COVID-19 STAKEHOLDER EXPERIENCES IN THE COMMONWEALTH OF KENTUCKY

Center of Excellence in Rural Health

CENTER *for* RURAL HEALTH RESEARCH
EAST TENNESSEE STATE UNIVERSITY

ACKNOWLEDGEMENTS

University of Kentucky Center of Excellence of Rural Health
The University of Kentucky Center of Excellence in Rural Health was established by state legislation in 1990 to address health disparities in rural Kentucky and the unique challenges faced by our communities. The mission was and still is today to improve the health and well-being of rural Kentuckians. For three decades, the Center has partnered with communities, providers, students, and individuals to provide health professions education, health policy research, health care service, and community engagement toward reaching this mission.

The center is responsible for the creation, dissemination, and data collection of the COVID-19 stakeholder survey as well as oversite of this report and accompanying appendices.

Center of Excellence in Rural Health Research Committee
The Center's research committee, with representation from the UK Colleges of Health Sciences, Public Health, Social Work and Medicine, guides the research efforts of the center. The research committee members contributed to the COVID-19 stakeholder survey by reviewing the questionnaires and assisting in dissemination of the surveys.

Kentucky Homeplace Community Health Workers
Kentucky Homeplace is operated by the University of Kentucky Center of Excellence in Rural Health and serves a geographic region that includes most of the counties in eastern Kentucky. The community health workers at Kentucky Homeplace played an outsized and important role in data collection, providing a sample of their service population and a voice to their clients that would otherwise be missed through other means of data collection.

East Tennessee State University Center for Rural Health Research
Housed in the East Tennessee State University College of Public Health, the Center for Rural Health Research works to improve health and well-being at the community, state, regional, and national levels. Located in the heart of Appalachia, the Center fulfills its mission by engaging rural communities to advance health and improve quality of life through innovative solutions that contribute to the expanding evidence base of what works in rural America. The Center works to honor and preserve its rich Appalachian heritage through distinctive research, community engagement, training, and policy.

The Center for Rural Health Research provided expertise in data analysis and review and is primarily responsible for analysis and review of collected survey data and content of this report and accompanying appendices.

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BACKGROUND

Screening and early intervention are key in preventing and treating chronic health diseases and conditions (American Cancer Society, n.d.; AAFP, 2020). Screening is especially critical in identifying and diagnosing cancer; the earlier cancer is detected, the more treatments are available and the higher likelihood of survival (American Cancer Society, n.d.). During the COVID-19 pandemic, screening and routine care rates have dropped significantly leaving thousands of Americans at risk of having undiagnosed chronic health diseases, being on medications or incorrect doses of medications, and missing the critical timeframe for treating invasive diseases.

Overall, visits to physician practices have been reduced by an estimated 70-80% which can be directly attributed to changes in office protocols due to COVID-19 and the restrictions on travel during the pandemic (IQVIA, 2020). A study in conjunction with the Centers for Disease and Prevention found 31.5% of American adults have delayed seeking routine care, which is vital for health screenings and 40.9% of individuals have totally avoided any type of medical care (Czeislar et al., 2020). Individuals with disabilities are three times more likely to have heart disease, diabetes, cancer, and high blood pressure (CDC, 2020) and often have lower rates in screening. Under normal conditions they do not often receive adequate healthcare, superimpose a disability on chronic health issues and a worldwide pandemic, the normal issues related to access to healthcare become compounded.

While telehealth appointments have increased about 25% and has potentially offset some of the decline in physician visits, lab testing has significantly declined by 75-80%, indicating American's are not being screened for diseases as they were before the pandemic (IQVIA, 2020). Medications treating chronic health conditions skyrocketed at the beginning of the pandemic, however, there has been a reduction in the number of new medications being filled, which suggests five million fewer patients engaged with a physician for treatment of chronic conditions (IQVIA, 2020).

Cancer screenings have fallen sharply since the beginning of the pandemic. According to the American Cancer Society, over 35% of American adults had a cancer screening scheduled but missed it due to COVID-19, which equates to an estimated 22 million screenings between March and June of 2020 alone. During the pandemic, diagnosis of the six most common types of cancer were reduced by 50%. IQVIA (2020) estimates 87% of mammograms and 90% colonoscopies have been delayed, resulting in possibly 54,800 cases of breast and colon cancer diagnosis being delayed. A decline of all types of screening (mammography, CT, prostate, Pap smear, and colonoscopy) could translate to over 80,000 cancer diagnoses being missed or delayed.

Emergency department use has also significantly decreased. Czeislar et al. (2020), reports 12% of Americans avoided using urgent care services or the emergency department during the pandemic. In turn, a significant decrease in individuals seeking emergency services for heart attack, stroke, and hypoglycemic events led to higher mortality among individuals with chronic illnesses. Individuals who avoided urgent and emergency care were statistically more likely to be unpaid caregivers, have two or more underlying medical conditions, black or Hispanic, ages 18-24, or persons with disabilities (Czeislar et al., 2020). Lab testing in emergency rooms declined 90% during the pandemic, again which can negatively affect the timely diagnosis of health issues and decrease the likelihood of healthy living and survival hood in some instances (IQVIA, 2020).

Rural Americans fair worse on health measures than other parts of the United States (RHIHub, 2019). Heart disease per 100,000 is much higher in rural counties than in the US (256 vs 218 per 100,000 respectively) (CDC, 2019). Health disparities in Kentucky are also much higher on average than in the United States. According to the 2020 America's Health Rankings, 10.8% of the US has been diagnosed with diabetes, whereas 13.3% of Kentuckians have diabetes. The same is true for heart disease and cardiovascular diseases; 8.4% of American's report being told they have some form of heart disease while 12.1% of Kentuckians report having heart disease (America's Health Rankings, 2020). The 2020 County Health Rankings report diabetes prevalence is four percent higher in Kentucky's rural counties than the nation (14% and 10% respectively).

The counties of Kentucky Homeplace Program (KHP) located in rural are no exception. Over 41% of clients in the KHP have diabetes, 67% have high blood pressure, 21% have heart disease, 27% have COPD, and 1% report having at least one kind of cancer (including skin cancer), based on 2019 KHP data (KHP Database, 2021). Office visits for screenings, check-ups, and lab work are vital for diagnosing conditions early, but even more important in high-risk populations such as KHP.

Individuals living in rural also already face unique barriers to accessing care. The geographical landscape makes public transportation extremely limited, high rates of poverty makes personal transportation a burden, geographic isolation reduces the number of hospitals and clinics, and rural areas often have too few health providers per capita (RHIhub, 2012). An already unhealthy population coupled with the public health and economic disruption of COVID-19, we expect Kentuckians, especially in rural areas, will face long-term consequences.

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KEY POINTS

- **Healthcare providers** reported that many in-person services had stopped and that other services were delivered remotely or via telehealth. Some services that were still in-person moved to curbside delivery, including family planning visits. Others described a shift in roles within the community, primarily to support COVID testing.
- When asked about the impact of COVID-19, **educators** described an expansion of roles among staff and a rapid adoption of new technology. Educators also described their staff as being dedicated to meeting the needs of their students including assuring access to food and learning materials for those without reliable internet.
- **Community health workers** (CHWs) stated that they had seen changes in the types of clients contacting them, observed changing needs of clients, had been required to change how they delivered services to clients, and noted changes to the work environment.
- **Community members, including clients of CHWs,** voiced concerns that they might catch the virus or were concerned that they would unintentionally infect more vulnerable members of their community. Depression was frequently self-reported among respondents.

INTRODUCTION

As the COVID-19 pandemic spread locally, nationally, and internationally in 2020, the University of Kentucky Center of Excellence in Rural Health conducted surveys of healthcare providers, educators, community health workers (CHWs), community members, and clients of CHWs, to assess their experiences with COVID-19 and the ensuing pandemic. Surveys were conducted in the fall of 2020 including questions that appeared across surveys, as well as questions geared towards each respondent group.

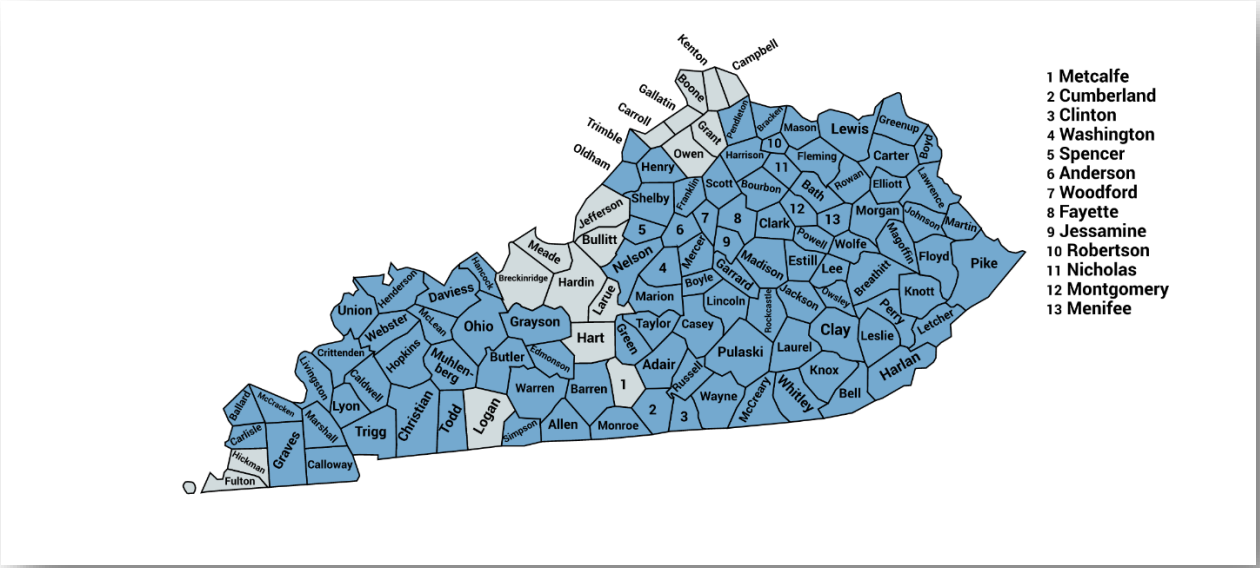
PARTICIPANTS

Surveys were received from 920 participants, including healthcare providers, educators, community health workers, community members, and clients of CHWs.

Healthcare providers

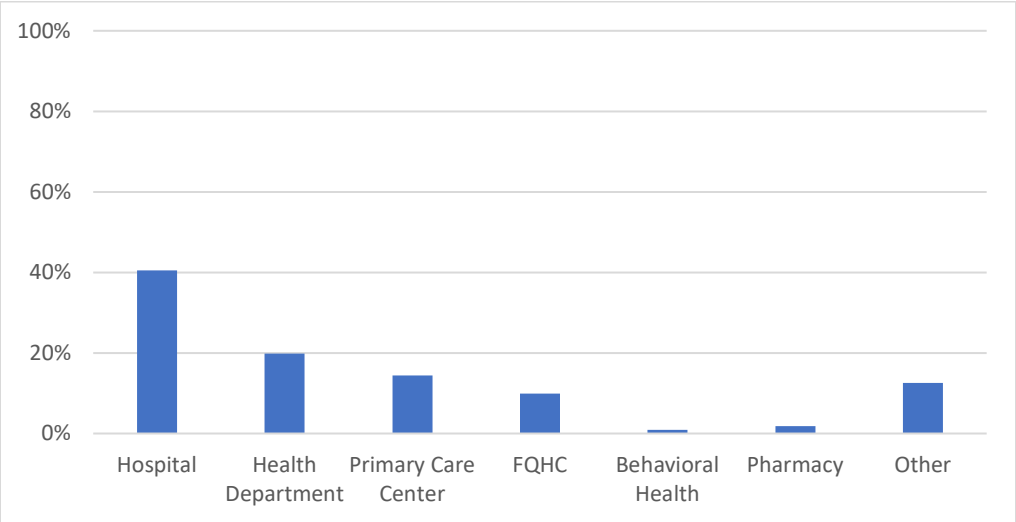
Healthcare provider surveys were sent to hospitals and healthcare facilities across the commonwealth of Kentucky. Responses were received from September 10, 2020, through October 14, 2020, with 114 responses (65 completed all questions; 57%). Participants in the survey were asked to describe their organization and what Kentucky County(s) their agency served. The majority of counties (102/120) within Kentucky were represented by an agency with a participating survey response (Figure 1).

Figure 1: Counties Represented among Healthcare Survey Respondents
Note: Small counties are named by number to the left of the map



Providers indicated they were primarily from hospital organizations (45/111) and health departments (22/111), with some representation from primary care centers (16/111) and Federally Qualified Health Centers (FQHCs) (11/111) (Figure 2). These 4 groups represented 85% of the respondents. Some respondents that stated, "Other" provided open ended text-based responses. These answers represented a variety of healthcare organizations including rural health clinics, non-profit agencies, emergency medical services (EMS), a regional health commission (RHC), and critical access hospitals.

Figure 2: Types of Organizations Represented by Healthcare Respondents



Educators
The educator survey was sent to all superintendents and principals across Kentucky in early September 2020. From September 9, 2020, through September 17, 2020, 10 responses were received, 8 of which were fully complete (80%). The respondents included 9 school principals and 1 superintendent.

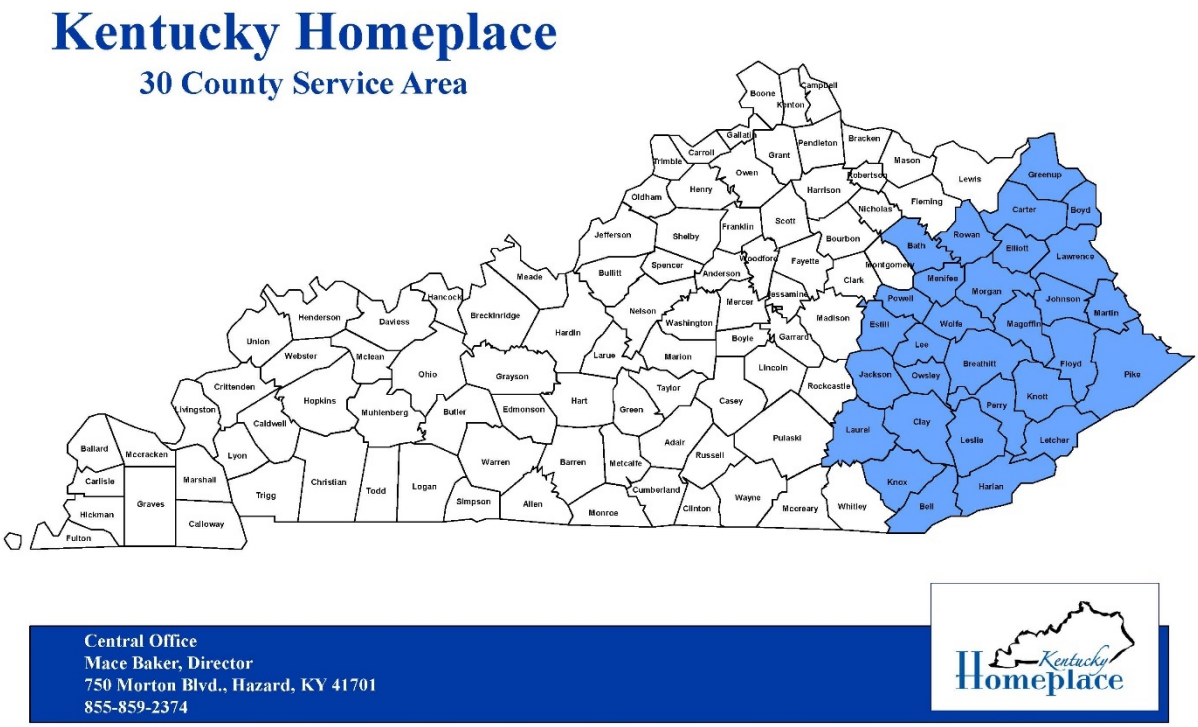
Community Health Workers
A survey was sent statewide to the Community Health Workers (CHWs) via the Kentucky Association of Community Health Workers listserv (n=103). Survey responses were received between September 8, 2020, and September 24, 2020. A total of 31 responses were received, with 25 of those fully complete (81%).

Clients of CHWs
Kentucky Homeplace CHWs completed surveys on behalf of their clients. Kentucky Homeplace is operated by the University of Kentucky Center of Excellence in Rural Health and serves a geographic region that includes most of the counties in eastern Kentucky (30 counties, Figure 3).

These surveys took place over a longer period of time than the other 4 surveys (July 28, 2020, through October 19, 2020) and include over 500 responses. Of the 517 responses received, 4 were marked as "spam" by Qualtrics and excluded from the report. Of the remaining 513 responses, 503 were complete (98%).

Community members
The University of Kentucky Center of Excellence in Rural Health maintains a Facebook page where a link was posted to allow followers/community members to access and respond to the survey. They have followers from across the commonwealth of Kentucky, though the majority of these responses are likely concentrated in the eastern Kentucky region. Responses were received between September 8, 2020, and September 22, 2020. Of the 252 responses received, 1 was identified as spam (from the Qualtrics platform) and excluded from the report, leaving 251 responses (210 fully complete; 84%). Where appropriate, two sets of analyses are included. One contrasts responses between all community members and CHW clients, and the second compares only community members and CHW client respondents that stated they had previously undergone a COVID-19 test. Figures showing comparisons across all respondents are displayed in blue and orange; figures showing comparisons among individuals tested for COVID-19 are displayed in gray and yellow.

Figure 3: Kentucky Homeplace Service Region



Key differences between Kentucky Homeplace CHW clients and community members:
There are key demographic differences between the Kentucky Homeplace population referenced throughout this report as "CHW clients" and the general population of Kentucky, a sample captured through "community members" responses. A majority of Kentucky Homeplace clients served between 2020 and 2021 are female (57%), 43% of clients have a high school education, 22% of clients have had some college or are college graduates. The median income in the counties served by Kentucky Homeplace is $15,684 compared to the state median income of $44,882. In comparison, Kentucky Homeplace counties have 9% higher rate of poor or fair health status, 8% higher rate of smoking and a 6% higher rate of obesity than national averages.

METHODS

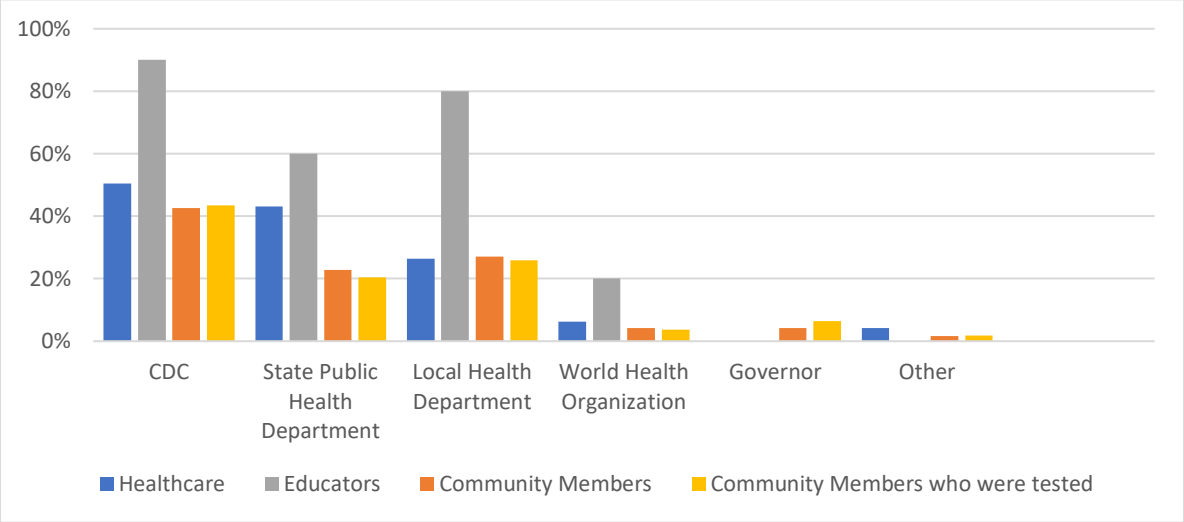
All percentages are reported using denominators from non-missing records. Descriptive statistics were calculated using SAS vs. 9.4. Word clouds were generated via WordArt.com and used to visualize important themes from open-ended questions. Surveys sent to community members and clients of CHWs largely included the same questions, and these questions were evaluated both by group overall (community members and clients of CHWs) and by group for only those respondents who indicated they had been tested for COVID-19. Comparisons between groups were examined via Chi-Square tests.

RESULTS

Overview

In general, participants received their information from a variety of sources (Figure 4), including the Centers for Disease Control and Prevention (CDC) (48/95 healthcare; 101/237 community members; 9/10 educators), State (41/95 healthcare; 54/237 community members; 6/10 educators) and Local Health Departments (25/95 healthcare; 64/237 community members; 8/10 educators), and the World Health Organization (WHO) (6/95 healthcare; 10/237 community members; 2/10 educators). Community members also relied on information from the governor, although this was similar to their reliance on the WHO (10/237). Educators seemed to rely more heavily on governmental health organizations (CDC, state and local health departments, and the WHO), although the sample size was small (n=10 total) and may not represent educators who did not respond to the survey.

Figure 4: Respondent Sources of Information about COVID-19



EFFECTS OF THE COVID-19 PANDEMIC ON RESPONDENTS AS RECORDED IN [OPEN-ENDED] RESPONSES

All surveys contained open-ended responses. While difficult to quantify, these responses offer insight into the thoughts and experiences of individual respondents. As expected, all surveyed groups reported changes to their professional and personal practices in response to the COVID-19 pandemic. Below is a summary of open-ended responses:

Healthcare:

Healthcare respondents stated primarily that in-person services had stopped, and that services such as WIC and education classes were being delivered remotely or via telehealth. Some stated that services

that were still offered in-person had been moved to curbside delivery, including family planning visits. Others described a shift in roles within the community, primarily to support COVID testing. Respondents working in pharmacies, specifically, described the process of installing plexiglass and re-assessing in-person processes needed to continue services more safely.

Educators:
When asked about impact to personal life, educators reported changes to every aspect of life, including losing a family member and not being able to see them in the hospital due to restrictions. Professionally, educators described an expansion of roles among staff and a rapid adoption of new technology. Educators also described their staff as being dedicated to meeting the needs of their students including assuring access to food and learning materials for those without reliable internet.

CHWs:
CHWs stated that they had seen changes in the types of clients contacting them, changes in client needs, had been required to change how they delivered services to clients, and noted changes to the work environment. Approximately half (13/24) felt that it was safe to begin reopening and reducing restrictions, and were optimistic that proper precautions (distancing, facemasks, etc.) would allow for reopening.

Community members (including CHW clients):
Community members stated that they had experienced delays in important activities, including doctor visits and preventative exams. Across surveys, many voiced concerns that they might catch the virus or were concerned that they would unintentionally infect more vulnerable members of their community. Isolation from family and friends and missing social events like church were also common responses. Respondents also expressed feelings of general anxiety and fear of the unknown. Depression was frequently self-reported among respondents. Stress related to potential loss of work or an increase in workload as an essential worker were also expressed as concerns.

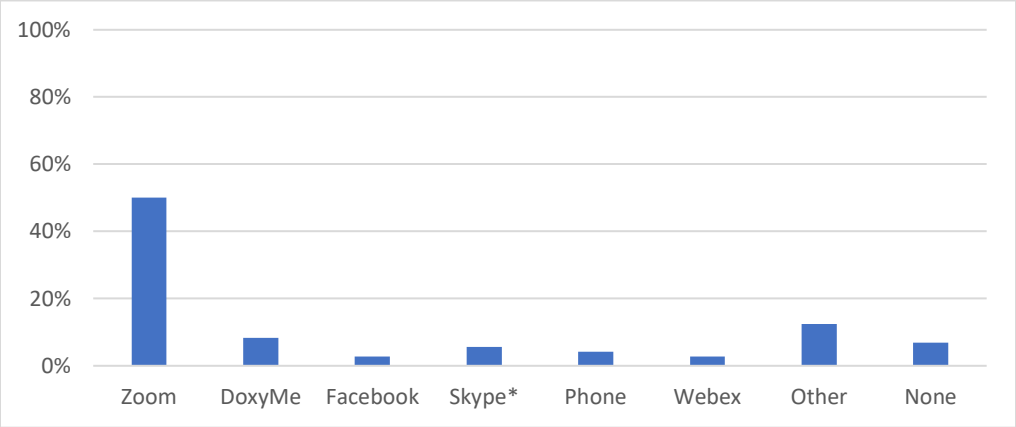
Looking to the long term, respondents stated that they were concerned that COVID-19 may permanently alter day-to-day life in their area. Many others stated that the lack of availability of supplies and increased prices at stores added to their anxiety. Some felt conflicted about childcare and schooling if they had to start working out of the home again. Some respondents were concerned about the behavior of others spreading COVID-19 while others were concerned that people around them were not taking the virus seriously and causing increased sickness and death in their communities. Still others expressed distrust in the government and the media's coverage of the virus.

IMPACT OF COVID-19 ON TELEHEALTH ADOPTION AND PRACTICE

Slightly more than half (40/70) of healthcare respondents reported having a Business Associate Agreement with their application vendor, and less than 25% (17/71) reported having their telehealth platform integrate with their electronic health record (EHR). A large portion of the healthcare responses (54/114) indicated interest in receiving training and resources for telehealth, indicating a desire to learn

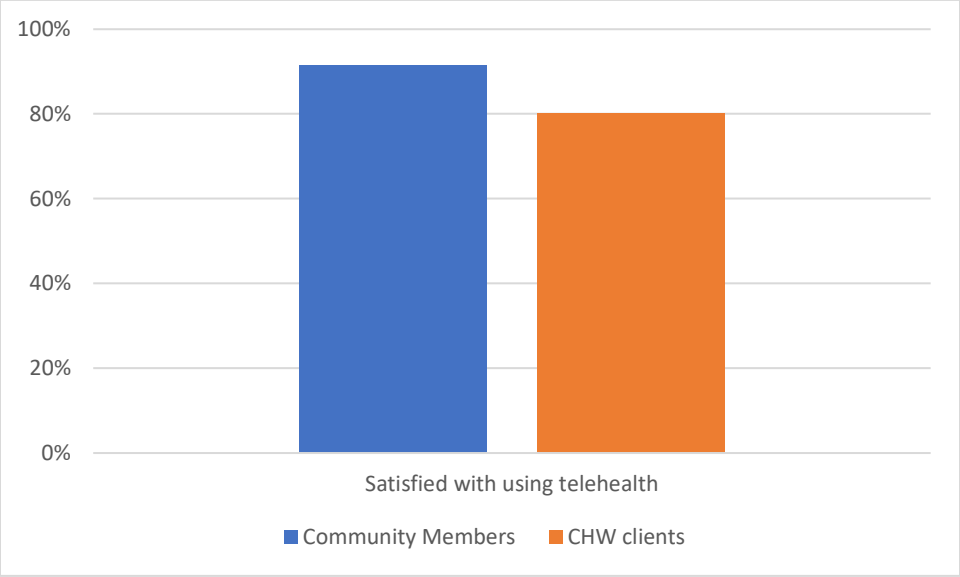
more about telehealth options. Figure 5 shows the commonly used telehealth platforms reported by healthcare respondents.

Figure 5: Telehealth Platforms Reported by Healthcare Respondents



Approximately 30% of community members (81/251) and clients of CHWs (136/513) reported using telehealth to see providers (since March 2020). Almost all (84%: 183/217 overall) reported being satisfied with using telehealth (Figure 6). Among those who utilized telehealth but reported they were unsatisfied with their telehealth visit (n=34), a majority of both groups reported "Other" (n=24) when asked about reasons they were not satisfied with their telehealth visit, with open-ended responses including reasons such as bad internet connection, lack of physical examination, visit conducted by a nurse instead of doctor, inadequate care, not personal, no blood pressure check, rushed and impersonal, and shorter visit. A small but important percentage of responding community members and CHW clients (29%: 2/7 and 19%: 5/27, respectively) stated that they were uncomfortable using a telephone. Similarly, 14% of community members (1/7) and 11% of CHW clients (3/27) reported being uncomfortable using the computer.

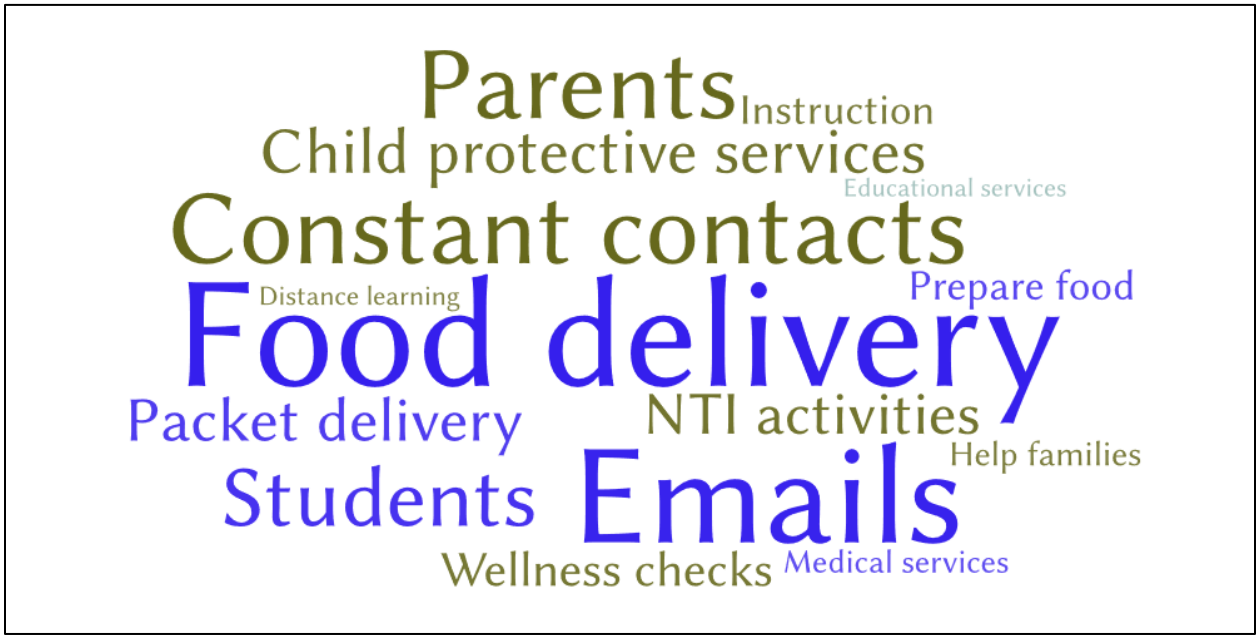
Figure 6: Community Member and CHW Client Satisfaction with Telehealth



IMPACT OF COVID-19 PANDEMIC ON EDUCATORS

Educators expressed that teachers had taken on additional roles to make sure that the needs of children were being met (Figure 7), in addition to moving to virtual and hybrid systems for teaching. Despite several respondents reporting the use of the Non-Traditional Instruction Program (NTI) *during* the COVID-19 pandemic, the majority of the educators that participated in the survey did not use NTI *prior* to COVID-19, as only 1 respondent expressed some previous use of NTI prior to the pandemic. Educators responded that increasing digital fluency and digital content among staff, "flip classroom" methodologies (a system of online instruction prior to class time and in-person assistance with assignments during school hours), and shifting to digital meetings for staff and parents, were all changes that were made for COVID-19. Many of these were also seen as having potential utility after the pandemic. Despite these efforts, the majority of educator survey respondents (7/8) expressed concern that children were not receiving the educational support and guidance that they needed.

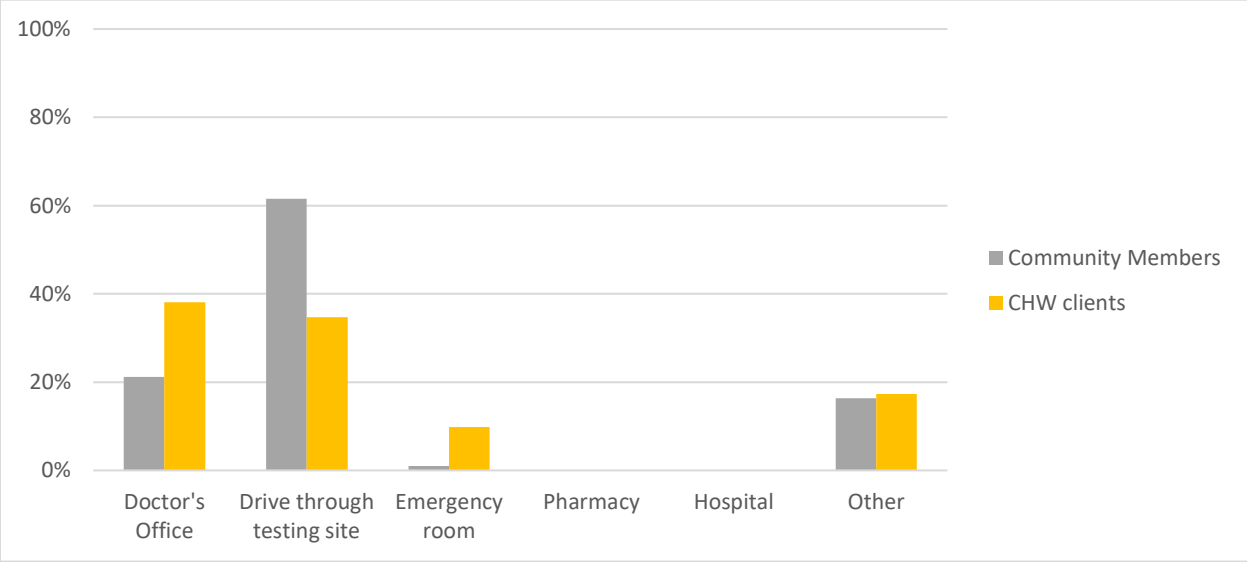
Figure 7: Common Educator Responses on their Roles in Addressing Student Needs



TESTING AND VACCINE ATTITUDES AMONG COMMUNITY MEMBERS

Community member respondents (46%) were more likely to report being tested for COVID-19 than clients of CHWs (34%) (112/145 vs. 174/507; p=0.003). Of those tested, most community members reported going to drive through testing sites (64/104) compared to clients of CHWs, who reported similar rates of testing at doctor's offices (66/173) and drive through testing sites (60/173) (Figure 8). In addition, 10% of clients of CHWs reported being tested at the emergency room (17/173) compared to <1% of community members (1/104). The vast majority of both community members (94%: 98/104) and CHW clients (95%: 163/171) reported testing negative for COVID-19, when tested.

Figure 8: Location of COVID-19 Testing for Community Members vs. CHW Clients (of those individuals who reported being testing for COVID-19; n=286)



When asked where they would prefer to be tested, 63% of all community members stated that they would prefer to receive COVID-19 testing through a drive through testing site (145/229), while only 34% of CHW clients stated they would prefer testing through a drive through site (166/490). CHW clients preferred the option of testing through a doctor's office (287/490) with 38% preference vs. 21% of community members (74/229) preferring the doctor's office ($p<0.0001$) (Figure 9). This pattern was similar for those that had reported being tested for COVID-19 (Figure 10).

Figure 9: Preferred Testing Location: Community Members vs. CHW Clients (all respondents)

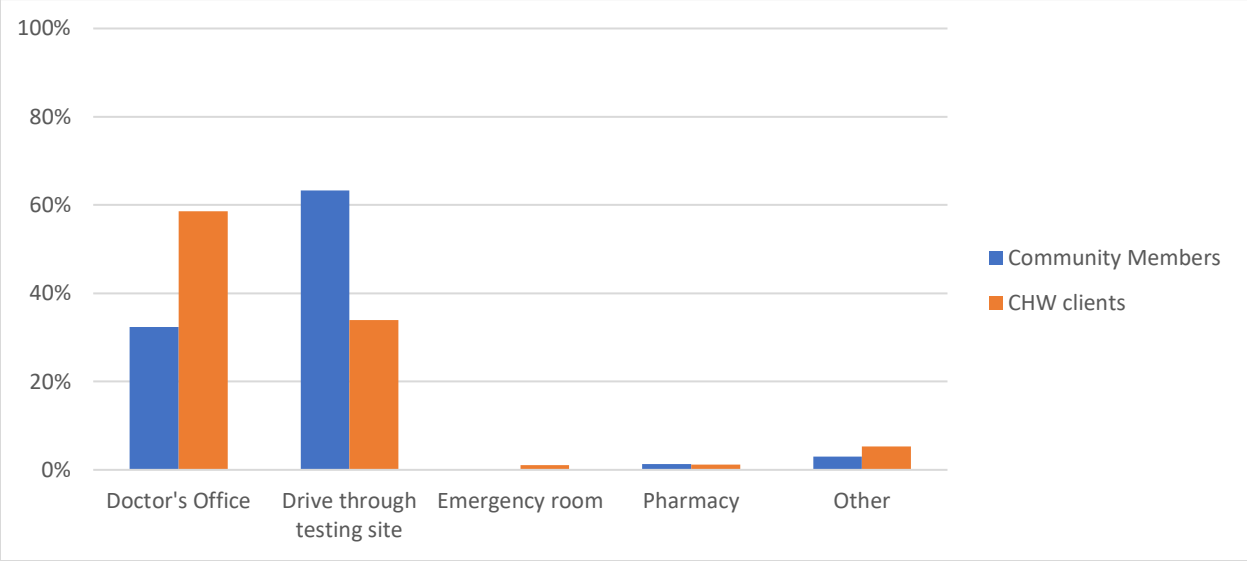
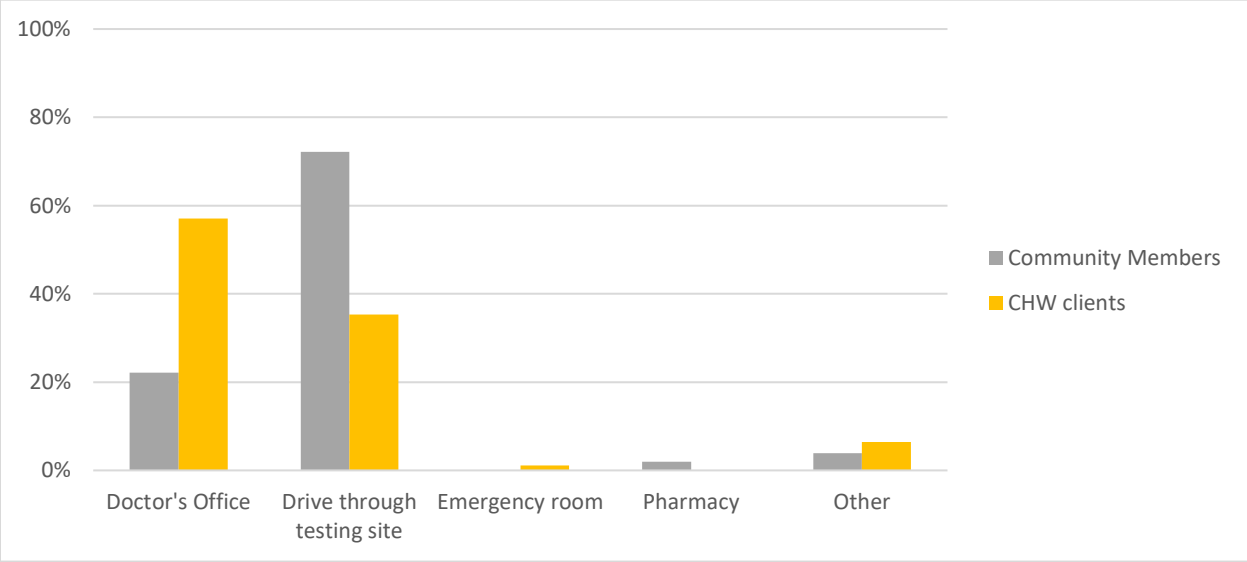


Figure 10: Preferred Testing Location: Community Members vs. CHW Clients (of those individuals who reported being testing for COVID-19)



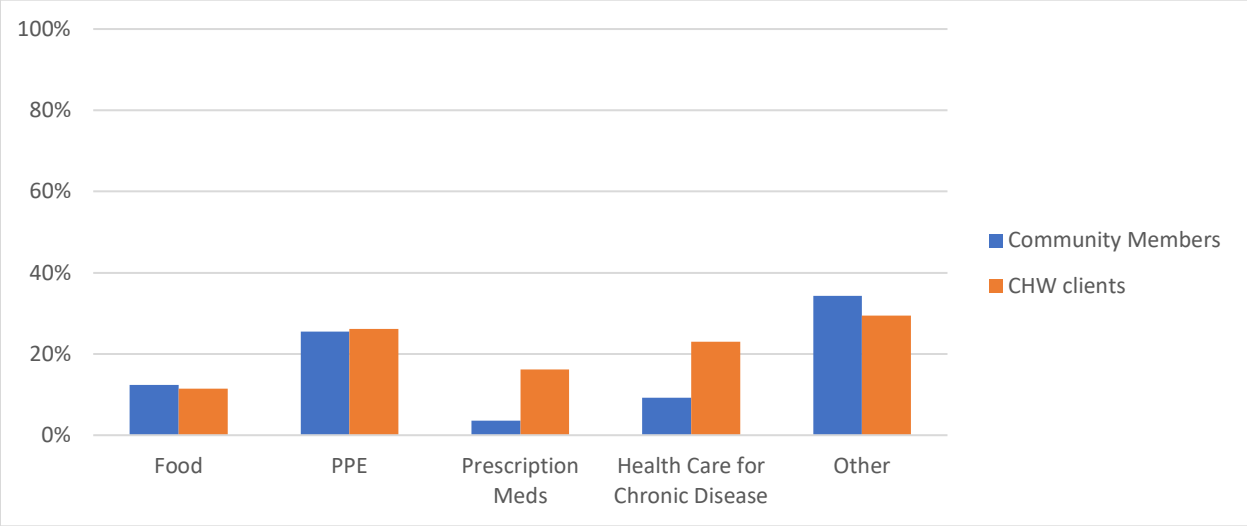
A plurality of both community members and CHW clients reported "don't know" if they were willing to get a COVID-19 vaccine if it was approved by the US FDA (Note that at the time of the survey, no vaccine was currently available). Similar numbers of each group (31%: 64/209 of community members and 28%: 141/499 of CHW clients) stated they would be willing to get the vaccine, and similar numbers of each group (28%: 58/209 and 27%: 134/499, respectively) stated they would not be willing to get the vaccine.

BARRIERS TO STAY-AT-HOME ORDERS FOR INDIVIDUALS

When asked about barriers faced during COVID-19 virus stay at home and/or shelter in place orders (Figure 11), the most common response was "Other". These open-ended "other" barrier responses ranged widely, including access to basic daily needs, healthcare and hospital stays, diapers, family and friends, freedom, stores for cleaning supplies, to the public, all of the above and no unemployment, church and social activities, child care, employment, empty stores, fears (alone, getting virus), hand sanitizer, home repairs, transportation, online education for children, insurance copays, income, job stress, mental health, housing, and reliable internet.

The second-most-reported barrier in both groups was access to PPE with 26% of both community members (64/251) and CHW clients (134/513) ($p=0.7$). Access to food was a concern for 12% of both community members (31/251) and CHW clients (59/513) ($p=0.9$). Access to prescription medications ($p<0.001$) and access to health care for chronic diseases ($p<0.001$) was of higher concern to CHW clients (83/513 and 118/513, respectively) than for community members (9/251 and 23/251, respectively). Responses were similar for those individuals reporting being tested for COVID-19.

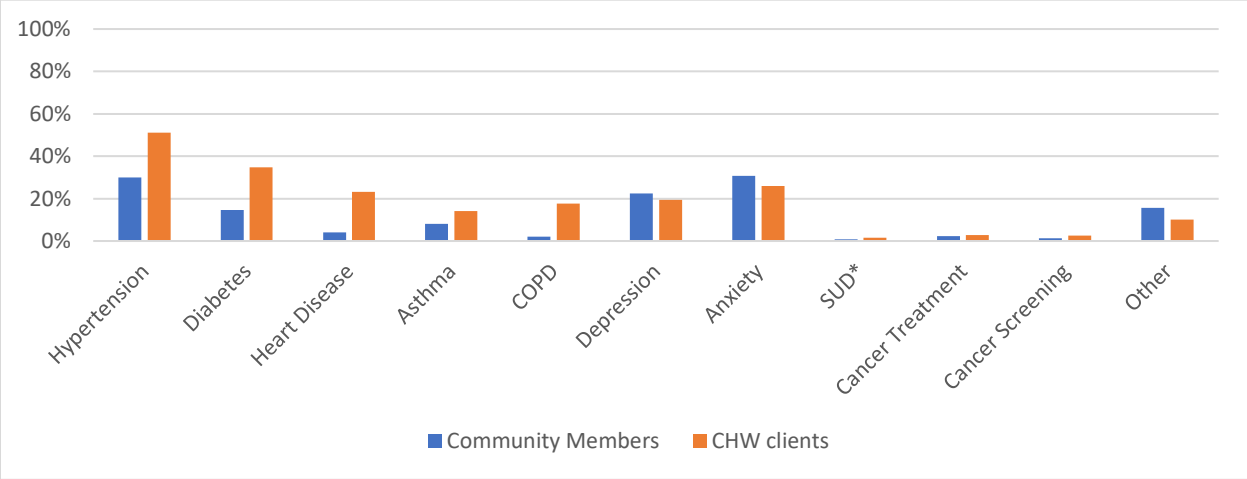
Figure 11: Barriers Faced During COVID-19 Stay at Home and Shelter In Place Orders: Community Members vs. CHW Clients (all Community Member and CHW Client respondents)



IMPACT OF COVID-19 PANDEMIC ON PATIENT ACCESS TO CARE

Many respondents to both the community member and CHW client surveys reported receiving treatment for a variety of chronic conditions, prior to the COVID-19 pandemic (Figure 12). Clients of CHWs were more likely to receive services for hypertension (51%: 262/513) compared to community members (30%: 75/251) ($p<0.001$). This trend of higher service utilization in clients of CHWs (vs. community members) was true across several chronic diseases including: diabetes (35%: 178/513 vs. 15%: 37/251; $p<0.001$), heart disease (23%: 119/513 vs. 4%: 10/251; $p<0.001$), asthma (14%: 72/513 vs. 8%: 20/251; $p=0.02$), and COPD (18%: 91/513 vs. 2%: 5/251; $p<0.001$). Slightly more community member respondents than CHW clients were receiving services for mental health concerns, including depression (22%: 56/251 vs. 20%: 100/513; $p=0.4$) and anxiety (31%: 77/251 vs. 26%: 133/513; $p=0.2$), though these differences were not statistically significant. When looking only at respondents that had previously been tested for COVID-19, responses were similar to the full sample.

Figure 12: Health Services Received Prior to COVID-19: Community Members vs. CHW Clients (all Community Member and CHW Client respondents)

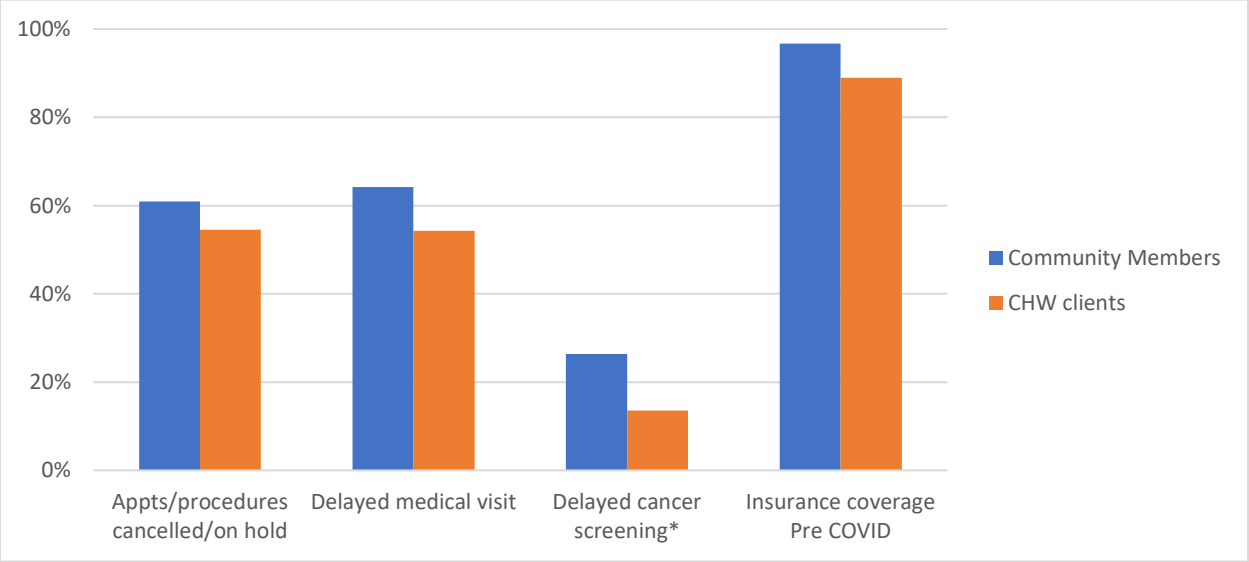


*SUD = Substance Use Disorder

Clients of CHWs reported slightly more positive responses than community members when asked a series of questions dealing with their medical care and COVID-19, though both groups reported experiencing appointments/procedures cancellations/delays, medical visit delays, and delays with cancer screenings due to the pandemic (Figure 13). The most common reasons reported for delaying a visit with a provider included fear of going to doctor during the pandemic and being unable to get an appointment (Figure 15). Telehealth was also reported as a reason for delay, though this was less common when looking at a subsample of only those respondents who were tested for COVID, telehealth was reported more often) (Figure 16). Fear was reported as the most common reason for delaying preventative cancer screening with 60% (40/67) of clients of CHWs and 46% (27/59) of community members citing fear. Most individuals who reported seeing their providers since March 2020 reported seeing them in office (125/251 community members and 322/513 CHW clients) or via telehealth (81/251 community members and 136/513 CHW clients).

The vast majority of both groups reported having insurance coverage pre-pandemic (Figure 13). Interestingly, of those that did not report having insurance prior to COVID-19, almost all clients of CHWs (54/55) signed up for Presumptive Eligibility (PE) Medicaid compared to only 29% (2/7) of community members. When considering those tested for COVID-19, all clients of CHWs (19/19) and one-quarter (1/4) of community members reported signing up for PE Medicaid (Figure 14).

Figure 13: Impact of COVID-19 on Medical Care: Community Members vs. CHW Clients (all Community Member and CHW Client respondents)



*19.20% of community members and 33.06% of CHW clients reported screenings were up-to-date

Figure 14: Registered for PE Medicaid if no insurance coverage before COVID-19

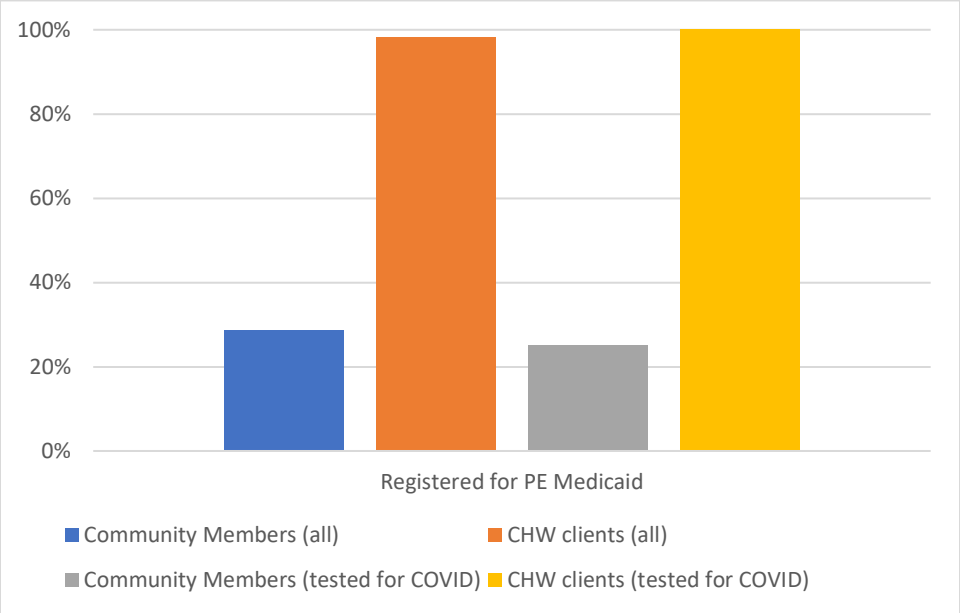


Figure 15: Reasons for Delay of Care: Community Members vs. CHW Clients (all Community Member and CHW Client respondents)

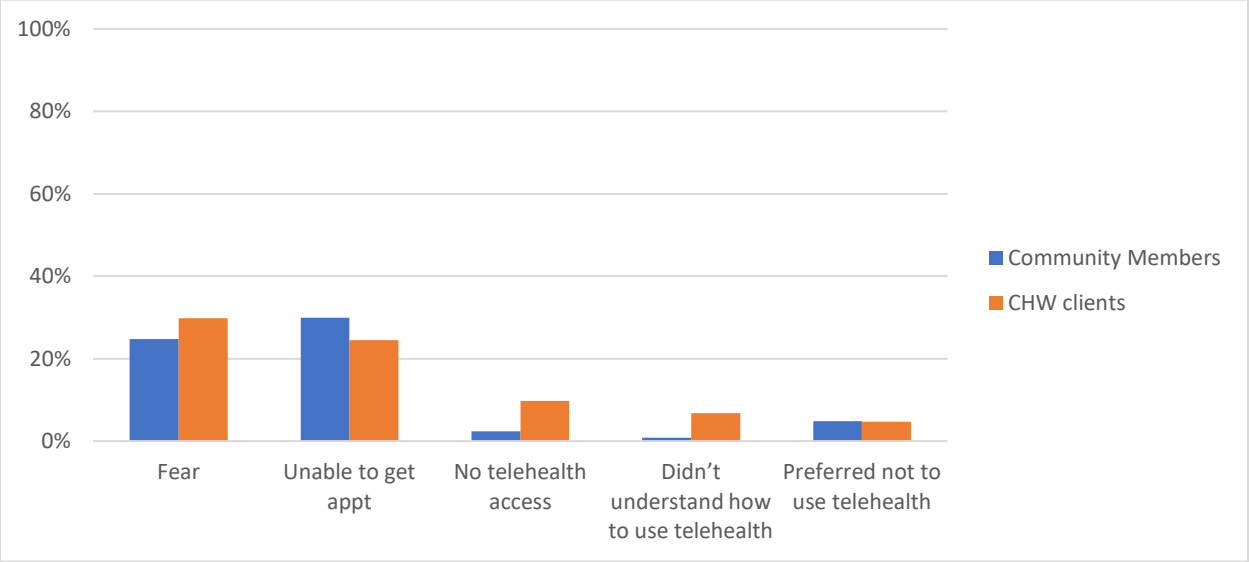
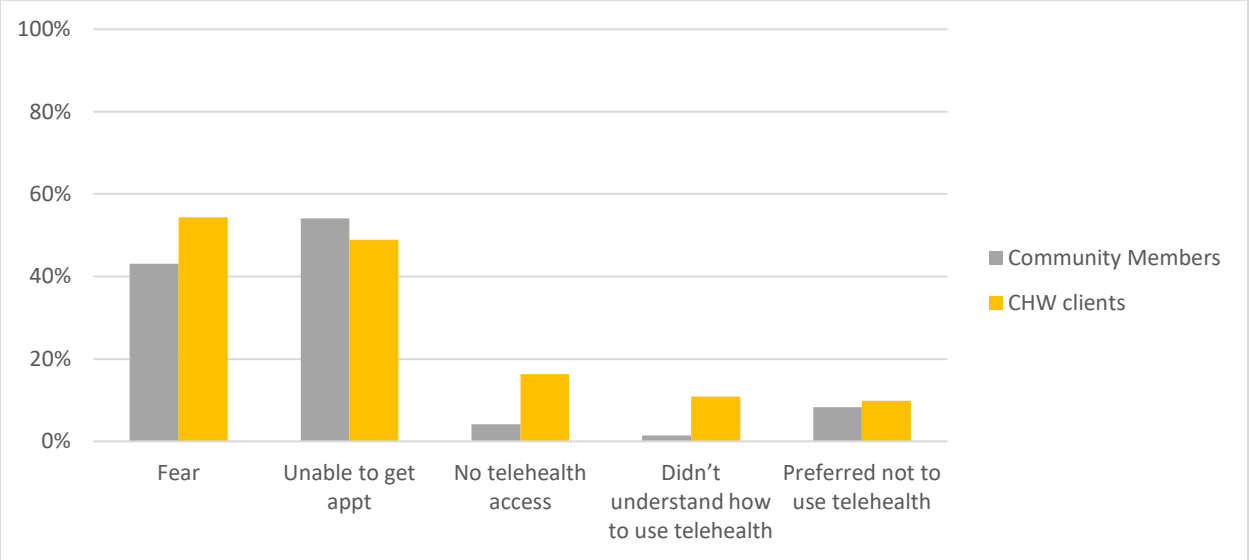


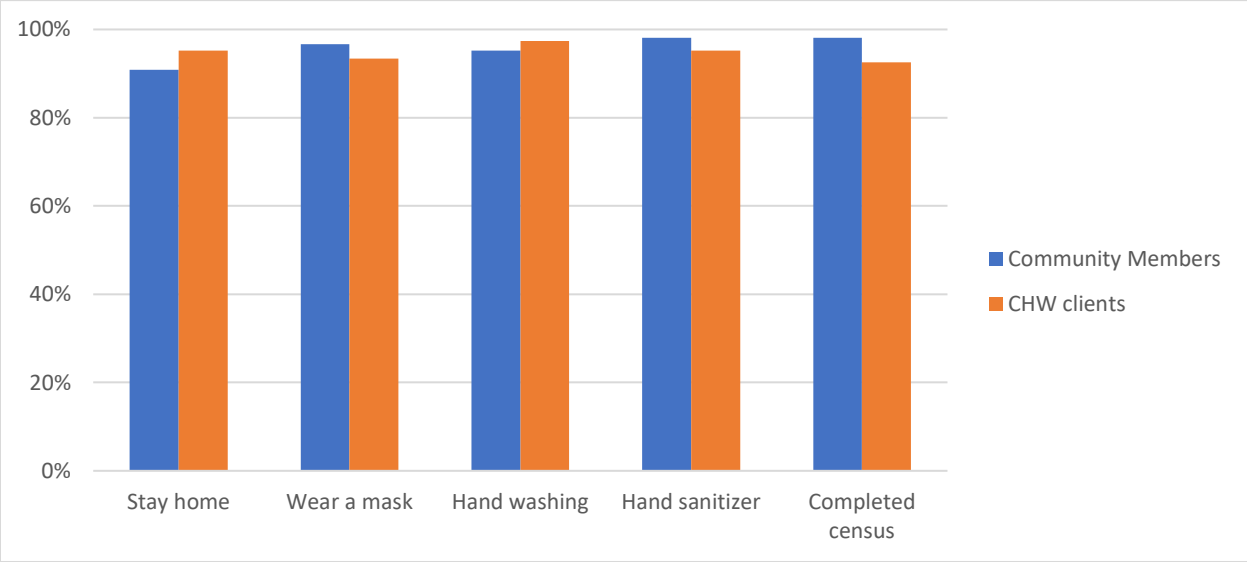
Figure 16: Reasons for Delay of Care: Community Members vs. CHW Clients (of those individuals who reported being testing for COVID-19)



ADHERENCE TO CDC GUIDELINES AND RECOMMENDATIONS

Almost all respondents reported following recommended guidelines for staying safe as prescribed by the CDC (staying home, wearing a mask, hand washing, and using hand sanitizer) and reported completing the Census for their families (Figure 17).

Figure 17: Adherence to Guidelines and Recommendations, and Census Completion: Community Members vs. CHW Clients (all Community Member and CHW Client respondents)



DISCUSSION

Across surveys, themes of adaptation and resiliency are present among professionals and individuals. A rapid shift to telehealth among health care organizations and providers, and a general acceptance by individuals to new methods of care were noted. Additionally, high adherence to CDC guidelines and precautions among respondents were also noted, though there is a possibility of respondent bias due to self-selection; that is, it is possible that individuals who are more likely to take a survey on COVID-19 may be active consumers of news related to COVID-19 and potentially more adherent to CDC guidelines. Another positive finding is the near-100% rate of sign up for Presumptive Eligibility (PE) Medicaid among CHW clients, versus the 29% rate among community members. This finding highlights the importance of CHWs as agents of information and advocacy on behalf of their clients. Further exploration of the rate of sign up across Kentucky may determine if this finding is unique to eastern Kentucky, or a statewide phenomenon.

While quantitative findings demonstrate examples of positive adaption to the complexities created by the COVID-19 pandemic, open-ended responses show more nuanced challenges. Community member and CHW client respondents frequently cited issues of social isolation, fear of the unknown, and uncertainty. These surveys capture a point in time, several months into the COVID-19 pandemic. A second round of surveys may allow for comparisons that show changes in attitude and concerns and

shifts in adherence behaviors among individuals. Comparison surveys may also show shifts, positive or negative, in professional adaptation, and will allow for assessment of changing attitudes regarding COVID-19 vaccination.

Survey Limitations

Limitations of individual surveys are reported in the sections below. The chief limitation of 2 (educators and CHWs) of the 5 surveys is limited sample size. An increased sample could provide opportunity for further analysis and investigation of differences among responses and between respondent groups. Additionally, demographics of survey respondents (age, gender, race, ethnicity, etc) as well as the geographic footprint of each survey was either unspecified or different across surveys. Developing a sample frame to ensure semi-equitable coverage across Kentucky would allow for investigation of geographic and demographic differences across surveys. Development of questions that could be implemented across all survey groups would also allow for comparison of impacts and reactions to the COVID-19 pandemic across professional groups and individuals.

Recommendations for Future Survey Activities

While the results from these surveys provide important information regarding perceptions of and response to COVID-19, we recommend the following activities to strengthen findings moving forward. These include:

- Conduct follow-up surveys to the same respondent groups to see how feelings and opinions might have changed over time.
- Include updated questions based on newer information, such as the availability of vaccines and whether participants would be willing to get a vaccine, now that some have been FDA approved (at time of surveys, no vaccines were approved or available).
- Expand surveys to other states to assess whether the thoughts, feelings, attitudes, interventions and activities reported by participants were unique to Kentucky, or more representative of rural or Appalachian regions more broadly.
- Use responses and response rates from the surveys reported herein to select and refine questions based on findings needing further exploration.
- Consider strategies to increase and document response rates to allow for further analysis and investigation of differences among responses and between respondent groups.
- Capture geographic and demographic information of respondents to support additional analyses by geographic region, rurality, and race and ethnicity, among other potential factors.
- Develop additional questions that could be implemented across all survey groups to support analysis of impacts and reactions to the COVID-19 pandemic across professional groups and individuals.

References

1. https://mapchart.net/usa-counties.html (Figures 1, A1-2)
2. Qualtrics, Provo, UT
3. https://ruralhealth.med.uky.edu/about-kentucky-homeplace (Figure 3)
4. SAS software Version 9.4 of the SAS system for Windows
5. https://wordart.com/ (Figures 7, A2-1, A2-2, A2-3)