



# Utility of Student-Run Free Clinics for Underserved Individuals During COVID-19 Michigan Shelter-in-Place Order

Sara Saymuah Stone, MS<sup>1</sup>; Hailey Heil<sup>1</sup>; Janki Vaghasia, MPH<sup>1</sup>; Marla Rojas Thaireaux<sup>1</sup>; Victoria Badia<sup>1</sup>; Paige Baal<sup>1</sup>

<sup>1</sup>Wayne State University School of Medicine, Detroit, Michigan, USA

**Corresponding Author:** Sara Saymuah Stone; email: sarasaymuah@gmail.com

**Published:** December 12, 2021

## Abstract

Student-run free clinics (SRFCs) serve individuals who would not otherwise have access to healthcare. Cass Clinic, a SRFC affiliated with Wayne State University School of Medicine in Detroit, Michigan, serves a predominantly underprivileged population by providing free physical examinations, laboratory testing, medications, and resources such as hand sanitizer and surgical masks. Despite the Coronavirus Disease 2019 (COVID-19) pandemic and Michigan Governor Gretchen Whitmer's shelter-in-place order from March 24, 2020 through June 12, 2020, Cass Clinic remained open to serve Detroit patients. To assess the utility of SRFCs in meeting patient needs during the Michigan shelter-in-place order, quality assessment surveys were conducted. Patients reported seeking care at Cass Clinic due to lack of resource availability at supply stores and lack of healthcare access at other clinics. All participants reported receiving medication refills for chronic conditions due to a general patient concern of inability to obtain medications through other healthcare services. Surveys demonstrated Cass Clinic provides essential services to underserved individuals by adequately managing chronic conditions such as hypertension and type two diabetes mellitus. Cass Clinic, and SRFCs in general, serve a vital role throughout the Michigan shelter-in-place order by continuing healthcare management for patients who are at a disproportionate risk of adverse health outcomes due to COVID-19.

## Introduction

On March 11, 2020, the World Health Organization declared Coronavirus Disease 2019 (COVID-19) a pandemic.<sup>1</sup> The rapidly spreading virus has exacerbated deeply rooted health inequities of already vulnerable, underserved populations in the United States (US)<sup>2</sup> including Detroit, Michigan. Implementing public health precautions, Michigan Governor Gretchen Whitmer issued a shelter-in-place order from March 24, 2020 until June 12, 2020. Cass Clinic, a student-run free clinic (SRFC) affiliated with Wayne State University School of Medicine in Detroit, Michigan, continued serving patients despite the challenges of the shelter-in-place order and global pandemic.

SRFCs aim to improve the health outcomes of

vulnerable populations by providing care to those who lack access to the traditional healthcare safety net.<sup>3</sup> Operated primarily by medical students with oversight of attending licensed physicians, these clinics provide essential basic medical treatment and free resources for underserved, uninsured, and homeless patients.<sup>4</sup> Cass Clinic provides free physical examinations, health screenings, selective laboratory testing, and medications to a predominantly underprivileged population. As an essential part of the community, it was critical for Cass Clinic to continue providing services during the shelter-in-place order while ensuring compliance with Centers of Disease Control and Prevention (CDC) guidelines. Resources in high demand such as hand sanitizer and surgical masks were provided to patients

free of charge to facilitate the prevention of infection, along with two-month medication refills to ensure adequate disease management.

Quality assessment surveys were conducted at Cass Clinic to assess the accessibility of healthcare during the Michigan shelter-in-place

**Table 1.** Baseline characteristics of study patient population

| Variable                                    | Study participants, n (%) |
|---|---------------------------|
| Age, mean years ± SD                        | 59.9±8.9                  |
| Sex   |                           |
| Male  | 13 (76.5)                 |
| Female                                      | 4 (23.5)                  |
| Race  |                           |
| Black                                       | 8 (47.1)                  |
| White                                       | 2 (11.8)                  |
| No response                                 | 7 (41.2)                  |
| Chronic conditions                          |                           |
| Hypertension                                | 15 (88.2)                 |
| Hyperlipidemia                              | 8 (47.1)                  |
| Type 2 diabetes mellitus                    | 5 (29.4)                  |
| Uveitis                                     | 3 (17.6)                  |
| GERD  | 1 (5.9)                   |
| Osteoarthritis                              | 1 (5.9)                   |
| Anxiety                                     | 1 (5.9)                   |
| Depression                                  | 1 (5.9)                   |
| Asthma                                      | 1 (5.9)                   |
| Seasonal allergies                          | 1 (5.9)                   |
| Rectal adenocarcinoma                       | 1 (5.9)                   |
| Vitamin D deficiency                        | 1 (5.9)                   |
| Congestive heart failure                    | 1 (5.9)                   |
| Number of chronic conditions                |                           |
| ≥3  | 7 (41.2)                  |
| 2   | 5 (29.4)                  |
| 1   | 4 (23.5)                  |
| 0   | 1 (5.9)                   |
| Health Insurance Status                     |                           |
| Insured                                     | 9 (52.9)                  |
| Uninsured                                   | 7 (41.2)                  |
| Ability to obtain other healthcare services |                           |
| No  | 11 (64.7)                 |
| Yes   | 6 (35.3)                  |
| No response                                 | 1 (5.9)                   |

GERD: Gastroesophageal reflux disease; SD: standard deviation

order and understand the concerns of the patient population regarding COVID-19. During the time of this study, Cass Clinic operated in one location with the clinic open three to four hours every Saturday of the month. Given the short history of SRFCs, outcome studies describing the impact of these free clinics on patient health are relatively limited.<sup>5</sup> Based on literature reviews, there have been no published brief communications on the utility of SRFCs during the COVID-19 pandemic. The purpose of this study is to describe the utility of SRFCs in providing care to underserved populations during the Michigan shelter-in-place order.

## Methods

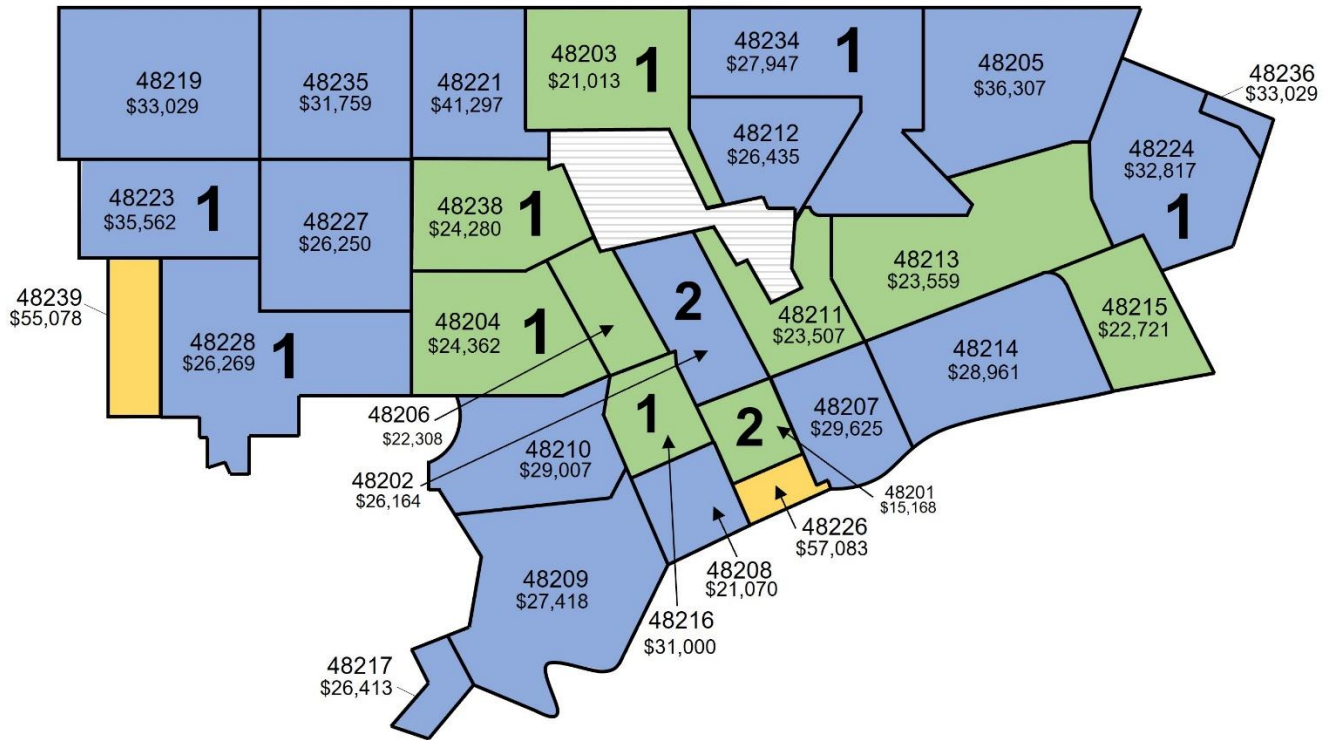
### Study Design

A quality assessment survey was developed by Cass Clinic medical student coordinators to assess the utility of SRFCs during the Michigan shelter-in-place order. Survey items consisted of a mix of open-ended and closed-ended questions (Online Appendix). Patients who utilized Cass Clinic between the dates of May 2, 2020 through June 6, 2020 and who provided verbal consent were eligible to participate in the study. Exclusion criteria included refusal to participate or prior completion of the survey. Paper surveys were completed by patients at the end of their visit, and responses were entered into a secure database. A total of 17 subjects participated in the study, from which 13 identified as male and 4 identified as female. Furthermore, 2 participants identified as white, 8 identified as Black, and 7 preferred not to disclose their race. Zip code information was correctly reported by 12 study participants. Zip codes reported by patients without US Census data (i.e., P.O. box only) were excluded from any zip code analyses.

### Statistical Analysis

Three independent researchers performed a quantitative and qualitative analysis of the data using descriptive statistics and thematic analysis. All statistical analysis was completed in Microsoft Excel (2018, Microsoft Corporation, Redmond WA). Open-ended questions were assessed for common themes, and discrepancies were discussed among the independent researchers in an iterative process until consensus was reached.

**Figure 1.** Wayne County demographics by zip code



Large bold numbers are the number of patients from each zip code. Green zip codes are below the federal poverty line and median Wayne County household income for 2018. Blue zip codes are below the federal poverty line only. Yellow zip codes are above both thresholds. Center area with no color is not within the city of Detroit.

Patient reports of zip code were analyzed to estimate distance traveled to Cass Clinic on Google maps.<sup>6</sup> Zip code information from 2018 was extracted from the Income By Zip Code statistic website, which utilizes US Census Bureau data.<sup>7</sup> This information was used to determine whether patients lived in zip codes for which the median household income was below the 2018 federal poverty level (\$25,100) and/or 2018 Wayne County median household income (\$46,373).<sup>8,9</sup>

This study was given exemption status from the Wayne State University Institutional Review Board because it was performed within a normal educational setting and any inadvertent disclosure of participants' responses outside the study would not reasonably place them at risk of criminal or civil liability or be damaging to their financial standing, employability, educational advancement, or reputation. Patients were only asked to volunteer for the survey at the conclusion of their health care visit to ensure they felt no coercion to participate in the study in exchange for free healthcare.

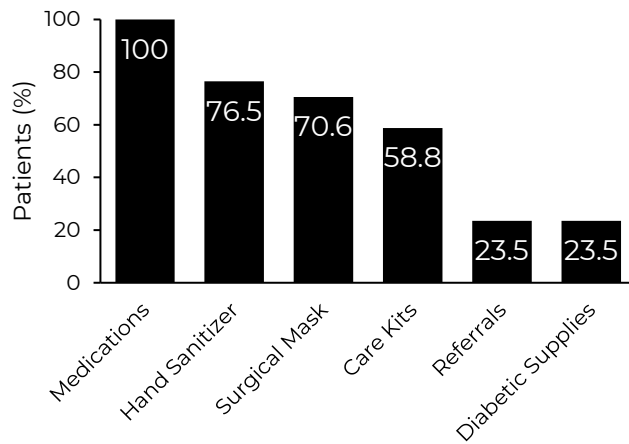
## Results

A total of 17 patients were enrolled into this study. The mean age of these patients was 59.9 years. Patients most commonly presented with past medical histories of hypertension (88.2%), hyperlipidemia (47.1%), and type 2 diabetes mellitus (29.4%). A majority of patients (70.5%) had two or more chronic conditions. Table 1 displays the demographic and chronic condition data of the patient population in this study.

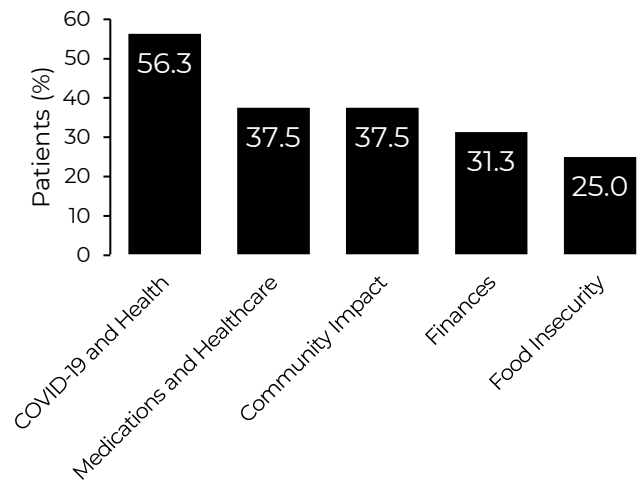
All 12 patients who reported zip codes were below the median household income in Wayne County. Five patients did not report viable zip code data, which could be due to reasons of homelessness or preferential non-disclosure. Of the reporting patients, 50% live in a zip code below the 2018 federal poverty line for a family of four. Ten of the patients who reported zip code information lived within approximately ten miles of Cass Clinic. Figure 1 displays the zip code information of study participants and the median household income for a family of four per Wayne

**Figure 2.** Patients' thematic responses to open-ended survey questions

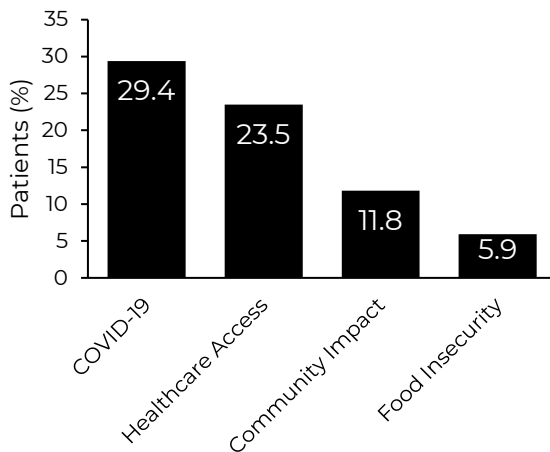
**A) Utilized Services by Cass Clinic Patients**



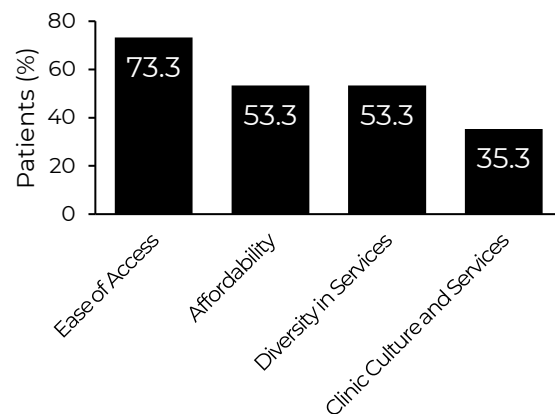
**B) General Concerns**



**C) Primary Concern**



**D) Reasons for Utilizing Cass Clinic**



A) Percent of patients who utilized a given service at Cass Clinic. B) Percent of patients who reported general concerns about the COVID-19 pandemic. Patients were allowed to select multiple general concerns. C) Percent of patients with a single primary concern about the COVID-19 pandemic. D) Percent of patients with a given reason for using Cass Clinic during the COVID-19 pandemic.

County zip code.

Health insurance status and ability to use healthcare systems other than Cass Clinic were collected in the survey and are displayed in Table 1. Approximately half of the patients were insured (52.9%) and 65% of patients reported Cass Clinic as their primary source of healthcare. The remaining 47.1% of uninsured patients reported an inability to receive healthcare outside of Cass Clinic. Data regarding utilized services within Cass Clinic was reported by 16 of the 17 patients. Percentages of patients reported using the

following resources: medications (100%), hand sanitizer (76.5%), surgical masks (70.6%), care kits (58.8%), diabetic supplies (23.5%), and referrals (23.5%). Services utilized at Cass Clinic by patients are summarized in Figure 2A.

Thematic analysis results for general concerns, primary concerns, and reasons for utilizing Cass Clinic are shown in Table 2, which displays themes and common supporting quotes identified through thematic analysis of patients' open-ended responses. Percentage of patients reporting a given theme are presented in Figure 2B-D.

**Table 2.** Thematic analysis of common themes and supporting quotes from open ended response to the study survey (sex, age)

| <b>Content Area 1. General Concerns During COVID</b>     |   |
|--|---|
| Theme 1.1 Access to health care                          | “Obtaining health care” (Male [M], 25)<br>“If Cass Clinic cannot remain open to provide medication” (M, 45)   |
| Theme 1.2 Food insecurity                                | “Food” (M, 47)  |
| Theme 1.3 Contracting COVID                              | “Because there is no way to tell if someone has it. Can be concerning.” (Female [F], 69)<br>“Not getting sick, same concerns for family and friends” (M, 72)<br>“People not wearing masks” (M, 54)<br>“I have major concerns about my mortality” (F, 60)<br>“Uncertainty about duration of COVID” (M, 58) |
| Theme 1.4 Finances                                       | “Laid off from work during pandemic” (M, 58)  |
| Theme 1.5 Community impact                               | “Lost a co-worker” (M, 58)<br>“The danger and damage done to the community” (M, 69)<br>“Not enough supplies” (M, 54)<br>“Social distance” (M, 54)<br>“Lost a few friends during pandemic” (F, 60)<br>“The state of the union depresses me greatly” (F, 60)  |
| <b>Content Area 2. Primary Concern</b>                   |   |
| Theme 2.1 Access to health care                          | “Obtaining health care” (M, 47)<br>“Obtaining medication” (M, 52)   |
| Theme 2.2 Food insecurity                                | “Food” (M, 47)  |
| Theme 2.3 Contracting COVID                              | “Social distancing” (F, 54)<br>“Avoiding illness” (M, 65)<br>“There is no way to tell if someone has it” (F, 69)<br>“Preventing getting the disease” (M, 65)  |
| Theme 2.4 Community impact                               | “If Cass Clinic cannot remain open” (M, 45)   |
| <b>Content Area 3. Reasons For Utilizing Cass Clinic</b> |   |
| Theme 3.1 Convenience                                    | “Location in community” (M, 65)<br>“The location have been great for me when I first started coming here, because I could walk or ride bike” (M, 45)  |
| Theme 3.2 Affordability                                  | “Affordable” (M, 52)<br>“No cost” (M, 72)<br>“I was between insurances and someone told me about this clinic” (F, 60)   |
| Theme 3.2 Staff  | “Providing excellent care...I on 1 service with no time limit” (M, 58)<br>“Good staff” (M, 65)  |
| Theme 3.4 Dedication to care                             | “I come here many years ago when I couldn’t get the medications I needed” (M, 45)   |
| Theme 3.5 Open/Accessibility                             | “Feels safe and comfortable coming to Cass during this time” (M 65)<br>“VA is currently closed” (M, 65)<br>“It’s still open during COVID-19” (M, 65)  |
| Theme 3.6 Resources                                      | “Information is very helpful to me, as well” (M, 45)<br>“Medication, education, health, nutrition” (M, 58)  |
| Theme 3.7 Testing capabilities                           | “Testing capabilities, flu shot” (M, 54)  |

Themes in Figure 2B were highlighted as general concerns about COVID-19: contracting COVID-19 (56.3%), access to healthcare (37.5%), community impact (37.5%), finances (31.3%), and food insecurity (25.0%). Contracting COVID-19 (29.4%), healthcare access (23.5%), impact on the community (11.8%) and food insecurity (5.9%) were the most ranked primary concerns regarding the

pandemic for the 12 of 17 patients who reported a primary concern as depicted in Figure 2C. Lastly, the following themes were highlighted as factors for choosing Cass Clinic in Figure 2D: ease of access (73.3%) which includes convenience and accessibility, affordability (53.3%), diversity of services (53.3%), and clinic culture and services (35.3%), which includes staff, dedication to care,

and offered resources.

## Discussion

This study aimed to demonstrate the utility of SRFCs during the Michigan shelter-in-place order by reviewing patient responses to a survey. Seventeen patients, the majority having chronic conditions, visited Cass Clinic between May 2, 2020 to June 6, 2020, and participated in this study.

A primary finding of the survey was patient concern for obtaining their medications during the Michigan shelter-in-place order. Patient concern focused on a potential lapse in medication that could result in worsening of chronic conditions and serious adverse health outcomes. The most reported chronic conditions in the patient population of this study are hypertension, hyperlipidemia, and type two diabetes mellitus. Hypertension and diabetes have been increasingly associated with adverse outcomes from a COVID-19 infection.<sup>10</sup> As of July 30, 2020, current recommendations from the CDC indicate patients having hypertension “might be at an increased risk for severe illness from COVID-19.”<sup>10</sup> For patients with diabetes, the CDC indicates “having type 2 diabetes increases your risk of severe illness from COVID-19.”<sup>10</sup> With these recommendations in mind, Cass Clinic coordinators determined the importance of continuing to provide medications during the Michigan shelter-in-place order to prevent adverse health outcomes in high-risk patients.

Patient zip code information was gathered to understand the demographics of patients who benefit from utilizing Cass Clinic during the Michigan shelter-in-place order. There were two important insights from the analysis of the zip code data. First, many patients utilizing Cass Clinic live within ten miles of the clinic, therefore Cass Clinic primarily serves patients of Wayne County Michigan, most of whom live in Detroit. Second, Cass Clinic serves patients from zip codes below the median household income for Wayne County, with 50% of survey patients who reported their zip code being from areas below the federal poverty line for a household of four people.

Pertaining specifically to race, 2019 US census data reports Black residents in Wayne County as

38.7% of the total population, however within the city of Detroit, the area primarily served by Cass Clinic, 78.6% of the residents are Black.<sup>11</sup> CDC COVID-19 hospitalization reports show non-Hispanic Black persons at a hospitalization rate of 178.1 per 100,000, while non-Hispanic white persons at a hospitalization rate of 40.1 per 100,000.<sup>12</sup> A retrospective cohort study from Price-Haywood et al. (2020) additionally reports higher rates of hospitalization of Black patients, and these patients had a higher prevalence of hypertension, diabetes, and kidney disease.<sup>13</sup> Hypertension and type two diabetes were the most reported chronic health conditions among Black patients in this study. Additionally, Millet et al. (2020) report higher levels of COVID-19 diagnoses and deaths in predominantly Black counties.<sup>14</sup> The collected data illustrates Cass Clinic serves primarily Black communities, which have been shown to be disproportionately affected by COVID-19. Cass Clinic demonstrates a vital role in maintaining continuity of care in an effort to mitigate the impact of COVID-19 and the Michigan shelter-in-place order on Black patient populations.

Qualitative data collected for this study analyzed three pieces of information to help Cass Clinic understand the needs and concerns of its patients: primary concern and multiple general concerns surrounding COVID-19, and patient-reported reasons for utilizing Cass Clinic. COVID-19 related health concerns were the most reported worry of the patient group, both as a general concern and primary concern. Patient-participants consistently reported concerns for their own health, the health of their family, and public health recommendation compliance by the public. One quote from a patient that exemplifies this theme states, “I have major concerns about my mortality, hoping I make it to the next week.” Cass Clinic was able to address patients' concerns directly. While practicing CDC guidelines at Cass Clinic, patients were given resources to ensure their safety while decreasing the probability of contracting the virus. Patients were educated on hand hygiene and surgical mask maintenance to reinforce social distancing guidelines. Understanding the primary concerns of vulnerable patient populations in the Detroit area allows healthcare services like Cass Clinic to adapt their

tools and resources to best fit the needs of the patients they serve.

Each patient's reason for coming to the clinic was assessed to understand which factors impacted their choice to receive care with Cass Clinic. Ease of access was the most reported reason and included factors such as proximity to residence and convenience. If the clinic were too far, these patients might not be able to seek care due to unstable transportation, healthcare costs, or concern of contracting COVID-19. Consistent maintenance of regular Cass Clinic hours during the shelter-in-place order guaranteed patients would have access to healthcare in a convenient and reliable location. Health insurance status was another major decision factor for patients who use Cass Clinic, as Cass Clinic does not require health insurance. 65% of patients in this survey use Cass Clinic as their primary healthcare provider, therefore it is vital that the clinic continue providing services. One patient testimonial which reflects this theme states "I am uninsured and do not believe I would be able to obtain healthcare anywhere else." Cass Clinic was able to ensure continuity of care to many local, underserved patients with chronic conditions and bridge gaps in healthcare access during a global health crisis.

#### *Future Studies*

Future studies could be directed at understanding the effectiveness of the offered resources in health maintenance and addressing health inequities. A needs assessment could also be conducted to understand better the challenges patients face in access to care and adherence to treatment, allowing SRFCs to create additional resources and tailored interventions to reduce barriers to care for vulnerable populations.

#### *Limitations*

One limitation of the study design was the time constraint. Due to the nature of the study, the duration of data collection was limited by the end-date of Michigan's shelter-in-place order, leading to small sample size.

Another limitation of the study is the lack of a randomized sample. Participants who utilized Cass Clinic services during the Michigan shelter-in-place order self-selected to participate in the

study. This limits eligibility to those who knew the clinic remained open during the pandemic, which was advertised through social media. Patients that normally would have come to Cass Clinic, but who do not or are unable to follow its social media presence, may have been less likely to have participated in the study. Therefore, the perceptions portrayed in this study regarding the utility of Cass Clinic during the pandemic may not fully represent the perceptions of the intended population. Additionally, due to the non-random sample and small sample size, thematic saturation may not have been reached. However, the survey design allowed the establishment of emerging comprehensive themes.

#### *Strengths*

The strengths of this study are the questions and thematic analysis used to understand patient concerns about the COVID-19 during the Michigan shelter-in-place order. Questions directed at better understanding patients' decision-making, clinic utilization, and concerns during the pandemic were left open-ended so that participants could openly share their experiences. The thematic analysis was conducted by three researchers, which lessened potential biases when analyzing patient testimonials for common themes.

### **Conclusion**

Cass Clinic serves a vital role to the Detroit community during the COVID-19 Michigan shelter-in-place order and demonstrates the importance of providing continuous, reliable, and safe healthcare. Services provided to patients of Cass Clinic include resource distribution, medication refills, free physical examinations, and laboratory testing. During the shelter-in-place order, medication dispensation and distribution of personal protective equipment have been crucial components of serving the Detroit patient population. From this assessment, it was found that many of Cass Clinic's patients' concerns about the pandemic were addressed by the services Cass Clinic provided. Finally, the use of SRFCs during shelter-in-place orders allows for medical management of chronic health conditions that can contribute to severe adverse health

outcomes in those with COVID-19 infection.

### Disclosures

The authors have no conflicts of interests to disclose.

### References

1. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 [Internet]. Geneva (CH): World Health Organization; 2020 Mar 11. [accessed 2020 Nov 20] Available from: [www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020](http://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020) [LINK](#)
2. van Dorn A, Cooney RE, Sabin ML. COVID-19 exacerbating inequalities in the U.S. *Lancet*. 2020 Apr 16; 395(10232):1243-4. [LINK](#)
3. Hemba KE, Plumb J. JeffHOPE: The development and operation of a student-run clinic. *J Prim Care Community Health*. 2011 Jul 1;2(3), 167-72. [LINK](#)
4. Simpson SA, Long JA. Medical student-run health clinics: important contributors to patient care and medical education. *J Gen Intern Med*. 2007 Jan 5;22(3), 352-356. [LINK](#)
5. Ellet JD, Campbell JA, Gonsalves WC. Patient satisfaction in a student-run free medical clinic. *Fam Med*. 2010 Jan;42(1), 16-8. [LINK](#)
6. Google Maps. Detroit, Michigan [Internet]. Mountain View (CA): Google; [accessed 2020 Dec 6]. Available from: [www.google.com/maps/place/Detroit,+MI/@42.3818703,-83.1375974,11.79z/data=!4m5!3m4!1s0x8824ca0110cb1d75:0x5776864e35b9c4d2!8m2!3d42.331427!4d-83.0457538](http://www.google.com/maps/place/Detroit,+MI/@42.3818703,-83.1375974,11.79z/data=!4m5!3m4!1s0x8824ca0110cb1d75:0x5776864e35b9c4d2!8m2!3d42.331427!4d-83.0457538). [LINK](#)
7. Income By Zip Code [Internet]. Austin (TX): Cubit Planning Inc; [accessed 2020 Dec 6] Available from: <https://www.incomebyzipcode.com/>. [LINK](#)
8. Assistant Secretary for Planning and Evaluation. 2018 Poverty Guidelines [Internet]. Washington (DC): United States Department of Health and Human Services, Office of The Assistant Secretary for Planning and Evaluation; 2018 Jan 18 [accessed 2020 Dec 6]. Available from: [aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2018-poverty-guidelines](http://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2018-poverty-guidelines). [LINK](#)
9. United State Census Bureau. Quick Facts: Wayne County, Michigan [Internet]. Washington (DC): United States Department of Commerce; [accessed 2020 Dec 6]. Available from: [www.census.gov/quickfacts/waynecountymichigan](http://www.census.gov/quickfacts/waynecountymichigan). [LINK](#)
10. Center for Disease Control and Prevention. Medical Conditions [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 2020 Jun 25 [accessed 2020 Dec 1; updated 2021 Oct 14]. Available from: [www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html](http://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html). [LINK](#)
11. United States Census Bureau Quick Facts: Detroit city, Michigan; Wayne County, Michigan [Internet]. Washington (DC): United States Department of Commerce; [accessed 2020 Dec 2]. Available from: <https://www.census.gov/quickfacts/fact/table/detroitcitymichigan,waynecountymichigan/PST045219>. [LINK](#)
12. Center for Disease Control and Prevention. Health Equity Considerations & Racial & Ethnic Minority Groups [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 2020, July 24 [accessed 2020 Dec 6; updated 2021 Apr 19]. Available from: [www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html](http://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html). [LINK](#)
13. Price-Haywood EG, Burton J, Fort D, Seoane L. Hospitalization and mortality among Black patients and white patients with Covid-19. *N Engl J Med*. 2020 Jun 25; 382(26):2534-43. [LINK](#)
14. Millett GA, Jones AT, Benkeser D, et al. Assessing differential impacts of COVID-19 on black communities. *Ann Epidemiol*. 2020 Jul;47:37-44. [LINK](#)