

Team Science, Population Health, and COVID-19: Lessons Learned Adapting a Population Health Research Team to COVID-19



Leonard E. Egede, MD, MS^{1,2}, Rebekah J. Walker, PhD^{1,2}, Aprill Z. Dawson, PhD, MPH^{1,2},
Joni S. Williams, MD, MPH^{1,2}, Jennifer A. Campbell, PhD, MPH^{1,2},
Mukoso N. Ozieh, MD, MSCR^{2,3}, and Anna Palatnik, MD^{2,4}

¹Division of General Internal Medicine, Department of Medicine, Medical College of Wisconsin, 8701 Watertown Plank Rd, Milwaukee, WI, USA; ²Center for Advancing Population Science, Medical College of Wisconsin, Milwaukee, WI, USA; ³Division of Nephrology, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, USA; ⁴Department of Obstetrics and Gynecology, Medical College of Wisconsin, Milwaukee, WI, USA.

Our multidisciplinary research team is composed of 6 faculty with expertise in internal medicine, nephrology, maternal/fetal medicine, health services research, statistics, and community-based research, and 36 program staff including biostatisticians, nurses, program coordinators, program assistants, and medical assistants/phlebotomists. With the emergence of the COVID-19 pandemic and the impact it was having on our community, especially the ethnic minority population in inner-city Milwaukee, we felt it was critical to stay engaged and figure out how to ask meaningful research questions that are important to the community, are relevant to the times, and will lead to lasting change. While navigating this unprecedented challenge, our research team made difficult decisions but were able to engage our staff and respond to community needs. We organized our lessons learned to serve as a perspective on how to effectively remain committed to vision and serve our communities, while collecting evidence that can inform policy in difficult times.

J Gen Intern Med 36(5):1407–10
DOI: 10.1007/s11606-020-06455-0
© Society of General Internal Medicine 2021

Our multidisciplinary research team is composed of 6 faculty with expertise in internal medicine, nephrology, maternal/fetal medicine, health services research, statistics, and community-based research and 36 program staff including biostatistician, nurses, program coordinators, program assistants, and medical assistants/phlebotomists. With the emergence of the COVID-19 pandemic and the impact it was having on our community, especially the ethnic minority population in inner-city Milwaukee, we felt it was critical to stay engaged and figure out how to ask meaningful research

questions that are important to the community, relevant to the times, and will lead to lasting change.

Our team's work is focused on addressing health disparities among vulnerable populations including the elderly, racial/ethnic minorities, immigrants, and low-income primarily in the Greater Milwaukee Metro Area of Wisconsin. Milwaukee is the most diverse city in Wisconsin and recently became a minority-majority city with 53% of city residents of racial/ethnic minority background.¹ It is also one of the most segregated cities in the USA, where community-based research focused on addressing the underlying causes of health disparities is greatly needed.^{2–4} At the start of the year, we had 3 large NIH-funded R01s, 2 career development grants, 1 diversity supplement, and 3 large foundation-funded research projects with total community-based recruitment targeted across the studies at roughly 2000 participants.^{5–7} To accomplish this, we ramped up hiring to have 36 staff including biostatisticians, nurses, program coordinators, program assistants, and medical assistants/phlebotomists.

Then, COVID-19 hit with shelter-in-place orders, school system closures, and limitations on public gatherings.⁸ Our institution placed restrictions on social contact with participants, recruitment was halted, and study staff were moved out of the community and into remote work environments. We were faced with significant challenges in supporting our research and our staff. The economic downfall from COVID-19 resulted in record-breaking levels of unemployment and the predominantly minority and low-income populations we served needed support despite our limitations.⁹ While navigating this unprecedented challenge, our research team had to make difficult decisions but were able to engage our staff and respond to community needs. These are the lessons learned in the process:

LESSON 1: IDENTIFY PRINCIPLES ON WHICH TO MAKE DECISIONS

As researchers, we are trained to use data and draw logical conclusions. However, early in the pandemic, decisions had to

Received July 2, 2020
Accepted December 13, 2020
Published online January 22, 2021

be made with limited knowledge of how long measures would be in place and what guidelines may change after the decision. Faced with the first call to halt all non-essential research, our faculty team met to discuss how to prioritize studies, what changes to make, and how to assign staff. Our team found value in identifying a principle underlying how to decide on trade-offs no matter what changed, “People first.” The two groups of people we prioritized were our staff and our study participants. We prioritized our staff by changing internal procedures to minimize staff loss and keep staff safe. Early in the pandemic, this meant adjusting tasks to allow staff to work remotely, designing a rotating schedule for work that had to be done in the office, adjusting our schedules to hold daily virtual check-ins with teams, organizing processes for moving tasks between teams, and creating new ways for staff to communicate concerns and problems. Later in the pandemic, this meant strict safety guidelines for in-office work and aligning staff around funded projects. We prioritized our patients by advocating for our intervention studies to be considered essential, halting primary outcome blood draw collection until safety procedures were in place, conducting follow-up visit surveys over the phone, communicating regularly with study participants regarding changes, and training staff to identify process changes that could hinder scientific validity of results. Making decisions based on “People first” required more communication on the reason behind decisions, but we gained a new level of engagement with our staff and created a principle that will guide team decisions for years to come.

LESSON 2: REPURPOSE SKILL SETS FOR NEW PROJECTS

Within the context of our “People first” principle, we could not abandon the vulnerable populations our studies serve and had to find a way to use the skills we had without the safety net of previously tested strategies centered around face-to-face approaches for recruitment, screening, and intervention delivery that were no longer viable options. We quickly identified those who were skilled in three high priority areas: communicating, creating, and innovating. Those identified as the top communicators were asked to contact each of our actively enrolled study participants and provide updates regarding study participation and reassure them of our dedication to their wellbeing. Top communicators were defined as individuals who had the highest rate of positive response from study participants during recruitment phone calls, staff requested by name by our study participants, and those who had the lowest rate of participants who miss appointments after being scheduled by the team member. Our top creators were tasked with developing aesthetically pleasing COVID-19 informational material that was both accurate and easy to understand. Top creators were defined as individuals who regularly draft and provide input on the development of study flyers, manuals, and other print materials. Finally, our innovators were tasked with identifying funding mechanisms and developing grant applications

to expand what we currently do. Team innovators included faculty members who have previously applied for grants or have experience locating new requests for proposals. We also expanded our staff’s skill sets by cross-training phlebotomists to complete screening, consent, study enrollment, and health education session delivery telephone calls with participants for new studies focused on preventing the spread of COVID-19.

LESSON 3: MOVE FROM A FOCUS ON CHALLENGES TO A FOCUS ON OPPORTUNITIES

Having identified skills that could be repurposed to new opportunities, we applied them across our research enterprise. First, we discussed fears, concerns, and priorities as a full team. The structure for brainstorming was flattened and each voice was given a platform. We started with an unstructured discussion during full team virtual calls utilizing a round table approach where each team member could provide feedback. We documented every concern raised and identified categories of challenges on which to act. These varied across our team structure and included how our communication flows, how each team member’s strengths can be leveraged, and the process for maintaining our institutional and center vision at the forefront of our research. As a multidisciplinary team, we found that not only are we stronger together, but also across each level of training we could make a difference by actively applying ourselves, our skills, and our knowledge to support each other, our institution, and our community. Creativity soared and great strength surfaced as we shifted from a focus on problems to a focus on opportunities. We continued this dialog once a week as a team until teams were reorganized and deployed to meet the emerging needs of our participants. We identified deficits within our team that historically we did not have time to address and provided training. We fortified our research infrastructure through literature reviews, audits, and building our shared knowledge base. And we improved our overall team and community engagement by creating a structure to live out John F. Kennedy’s reminder that “one person can make a difference, and everyone should try.”

LESSON 4: BEING THERE FOR YOUR COMMUNITY EVEN WHEN YOU CANNOT BE PRESENT

In times of urgency and uncertainty, we have the opportunity to be more effective in and more valuable to our community. For example, these are times when teams can provide more support to individuals, families, and communities by serving as a trusted partner and resource; actively engaging and listening to the community to address expressed needs; sharing current and important information about COVID-19; and establishing relationships that can continue once our new normal is established. As a team, we decided early that maintaining a presence in the community was essential, especially since we were not able to be there physically. First, we stayed

connected by increasing the frequency of communication and funneling resources to study participants. This included sharing up-to-date information with study participants and community partners using virtual platforms such as WebEx, Zoom, Skype, and Go-To-Webinar. We connected study participants and partner organizations with information on resources developed by our public health department by sending links to posted information and invited them to attend weekly virtual townhall meetings hosted by our institution where they received information and were able to ask questions. In addition, we participated in institutional communications initiatives and ensured simplified and culturally tailored messaging. Finally, for study participants, we provided face coverings and hand sanitizer as resources through community outreach and contact with community partners. Second, members of the team shared their expertise via media outlets by participating in radio interviews, podcasts, and town hall meetings. By disseminating factual information about preventing the spread of COVID-19, we could support our community to make informed decisions about how to care for themselves and their families. Third, we listened to the community to understand their needs. We collaborated with organizations that provide essential resources and made routine calls to study participants and community partners to provide social support. These simple acts were well received and appreciated by study participants and leaders of our community partner organizations.

LESSON 5: RESPOND TO DISPARITIES WHENEVER THEY BECOME APPARENT

At this point in the pandemic, racial/ethnic disparities in COVID-19 outcomes and the influence of pre-existing social conditions reflecting the deeply rooted structural racism within American society are well established.¹⁰⁻¹³ In Milwaukee, African Americans represented nearly half the city's initial COVID-19 cases and deaths, and both race and poverty were associated with a higher risk of hospitalization for COVID-19.^{14,15} Noticing the projections, our team quickly identified how we could help build the evidence base to understand disparities in COVID-19 infection and outcomes and develop interventions to reduce these disparities. To address the need for more screening and education, our multidisciplinary team applied for and was awarded funding from Advancing Healthier Wisconsin to conduct an intervention study designed to prevent the spread of COVID-19 in elderly African Americans through testing and education.¹⁶ We also designed two additional parallel research projects: (1) an observational project using the medical records to understand factors leading to COVID-related disparities in our health system and (2) a mixed-methods study funded through our career development awards to understand barriers and facilitators to COVID-19 prevention and recovery among inner-city African American residents. By quickly responding to build the evidence base,¹⁷

we hope to help change the trajectory of disease in our vulnerable populations.

LESSON 6: USE THE EXPERIENCE TO HONE OUR LEADERSHIP SKILLS

COVID-19 brought about unparalleled turbulence to the lives of our research team and our community members. We identified through team discussions that good leadership, a strong vision/mission, and a committed and competent team were essential components we need for emerging from the crisis. Recognizing our need for an optimistic, competent, and effective leader motivated our team to build our own leadership skills through reading, self-reflection, and practice. We identified integrity, adaptability, and good communication as aspects of leadership we could build. We practiced our ability to identify and communicate opportunity in the midst of uncertainty and anxiety. And we developed our communication skills to ensure we were trust-worthy, genuine, and able to allay anxiety within our team. Finally, as a leader is only as good as the people they surround themselves with, we focused on effectively communicating the importance of each team member as a whole through daily research study specific meetings and weekly research team meetings. In addition, during the weekly research team meetings, we watched thought-provoking TED Talks and engaged in team discussions afterwards.

Though difficult, the COVID-19 pandemic afforded us the opportunity to remain committed to our vision, serve our community, and strengthen our team. We believe these lessons will last long beyond the impact of COVID-19.

Corresponding Author: Leonard E. Egede, MD, MS; Division of General Internal Medicine, Department of Medicine, Medical College of Wisconsin, 8701 Watertown Plank Rd, Milwaukee 53226-3596, WI, USA (e-mail: legede@mcw.edu).

Funding Effort for this study was partially supported by the National Institute of Diabetes and Digestive Kidney Disease (K24DK093699, R01DK118038, R01DK120861, PI: Egede), the National Institute for Minority Health and Health Disparities (R01MD013826, PI: Egede/Walker), the American Diabetes Association (1-19-JDF-075, PI: Walker), and the Advancing Healthier Wisconsin/Clinical and Translational Science Award program at the Medical College of Wisconsin (UL1TR001436 and KL2TR001438, KL2 award to Ozieh).

Compliance with Ethical Standards:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

Disclaimer: The content of this article is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

REFERENCES

1. City of Milwaukee Demographics and Data Planning Report. Available at <http://city.milwaukee.gov/ImageLibrary/Groups/cityDCD/planning/plans/Citywide/plan/Data.pdf>. Accessed 12 Jan 2021.

2. **Logan JR, Stults B.** The persistence of segregation in the Metropolis: New findings from the 2010 Census. 2011. CensusBrief prepared for Project US2010. Available at: <https://s4.ad.brown.edu/Projects/Diversity/Data/Report/report2.pdf>. Accessed 12 Jan 2021
3. **Jacobs H, Kiersz A, Lubin G.** The 25 most segregated cities in America. Business Insider. 2013. Available at: www.businessinsider.com/most-segregated-cities-in-america-2013-11. Accessed 12 Jan 2021.
4. **Bailey ZD, Krieger N, Agenor M, Graves J, Linos N, Bassett MT.** Structural racism and health inequities in the USA: evidence and interventions. *Lancet*. 2017;389(10077):1453-63.
5. Funded NIH studies information available at [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/NCT04203147?term=Egede&draw=2&rank=1): <https://clinicaltrials.gov/ct2/show/NCT04203147?term=Egede&draw=2&rank=1> ; <https://clinicaltrials.gov/ct2/show/NCT04203173?term=Egede&draw=2&rank=4> ; <https://clinicaltrials.gov/ct2/show/NCT04181424?term=Egede&draw=2&rank=10>. Accessed 12 Jan 2021.
6. Funded American Diabetes Association study information available at: <https://professional.diabetes.org/rdb/lowering-impact-food-insecurity-african-americans-type-2-diabetes>. Accessed 12 Jan 2021.
7. Center for Advancing Population Science. COME ALIVE Milwaukee. Information available at: <https://www.mcw.edu/departments/center-for-advancing-population-science-caps/programs/come-alive-milwaukee>. Accessed 12 Jan 2021.
8. A Timeline of the Coronavirus Pandemic. *The New York Times*. 2020. Available at: <https://www.nytimes.com/article/coronavirus-timeline.html>. Accessed 12 Jan 2021.
9. **Miller C.** Analysis: The Effect of COVID-19 on the US Economy. Foreign Policy Research Institute. 2020. Available at: <https://www.fpri.org/article/2020/03/the-effect-of-covid-19-on-the-u-s-economy/>. Accessed 12 Jan 2021.
10. **Wheeler SM, Bryant AS.** Racial and ethnic disparities in health and health care. *Obstet Gynecol Clin N Am*. 2017;44(1):1-11.
11. **Egede LE, Walker RJ.** Structural racism, social risk factors, and Covid-19—a dangerous convergence for Black Americans. *N Engl J Med*. 2020;383(12): e77.
12. **Garcia MA, Homan PA, Garcia C, Brown TH.** The color of COVID-19: structural racism and the pandemic's disproportionate impact on older racial and ethnic minorities. *J Gerontol Ser B*. 2020. Online ahead of print. Aug 5;gbaa114. <https://doi.org/10.1093/geronb/gbaa114>.
13. **Cooper LA, Crews DC.** COVID-19, racism, and the pursuit of health care and research worthy of trust. *J Clin Investig*. 2020; 130(10).
14. Teran Powell. Milwaukee's Covid-19 spread highlights the disparities between white and black. Apr 14, 2020. *The Guardian*. Available at: <https://www.theguardian.com/world/2020/apr/14/milwaukes-covid-19-spread-highlights-the-disparities-between-white-and-black>. Accessed 12 Jan 2021.
15. **Munoz-Price L, Nattinger AB, Rivera F, et al.** Racial disparities in incidence and outcomes among patients with COVID-19. *JAMA Network Open*. 2020; 3(9): e2021892.
16. Advancing Healthier Wisconsin. Preventing the Spread of COVID-19 in Elderly African Americans in Milwaukee. Information available at: <https://ahwendowment.org/AHW/Population%2D%2DCommunity-Health-Studies/Preventing-the-Spread-of-COVID-19-in-Elderly-African-Americans-in-Milwaukee.htm>. Accessed 12 Jan 2021.
17. **Egede LE, Walker RJ, Garacci E, Raymond JR.** Racial/ethnic differences in COVID-19 screening, hospitalization, and mortality in Southeast Wisconsin. *Health Affairs*. In Press.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.