

Crossroad Health Center was created with the mission “to give honor to Jesus Christ by providing accessible, comprehensive health care in partnership with our patients and community leading to healthy, changed lives.”¹ Crossroad provides healthcare as a federally qualified health center, with a sliding fee scale to better care for an underserved area/population and provide comprehensive services for their patients.² This organization serves as a trusted partner within the community that represents a place all members are welcome to come and seek resources they need to improve their health. Across all sites, Crossroad serves over 40,000 people per year and educates their patients on various topics in healthcare.¹ Our project with Crossroad was primarily concerned with communicating data on the effectiveness of flu vaccines. Figure 1 gives a visual representation of the social determinants of health that we focused on.



Figure 1. Diagram of social determinants of health. Boxes indicate those emphasized in our project.

Crossroad was not immune to changes during the COVID-19 pandemic. One major change that COVID-19 prompted for Crossroad was an increased proportion of telehealth visits. Many visits that do not require physical examination, particularly those related to mental health, are now completed through telehealth. Another policy change is that if someone comes in with COVID-19 symptoms, care providers are required to limit their face-to-face time with the patient. Therefore, patients with complex medical problems may require two separate visits to address multiple concerns due to time constraints. This policy was enacted to protect care providers and office staff against the virus.

Around three-quarters of the patients seen at Crossroad are living below the federal poverty level and many lack the health literacy needed to make well-informed, supportive healthcare decisions. Similar to other metro areas, underinsured and low-income patients in Cincinnati have historically lacked adequate access to medical education, which has led to a lower level of health literacy among patients of this population.³ The strategically-located five Crossroad locations have served low income populations for decades. While OTR has become gentrified within the last few years, there remains a significant population that depends on the services provided at this location. However, these individuals are increasingly losing their homes to rising costs of living and are forced to move further away from Crossroad into healthcare-scarce areas. Additionally, misinformation spread during COVID and the resulting economic, political, and cultural impacts have only exacerbated health literacy disparities. Vaccine misinformation and skepticism has influenced patient hesitancy in receiving not only the COVID-19 vaccine but other vaccines.⁴ The flu vaccination rate of Crossroad's patients is only 40-50% according to interviews with Crossroad staff, despite the fact that the seasonal flu remains a public health threat each year. Patients also face barriers in accessing vaccinations as Crossroad can only provide vaccines to uninsured patients, meaning cost may still be an issue.

International tensions that have resulted in rising gas prices, combined with the lack of a proper public transportation system, have led to many patients choosing to stay at home instead of going to the clinic. As a result, they are no longer getting proper information from their provider, instead relying on information from online sources and people in their immediate circle. Herein lies a potential benefit of the telehealth system Crossroad has implicated for mental health patients: allowing avenues and access for providers to directly educate patients without transportation access. However, this does assume that there is adequate internet access, which is certainly another point of disparity.

We developed our final service project last year using input from Crossroad healthcare providers to create an informational video about the flu vaccine for Crossroad to use each year as a way to increase the number of patients receiving flu vaccines. However, by only addressing the needs commonly seen by the physicians at Crossroad, we likely reduced the efficacy of our video by not covering topics that may have been important to the community. The pandemic has brought about barriers related to communication and patient outreach, resources for implementing projects, and willingness of patients to partake in these interventions due to information fatigue. As the pandemic subsides, we hope future groups can conduct research to understand more personal reasons patients decide not to get the yearly flu vaccine.

Moreover, because of COVID-19, funding to Crossroad has decreased. Coupled with increasing staff turnover because of the increased stress of COVID-19, this has led to less resources available to provide ample health literacy. Overburdened providers and staff do not have as much time or resources to dedicate to educating patients on flu vaccine safety or health literacy when basic needs are not being met. False vaccine narratives have influenced some people to no longer trust their providers and the vaccines they offer because campaigns have labeled certain vaccines as harmful. Combating such hesitation requires the healthcare providers to navigate an already complicated system wrought with increasing racial tensions, especially as communities of color and lower income populations are disproportionately impacted by COVID-19 both physically and socially. The prevalence of social media in today's society proved to be particularly devastating during the COVID-19 pandemic. Research has found that no single method of intervention could completely stop this spread of misinformation. Therefore, a robust approach is required to effectively advocate for patients' rights to accurate

information, including guidelines published by reputable sources, individuals dedicated to fact-checking information, and efforts to specifically boost online health literacy given this is the most rapid way to spread information.⁸

Health literacy levels for OTR are in the bottom quartile of national health literacy measures. This may impact a patient’s ability to understand information provided to them regarding their healthcare. Hamilton county ranks 6th out of 88 Ohio counties in number of residents with bachelor’s degrees, but this success doesn’t seem to extend to the community level of OTR.⁵ In all Cincinnati Public Schools including 47 total elementary schools, it has been found that 51% of students are at or above the proficient level for reading. The rate was slightly lower for math at 46%. When looking at 16 CPS high schools, 43% of students are at or above the proficient level for reading and 22% for math.⁶ There is also a discrepancy of overall literacy rates of neighborhoods within Hamilton County, as seen in Table 1.⁷

Our project attempted to address one single consequence of inadequate health literacy among Crossroad patients: low flu vaccine rates. We hope that our educational video will be used to provide patients with quality information from a trusted source in order to make well-informed decisions for their own health. However, significant further intervention from the lens of stopping misinformation is needed to truly make a lasting difference in improving general health literacy in this community based on data regarding health literacy rates and the other existing disparities that impact access to care for these patients.

Table 1. Health literacy rates OTR and surrounding neighborhoods

OTR census block	Percent of population with basic or below basic health literacy scores
0610016002	54%
0610016001	51%
0610017001	51%
0610010001	49%
0610009001	56%
0610010002	29%
0610009002	46%
Average percentage at or below basic health literacy	48 ± 0.09%
Clifton census block	Percent of population with basic or below basic health literacy scores
0610071001	40%

0610070001	36%
0610071002	19%
0610071003	20%
0610070002	30%
0610072001	20%
0610072002	25%
Average percentage at or below basic health literacy	27.1 ± 0.08%

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