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Digital Divide in Monterey County

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Abstract

The Monterey County Health Department Planning, Evaluation and Policy (PEP) Unit's goals are to empower the community, enhance public health and safety, ensure access to care, and engage the workforce. MCHD encourages all employees to understand social justice and equity for low-income and communities of color. Understanding and addressing health inequalities and justice in the county can improve overall health for everyone. The digital divide during the COVID-19 pandemic impacted too many Monterey County residents. The lack of computer access, computer literacy, and internet access may have impacted vaccination rates and even delayed COVID-19 resources. Utilizing the Monterey County COVID-19 Call Center data has highlighted the importance of computer literacy, computer and internet access during a global pandemic. Recommendations for this project include promoting and partnering up with Loaves, Fishes, and Computers, a local nonprofit organization located in Salinas, local libraries, and adult schools. Along with collaborating with other agencies, there is a need to increase internet carriers in rural parts of Monterey County. Lastly, collaborating with nonprofit organizations and local agencies to ensure that all programs and resources are created and implemented for all individuals, not just those who have access to the internet, computer, or have the technical skills to utilize a device.

Keywords: digital divide, rural areas, computer skills, internet access, elderly, health equity

Agency & Communities Served

There are several different branches at the Monterey County Health Department: environmental health, behavioral health, public guardian/ public administration, animal services, emergency services, clinical services, public health, and lastly the planning, evaluation, and policy unit. Within the Planning, Evaluation, and Policy unit there is Health Equity Scholars Academy. The Health Equity Scholars Academy also known as HESA is an academy voluntarily for all Monterey County employees. Health Equity Scholars Academy seeks Monterey County employees who are interested in: social justice, equity for low-income families or individuals, communities of color, who seek personal, and professional growth. HESA's mission is to empower all of the Monterey County Health Department employees to affect change in Monterey County (*What is Planning, Evaluation, and Policy (PEP) | Monterey County, CA, n.d.*).

Problem Description

Due to the recent global pandemic, HESA has been placed on a temporary hold, but this does not mean that combating issues like this structural racism, health inequalities, and disparities are not being addressed within Monterey County. The pandemic has brought awareness and has shown that many Monterey County residents lack necessities such as adequate shelter to self isolate, transportation, health care insurance, food, internet connection, and or access to a computer. As technology progressed, many have adapted to change. However, there seems to be a need for computer access, internet subscription, and computer literacy within Monterey County. All three of these components have significantly impacted residents' chances of receiving the COVID-19 vaccine one time and receiving other COVID-19 resources.

Therefore, too many Monterey County residents don't have internet access, a computer, and lack basic computer skills.

Contributing Factors

An astronomical amount of calls were made to the COVID-19 call center from a wide range of ages who do not own a digital device (computer, smartphone, or tablet), who did not know how to use a computer and or who did not have internet subscription. The idea of just scheduling an appointment to receive the COVID-19 appears to be an easy process; however, that is not the case if you do not own a digital device, internet subscription or basic computer skills. The average can cost under \$300 and midrange for a business or home office desktop can range from \$700-\$1,000 (*How Much Does a Desktop Computer Cost? - CostHelper.com. (2009).*

During the pandemic, telehealth has become very popular amongst the medical field, but research by Baylor School of Medicine showed that even though telehealth seems to be ideal for most who want to stay safe and see a doctor via the internet, not everyone has access to an internet connection. Virani and his team wanted to address disparities in internet access among those with hypertension or diabetes versus those without. They also wanted to understand what role race played in these disparities. Virani's study showed that when it came to race, they found that, in general, Blacks and Hispanics with hypertension or diabetes had a much lower prevalence of internet use compared to whites. For example, Blacks and Hispanics with hypertension or diabetes had 51 percent and 42 percent lower odds, respectively, of internet users compared to whites with hypertension or diabetes. This disparity varied widely across the United States. Overall, researchers found that frequent internet users were more likely to be white, educated, employed, younger, or having healthcare coverage (Internet access a health disparity

during a pandemic, 2020). Though the study was not conducted in Monterey County, there is data showing that lack of internet access can contribute to health disparities during a global pandemic.

Consequences

Although the amount of vaccines distributed by the state and federal government does play a role as to why some individuals may have struggled with receiving their COVID-19 vaccine, many residents have expressed that they are not fast enough to schedule an appointment because they lack computer skills, computer or device, and or internet access. Vaccine appointment systems such as myturn.ca.gov, was a “timed” process. Residents were only given 25 minutes to schedule an appointment. If the resident exceeds that 25 minutes, they would lose the appointment slot and would have to start the online scheduling process over again. Residents who do not own a digital device (computer, tablet, or smartphone), internet subscriptions, and or had little to no computer skills experienced an immense amount of difficulty when trying to schedule a COVID-19 vaccine appointment. Due to the inability to schedule vaccine appointments, this may have led to higher COVID-19 infections within Monterey County.

Monterey County Health Department partnered up with Ron Lee, a manager analyst from Agency on Aging in hopes to assist residents who were 65 years or older with vaccine registration. Ron and his team compiled a list of residents who seeked assistance for scheduling their COVID-19 vaccine in March 2021. Ron and his team assisted 126 residents who were between the ages of 41-98 years old. 63 of those residents did not have internet access nor own a computer.

Problem Model

Contributing Factors	Problem	Consequences
Access to computers	The digital divide impacted too many Monterey County residents.	Unable to register and schedule an appointment to receive their vaccine
Internet access		Experience a difficult time trying to schedule a vaccine appointment.
Computer literacy		Unaware of certain resources and programs provided by MCHD

Capstone Project Description and Justification**Capstone Project**

The capstone project will focus and determine which residents experienced the most difficulty with trying to register and schedule their appointments to receive the COVID-19 vaccine. The focus will be on zip codes, age, and language that were calls that were made to the COVID-19 call center along with the age groups if data was collected. Data has been collected and analyzed, the capstone project will analyze and determine how to improve computer accessibility, increase skills for community members, and increase internet carriers in rural areas. Also, the capstone project will also entail creating a new portion to the HESA modules that show the impacts of COVID-19 amongst certain communities in Monterey County.

Project Purpose

My project will address how lack of basic computer skills, internet access, and computer access created a barrier for some Monterey County residents. A significant amount of residents needed assistance with registering and scheduling their appointments to receive their COVID-19 vaccinations. There is a need to increase computer literacy, access to computers and internet access within Monterey County.

Project Justification

According to the United States Census Bureau, in 2019 there were 416,671 residents with a margin of error +/-1554 in Monterey County (Explore Census Bureau, n.d.). There were an estimated 374,976 residents who owned a computer and had an internet subscription. An estimated 33,758 residents who do not have a subscription to broadband internet. The United States Census Bureau estimated 20,233 (8.3%) residents who age from 18-64 years old are without an internet subscription and 2,997 residents within the 18-64 age range did not have a computer in their home. According to the United States Census Bureau, 4,075 Monterey County residents who are 65 year old or older do not have a subscription to the internet and 4,047 do not have a computer in their home.

Assisting at the Monterey County COVID-19 Call Center has highlighted that not all residents know how to utilize or navigate through a website, have a computer, and or have internet subscription. From March 3/29/2021-5/4/2021, there were 213 residents placed on the “Needs Vax” list. The “Needs Vax” list was created for those residents who needed assistance with scheduling their COVID-19 vaccine. Prior to the list created at the call center, 2-1-1 was the resource for residents who were 65 years or older, who did not have internet access, and or did

not have a computer, smartphone, or tablet. From 2/01/ till 3/29/2021 Call agents added 324 residents to “AFN” also known as Access Functional Needs list. Calls continued to come into the call center after 3/29/21 thus leading to additional 151 residents being added to the list. In a three month period, the Monterey County COVID-19 call center received calls from 688 residents who did not have access to a computer or to the internet. Another important factor be taken into consideration, the numbers of callers who seeked assistance from 2-1-1. Those 688 residents only reflect calls from the call center, and not 2-1-1.

Project Implementation

The project implementation is to collect and analyze data from the COVID-19 call center along with data given by Ron Lee, a staff manager analyst from Agency on Aging. The data will highlight which communities were impacted by the digital divide and the importance of having computer classes for Monterey County residents. Reviewing information from the call center such as zip codes that are associated from the “Access Functional Needs” list will help determine what areas of Monterey County residents could benefit from having low-cost to free computer classes. Also, analyzing data from the call center would determine if there is a need to increase carriers in certain parts of the county.

Assessment Plan

Due to the change of the implementation plan, the assessment plan has changed as well. The attendance sheet would show manThe call center data would have helped implement classes in certain areas, specifically in certain zip codes that had the highest rates of callers who lacked internet access or did not have access to a computer.

Expected Outcomes

The capstone project will bring awareness and highlight the need for basic computer literacy, internet access, and computer access. Prior to the COVID-19 pandemic, there were several adult schools and local libraries that offered basic computer classes, but the times being offered were in the morning time when most individuals are at work. My capstone will highlight the importance of basic computer skills and will shed light on how many individuals do not know how to use a computer and lack internet access. We live in a technical world and not everyone is up to date. In some cases, there might have been a few residents who believed COVID-19 agents were obligated to schedule vaccine appointments and demand how to utilize a computer, but perhaps residents don't know where to obtain information about low-cost to free computer classes. If free or low cost computer classes are available or offered in those areas that have the highest call volume, perhaps we can increase computer knowledge.

Project Results

As a result of the capstone project, the digital divide has been highlighted. Originally, the expected outcome was not only to identify the digital divide but the purpose of this project was to submit a grant and receive funding from the FCC, build relationships with other agencies and nonprofits to increase computer literacy, increase internet subscriptions, and increase computer ownership in Monterey County. The initial plan was to present to local school and city libraries so they could apply for the grants. The grants given by the FCC would be for equipment such as computers, tablets, printers for local students and for those individuals who utilized the public library's computers. Ideally, the funding could have been used to implement classes for adults or children who wanted to learn basic computer skills in areas that were impacted by the digital

divide. The project did not go as planned, therefore identifying the digital divide was the project itself.

Conclusion & Recommendations

After reviewing the call center data and other data provided from Ron Lee, a management analyst from Agency on Aging, some recommendations that one could make is offering more low-cost to free computer classes for Monterey County residents. Loaves, Fishes, and Computers is a local nonprofit that assists Monterey County residents by providing low-cost bilingual computer literacy classes to local low-income families. Promoting Loaves, Fishes, and Computers' low-cost to free computer classes on the Monterey County Health Department website and other social media platforms could help increase computer literacy. Though Loaves, Fishes, and Computers and Monterey County Health Department are different entities, partnering up together can help bridge the digital divide. According to *The Digital Divide in U.S. Mobile Technology and Speeds*, 2021, rural areas depend on non-WIFI mobile technology and experience slower speeds on their mobile devices. The FCC also determined that counties who have higher minority populations are more likely to use older mobile technologies and will experience slower speeds. For those individuals who do not have access to the internet due to living in rural areas, increasing internet carriers in these particular communities can help bridge the digital divide. Figure one located in the Appendices shows how many residential broadband internet carriers are within Monterey County. The map is color coded and shows the average number of internet providers in the county is about 6-7 providers.

Personal Reflection

From what I gathered in the short amount of time working at the Monterey County Covid-19 Call Center, is that the vaccine appointment system was an issue especially for those who do not know how to utilize a computer, tablet or smartphone. Though the number of internet subscriptions is relatively high in Monterey County compared to other counties in California, there is still room for improvement. Unfortunately, not all call agents provided detailed notes as to what barriers residents were facing. For example, some notes only stated “needs help with making vaccine appointments”, “does not own a computer”, “placed resident on AFN list”, or notes were not added at all. My takeaway from this problem is that there was a significant number of residents, not just at a county level but as a state, and that not everyone has access to a computer, internet or even obtains the basic computer skills. My project was to address the lack of internet access, basic computer skills and computer access within rural and elderly communities. Identifying the digital divide within Monterey County has brought awareness to the importance of computer literacy, internet and computer access and how the digital divide can impact vaccination rates, COVID-19 rates and obtaining certain resources. Highlighting the barriers associated with digital divide can be used in the PEP unit and throughout the rest of the health department. The digital divide does not only impact vaccine registration, other aspects of health outcomes and education.

Limitations and challenges that impacted the project were data collection, awareness prior to the vaccine roll out, and community engagement. At the COVID-19 Call Center, not all call agents captured data correctly which could make data incomplete or inclusive. As a former call agent myself, I truly understand how easy it is to forget to ask questions about what barriers

residents are facing and capture the resident's zip code. Even though we are in the 21st century and a large majority of those around the world have access to the internet, basic computer skills, or own some sort of digital device, not all individuals have access to these resources. Overall, documenting all calls and writing detailed notes would have helped with a clearer understanding of what barriers communities were facing.

Another limitation or challenge was collaborating with other agencies, not only at the county level but at state level as well. There were systems set in place by the state government such as myturn.ca.gov which is a website designed to assist residents with scheduling COVID-19 appointments. Due to the high demand of vaccines, residents only had 25 minutes to schedule their appointment. If a resident did not fill out the necessary questionnaires, provide their insurance information, and any other pertinent information within the 25 limit time frame, the resident would be timed out thus leaving the resident to restart the process all over again. Many residents expressed they weren't computer literate and were "slow" when it came to filling out the necessary forms online. For the individuals who obtained high speed/ stable internet, computer literate, and who had computer access, scheduling an appointment(s) was not as problematic compared to those who did not have one of the three barriers. Lastly, another limitation was trying to find data from other counties or scholarly articles that are similar to my capstone. There is not enough information or data published yet, but there are numerous articles and interviews from residents who struggled with scheduling their appointments because they did not have internet, computer access, or did not have technical skills to do so.

As technology continues to expand, it will be a challenge for those individuals to be caught up to speed if they do not have the resources or tools. For example, at the beginning of

the vaccine rollout systems such as my.turn.gov, or Costco, Walgreens, and other retail pharmacies only offered vaccine appointments online. There was no option for residents who did not have computers or internet access. Now, that has changed. There are customer service lines or 1-800 phone numbers set in place for those who need assistance with scheduling vaccine appointments. How many residents felt left behind or hopeless because they did not have the tools to schedule their vaccine appointment? Some may argue that the answer is far too many.

Several issues could be addressed to help bridge the gap between the digital divide that was beyond what my project could accomplish. One, in particular, was out of reach, but identifying the issue of internet carriers in rural areas is still crucial. According to Sarah House, an IT manager at the Monterey County Health Department, bringing in more internet carriers into rural areas would be beneficial, however, it is difficult to do so. There are four different types of internet: DSL, fiber, cable, and satellite. For those rural areas, fiber is used and is the most beneficial. To increase internet carriers in rural areas, trenching, a type of excavation, or digging into the ground needs to be done. Trenching is very costly and labor-intensive. According to Fiber Optic Cabling Cost, 12-strand single-mode fiber optic will cost between \$8,500 and \$10,000 per mile. 24-strand single-mode fiber optic will cost between \$2 and \$3 per linear foot., 72-strand single-mode fiber optic will cost between \$10,000 and \$12,000 per mile.96-strand single-mode fiber optic will cost between \$2 and \$4 per linear foot.96-strand single-mode fiber optic will cost between \$20,000 and \$30,000 per mile (*Fiber Optic Cabling Cost - in 2021 - The Pricer*, n.d.).

In the future, if there are any grants or opportunities for trenching in rural areas, Monterey County Health Department should partner up with internet carriers to increase services

within rural areas. It would be beneficial for the County, local libraries, and school to apply for these grants. Some insightful advice for future capstone students working at this agency is to implement/ create systems or programs for all residents instead of going 100% digital. It is crucial to keep all residents in mind and the barriers they face on a daily basis. Collaborate with other agencies to determine what needs are not being met in the community.

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Appendix A**Scope of Work**

Activities	Deliverables	Timeline/Deadlines	Supporting Staff
COVID-19 CALL CENTER	Answer questions about shelter in place, face masks, and collect data	January-June 2021	Christina Santana, Angelica Chavez
Create infographic	Create infographic for HESA Staff	October 2021	Christina Santana
Create survey for call center agents	Determine what barriers or challenges residents faced when scheduling vaccine appointments	December 2021	Christina Santana, Angelica Chavez

Figure 1. FCC Broadband Provider Map in Monterey County



Figure 2. The legend shows how many fixed residential broadband providers in the area.

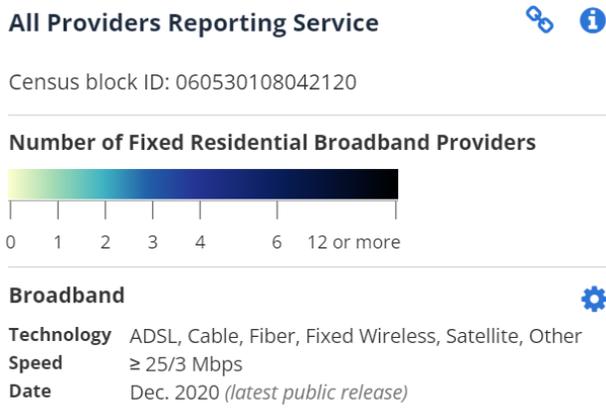


Figure 2 & 3 illustrate the percentage of the population and how many providers they have in the area.

