19 data by race and/or ethnicity with additional encouragement to hold city, state, and federal leadership accountable for tangible action plans. The time-lapse map revealed that although the national trend for reporting COVID-19 data by race and/or ethnicity was increasing, few places had created dedicated task forces or proposals to address these inequities (Fig 2). For those that had, the map included hyperlinks to the state or city Web pages detailing the work of the task forces. Additionally, states were still reporting a large percentage of cases and deaths with unknown race and ethnicity. As of April 27, 2020, only 9 of 50 (18%) states had created task forces and 24 of 50 (48%) states shared 30% unknown race and/or ethnicity data at the time of reporting. These data were once again shared via Twitter, resulting in >1800 views of the time-lapse video and >9000 impressions according to Twitter Analytics at the time of this writing. The data were also featured in a multi-institutional journal club titled Health Equity Rounds: Addressing Inequities in COVID-19 and in a department-wide grand rounds presentation at BCH.

Phase III pivoted from the previous campaigns and focused on the impacts of COVID-19 on children. The infographic (Fig 3) revealed how childhood food insecurity has been exacerbated by the pandemic and was used to share statistics specific to Massachusetts and Boston. Additionally, the infographic was used to provide links to resources that could be shared with patients and families as well as information on how people could advocate on this
topic. Similar to phases I and II, this graphic was shared on Twitter resulting in >11,000 impressions and >650 engagements at the time of this writing. This infographic was also distributed to different pediatric residency programs in the hopes that it could be used as a template to create similar graphics for other major cities and states in the country.

LESSONS LEARNED
Working through the processes of searching, collating, and presenting data on social media taught us many valuable lessons. Although much of these data are now widely available, phases I and II of our campaigns launched early in the pandemic, at a time when the data of interest were often presented in a multitude of different formats and were prone to misinterpretation given the nonstandardized method of reporting race and ethnicity across states. To maintain as much objectivity as possible in data collected, we decided to only use reports published by state departments of public health. In regard to data visualization, the input from our hospitals’ media relations teams was invaluable in demonstrating how certain graphic or visual displays, such as landscape cropping and sizing, had a significant impact in viewer engagement with the data. The media relations and institutional leadership were also instrumental in obtaining approval to use the institutional logo, which helped amplify our message and increase its credibility.

In terms of spreading the research and findings, given the fast-paced evolution of the data and state-specific updates, it became apparent that using Twitter as a medium would be more effective than waiting to share the data in an academic publication. Under the guidance of our faculty advisors, we also tagged key stakeholders and legislators when sharing our message on Twitter, which helped further spread the word and catch the attention of local journalists and news outlets. We received interest from news outlets and retweets from health care providers, epidemiologists, local legislators, and private citizens, expanding our reach to their thousands of Twitter followers. We found Twitter to be an effective tool for measuring the impact of our messages by using various Twitter analytic metrics including retweets, views, impressions, and engagements.

Yet, through this process, we also learned about some of the limitations of advocacy through Twitter, including information potentially being shared in an echo chamber of like-minded individuals, the balance of sharing information with sharing concrete advocacy items, and the feeling of being limited in our ability to enforce accountability. These limitations further highlighted the importance of promoting our work through additional forums beyond Twitter to reach new audiences, including a weekly residency-wide advocacy bulletin, a multi-institutional journal club, and a department-wide grand rounds.

CONCLUSIONS
With this advocacy work, we clearly illustrated that the current COVID-19 pandemic is exacerbating longstanding structural racism and inequities and resulting in a disproportionate impact on communities of color. The first 2 phases of this advocacy campaign were focused on the disproportionate impacts of COVID-19 by race and/or ethnicity and current plans or polices to address this. With the third phase, we shifted our focus to the effects on children through various inequities in social determinants of health. We plan to continue building our phase III advocacy campaign with further infographics highlighting the impact on pediatrics in areas such as housing, school closures, mental health, and more. Additionally, we are exploring a multi-institutional joint advocacy effort in which several pediatric programs in different states share a similar templated graphic, drawing attention to the same national issue but highlighting their local findings and resources.

We hope that by learning about the racial and ethnic inequities worsened by the pandemic through our Twitter campaign, viewers will be empowered to hold those in leadership positions accountable for investing in policies that directly address these inequities. Although we may be socially distanced, through the collective power of social media advocacy, we can work toward mitigating the structural racism that has historically disadvantaged communities of color and push for a more equitable future.

ACKNOWLEDGMENTS
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ABBREVIATIONS
BCH: Boston Children’s Hospital
BCRP: Boston Combined Residency Program in Pediatrics
BMC: Boston Medical Center
COVID-19: coronavirus disease 2019

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A Trainee-Led Social Media Advocacy Campaign to Address COVID-19 Inequities
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