Exploring Health Communications, Sensemaking, Collective Action, and Sensegiving in a Rural Public Health Setting During the COVID-19 Pandemic

SAN JUAN BASIN
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Dedication

> *"If we've learned anything living through the last year of the pandemic, it's that we're all in this together, and extraordinary team efforts in public health and across our entire society are what truly make a difference." ~ SJBPH Executive Director Liane Jollon*
>
> *"Crises can bring out the best in us, and they leave lasting memories. It is during these moments that humans often reach their full potential and transform the most profound challenges into their proudest moment." Chancellor Daniel Diermeier, Vanderbilt University*

It has been my honor and privilege (and dream!) to conduct this research on behalf of San Juan Basin Public Health during these trying times. I remember a conversation in January 2020 with the Vanderbilt University Leadership and Learning Program Director who inquired what I thought I might want to conduct my capstone on. I replied that I would love to do something on sensegiving in public health. Little did I know what would happen just a few months later. Amid a pandemic, San Juan Basin Public Health provided me this opportunity to make a difference and I can only express my deepest gratitude for your time, insights, and support to help me complete such a meaningful project when your time was so limited. Thank you for allowing me this opportunity to contribute to your mission and work.

To public health practitioners and medical staff who have given tirelessly of themselves throughout the COVID-19 pandemic.

To my fellow cohort members, for the support, texts, and encouragement when I didn't think I could make it. We are lifelong friends, and I am grateful to have shared this journey with you and to continue to learn from you moving forward.

For Mom and Dad A, who support me and love me like one of their own.

For my family (Kelli, Christian, Trudy, and Perry) for always believing in me no matter the endeavor, for supporting me through this journey with patience, understanding, and love, and for the memes/gifs when I needed a pick-me-up.

For Mom and Dad, who encourage and support every single dream I've ever had, no matter how big or small. Thank you for being the best parents and for loving me like you do.

For Daniel, there are not enough words to express what I need to here. Thank you for being right next to me every day on the most challenging journey of my life, and for being my champion, my support, and my rock when it was easy and when it was hard. Thank you for giving up at least one day of nearly every weekend for the last three years as well as taking on all of the extra things so I could succeed at this. I couldn't have done this without you and your love, patience, understanding, and support.

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Executive Summary

Organizational Context: San Juan Basin Public Health (SJBPH) is a local public health agency in southwest Colorado responsible for monitoring, investigating, and communicating health conditions in Archuleta and La Plata Counties. During the current COVID-19 pandemic, SJBPH is the lead agency for the emergency response in this area utilizing the Incident Command System (ICS). To fulfill their mission during the pandemic, SJBPH leaders need to understand how their external constituents engage with health information during an emergency, in this case, the COVID-19 pandemic, and how they communicate with each other and what processes they use.

Problem of Practice: The purpose of this capstone project is to help SJPBH examine how engagement and sensemaking occurred with COVID-19 information and communications as well as how their leadership utilized collective action and sensegiving to inform their pandemic response. I analyzed 167 survey responses from Archuleta and La Plata County residents and conducted 14 interviews with the SJBPH COVID-19 Response Leadership Team in Spring 2021 with the goal of informing agency preparation, communications, and leadership during future emergent events. The findings may also be applicable to other similar rural public health agencies.

Research Questions and Findings:

1. **What is the main mechanism or primary source that residents in Archuleta and La Plata Counties are using to get COVID-19 information? Are they receiving the information and communications from the local public health agency?**

SJBPH was the main source of information for COVID-19 information, and this did not vary by age or county of residence. Overall, most respondents are using credible sources for COVID-19 information including the local public health department, a medical provider, or a federal health agency. The main way users sought COVID-19 information from SJBPH, a federal health

agency, a non-profit, or a religious source was a website that is not social media, indicating they used the organization's website. However, respondents indicated where they go for COVID-19 information may not be the same place as used in 'normal' times. Just over half indicated they used a different source for health information such as their doctor, the internet, or multiple sources when the COVID-19 pandemic was not occurring.

2. **How are these residents engaging with SJBPH health communications during the COVID-19 public health emergency? Do the residents see SJBPH as a trusted source?**

SJBPH communications reached respondents frequently with over 80% of respondents indicating they had seen or heard SJBPH communications at least two times in the 90 days prior to completing the survey. In addition to receiving the communications on vaccines, data, guidance, the COVID-19 dial level, and information on topics such as COVID-19 symptoms and testing, respondents also reported increased engagement with SJBPH, which may be a sign of increasing trust and credibility. Respondents indicated high trust for SJBPH, federal agencies, and healthcare providers for COVID-19 information.

3. **Do conversations with others in the form of distributed knowledge or SJBPH communications help residents make sense of COVID-19 and the associated pandemic? Do SJBPH communications help residents make decisions about their personal actions during the pandemic such as wearing a mask, social distancing, etc.?**

Conversations with other people and SJBPH communications both helped with pandemic sensemaking including understanding information about the pandemic, reducing uncertainty, helping people feel they could navigate the pandemic, and increasing understanding of the vaccine and its benefits. However, these sensemaking indicators were 5%-16% higher for all categories for SJBPH communications compared to conversations with others. When considering SJBPH's role in this public health emergency, it should be no surprise that SJBPH was able to

increase sensemaking more due to their position and technical and scientific expertise. SJBPH communications also informed personal decisions related to protective health behaviors during the pandemic including mask-wearing, social distancing, limiting trips to essential services, and getting the vaccine. While SJBPH communications did not impact beliefs, knowledge, and attitudes as much as actions, those who trusted SJBPH "a lot" were more likely to indicate there was a change in beliefs, knowledge, and attitudes because of SJBPH communications. Those who indicated lower levels of trust for SJBPH were more likely to indicate the communications had no effect on beliefs, knowledge, and attitudes.

4. **How did SJBPH's COVID-19 Response Leadership Team use internal collective action and sensegiving in their pandemic response to inform external communications to their stakeholders?**

SJBPH uses a variety of tactics and processes under collective action. These include internal meetings, communications including the use of technology and information flow and sharing, leadership including transparency and expectations, teamwork including problem-solving, continuous improvement activities, and the change in organizational structure pre-COVID-19 and during the pandemic. SJBPH engages in strategic sensegiving and relies on external entities. The challenges due to the pandemic were multi-faceted and were internal facing such as shifts in technology and SJBPH's reactive stance, as well as external, including inconsistent messaging from others and an operational tempo dictated by outside entities. The pandemic itself was a huge contributor to challenges at SJBPH including decreased human interaction. However, despite the challenges, evidence suggests SJBPH staff grew, connected, and improved as an agency.

Recommendations: SJBPH should consider the following recommendations moving forward:

- Develop three versions of the ICS to address several types and lengths of events that may trigger ICS execution.

- Prioritize trust-building activities with local constituent, partner groups, and the Colorado Department of Public Health & Environment (CDPHE). Place heavier focus on those working with and in underserved populations to promote trust and credibility.

- Review staffing plans for emergencies as well as 'normal' times which will support the hiring of staff with necessary skillsets and allow for the cross-training of individuals when an event of this magnitude occurs in the future.

- Provide guidance using a standard operating procedure (SOP) on the use of technology platforms including taking notes, file naming, and guidance on when to use each communication modality to ensure clear tracking of information and communications and consistency across the entire SJBPH team.

- Develop or update data reporting and communications plans to increase understanding, usability, and engagement to facilitate increased trust and credibility.

- Complete health communications training and review industry best practices to bolster the usability of messaging and understanding by the target audience.

Introduction

The world is currently in the midst of a pandemic from Coronavirus Disease 2019 (COVID-19), which has impacted every aspect of the lives of individuals and organizations since March 2020. The COVID-19 pandemic is particularly challenging due to the technical and scientific expertise required to address it, its global and long-term nature, and the contexts and factors it affects including physical and psychological health, social well-being, employment and work practices, the economy, and more. Few organizations have experienced the impact of the pandemic like those in the public health space. The Centers for Disease Control and Prevention (CDC) Foundation defines public health as "the science of protecting and improving the health of people and their communities" (CDC, 2021). For public health organizations, "protecting and improving" the health of the public relies on the communication of information and development of guidance and aligned resources and services. For their communication to translate into individual and community action, the public must see the communication, engage with it, process the message and meaning, and then use the information to inform personal beliefs, attitudes, and in some cases, behaviors.

San Juan Basin Public Health (SJBPH) is one of 53 local public health agencies in Colorado (Colorado Association of Local Public Health Officials, n.d.). Its mission is to "monitor, investigate, and communicate health conditions" affecting the approximately 70,000 residents of Archuleta and La Plata Counties in rural southwest Colorado near the New Mexico border (SJBPH, 2019; U.S. Census Bureau, 2019). To fulfill its mission during the pandemic, SJBPH must understand how their external constituents engage with health information during an emergency, in this case, the COVID-19 pandemic, and how leadership communicates with each other and what communication processes they use.

Accomplishing this mission can be particularly challenging for local public health agencies during an evolving crisis such as a pandemic due to limited resources, shuffling of staff between roles to meet emergent demands and needs which leave gaps elsewhere in the organization, and large volumes of often conflicting information. During a pandemic, public health is also challenged by both their own team's and the public's ability to engage with, process, and use information to inform action at the individual and organizational levels. COVID-19 impacted federal, state, and local public health entities in areas such as funding, infrastructure, emergency preparedness and response, communications, and community partner building (De Salvo et al., 2021). SJBPH experienced these challenges too.

Communication is a foundational capability of public health necessary to combat misinformation, disseminate accurate information, and build community partnerships and trust which allows for coordination across agencies and areas impacted by the pandemic (DeSalvo et al., 2021). The box below illustrates a SJBPH employee's viewpoint on the challenges of the pandemic compared to other emergencies.

SJBPH PUTS THE PANDEMIC INTO CONTEXT

"Part of the response (to fires, common in the SJBPH area) requires no action whatsoever from the public, it's to put water on the fire. And the public doesn't need to (act), so public trust, and how this intersects is just a non-issue, because the organization builds trust by putting water on the fire, and people see the flames go down. In our response, there's not a single thing that we do that isn't involving the public because the operation starts with surveillance, and people have to go in for a test. Then it's investigation, then they have to tell us who they're hanging out with, where they work. And then control, then they have to follow our quarantine and isolation, then it's mitigation. Well, we have to wear masks, we have to not mix our households, then it's enforcement, we have to kind of speak up when somebody else isn't following the rules, then it's vaccine…the whole breadth of the response is with individuals acting so we do not exist as a response organization without communications. The communications are the bread and butter. So, we believe that we get out as much messaging as we can to the community. That's why we work on the top line message. And we work on what the trigger point is for the next message and really think about that. But the other thing that we believe is by following a very high level of confidence, we work very hard to meet the community where the community is…we're building the trust one public health intervention at a time, in addition to communicating about what we're doing."   ~ SJBPH Employee

The purpose of this capstone project is to help SJPBH examine how engagement and sensemaking occurred with COVID-19 information and communications as well as how its leadership utilized collective action and sensegiving to inform their pandemic response. By examining their communications during the COVID-19 pandemic, SJBPH hopes to improve and be better prepared for internal and external communications and better position leadership during future emergent events. The findings from this study may also be applicable and useful to other similar rural public health agencies.

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Organizational Context

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SJBPH Overview

SJBPH, led by an executive director, has a total of 88 employees as of August 31, 2021, with 21 of these employees filling temporary or pandemic-centric positions (SJBPH, personal communication). Prepandemic staffing levels were in the mid-70s, and a large non-COVID-19 program was transitioned out of SJBPH in June 2020, impacting the staffing numbers even further when those staff left the organization (SJBPH, personal communication). A local Board of Health (BOH), comprised of seven individuals appointed by the Archuleta and La Plata County Commissioners, governs SJBPH (SJBPH, 2021d). Appendix A provides more information on the SJBPH organizational structure prior to the pandemic (2019). SJBPH's primary programs and services include assessment, planning, and communications including a community health assessment and public health improvement plan; birth and death certificates; environmental public health including communicable disease, food safety, radon, and water quality; health promotion programs such as care coordination and suicide prevention; prevention health programs such as immunizations and sexual health; and emergency preparedness and response (SJBPH, 2021a).

SJBPH COVID-19 Response

Because of the increasing global communications and concerns about COVID-19, in February 2020, the SJBPH leadership team conducted a table-top exercise related to COVID-19 testing at the local hospital and developed a concept of operations (CONOP) based on prior flu pandemics (SJBPH, personal communication). This was preceded by the first U.S. airport screenings for the 2019 novel coronavirus, the first confirmed U.S. case, the confirmation of human transmission, and the World Health Organization's declaration of a global health emergency on January 30, 2020 (Wallach & Myers, 2020). On January 31, the U.S. declared a public health emergency, but did not reach pandemic status until mid-March (Wallach & Myers, 2020; American Journal of Managed Care, 2021).

On March 2, 2020, before Colorado issued their first stay-at-home order (San Miguel County on March 18), SJBPH implemented their Incident Command System (ICS) (Denver Post, 2020; SJBPH, personal communication). They had previously practiced or used ICS for simulated and real-life situations including wildfires, rabies, hantavirus, and the plague, but never for a pandemic and they had never been the lead agency in a true emergency response (SJBPH, personal communication). Prior to COVID-19, SJBPH had already identified 'response to public health crisis' as a strategic priority they wanted to work on as a team and had committed to implementing the ICS organizational chart prior to the occurrence of emergency taskings and actions to ensure stronger situational awareness and coordination amongst the agencies that are a part of the ICS such as public health and law enforcement (SJBPH, personal communication). In a prior exercise, the trigger point for implementing the ICS was if the Public Health Incident Management (PHIM) team could not resolve a situation in 1-2 meetings (SJBPH, personal communication). As COVID-19 grew more concerning and urgent, SJBPH and the

PHIM held two stakeholder calls to understand what, if any, communications they owed to

partners concerning the novel coronavirus (SJBPH, personal communication). Because of the

high interest and fast-paced nature of the situation, those two calls prompted the execution of the

ICS. In this ICS iteration, SJBPH is the lead agency whereas other agencies may lead for other

types of emergencies. Appendix B provides the SJBPH's pandemic ICS structure in June 2021.

The ICS Structure

The Federal Emergency Management Agency (FEMA) under the Department of

Homeland Security mandates ICS, part of the National Incident Management System (NIMS), as

a condition of federal preparedness funding and it includes a framework for multi-agency

collaboration during any incident (FEMA, 2018a).
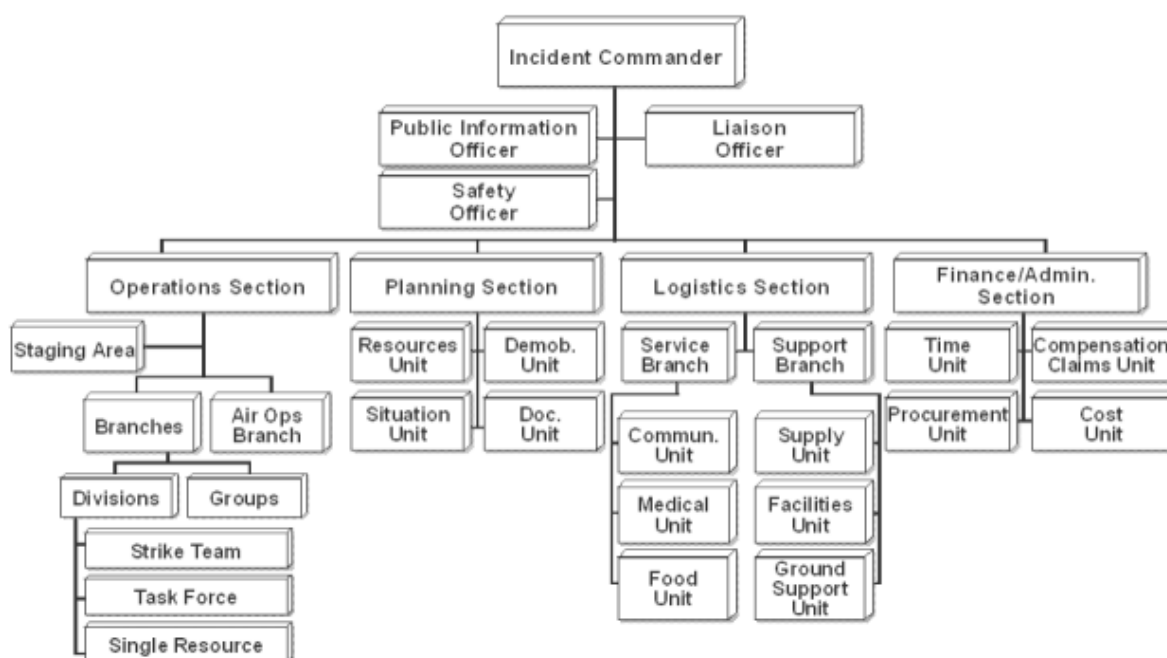
Figure 1. ICS Structure (FEMA, 2018a)

Such emergencies can include wildfires, disease outbreaks, terrorist attacks, and/or natural and

man-made disasters. Figure 1 denotes a general ICS structure. Local agencies decide when to

execute the system based on the urgency of the situation. Objectives under NIMS address the

support of NIMS implementation, resource management, command, and coordination (where ICS lies), and communications and information management (FEMA, 2018b). Major components of ICS include unity of command, management by objectives, modular organization, resource management, common terminology, and integrated communications (FEMA, 2018a).

At the start of the response, the SJBPH team divested funding from other SJBPH public health programs and funneled to efforts related to COVID-19 response and activities; staff were also diverted, leaving a gap in steady-state public health programming at SJBPH. Existing incident management plans allowed for these actions to occur without additional approval from the BOH (SJBPH, personal communication). However, as the pandemic wore on, SJBPH sought approval from the BOH prior to the start of the next state fiscal year in July 2020 to scale back core public health programs to meet the demands of the response (SJBPH, personal communication).

Within SJBPH, roles shifted during the pandemic as noted in Table 1. The table includes examples of employees' SJBPH role in non-COVID-19 times, as well as their ICS roles in June 2020 and June 2021. In the context of a public health agency, many employees assume ICS roles in addition to or in place of their usual duties upon ICS execution. Table 1 demonstrates the many role changes including some individuals picking up multiple ICS roles or shifting ICS roles during the long-term emergency.

Table 1. SJBPH Roles Pre-pandemic and Throughout the Pandemic

SJBPH Role	Pandemic Roles (June 6, 2020)	Current ICS Role (June 25, 2021)
Executive Director	• Incident Commander • Agency Representative	• Incident Commander • Agency Representative
Deputy Director of Administrative Service	• Finance/Admin Section Chief	• Finance/Admin Section Chief
Director of Health Protection Programs	• Liaison Officer • Policy Group Rep	• Liaison Officer • Policy Group Rep

Director of Human Resources/Chief Strategy Officer	• Operations Section Chief	• Operations Section Chief
Consumer Protection	• Community Mitigation Group Supervisor	• DIC Case Investigation
Water and Air Quality	• Deputy Incident Commander • Planning Section Chief	• Deputy Incident Commander
Emergency Preparedness and Response	• Safety Officer • Logistics Section Chief • EFF8 Lead	• Safety Officer • Planning Section Chief • Logistics Section Chief • EFF8 Lead
Thriving Community Programs	• N/A	• Vaccine Program Manager

Concurrently with the shifting roles, the organization also redefined itself culturally with the move from in-person to virtual operations in March 2020. SJBPH shifted back to more in-person operations in Summer 2021, but with the uptick in variant cases, transitioned back to virtual operations in September 2021, where possible. Additionally, the COVID-19 case count in Archuleta and La Plata Counties remained low from February to July 2020 but steadily increased starting in October 2020 especially in La Plata County (SJBPH, 2021c). The priority populations in these counties include those at senior centers and nursing homes, elderly who rely on community services, those who utilize in-home help, critical workers, those who speak English as a second language, and those who work in non-protected industries such as trades and construction (SJBPH, personal communication). As of September 2021, SJBPH is still using the ICS structure, initially intended for temporary operations, and are only now looking to transition back to an evolved steady state with a new COVID-19 division in Fall 2021.

Problem of Practice

Karl Weick (1993) used the term 'cosmology episode' to describe a situation where there is chaos, severe disruption, and loss of order, meaning, and structure. Weick (1993) concluded that these episodes are characterized by a feeling of, "I've never been here before, I have no idea

where I am, and I have no idea who can help me" (p. 633-634). Cosmology episodes can occur at the individual, team, organizational, community, and national levels (Orton & O'Grady, 2016). Examples include the Mann Gulch Fire, school shootings, the incident at Three Mile Island, and the events of 9/11. The COVID-19 pandemic and its impact on the world is a classic example of Weick's concept of a cosmology episode in which "…people suddenly and deeply feel that the universe is no longer a rational, orderly system. What makes such an episode, so shattering is that both the sense of what is occurring and the means to rebuild that sense collapse together" (Weick, 1993, p. 633). At the same time, the pandemic illustrates Orton and O'Grady's finding in their 2016 meta-analysis that cosmology episodes can be multi-level; in the case of this global pandemic, all five levels occur at once including individual, team, organizational, community, and national. Weick (1993) suggests one manages cosmology episodes with social sensemaking as well as improvisation, bricolage, and innovation. The literature, however, is scarce on national and global cosmology episodes due to their infrequency. Additionally, the cosmology episode caused by the COVID-19 pandemic is prolonged in nature, which causes second-order effects such as attentional fatigue, reduced cognitive resources, and lack of attention (Christianson, 2020).

To restore order and meaning during cosmology episodes, sensegiving and sensemaking are necessary, as well as effective communication both internally and externally. "Sensegiving-for-others" is the process of disseminating new understandings to audiences to influence their "sensemaking-for-self" (Foldy et al., 2008, p. 515). During the pandemic, the SJBPH COVID-19 Response Leadership Team was responsible for sensegiving about the pandemic which then influenced external communications to impact the "sensemaking-for-self" of the 70,000 residents in both counties for which SJBPH is responsible. If the communication tactics and messages are

effective and SJBPH is viewed as credible and trustworthy, Archuleta and La Plata County residents can use the communications to make sense of what is happening and to restore some meaning. In turn, SJBPH can meet its mission to communicate on health conditions and improve the health of the people and local communities by mitigating and controlling COVID-19 cases and outbreaks with effective action.

Because of limited resources including time, staff, and funding during the pandemic, SJBPH pivoted its external stakeholder communications strategy from the marketing of agency public health programs and services to organizational and COVID-19 strategic and crisis communications (SJBPH, personal communication). They accomplished this task using the same communications team, who had more experience in marketing than strategic health communications. The new strategy addressed topics such as how to be safe, how to mitigate risks, as well as communicating crisis language as cases began to spread, and eventually information on vaccines as they became available (SJBPH, personal communication). SJBPH not only had to address the pandemic, but they also used their communications strategy to protect the trust and credibility of the agency. Trust and credibility are important components of communications as they impact the influence of a message and whether someone will act, especially in the context of an emergency like a pandemic (Kalichman et al., 2021). Credibility is often related to information quality, leaning heavily on transparency, objectivity, and alignment to science-based information (Kington et al., 2021).

Due to the rapid onset of the cosmology event, the length of the event, gravity, and unprecedented nature of the pandemic, it is important to examine how communications from the local public health agency impacted stakeholder engagement, information and message processing, and meaning-making to inform personal beliefs, attitudes, and behaviors. The

ongoing nature and demand of the pandemic on time and resources has not provided SJBPH with the capacity or bandwidth to explore this subject, so I embarked on this study. The consequences of not examining this include potential waste of resources in an already constrained environment and potential ineffective messaging either due to lack of reaching the target population or lack of understanding of the message, which could result in more COVID-19 cases and deaths and lead to decreased agency credibility and trust both during and after the pandemic.

In one year (March 2020-March 2021), SJBPH had 423,764 COVID-19 pageviews on its website (SJBP, 2021b). For context, in 2019 prior to the pandemic, SJBPH averaged 150-200 unique visitors in a day during high traffic times; during the pandemic, a slow day is now 1000 visitors a day and highs often reach 3000 visitors a day, a 1400% increase (SJBPH, personal communication). Between March 2020-March 2021, SJBPH released 105 media releases to 200+ entities including local and state reporters, government and elected officials, and public

information officers and communications staff from partner organizations and agencies (SJBPH, personal communication; SJBP, 2021b). SJBPH published the media releases to the SJBPH website for constituents and

Figure 2. SJBPH Media Hits
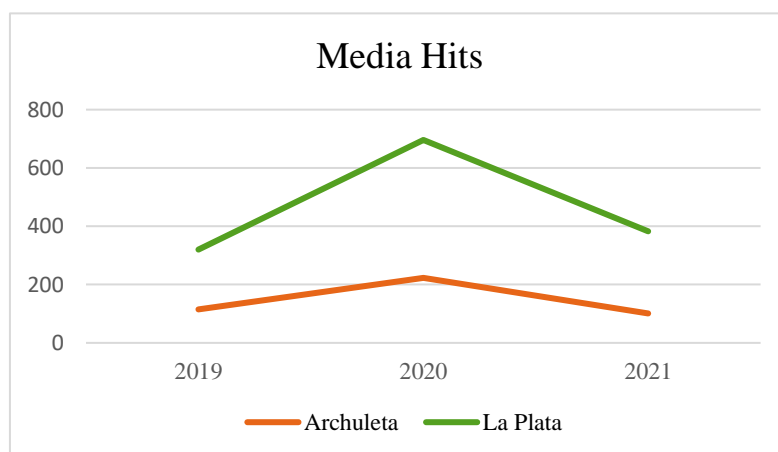
interested parties to read. These releases drove media hits including print and digital newspaper, television, and radio stories where SJBPH or its staff are mentioned. Figure 2 shows the media hits for each county in 2019, 2020, and through October 12, 2021 (SJBPH, personal

communication). SJBPH is on track to surpass the total media hits and media releases in 2019 (SJBPH, personal communication).

In this same time period, Archuleta County saw increased sales tax revenue compared to 2019 and the area had Colorado's highest summer occupancy and vaccination rates as well as the lowest infection rate in Colorado, indicators of a successful COVID-19 response (SJBP, 2021b). To meet their mission and to inform future emergent situations in the public health space with similar cosmological properties, SJBPH must understand how their internal and external leadership and communication tactics worked together to inform their success as well as use their experience from the current pandemic to identify areas of improvement and opportunity for future emergent events. These tactics include communication strategies and mechanisms, messaging, and impact. In the context of this pandemic, the examination of the uptake and adherence to health protection measures such as social distancing and mask-wearing by the target populations is also important.

Literature Review

I explored the peer-reviewed literature related to communication modalities and information dissemination, trust and credibility, leadership, and sensemaking and sensegiving to inform my examination (data collection and research questions) of the effectiveness of SJBPH's internal and external communications during the COVID-19 pandemic and leadership action as it relates to sensemaking and sensegiving during this unprecedented cosmology event.

Communication Modalities and Information Dissemination

Information reduces uncertainty, especially in uncontrollable and unknown situations (Lachlan et al., 2013). The COVID-19 pandemic caused an infodemic, which is the widespread proliferation of true and untrue pieces of information on a health concern (World Health

Organization [WHO], 2020). In a 2018 publication on managing epidemics, the WHO provided

guidance on controlling infodemics through the use of traditional and non-traditional media

tactics by appropriate personnel involved in the epidemic, addressing the psychological and

physical concerns of individuals, and monitoring and dispelling misinformation (WHO, 2018).

Mheidly and Fares (2020) further developed a 12-step Infodemic Response Checklist to combat

the current situation and communicate valid information. In addition to the infodemic, the high

stress and risks such as those associated with COVID-19 also contribute to challenges in

processing information, narrowing attention, decreased trust in authority, and diminishing ability

to make complicated decisions (Glik, 2007). In the context of the pandemic, those include

actions such as getting vaccinated, social distancing, and limiting trips to essential services only.

Prior literature has focused on personal factors like self-efficacy, perceived risks, beliefs,

and subjective norms in relation to public health emergency preparedness and receptivity to

communications (Savoia et al., 2013). Additional studies examined the use of social networks,

attitude, prior emergency experience, health status, and self-efficacy as factors that may

contribute to preparedness outcomes (Savoia et al., 2013). Savoia et al. (2013) conducted a

systematic literature review to examine communication and preparedness outcomes in relation to

information exposure, information-seeking behaviors, trust and credibility, information

processing, information utilization, information needs, knowledge/awareness, risk perception,

preventive behaviors, healthcare behaviors, and emotional response. Other efforts have examined

race and ethnicity in relation to government trust, a topic this research does not address (Savoia

et al., 2013).

Agencies should disseminate public health communications using a variety of modalities across web, television, and print to increase

"The understanding of communication behaviors at different stages of public health emergencies will help public health authorities to plan for strategic communication efforts in future emergencies."
~Savoia et al., 2013

engagement and trust; constituents exposed to messaging multiple times are more likely to change behaviors as well as attitudes (Meredith at al., 2007; Mheidly & Fares, 2020; Teichmann et al., 2020). Rural populations preferred local media channels for receiving information compared to national channels, which those living in urban areas preferred (Wray, 2008). Prior research identified gaps in relation to the validity of communication theories during a public health emergency (Savoia et al., 2013). Researchers also found that women also reacted to crisis messages differently than men with women identifying more with messages that addressed the negative outcomes (Sobral at al., 2020). Finally, messaging that conflicts with other entities increased confusion but also impacted whether an individual will follow the recommended protective health behavior (Seeger, 2006).

Allington et al. (2020) conducted three studies with nearly 5,500 online surveys in the United Kingdom related to protective health behaviors during the COVID-19 pandemic as well as using social media as a source for COVID-19 information. The authors found a relationship between where an individual obtains COVID-19 information and their adherence to protective health measures. Those who used legacy media such as TV, radio, newspaper, and magazines were more likely to follow the measures (Allington et al., 2020). The use of social media as a source of COVID-19 information was negatively associated with adherence to protective health behaviors. Media usage was the best predictor of adherence to protective health behaviors when controlling for other variables (Allington et al., 2020). The same study found that individuals

who were older or women were more likely to engage in behaviors such as social distancing,

hand-washing, limiting time outside of the home if experiencing COVID-19 symptoms, and not

having others outside of the household in the home (Allington et al., 2020).

Public health crises resulted in higher social media usage by organizations compared to

other types of crises, due to the immediate need for information and threat to the public (Graham

et al., 2015). "The extent of social media use, but not the number of tools used, was positively

associated with the officials' assessments of their ability to control the crisis as well as their

overall evaluation of the strength of their response" (Graham et al., 2015). In work on the Zika

virus crisis, Gui et al. (2017) discovered that in uncertain situations, individuals utilized social

media to address uncertainty and ambiguity as well as participate in social learning. The same

work also demonstrated that in a public health crisis, many look for local information rather than

sweeping national or global information (Gui et al., 2017). Additionally, to utilize social media

as part of crisis communication, an organization should provide the opportunity for dialogue to

demonstrate listening, utilize the right message, frequency, and modality; prepare and develop a

social media strategy prior to crisis; execute a monitoring strategy; and incorporate social media

into a traditional media strategy in times of crisis (Eriksson, 2018).

Trust and Credibility

Trust is subjective in nature and influenced by the situation, prior interaction with the

organization, what type of organization it is, and their reputation (Seeger et al., 2018). In times of

uncertainty, media dependency increases for one to gain information, and in the case of public

health, engagement increases with trusted public health entities (Lachlan et al., 2013). Trust in an

agency also makes individuals more likely to follow their guidance and recommended actions

(Eisenman at al., 2011). However, in times of emergency, trust in public authorities can decrease

(Seeger et al., 2018). NIMS, though, is designed to facilitate trust and increase credibility during

an emergency (FEMA, 2007). In crisis, agencies can build trust and increase credibility by

providing the most accurate and timely information and acknowledging that recommended

protective health behaviors can change as more knowledge and information is gained as the crisis

progresses (CDC, 2018; Seeger et al., 2018). Message transparency also increases trust and

credibility as well as consistency and alignment with other entities (Peters et al., 1997; Wray et

al., 2008). This is particularly important in the public health space since members of the public

may perceive messaging from the CDC, state, and local public health entities as the same source

(Wray et al., 2008).

Leadership
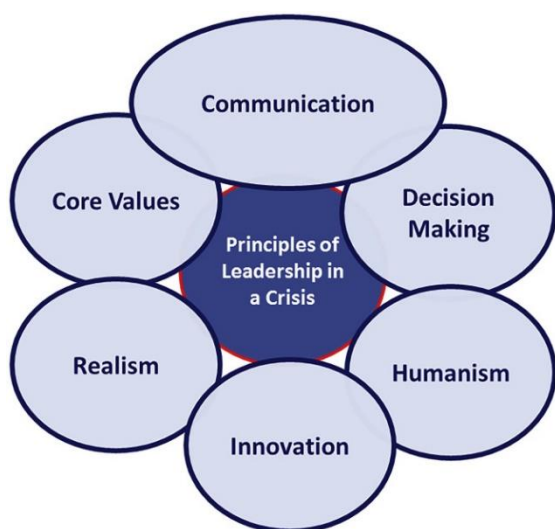
Figure 3. Core Principles of Crisis Leadership (Kaul et al., 2020)

Collective action requires trust (Forester & McKibbon, 2020). During crisis, an effective leader utilizes communication, is realistic about the existing situation but is optimistic about the way forward and the future, reinforces the organization's mission and values, makes decisions and takes actions in alignment with a plan, is flexible to the changing needs, prioritizes the short-term with consideration for the long-term too, emphasizes

connection and team-building, and promotes agile and peer leadership (Kaul et al., 2020). Figure

3 illustrates these principles. Stoller (2020) also examined leadership traits during the COVID-19

pandemic, indicating the importance of being proactive during the crisis, the utilization of

'incident command' style to facilitate communication and faster decisions, acting quickly but

learning from mistakes and building psychological safety so team members can contribute to the solution, collective and frequent communications, and the use of realism and optimism. Many of these align with Kaul et al.'s (2020) conclusion as indicated earlier. In 2013, Boin et al. compiled ten executive tasks during crisis leadership: early acknowledgment of the issue or threat, the use of sensemaking and sensegiving to process information and make decisions, strategic decision-making, facilitating coordination across an organization from hierarchical and peer levels, prioritizing activities and programs during the time of crisis, utilizing the principles of crisis communications, accountability, iterating and learning during the crisis, and being flexible and resilient. Wardman (2020) also discussed leadership strategies during the COVID-19 pandemic which included the principles of planning and preparation, strategizing, sensemaking, providing direction, determining needs, building credibility and trust, being transparent with information, exhibiting honesty, utilizing partnerships and collaboration, being respectful, utilizing a 'we' not 'I' mentality, being agile, and employing many lines of communication.

Sensemaking and Sensegiving

Leaders who use sensemaking have a more successful crisis response (Crayne & Medeiros, 2020). Sensemaking helps balance the conflicting goals and lack of information or the abundance of misinformation (Crayne & Medeiros, 2020). The literature demonstrates the vital importance of a leader in helping others find meaning and in sifting through information that is often conflicting (Combe & Carrington, 2015; Foldy et al., 2008). While Combe and Carrington (2015) explored leadership sensemaking during a crisis, their finds were not generalizable because of the specific case study used.

Bietti et al. (2019) demonstrated the importance of storytelling in the context of collective sensemaking for events that are unexpected. However, in the context of the COVID-19

pandemic, storytelling may be detrimental due to the scientific factor of the collapse of "what we know". Telling stories in this context leads to misinformation rather than sensemaking. Storytelling could be helpful in the future for teaching once the pandemic subsides. In Sandberg and Tsoukas' 2020 work, they describe four distinct types of sensemaking including 'detached-deliberate' and 'representational sensemaking' which are indicative of the COVID-19 pandemic due to the abrupt halt of life at the start of the pandemic and the shift in organizational activity.

Talat and Riaz explored team sensemaking and team resilience (2020). Weick's (1993) theory of sensemaking included enactment, which is attending to the information and actions, and deciding

Figure 4. Talat and Riaz's Conceptual Model of Team Sensemaking and Bricolage (2020)

what is relevant and pertinent, using cues and frames. Sensemaking often occurs in a group and relies on communication, analysis, and social cognition (Talat & Riaz, 2020). Their study demonstrated that team bricolage serves as a mediator for team resilience when task interdependence exists especially in situations where there are no new resources, as shown in Figure 4. Rubin and de Vries (2020) captured four types of sensemaking frames including complicated and simple characterized by order, and complex and chaos, characterized by unorder. The COVID-19 pandemic is an example of the complicated and complex frames depending on the timeline examined in the pandemic. While there was significant turmoil and the need to establish order immediately, agencies attempted to make decisions based on the science to keep the pandemic from escalating to chaos.

Action is a key component of the sensemaking process, especially in systems that have high interdependence (Maitlis & Christianson, 2014). SJBPH also transitioned to a temporary organization of sorts when it implemented ICS. The ICS facilitates sensemaking because it forces coordination and relies on expertise to address the issue at hand, which offers greater flexibility and the ability to make sense of what is happening rather than using resources to develop a response structure (Maitlis & Christianson, 2014).

Sensegiving is a vital leadership action during a crisis or another scenario where there is a lot of change (Maitlis & Lawrence, 2007). Sensegiving may not always address the full unknown, especially in the case of something as large-scale as the COVID-19 pandemic, but it does allow one to move incrementally forward utilizing flexibility and direction (Weick, 2015). Additionally, sensegiving in leaders is executed when leaders feel a situation impacts many groups of stakeholders and when the situation is ambiguous and unpredictable (Maitlis & Lawrence, 2007). Enablers of leader sensemaking include issue-related expertise and prior performance and efficacy in the designated field (Maitlis & Lawrence, 2007).

Summary

A review of the literature indicates the importance of information and consistent, transparent messaging to navigate a crisis, in this case, the COVID-19 pandemic as well as trust. The literature also stressed the importance of an effective risk communication strategy consisting of traditional and non-traditional media, including social media as well as ensuring the appropriate frequency of messaging. The use of social media, however, can impact adherence to protective health behaviors, vital to controlling a pandemic. Agencies may also have challenges in long-term crises, like the COVID-19 pandemic, due to decreasing attention and information overload as well as differences in how select populations respond to messaging.

Leader sensegiving and stakeholder sensemaking are vital to moving past and surviving a cosmology episode. An agency such as SJBPH can excel at leader sensegiving during a public health emergency like COVID-19 because they have the experience and expertise in public health and crisis management. Sensemaking and sensegiving may not solve the full spectrum of challenges that come with something as large-scale and monumental as this current pandemic, but they can help leaders and individuals move forward incrementally and reduce some ambiguity.

Conceptual Framework

This study draws upon three models which address the four major components of my study: leadership, communications, protective health behaviors, and trust. These three models are the Charismatic, Ideological, and Pragmatic (CIP) Leadership Model; the Structural Influence Model (SIM); and a third model which addresses the five components of trust. As noted in the literature, leadership and leader sensegiving are vital to appropriate response and to promoting trust during a crisis. Additionally, adherence to protective health behaviors is impacted by messaging and communications including their receipt, consistency, modality, and whether from a trusted source. Communications including exposure, attention, and processing, impact behavior during public health emergencies. It was vital that my conceptual framework include these components as well as the use of distributed knowledge, given the world-wide nature of the crisis. It was also critical to include sensegiving and sensemaking due to the collapse of our 'normal' world as the pandemic increased in severity and intensity.

Charismatic, Ideological, and Pragmatic Leadership

Mumford (2006) concluded that organizations can lead effectively using charismatic, ideological, and pragmatic leadership styles especially during sentinel events including

cosmology episodes. The model, shown in Figure 5, includes time frame orientation, type of experience used, nature of outcomes sought, number of outcomes sought, focus on model construction, locus of causation, controllability of causation, targets of influence, and use of emotion (Lovelace et al., 2019). Each of these factors has a characteristic aligned to each of the three leadership styles. What makes this model relevant to this study is that SJBPH relies on an executive director as well as a leadership team. The CIP model has proved useful for collective and shared leadership, which is evident at SJBPH during the pandemic.

The CIP leadership model developed by Lovelace et al. (2019) is based on the peer-reviewed CIP literature. The model includes multiple pathways and styles of leadership, rather than just one. In the context of an organization and depending on the scenario, a leader may change their style based on what they need to achieve. This is especially important during a pandemic when there are many leaders trying to achieve different things internal and external to SJBPH. The most important variables that align with this study include the mental models aligned to type of experience used and causation, sensemaking action regarding communications, and moderators like leader-follower fit.
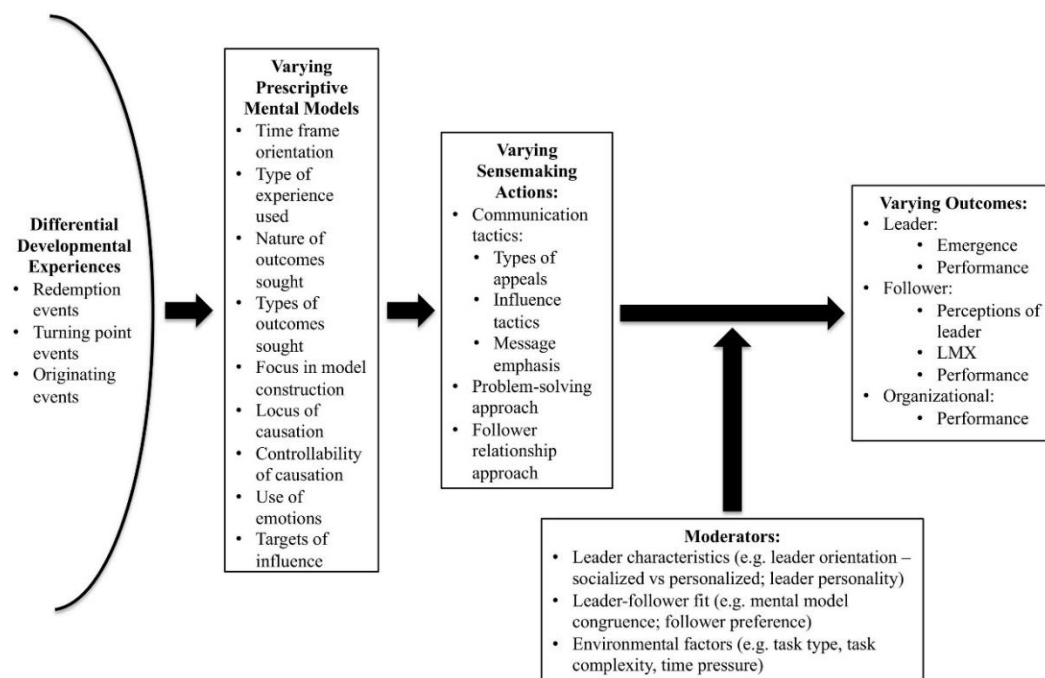
Figure 5. CIP Leadership Model (Lovelace et al., 2019)

Structural Influence Model

The second validated model that informed this study is the Structural Influence Model. This model explores health communication in the context of the social determinants of health including race/ethnicity, socioeconomic indicators, place, sociodemographics, and social networks (Viswanath et al., 2007). Due to the rural nature of Archuleta and La Plata Counties as well as the priority populations identified by SJBPH for COVID-19, I selected this model to use for change in awareness, knowledge, and preventive behaviors. Savoia et al. (2013) updated the model under the context of public health emergency preparedness as shown in Figure 6.

Social Determinants

Socio-economic position
•Income
•Economic vulnerability
•Employment
•Occupation
•Education
•Language
•Social vulnerability

Race/Ethnicity

Immigrant/Nativity Status

Place
•Neighborhood
•Household
•Geographic vulnerability
•Community size

Other Variables

Socio-demographics
•Age
•Sex

Social Networks
•Social support
•Resources

Other
•Disability
•Disaster experience
•Familiarity with preparedness
•Proximity to crisis
•Historical memory

Communication Outcomes

PHEP information access, use & exposure
•Access to Internet
•Watch news on PHEP
•Read newspapers

Information seeking
•Purposive search for information on PHEP

Trust/Credibility

Information Processing
•Ability to understand PHEP information

Information Utilization
•Capacity for action on PHEP information

PHEP Outcomes

Awareness/ Knowledge

Risk Perception
•Uncertainty reduction

Preventive Behaviors
•Evacuation behavior
•Preparedness
•Vaccination
•Quarantine

Other PHEP Behaviors

Racial and social divides in PHEP-related morbidity and mortality outcomes

Communication Inequalities
Exposure, Attention, Seeking, Processing

Figure 6. Structural Influence Model (Savoia et al., 2013)

Regarding my work, the SIM is imperative as it relates to communication exposure, attention, engagement, and use. Because of the fast-paced nature of the pandemic and the sheer volume of communications and information from a barrage of sources, this model was important when considering the engagement of Archuleta and La Plata County residents with SJBPH communications, the trust in SJBPH, the ability to process the information in the communications, and finally, using that information to inform behavior or change in knowledge, attitudes, or beliefs.

The Five Components of Trust

The third model addresses trust, which SJBPH mentioned was part of their communications pivot from prepandemic to the current COVID-19 pandemic. Trust and confidence influence one's perception of an organization's credibility, which ultimately impacts whether one receives, processes, and acts on a communication message. Renn and Levine (1991) proposed that organizational trust has five components: perceived competence, objectivity, fairness, consistency, and faith. There are also five levels which build on each other in this

scheme (Renn & Levine, 1989). The five levels are: the trust in the message itself; the

confidence one feels in who is communicating the message (personal appeal); the credibility and

confidence in a source (institutional perception); the credibility and confidence based on how the

institute does (institutional performance); and socio-political climate where the trust-building

occurs (Renn & Levine, 1989). Those five components, together with confidence and credibility,

provide an individual with a framework to analyze truth. Figure 7 depicts this scheme.
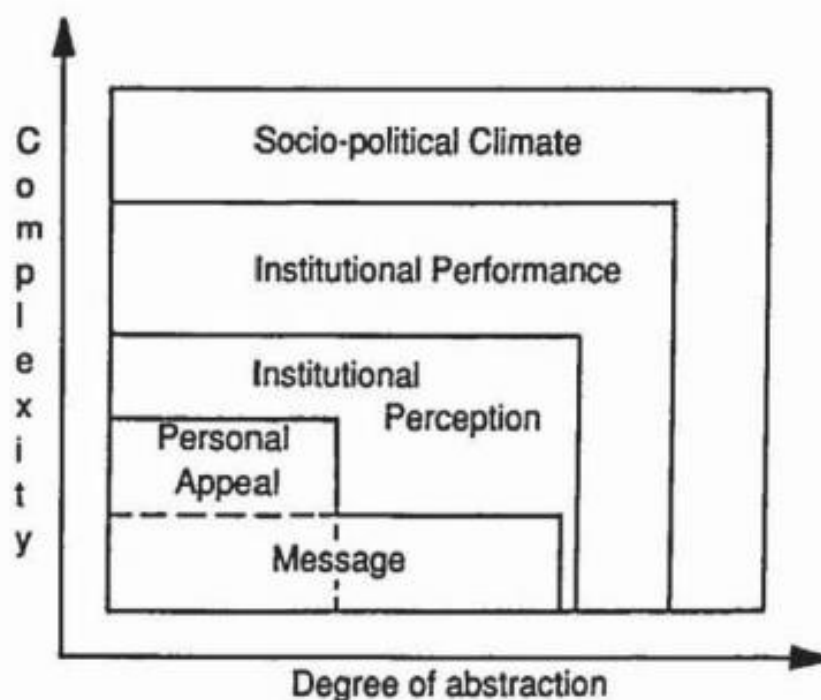
Figure 7. Five Levels of Analyzing Trust Scheme (Renn & Levine, 1991)

       Because of the highly charged nature of the pandemic and the significant impacts to life,

Renn and Levine's scheme on trust was important to consider when I built my conceptual

framework. The climate as well as the perception and performance of SJBPH in countering the

pandemic and its ability to offer the communities some sense of normalcy including business and

schools remaining open, was important and rooted in trust. Each of these five components are

increasingly important during a complex long-term scenario like the COVID-19 pandemic.

Study Conceptual Framework

From the literature and the three validated models including the CIP Leadership Model, the SIM, and Renn and Levine's trust schema, I developed the conceptual framework depicted in Figure 8 for this study. I used several components from the CIP Leadership Model (2019) to think about the internal processes in SJBPH. In addition, the communications pieces from the SIM (2013) including engagement, trust, and changes in behaviors; and Renn and Levine's (1989 and 1991) components of trust were used to build the model below. While there are a number of other processes and actions related to SJBPH and its constituents, I focused this model on internal collective action, external communications, sensegiving and sensemaking, as well as decisions on personal protective health behaviors. I excluded credibility as a study measure as I did not evaluate the credibility of SJBPH as an agency; however, trust was included.

SJBPH and the residents of Archuleta and La Plata Counties are exposed to and use distributed knowledge on COVID-19. Distributed knowledge includes all information they have collected from any source with which they have contact or engage. Examples of distributed knowledge include receiving and engaging with COVID-19 information and communications from federal and state sources such as the State of Colorado and the CDC, the use of social media, and other people they engage with in their social networks and lives. For SJBPH, this also includes information from agencies such as the National Association of County and City Health Officials (NACCHO) or other local public health agencies throughout Colorado. In a perfect structure, information and messaging from all sources would align with each other, but this is uncommon, so SJBPH and its constituents are both bombarded from many sources and angles, including the proliferation of misinformation. As this distributed knowledge engagement occurs, the SJBPH COVID-19 Response Leadership Team uses collective action internally to take the

information they receive, engage in sensegiving, and disseminate it in the form of external

communications to Archuleta and La Plata Counties. At the very least, the constituents must sift

through the copious amounts of communications and decide who they trust, who they think is

credible, and what informs their decisions on personal actions, whether that is the many sources

of distributed knowledge or the specific communications from SJBPH. Therefore, trust is

important and is a two-way relationship between SJBPH and the residents of their two counties.

Ideally this trust is established prior to any emergent situation so that when a constituent needs

information on health, they look to SJBPH, especially during an emergent situation like the

COVID-19 pandemic. The residents hopefully view SJBPH as trustworthy and SJBPH should

trust their residents. If SJBPH disseminates the messaging on the correct platforms in the right

way, Archuleta and La Plata residents can take the external communications from SJBPH,

engage in the sensemaking process, and then use it to make decisions on personal actions such as

wearing a mask or social distancing, in the case of the COVID-19 pandemic.
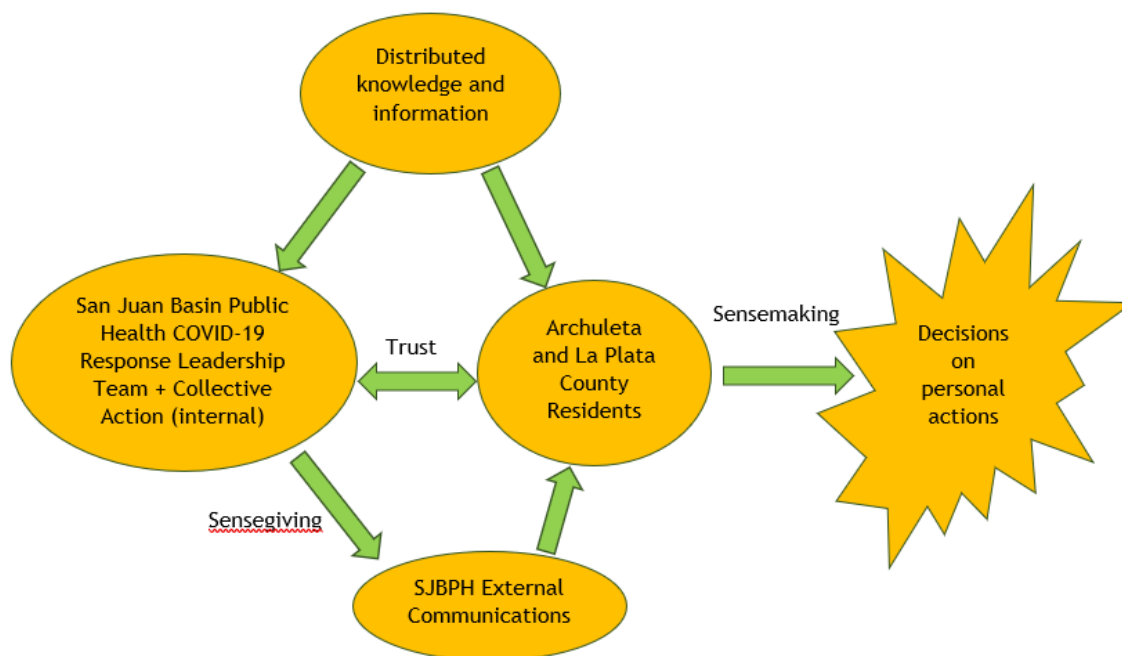
Figure 8. Study Conceptual Framework

While there are many other components regarding communications and the COVID-19 response, not all are depicted here, as they did not align with the study goals. For example, I did not examine collective action in the context of the residents of Archuleta and La Plata Counties as it relates to engaging in protective health behaviors or vaccines. I also did not examine Bandura's social learning theory in the adoption of protective health behaviors. Social learning theory postulates that individuals would adopt protective health behaviors like mask-wearing and social distancing as a result of seeing others doing them as well as the attitude and emotional response of those around you in performing or not performing those behaviors (American Psychological Association, 2020). This is a critical area to consider for future research given the widespread and often emotional nature of the COVID-19 pandemic.

Research Questions

The research focused on two distinct populations: the residents of Archuleta and La Plata Counties, and SJBPH's COVID-19 Response Leadership Team. The conceptual framework presented previously in Figure 8 guided the four primary questions. The study goal related to the residents of Archuleta and La Plata Counties was to learn how they obtain health information, their trust level of SJBPH, how they engaged with SJBPH messaging, and how they used the sensemaking process to inform personal actions related to COVID-19. For the COVID-19 Response Leadership Team, the goal was to understand how they used sensegiving and collective action internally and externally during the pandemic. The research questions are as follows:

1. What is the main mechanism or primary source that residents in Archuleta and La Plata Counties are using to get COVID-19 information? Are they receiving the information and communications from the local public health agency?

2. How are these residents engaging with SJBPH health communications during the COVID-19 public health emergency? Do the residents see SJBPH as a trusted source?

3. Do conversations with others in the form of distributed knowledge or SJBPH communications help residents make sense of COVID-19 and the associated pandemic? Do SJBPH communications help residents make decisions about their personal actions during the pandemic such as wearing a mask, social distancing, etc.?

4. How did SJBPH's COVID-19 Response Leadership Team use internal collective action and sensegiving in their pandemic response to inform external communications to their stakeholders?

<div align="center">**Research Design**</div>

Data Design and Collection

To address the research questions, I collected the data using a mixed methods approach consisting of a survey and interviews. To answer the first three research questions centric to the county residents, a survey of 21 close-ended and open-ended questions was made available to the residents of Archuleta and La Plata Counties from March 2, 2021, one year after SJBPH executed their COVID-19 emergency plan, through May 24, 2021, using Survey Monkey®. I used a survey for four primary reasons: I did not have direct access to the residents, pandemic restrictions prevented or limited in-person activities, a survey is an efficient method to collect a larger number of responses, and surveys allow for anonymity of respondents. Respondents could engage with the survey on the SJBPH website as well as through SJBPH's weekly e-blast newsletter. In case respondents were responding from a shared device, the survey allowed for multiple survey responses from the same device.

The survey aimed to collect information on basic demographics including county of residence, age, gender, occupation, and level of schooling. To ensure validity of survey questions, the occupational categories were consolidated from the State Demography Office while validated questions on age, gender, and schooling were pulled from the National Cancer Institute's (NCI) Health Information National Trends Survey (HINTS) (Colorado Department of Local Affairs, 2020; NCI, Cycle 4). NCI has utilized HINTS since 2003 and collects information in a nationally representative sample on health communications and information to examine knowledge, attitudes, and action (NCI, 2021). Other major areas of the study survey focused on health information sources pre-pandemic and current pandemic and the use of social media, measured using validated questions from HINTS and the Annenberg National Health Communication Survey (ANHCS), where possible. The ANHCS collected data from U.S. adults in a nationally representative sample monthly from 2005-2012 (University of Pennsylvania, 2013). ANHCS explored health communications and the tie to behavioral intention and action as well as knowledge and beliefs.

Amongst the information sources the survey also captured the associated level of trust using a 5-point unipolar Likert scale for each source as well as the visibility of SJBPH communications using a 4-point unipolar Likert scale. I examined trust rather than credibility as trust is generally an emotional, subjective decision based on faith and confidence whereas existing models to determine credibility are focused on internal organizational actions such as transparency, mission-driven policies, and content processes (Kington et al., 2021;Trettin and Musham, 2000). Lastly, Alsufiani et al.'s 2017 publication which explored using a questionnaire to assess sensemaking informed a set of questions on sensemaking and protective health actions related to the COVID-19 pandemic. The questions asked about conversations and how

conversations informed sensemaking (helping make sense of what COVID-19 is and what is happening), reduced uncertainty on COVID-19, provided missing information on COVID-19 and the pandemic, facilitated and provided understanding of the pandemic and the vaccine and its risks and benefits, and increased ability to navigate the pandemic (4-point unipolar Likert scale for each of the six items). For those who had been exposed to SJBPH communications, the exact six items used for sensemaking conversations were also evaluated using the same 4-point unipolar Likert scale. Questions also aligned to action focusing on how SJBPH's communications impacted decisions on wearing a mask, social distancing, limiting trips outside the home to only essential services, exploring information to learn more about COVID-19, and getting the vaccine; how SJBPH's communications changed beliefs, knowledge, and attitudes related to COVID-19; and how engagement with SJBPH changed over a designated period. The survey tool also included open-ended questions on where respondents saw SJBPH communications, what the respondent thought the communication was telling them, and what they thought the message was missing (what information they wish they had but didn't). A total of 179 individuals responded to the survey; of those 12 were excluded from the analysis due to the incomplete nature of the responses (e.g., did not provide responses to questions after the initial demographic questions). Appendix C includes the survey questions.

I also concurrently conducted 14 interviews with members of the COVID-19 Response Leadership Team over the course of Spring 2021 to gather data to answer the fourth research question. The executive director of SJBPH issued the call for voluntary participants to the COVID-19 Response Leadership Team via email, noting the confidentiality of the interviews and that she would not be privy to the interview transcripts or specifics such as who participated. After the email was disseminated, I received 16 responses of 35 COVID-19 Response

Leadership Team members via email indicating interest. Out of those, I successfully completed

14 interviews via Zoom using a structured set of 13 questions. At the beginning of the meeting, I

notified participants of the recording and that information shared would be kept strictly

confidential. The other two individuals who originally expressed interest were unable to make

their initially scheduled time and did not wish to reschedule. The interview length was designed

to be one-hour, however, the shortest interview lasted just at 30 minutes and the longest was an

hour and 20 minutes. Interview length was not dependent on role or length of employment at

SJBPH. Interview questions focused on time at SJBPH, current and past roles at SJBPH, and a

comparison of average days and leadership roles pre- and current pandemic. Other questions

focused on how the leadership team works together, how they process information within SJBPH

and for constituents, how they communicate with each other, and where they think county

residents get their COVID-19 information. Finally, there were questions on sensegiving and what

challenges and successes they saw at SJBPH because of COVID-19. Appendix D includes the

interview questions.

Data Analysis

Upon closure of the survey in May 2021, SJBPH provided me with the survey data in an

Excel format. All survey responses occurred in March 2021, despite the survey remaining open

until May. I reviewed the data for completeness and cleaned it as appropriate. This included

breaking up questions with multiple Likert scales into separate variables and categorizing the age

values, an open text response, into the three indicated ranges (less than 40, 40-64, and at least

age 65). I selected these age groups to align to other peer-reviewed publications and

communication campaigns. As many text variables as possible were converted into numeric

variables for ease of analysis such as level of schooling, sources of information, and actions that

results from exposure to SJBPH communications. Variables such as county of residence and birth certificate gender remained in text format. There were less than five responses where the birth certificate identity differed from current gender identity so current gender identity was not included in the analysis.

I also reviewed free text data and where possible, categorized into primary groupings. This included where respondents got health information in non-COVID-19 times (doctor or healthcare provider, internet, multiple sources, La Plata Integrated Health, other, or 'it varies'), where they saw SJBPH communications (online, in-person, radio, news, email, other, or multiple places), what respondents thought the SJBPH communication was related to (data, vaccines, guidance, the COVID-19 dial level, information, or 'negative/not much') and suggestions to improve the messaging. After completing the data review, I utilized descriptive statistics to examine frequency of responses for each variable. I also utilized county of residence and demographic data like age to further explore differences in the responses. I originally planned to also complete the same analysis looking at responses by gender, occupation, and schooling, but based on the descriptive statistics, I abandoned that idea based on the skewed distributions (respondents were mostly female, three job categories comprised 96% of the responses, and most held at least a bachelor's degree). I used JASP and Excel to complete the analyses.

After completion of the interviews, I exported the 14 audio recordings of the interviews from Zoom into Otter.ai Pro for transcription. The interviews were saved as Microsoft Word documents and reviewed for themes. The primary coding themes were collective action and sensegiving. Collective action included internal SJBPH activities that helped the staff understand the vast quantities of information coming in as well as how they communicated with each other. Using the Root Cause model on collective action as seen in Figure 9 as a guide, the subcodes included internal meetings, communications including the use of technology and information flow and sharing, leadership including transparency and expectations, teamwork including problem-solving, continuous improvement activities, and the change in organizational structure pre-COVID-19 and during the pandemic. My conceptual framework presented earlier includes collective action as one of the components and is an internal action in which SJBPH engages.

Figure 9. Collective Action Model (Root Cause)

Literature from Foldy et al. (2008) and Gioia and Chittipeddi (1991) informed the sensegiving subcodes. These subcodes included external meetings with partners and stakeholders; the use of liaisons, community mindset, relationships, and community building; information sharing and dissemination including the utilization of multiple communication modalities with the target audience, linking to sources in messaging, and the use of media; message tactics like repetition and consistency; data including congruency and making data-informed decisions; and alignment to the Colorado Department of Public Health & Environment

(CDPHE). The final two questions of the interview focused on understanding perceived challenges and successes at SJBPH because of the pandemic. I categorized the challenge responses into external factors outside of SJBPH, internal-facing SJBPH factors, and the pandemic itself, and successes into personal factors and agency factors.

Survey Respondents

Overall, 75% of survey respondents were residents of La Plata County and 25% of Archuleta County. Three-quarters (75%) indicated they were female on their birth certificate, and 25% indicated they were male. A higher percentage of respondents (58%) were 40-64 years of age, 11% indicated they were less than age 40, and 30% indicated they were at least 65 years of age. For occupation, 32% were not currently employed; 22% worked in services like education, medical, and food; and 23% indicated they worked in another occupation. Table 2 includes additional respondent demographics related to occupation, education, and age.

Table 2. Demographics of Survey Respondents

	Archuleta County	La Plata County	Total
	Occupation		
Agriculture	1	2	3
Mining and utilities	0	3	3
Construction	3	2	5
Manufacturing	0	0	0
Transportation and warehousing	0	4	4
Wholesale and retail trade	5	3	8
Information	0	7	7
Finance, insurance, and real estate	4	2	6
Services	6	31	37
Government	0	2	2
Other	7	32	39
Not currently employed	16	37	53
	Age		
Less than 40	2	17	19
40-64	25	72	97
At least 65	14	36	50
	Education		
Less than 12 years of high school	0	1	1
Completed high school or GED	1	3	4
Post high school training other than college (vocational or technical)	0	2	2
Some college	11	15	26
College graduate	10	43	53
Professional degree beyond bachelor's	20	61	81

Of those who indicated they were not currently employed, 62% were 65 and older indicating

they may have been retired, for which the survey did not account. All other occupational

categories had responses less than 5% each. In terms of education, 49% of all respondents

indicated they had a professional degree beyond a bachelor's, 32% were college graduates, and

16% had some college.

The respondents were different than the residential composition of each county.

According to the latest U.S. Census Bureau information, 18% of residents of La Plata County

and 27% of residents of Archuleta County were age 65 and over; on the survey, 29% of

respondents of La Plata County and 34% of respondents from Archuleta County were at least age

65 (U.S. Census Bureau, 2019). More respondents were older than the U.S. Census data

distribution. Additionally, regarding gender, each county is comprised of 50% female while 73% of the survey respondents from La Plata County and 81% from Archuleta County indicated they were female (U.S. Census Bureau, 2019). Lastly, in terms of education, 44% of residents in La Plata County and 37% of residents in Archuleta County had a bachelor's degree or higher according to the U.S. Census while 83% of survey respondents from La Plata and 71% from Archuleta had at least a bachelor's degree (U.S. Census Bureau, 2019). In addition to being primarily female and older in age, respondents also had higher education levels than the distribution indicated by the Census. Below are the study findings as it relates to each of the four research questions.

Results and Findings

RQ1: What is the main mechanism or primary source that residents in Archuleta and La Plata Counties are using to get COVID-19 information? Are they receiving information and communications from the local public health agency?

Respondents went to SJBPH first for COVID-19 information. The survey data showed 41% of respondents would go to SJBPH for COVID-19 information first, 25% would go to a federal health agency like the CDC, 15% would go to their doctor or another traditional medical provider, and 12% would use another source not included in the survey response options. These other sources included mostly online options as indicated in the free text field for this response. Less than 1% would go to family, a friend or co-worker, or a non-profit organization, respectively. Figure 10 depicts this data. Non-traditional/alternative healthcare provider and newspaper account for the remaining 7%. No one indicated they would seek information from a religious organization.

If you had a strong need to get information about COVID-19, where would you go first?

Category	Value
Other	12%
Medical Provider	15%
Federal Agency	25%
SJBPH	41%
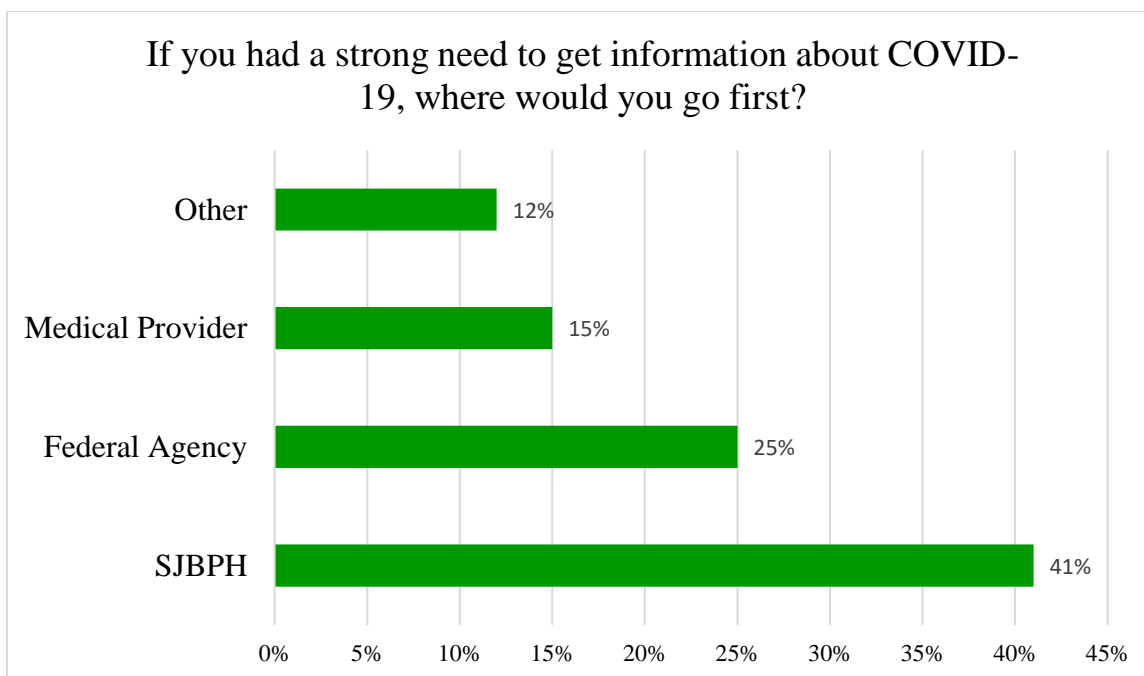
Figure 10. Sources of COVID-19 Information

Overall, just over 80% of respondents are using credible sources for COVID-19 information including the local public health department, a medical provider, or a federal health agency. Credible information is science-based, objective, transparent, and accountable (Kingston et al., 2020). A 2020 study by Ali et al. examined sources of COVD-19 information in a nation-wide cross-sectional survey; results indicated government or other official websites were the most commonly used individual source (88%); 70% used interpersonal sources such as family, friends, and co-workers; and 48% would use a medical provider. Ali et al.'s study also found that 92% of respondents used traditional media (television, radio, news, and podcasts) as a source of COVID-19 information, and my results differed from this outcome. The results of my study align with the use of government or official websites, but the use of interpersonal sources and medical providers differed significantly. A May 2021 study of women in Kansas, however, indicated that 71% went to a health official like the government or CDC as a primary source followed by health professionals (63%) and friends or family the least (16%) (Bakdash & Marsh, 2021). This

is similar to the results of my study. Additional analyses were also performed on the top four

Figure 11. COVID-19 Source, By Age
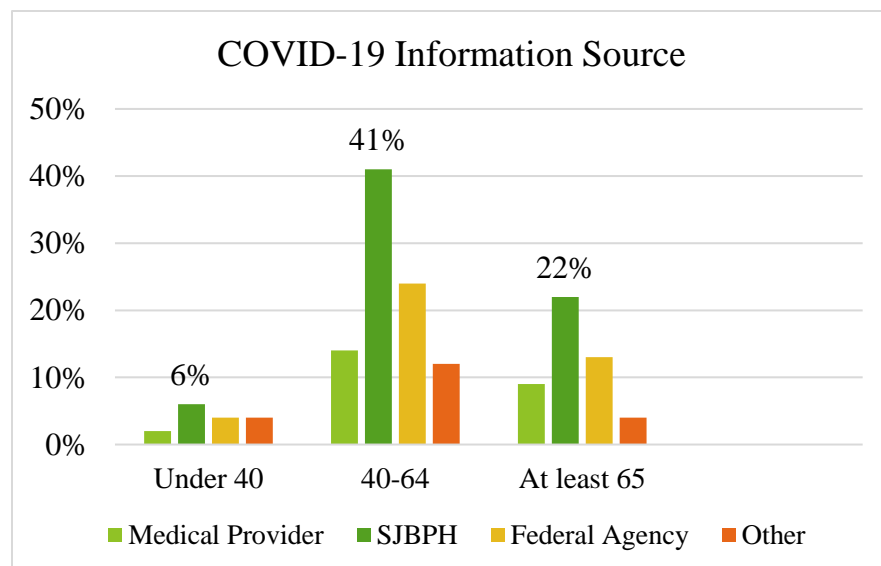
COVID-19 Information Source

indicated COVID-19 information sources (SJBPH, a federal health agency, a healthcare provider, and other) and showed that the main source, SJBPH, did not vary by respondent age or county of residence.

COVID-19 source, stratified by age are depicted in Figure 11. SJBPH staff who participated in the interviews felt the most common source Archuleta and La Plata residents used to obtain COVID-19 information were local newspapers and the SJBPH website, which partially aligned with the survey results of county residents.

For those who indicated they went first to SJBPH, a federal health agency, a non-profit, or a religious source for COVID-19 information, the survey asked for additional information on the main way they would get information from this source. The question included these four categories because the sources had multiple available modalities someone could use to gather information, whereas someone like a friend, family, co-worker, or healthcare provider may be limited to conversation or face-to-face interaction only. Just over 80% (82%) indicated the main way they got information from SJBPH, a federal health agency, a non-profit, or a religious source was to use a website that is not social media; 14% indicated they would use the

organization's social media account like Facebook, Instagram, or Twitter; and just 4% indicated they would use another way.

Respondents indicated where they go for COVID-19 information may not be the same place as 'normal' times. When considering where respondents would go for medical or health information during non-COVID-19 times, 49% indicated they used the same source as where they would first go for COVID-19 information and 51% indicated they used a different source when the COVID-19 pandemic was not occurring. In non-COVID-19 times, respondents sought information from their doctor (49%), the internet (29%), and multiple sources (14%). The different source may be due to the conditions or situations for which one may seek out medical or health information outside of a pandemic including blood pressure, the flu, infections, pregnancy, or preventive health services like regular check-ups or cancer screenings. These results differ from the published literature which indicates more adults seek health-related information online than from healthcare providers (NCI, 2011; Weber Shandwick, 2018).

SJBPH communications reached respondents frequently. Two-thirds (67%) of respondents indicated they had seen or heard communications on COVID-19 from SJPBH in the

last 90 days at least four times, 17% indicated they had seen or heard communications with less

frequency (two to three times), 10% rarely (one time), and 3% had never seen any COVID-19

communications from SJBPH in the last 90 days. Figure 12 graphically depicts these results.

Figure 12. Frequency of Seeing/Hearing SJBPH Communications in the Past 90 Days
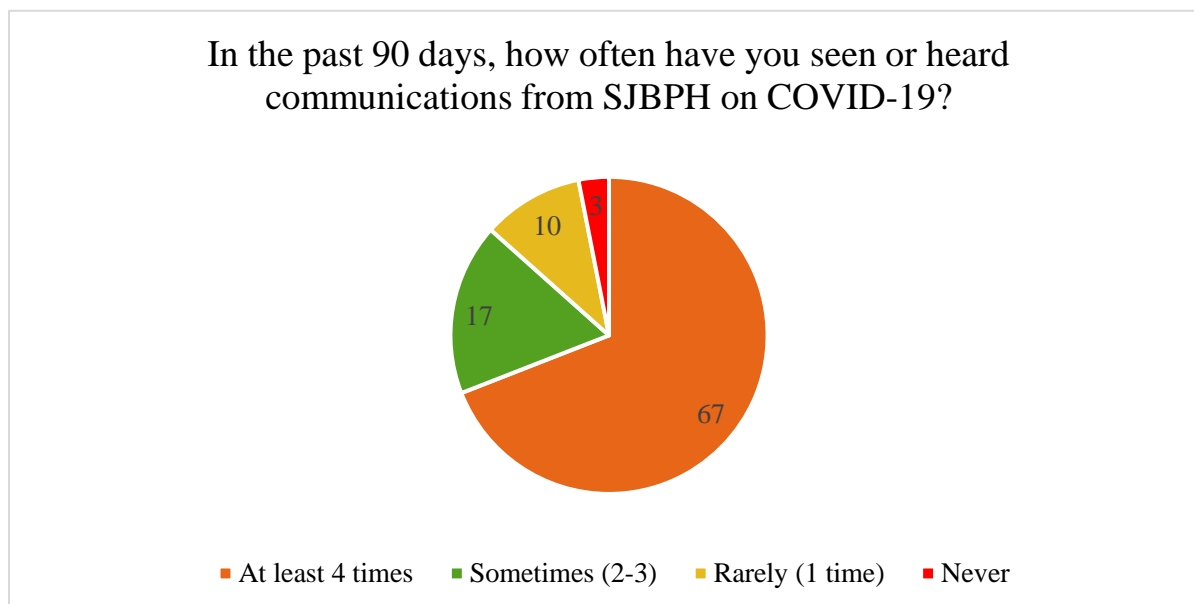
RQ2: How are these residents engaging with SJBPH health communications during the COVID-19 public health emergency? Do the residents see SJBPH as a trusted source?

Engagement with SJBPH increased during the pandemic. More respondents (69%)

indicated their engagement with SJBPH increased from March 2020 to March 2021, the time of

survey completion; 11% indicted their engagement stayed the same; and 4% indicated decreased

engagement. Amongst the respondents, 7% indicated they utilized another source to get COVID-

19 information and 14 responses (8%) were missing. More respondents saw the SJBPH

communications online (38%), while 32% saw it in multiple places, 9% on email, and 3% in a

newspaper. The most common combinations of multiple sources included email and online,

newspaper and online, and more than two sources (newspaper, online, and email). I also

competed an additional analysis for those ages 40-64 since they had the most survey responses.

Those ages 40-64 most frequently saw the SJBPH communications online or in multiple places.

As indicated in the literature, social media and the internet can be primary sources of information. Respondents could check more than one answer on this survey question. The data showed that in the past 10 months, 60% of survey respondents indicated they visited a social network site like Facebook or Twitter for COVID-19 information, 42% to share COVID-19 information on social networking sites, 31% to watch a COVID-related video on YouTube, 24% for reasons not indicated (e.g., they don't use social media or they went online to access news), and 17% to participate in a COVID-19 online forum or support group.

In terms of those who had seen SJBPH communications at least once in the past 90 days (157 of 167), respondents indicated in free text what they thought the communication had been telling them. Analyses revealed responses aligned to the following categories: vaccines, data, guidance, the COVID-19 dial level, and information. Of the free text responses received, 16 of 139 indicated something negative or that the communication had not told them much. The box provides two examples of positive and negative responses in terms of what respondents felt the communication was telling them. Table 3 details examples of topics under the six major categories.

> Positive message example: "That we are making progress!"
>
> Negative message example: "Lots of words and little help. Masks AND distance is still not clear"

Table 3. What Respondents Thought SJBPH Communications Were Telling Them

Vaccines	Shots are available for certain groups, vaccine sign-up, vaccine eligibility, where to get the vaccine
Data	Including the number of cases, dashboard updates
Guidance	Current guidelines, state health directives, mask policies, continue social distancing, "rules and laws for deterring the pandemic"
The COVID-19 dial level	Current tier status, reason for current dial level, color levels
Information	Education on health precautions to follow, information about COVID-19, defining quarantine, testing information, symptoms
Negative/not much	"Standard fear mongering" "Progress (or not) in reducing the pandemic" "Nothing relevant or obnoxiously repetitive"

"You put the facts you want people to see"

The survey also queried respondents on what they thought the message was missing (what information they wish they had but did not). Suggestions aligned to data, ensuring timely and accurate updates, vaccine eligibility and scheduling, and relaying more information. There were also a number of responses expressing frustration with the change in the SJBPH dashboard. The number of responses related to vaccine eligibility and scheduling was not surprising given the status of the state of Colorado and Archuleta and La Plata Counties in March 2021, with vaccine availability increasing throughout March 2021 for most population groups (University of Colorado Anschutz Medical Campus, 2021). The below is an example of one respondent's feedback and Table 4 provides more specific suggestions in the four consolidated categories.

> "There was a horrible desert of missing information during the worst part of the pandemic. Just tell me what is going on! Finally, you are. Thank you." ~Survey Respondent

Table 4. Respondent Recommendations for What SJBPH Messaging is Missing

Category	Recommendations	Examples
Data	~Different data on cases such as actual case counts, prevalence of mutations ~ Symptomatic cases and hospitalizations (a frequent recommendation) ~ICU occupancy ~More info on the available data and what is included in case counts, how multiple tests are counted from the same individual	~"Big lack of information and data regarding positives cases in the Bayfield School District….There is no information shared on how some cases are found to be a variant…the lack of info on these subjects essentially blinds the citizens of this county and makes any sort of personal decision making regarding the pandemic impossible to get right" ~"Better tracking of non-resident numbers such as new cases per day… they are interacting with the community more than locals… new cases in visitors should be a leading indicator for new cases in locals"
Timely and accurate updates	~More current notice of places with cases ~Multiple respondents indicated not receiving notifications they signed up for ~DIAL was confusing ~Ensuring emails are timely (not after the Durango Herald published it)	~"The frequent changing of the data displays eroded my confidence"

Vaccine eligibility, proof, and scheduling	~Confusion on if one had to wait until in the eligible population to make an appointment ~Multiple respondents noted ineligible individuals getting the vaccine early (not checking eligibility) ~Vaccine scheduling system was frustrating- can it be centralized? ~Which entities are providing which vaccines ~Clearer details about availability and where there is leftover vaccine ~More eligibility specifics beyond age ~A standby list for vaccines- it shouldn't be about who you know	~"What can a person who is fully vaccinated do" ~"Online verification to show I've been vaccinated"
Relay more information	~How to wear a mask properly using cultures where masks have been in use for general decades (seal, fit, etc.) ~Post vaccination protocols ~Is wait list for the vaccine ~Latest on vaccine efficacy against variants ~To combat the misinformation on masks (people can decide themselves, if you're not moving around inside you can take off mask)	~"I am still unclear on how children are impacted and how/if they are little superspreaders" ~"Where to get more resource information" ~"People are unclear on the need for masks AND distance and its importance"

Respondents trust SJBPH, federal agencies, and healthcare providers for COVID-19 information. To assess sensemaking and action, I first examined trust, an important contributor to both. There was high trust of SJBPH for COVID-19 information with 86% of survey respondents indicating they trusted SJBPH "some" or "a lot" about COVID-19 information. About the same percent of survey respondents (87%) indicated they trusted a federal agency about the same amount regarding COVID-19 information. Traditional medical providers were also highly trusted by survey respondents with 93% indicating they trusted them "some" or "a lot." High trust ("some" or "a lot" on the Likert scale) of COVID-19 information from a non-profit, a friend/co-worker, television, the news, or family ranged from 39%-66%. Thirty-seven percent did not trust a nontraditional or alternative provider at all and 55% did not trust a religious organization "at all."

Existing research indicates 94% of U.S. adults trust a healthcare provider "some" or "a lot", and 71% trust government health agencies "some" or "a lot" for health information (NCI, 2019). The least trusted sources were radio (23%) and religious organizations (30%) (NCI, 2019). In terms of trust related to COVID-19 information, government or official websites were most trusted followed by healthcare providers (Ali et al., 2020). The results of this study aligned with NCI (2019) outcomes indicating higher trust levels for healthcare providers and government health agencies but differed slightly from Ali's (2020) research as the trust for a federal agency and SJBPH was slightly lower than for healthcare providers. However, if source of information is an indicator of trust, we see comparable data in non-COVID times.

RQ3: Do conversations with others in the form of distributed knowledge or SJBPH communications help residents make sense of COVID-19 and the associated pandemic? Do SJBPH communications help residents make decisions about their personal actions during the pandemic such as wearing a mask, social distancing, etc.?

The sensemaking process is often collaborative in nature, as one shares the experience with others and tries to improvise and move forward. All respondents indicated they had engaged in conversation about COVID-19 and the pandemic with people they know. <u>Conversations with others helped with pandemic sensemaking</u>. Sixty percent of respondents indicated the conversations helped them make "some" or "a lot" of sense about what COVID-19 is and what is happening, 50% indicated the conversations helped them reduce "some" or "a lot" of their uncertainty on COVID-19, and 44% acknowledged that the conversations helped them fill in "some" or "a lot" of the information they did not previously have on COVID-19 and the pandemic. Understanding was a little lower with only 43% indicating the conversations helped them understand "some" or "a lot" more about the pandemic, 56% felt the conversations made them feel like they could navigate the pandemic "some" or "a lot", and 51% felt their

conversations helped them understand "some" or "a lot" about the vaccine and its risks and benefits.

I juxtaposed the data on conversations with others with how respondents felt SJBPH communications informed the same sensemaking actions. SJBPH communications helped with sensemaking. Two-thirds (66%) of respondents indicated the communications helped them make "some" or "a lot" of sense about what COVID-19 is and what is happening, 62% indicated the communications helped them reduce "some" or "a lot" of their uncertainty on COVID-19, and 59% acknowledged that the communications helped them fill in "some" or "a lot" of the information they did not previously have on COVID-19 and the pandemic. Just over half (53%) indicated the communications helped them understand "some" or "a lot" more about the pandemic, 61% felt the communications made them feel like they could navigate the pandemic "some" or "a lot", and 56% felt their communications helped them understand "some" or "a lot" about the vaccine and its risks and benefits. SJBPH communications increased sensemaking 5%-16% more for all the categories compared to conversations with others. The lowest change was in understanding vaccines (5% difference) and the highest change was in filling in information on COVID-19 and the pandemic. The current literature is limited on how conversations and communications influence sensemaking, so more research will be needed to interpret these results. However, when considering the role of a public health agency in a public health emergency, it should be no surprise that SJBPH was able to increase sensemaking due to their position and technical and scientific expertise. The smaller change in understanding vaccines was not surprising given the status of vaccine availability when the survey was fielded; those over age 60 only became eligible on March 5, 2021. Those ages 50 and over become eligible on March 21, 2021, and all adults over age 16 were eligible to get the vaccine starting on April 2,

2021 (Swindler, 2021). Interestingly, all respondents completed their survey responses in March 2021, which may have impacted some of the results related to the vaccine and messaging suggestions.

Part of sensemaking is also taking action. Respondents indicated SJBPH communications informed their personal decisions related to protective health behaviors during the pandemic. Specifically in relation to SJBPH communications, 51% of respondents indicated these communications impacted their decision to wear a mask "some" or "a lot", 54% indicated it impacted their decision to social distance "some" or "a lot", 55% indicated they explored information to learn more about COVID-19 "some" or "a lot" as a result of SJBPH communications, and 58% indicated it impacted their decision about activities outside of the home such as limiting trips to only essential services like food, medical, or work. Finally, SJBPH communications helped respondents make a decision on the vaccine with 59% indicating SJBPH communications informed or impacted their decision to get a vaccine "some" or "a lot."

Lastly, I examined changes in beliefs, knowledge, and attitudes about COVID-19 as a result of the SJBPH communications. SJBPH communications did not impact beliefs, knowledges, and attitudes as much as actions. Less than half (40%) indicated the communications did not influence their beliefs about COVID-19 and the actions they should take to minimize risks while 47% indicated they took it more seriously. Those who were at least age 65 were more likely to indicate SJBPH communications influenced beliefs, while those ages 40-64 were equally split between having no influence and taking it more seriously. Regarding change in knowledge on how COVID-19 spreads, 46% indicated SJBPH did not influence this and 41% indicated it made them take it more seriously. Those who were ages 40-64 were more likely to indicate SJBPH communications did not influence knowledge, while those at least 65

were equally split between having no influence and taking it more seriously. Finally, when considering attitude toward COVID-19, 41% indicated the communications did not have any influence while 46% indicated they took it more seriously. When examining age, I saw a similar trend as influence on beliefs; ages 40-64 was split and those at least 65 years of age were more likely to indicate SJBPH communications influenced their attitude. In one final analysis, I examined level of SJBPH trust with changes in beliefs, knowledge, and attitudes. Those who trusted SJBPH "a lot" were more likely to indicate there was a change in beliefs, knowledge, and attitudes because of SJBPH communications. Those who indicated lower levels of trust for SJBPH were more likely to indicate the communications had no effect on beliefs, knowledge, and attitudes.

RQ4: How did SJBPH's COVID-19 Response Leadership Team use internal collective action and sensegiving in their pandemic response to inform external communications to their stakeholders?

As noted previously, I conducted interviews with 14 members of the 35-person COVID-19 Leadership Response Team. Their length of employment with SJBPH ranged from less than six months to over 10 years. SJBPH hired some employees as part of the COVID-19 response and others were long-time employees whose roles shifted to support the COVID-19 response and implementation of the ICS structure starting in March 2020. The interviews brought to light important themes under collective action and sensegiving. The box below provides an example of an employee's viewpoint on SJBPH leadership during the pandemic.

> "I see that our leaders have demonstrated extreme competence, under tremendous pressure, both our own pressure on ourselves to succeed, because we know the stakes, and the pressure that comes from being the public health agency in a community during a public health emergency, being observed very closely, and have people that are aware… that's never something we've had to deal with before. So tremendous competence and excellence, under tremendous pressure. I believe that the leaders of the agency will now believe that every other problem is maybe a little more easily solved…I know that we were presented with a much more serious challenge, and we're able to manage it."
> ~SJBPH Employee

Collective Action

SJBPH uses a variety of tactics and processes under collective action. These include

internal meetings, communications including the use of technology and information flow and

sharing, leadership including transparency and expectations, teamwork including problem-

solving, continuous improvement activities, and the change in organizational structure pre-

COVID-19 and during the pandemic. The goal of collective action is to process the volumes of

information coming into SJBPH so SJBPH can successfully meet its mission related to the

COVID-19 pandemic and their responsibilities to the residents of Archuleta and La Plata

Counties. Unique variables such as working remotely added a layer of complexity. Table 5

depicts the themes for collective action as well as examples.

Table 5. Collective Action Themes and Examples

Collective Action Themes and Examples		
Internal Meetings	**Communications/Technology**	**Leadership**
- Situation Report - Planning - Command and General Staff - Operations Huddle - Leadership - Smaller meetings as needed	- Use of technology platforms like Microsoft Team and texting - Shared drives - Internal information flow and sharing	- Clear communications - Setting expectations - Transparency - Team leads/group supervisors
Teamwork	**Continuous Improvement**	**Change in Org. Structure**
- Problem-solving "Reaching across the aisle"	Evaluating the teams and adjusting when needed	Migration from hierarchical to collaborative

Internal meetings ensure the team gets the same information and develops a cohesive

plan to make sense and communicate it. There are several meetings either daily or weekly

including the Situation Report each morning where the full COVID-19 Response Leadership

Team reviews the latest media and policy releases from CDC and the state; it is in this forum the

group decides what to provide to the different stakeholder groups. The meeting includes the

On Interpreting Information

"We get certain leadership members together and start discussing and we start bringing up different aspects to it (based on our experiences and roles), and what are what, what we feel might be the right way to look at it, and then somebody else will comment, and it's just sort of a give and take kind of opportunity to work through the guidance and then making a final decision of how is it that we are going to interpret this guidance." ~ SJBPH Employee

various branches such as surveillance and testing, disease investigation outbreak (contact tracing and outbreak investigation), control (quarantine and isolation), mitigations, and finance.

Following the Situation Report is the Planning Meeting where the group discusses the information previously indicated would be pushed to stakeholders, any immediate issues, and the impact of the information on SJBPH practices, guidance, and messages; adjustments are made to SJBPH practices, guidance, and messages as needed. Attendees of the Planning Meeting vary based on the identified topics. Each afternoon is Command and General Staff, the Operations Huddle, and smaller team meetings. ICS requires some of the meetings such as the Situation Report and the Command and General Staff, but the meeting frequency has changed over the past 18 months based on the fluctuating demands. The meetings are designed to provide the team an integrated approach to receiving and making sense of the information coming into SJBPH. Within these meetings we see many examples of collective action. The team uses these meetings to solve problems, collaborate, and work through the information together, as noted in the box to the left. One interview participant also noted,

> It's basically the place to find problems, because a lot of times you have staff who don't know that they have a problem, or they're grinding their gears trying to solve a problem. And then you're like, hey, that's not your role. Let's pass that over to the other team.

Communications and technology have made information sharing easier but has also presented challenges due to the number of platforms and lack of guidance on when to use each. SJBPH transitioned from a solely in-person setting to fully virtual once the pandemic started, necessitating the implementation of innovative technology including the use of Microsoft Teams, video meetings, and texting. The team continued to use a shared drive but in a more disorganized fashion with a lack of a file naming convention and an incomplete set-up at first. Some information is passed on email, some on Teams, and some on text. This can lead to fragmented information that is hard to locate should one need to pull something historically. Employees also use the platforms differently based on their preferences. So, while communication is improved and rapid, the lack of guidance on when to use each platform has presented challenges. Interview participants also noted that long-term it will be challenging to document the pandemic response and lessons learned due to the multiple communications platforms and the way the platforms are used.

The viewpoint on leader actions was mixed; some felt leadership was successful, others felt leadership had unclear expectations. Some respondents spoke to the transparency and the clear communications of leadership throughout the pandemic response while others expressed frustration at the reactive and often unclear expectations. Many were complimentary to the forward-thinking mentality of both San Juan and ICS leadership, as well as the use of team leads throughout the pandemic. One respondent noted the use of continuous improvement where SJBPH leadership monitored the smaller teams and adjusted as needed to get the right combination of skillsets, however, no one else mentioned this.

Teamwork helped SJBPH succeed in their response. All respondents mentioned the use of teamwork throughout the response and "reaching across the aisle" for information, to

problem-solve, or to ask questions. The pandemic, for many, was an opportunity to work together. A silver lining of the pandemic was how it contributed to the cohesiveness in a challenging situation. The change in organizational structure from pre-pandemic to current operations was noted by many interview participants. They noted the breakdown in siloes and the shift from hierarchical to collaborative teams. This was an interesting perspective as the ICS is intended to be hierarchical in nature with three specific levels.

Sensegiving

SJBPH engages in strategic sensegiving and relies on external entities. In order to "give sense" to the communications and information SJBPH distributes to its constituents, they participate in a number of strategic external meetings with partners and stakeholders; the use of liaisons, community mindset, relationships, and community building; information sharing and dissemination including the utilization of multiple communication modalities with the target audience, linking to sources in messaging, and the use of media; message tactics like repetition and consistency; data including congruency and making data-informed decisions; and alignment to CDPHE. Table 6 depicts the themes for sensegiving as well as associated examples.

Table 6. Sensegiving Themes and Examples

Sensegiving Themes and Examples		
External Meetings	**Information Sharing and Dissemination**	**Data**
• CDPHE • Stakeholders • Public Information Officers	• Use of media like radio, news, podcasts, interviews, social media • Multiple communication modalities including weekly emails, dashboard, monthly newsletter	• Making data informed decisions • Ensuring data congruency
Message Tactics	**Community and Stakeholder Relationship Utilization**	**Alignment to CDPHE**

Message repetition and consistency • Shared talking points • Linking to the source for added credibility • Serve as guides	• Use of liaisons • Utilizing a community mindset • Use of relationships prior to COVID-19 • Community building	• Aligning to CDPHE for credibility and asking for clarification when needed

External meetings allow for the collection of a large volume of information in a timely manner. In terms of external meetings, the team takes a 'divide and conquer' approach and then reports back to the group; some of the meetings are aligned to specific roles such as executive directors, public information officers (a role in ICS), epidemiologists, specific stakeholder groups such as schools and businesses, or those supporting vaccination efforts. These meetings occur with CDPHE, the state, and larger stakeholder groups. The information gathered from these meetings is then brought to the internal planning meeting. One of the challenges in this approach is indicated by the following interview response,

> I don't know how, if there's a formal way that people are listening, I think we're just kind of looking out for our own pieces. But also, you know, you start looking out for things that might impact the group as a whole, because you hear stuff, and it's informal information.

I inquired how the staff knew what to bring back to the rest of the group given the challenge with silos and viewing information from one's own role/context/background. Staff indicated an innate sense of what to bring back, but there has been no systematic training or guidance given on this. Despite the many sources of information coming in to SJBPH, it was clear from many that the information was processed in the context of the SJBPH's area of responsibility. The number of sources and amount of information contribute to conflict. Some of the information received by SJBPH from sources such as CDPHE require additional interpretation, guidance, and messaging in order to disseminate to the public.

To disseminate their message and information, SJBPH uses a variety of traditional and non-traditional media. To ensure broadest reach of messaging to the Archuleta and La Plata communities, SJBPH uses local media like radio, newspapers, podcasts, interviews, and social media. Specific to SJBPH, they also have weekly emails to stakeholders and to community members, a data dashboard, and a monthly e-newsletter in addition to their website and social media platforms.

SJBPH uses data to inform decisions and to improve credibility. They work to increase credibility by ensuring there is data congruency with other public health entities in the area including CDPHE, who may be reporting COVID-19 information and numbers. If the data differs, they work through it and reach to the other agencies as needed. As noted in the collective action findings, SJBPH works collaboratively to interpret guidance and information from others; they also use the data to inform decisions. One employee provided some thoughts below.

"This is the information coming down to us and we're supporting it, we are not going against it, we're not making our own rules. We are doing what we're required to do. And that's to put out this message that we are getting from our leadership at the state level, or even at the federal level through the CDC. Everything is evidence-based. It supports the work we're doing if we support the guidance and guidelines that come down. The amount of sharing of information is what makes us a trusted source of information."   *~SJBPH Employee*

Messaging aims to increase trust and credibility through consistency and accuracy. For increased message saliency, SJBPH uses message tactics like repetition and consistency to ensure stakeholders are not getting conflicting messages and to increase likelihood of message uptake. This consistency is also seen amongst SJBPH staff. For example, representatives of the SJBPH Communication Team are present at the internal meetings, putting together talking points for a unified message across SJBPH. As a result, the executive director, the contact tracer, and

the SJBPH employee answering the phone all have the same information once leadership

approves the messaging, contributing even further to message consistency. Consistency is not

just seen on the communication modalities like SJBPH's website and social media, but it can be

observed in interviews and on phone calls too. To further promote trust and increase credibility,

a number of interview participants noted SJBPH's practice of linking to sources in their

messaging so the public could understand the original source of the information; this aligns with

Kington et al. (2020)'s foundational principles and attributes of credible health information

On Sharing Information
"It's really a 360-degree approach in terms of sharing information because you have the internal, the external, the stakeholders and all the rest of the community members. We need everyone to be ambassadors of getting out the message." ~SJBPH Employee

which is to be science-based. This also aligns with SJBPH's role to lead the response, but also to serve as a guide for the residents of Archuleta and La Plata counties.

One individual noted,

> We want to serve as guides. We really wanted to know where we should be pushing them
>
> (the community) as guides. It's not a great idea to walk over there, but it's a better idea to
>
> walk over here. Instead, it's like here, let me take your hand, this is the pathway that's a
>
> really great idea.

Community and stakeholder relationships are vital to the success of the response. The use

of a liaisons and networks serve as conduits for information in the area SJBPH serves as well as

allowing for targeted information and response. The liaison for schools, for example,

communicates with that network. The same thing occurs for the other stakeholder groups. This

model allows for a trusted individual to provide the necessary information and allows for greater

accessibility and targeting, rather than using blanket communication to all groups. The liaisons

and networks can also funnel any concerns, questions, or information they have up to SJBPH

using their liaison. Using dedicated liaisons provides 'less opportunity for signals to cross and

limits answer shopping.' These liaisons are consistently interacting with their groups, in

meetings or in phone calls, and are providing info and feedback from SJBPH. SJBPH also used

existing partnerships that were formed prior to the pandemic including counties and

municipalities, law enforcement, legal entities, schools, and healthcare institutions. In their

messaging, SJBPH utilized a community mindset, focusing messaging not on individuals but on

others and those around you. This tactic aligns with multiple studies which noted the importance

of framing COVID-19 protective health behavior messaging around the greater good and

protecting others in the moral frame (Benham et al., 2021, Everett et al., 2020).

Challenges

The challenges due to the pandemic were multi-faceted and were internal and external.

Interview participants indicated several challenges because of the pandemic aligned to the areas

of external factors (outside of SJBPH), internal factors in SJBPH, and the pandemic itself. A

common theme for external factors included inconsistency. Interview participants mentioned the

inconsistency of messaging from various sources of information including from the governor and

CDPHE and the inconsistent workflow throughout the pandemic depending on

role/responsibilities. Due to the number of agencies involved, there were also discussions at

times about who the authority was. Other external factors that presented challenges to SJBPH

included the following as noted by one interview participant,

> The rhythm is dictated outside our organization. The external factors dictating the rhythm
>
> are also other organizations like CDPHE and the Biden Administration. Or, it can be

local, if we're suddenly finding ourselves at odds with our City Police Department

about enforcement.

The ICS structure itself necessitated more meetings and changes in roles which some felt was

challenging due to time constraints; being underfunded and understaffed also contributed its own

challenges. Lastly, multiple interview participants noted the population differences in Archuleta

and La Plata Counties, which may have impacted beliefs on and adherence to protective health

behavior actions, local leadership in terms of supporting SJBPH's efforts, trust and credibility,

and message uptake.

Internal agency factors also contributed to challenges. In addition to factors outside of

SJBPH, many interview participants felt there were some internal challenges too. These

challenges included shifts in technology and the sheer volume of information and

communications beings shared within the agency. A number of participants also noted SJBPH as

being reactive to the pandemic and not being proactive with actions and messaging. Themes

related to SJBPH leadership and culture emerged as well including changing direction and

guidance from leadership, making decisions without others' input, utilizing formal rather than

organic outreach, and culture which consists of leadership pressure and working long hours.

Others noted challenges with working in what one individual called an 'echo chamber,' not

knowing what others are working on due to compartmentalized teams, and rewarding those who

were poor leaders prior to the pandemic and who were given leadership responsibilities in the

pandemic space as well. Others mentioned challenges including SJBPH's messaging strategy of

being reactive and using quantity over quality messaging. Lastly, due to the shifts in

responsibilities, a need was identified for diversified skillsets to disperse the additional

responsibilities as the organization moves forward.

The pandemic itself was a huge contributor to challenges at SJBPH. These challenges included decreased human interaction, similar to what is occurring in the general population, as well as mental health concerns due to the 24/7 response and being the lead agency. The length and depth of emergency operations concerned many interviewees with a number noting burnout, fatigue, and additional stress as well as concern for the personnel and program impacts once SJBPH returns to

> **On Returning to a Steady State**
>
> "Our challenge is hopefully very soon going to be how do we unwind ourselves from this emergency response and get back to the jobs that our staff have been doing without a lot of leadership? And what are we going to find when we start going back to our regular jobs? What do we need to have as part of this agency permanently, because we now have a novel virus circulating that may become endemic to the human population? There's a ton of uncertainty there and certainly for me, personally, I wonder about going back to my regular job- finding it less important almost. Because I've just been involved in the greatest public health crisis in 100 years. I don't know that for sure and I don't know that that challenge is going to be true for everybody. And honestly, all of our lives and jobs will be quite different, I'm sure forever because of this event. I don't have a great sense of how we will integrate what we've learned, and the relationships that we've developed, and the credibility that we've earned into our ongoing operations, when we hopefully start to trickle back to our regular jobs."
> ~ SJBPH Employee

steady state. In terms of the public health space, the impact of the COVID-19 pandemic on regular public health programs was noted, which could cause downstream impacts once the pandemic subsides. Due to the demands of the pandemic response, one staff member noted, "we don't tell our story" and then acknowledging there was no time to document lessons learned as they occurred. The uncertainty and limited funding as well as the unknown or limited staffing and changing job responsibilities because of the pandemic response was also noted. This unprecedented event results in 'initiation by fire' as there has not been a comparable situation in our lifetime.

Successes

> "We've been through something where we have bonded and challenged each other to perform at a level that we dug deep that none of us knew we had." ~SJBPH Employee

Despite the challenges, however, SJBPH staff grew and connected and improved as an agency. Feedback from interview participants on the success SJBPH saw because of the pandemic related to personal factors and agency factors. These successes included the utilization of untapped skills and learning the strengths and weaknesses and interests of their colleagues. Personal factors such as compassion, human perseverance in the face of adversity, and commitment were mentioned. Due to the experience and the shaping of pandemic response, there were improved relationships as well as emergent leaders. Numerous interviewees also noted the willingness of other SJBPH staff to jump in. One participant said proudly,

> We have a lot of broken tools. We have a lot of shifting landscapes. We have a lot of policies, decisions that we don't control. And the team, everyone, comes to the conversation asking what's broken? How can I help? How do I make that work for this community that I live in? It's absolutely astounding, that people could still be approaching it a year into it this way.

Agency factors such as demonstrating the value of public health, spotlighting essential public health services like communicable disease, emergency preparedness, and targeting underserved populations were highlighted. Within the staff itself, silos and barriers were removed, more collaboration occurred, team building increased, communication improved, and networks were expanded. The volume of work and consistent messaging as well as the enhanced relationship with CDPHE were also mentioned. Lastly, in terms of leadership, strategic thinking occurred early, and the non-COVID-19 staff really stepped up and leaned in.

Limitations

This research has some limitations. First, there were marked demographic differences in between survey respondents and the actual population of the counties. Because the respondents

were older, more educated, and more likely female, this may have impacted the responses and the outcomes may not be generalizable to the local area. Second, the survey was disseminated via SJBPH modalities, which may have skewed the responses towards those who already trusted SJBPH. If the survey was promoted through modalities beyond SJBPH, the outcomes may have changed. The survey was made available using an online tool, however, while the 2019 American Community Survey indicated 90% of households in La Plata County and 93% of households in Archuleta County had one or more computing devices including a desktop or laptop computer, smartphone, or tablet, it also indicated 22% did not have an internet subscription in La Plata and 16% in Archuleta County (U.S. Census Bureau, 2019). This may also have impacted responses. In terms of the leadership team interviews, staff may have been reluctant to share thoughts due to the ongoing pandemic response, the perceived negative consequences, or social desirability bias.

Recommendations

SJBPH should address internal and external prongs of the response. After reviewing the results of this research and the associated literature, I have the following recommendations for SJBPH: Using lessons learned from the COVID-19 pandemic and other emergent situations, develop three versions of the ICS for the area of responsibility. One should be for shorter-term emergencies such as wildfire, one for mid-term emergencies no more than three to six months in length, and one for long-term incidents such as the current pandemic (i.e., greater than six months in length). As noted earlier, SJBPH has previously executed the ICS prior to the pandemic for shorter term situations like wildfires and hantavirus, but the pandemic brough new challenges related to staff, workload, and public health programming. By developing three SJBPH ICS structures based on this pandemic response and other incidents as well as the

experiences of the staff, SJBPH can position itself to respond faster and more efficiently with the least amount of impact to the agency, its programs, and staff. For example, the long-term ICS version could account for burn-out and burden and allow for a rotation of staff that would protect the mental health and well-being of individuals. Developing these ICS structures early can also promote a shared mental model which is vital in improving efficiency, decision-making, and teamwork when a real emergency occurs (Farcas et al., 2020).

SJBPH should prioritize trust-building after the pandemic. While over 80% of respondents indicated high trust in SJBPH for COVID-19 information, SJBPH may not be the preferred source for health information in non-COVID-19 times with just over 50% indicating they use another source for information. As the pandemic subsides, SJBPH should continue to work to build trust with local constituent and partner groups. Heavier focus should be placed on those working with and in underserved populations (e.g., priority populations, populations without housing) and identifying the mechanisms to communicate and engage with them moving forward to continue with trust-building (Henderson et al., 2020; Michener, 2020). Some research indicates informal sources of information such as social media or the internet may be more trusted than public health organizations, so SJBPH should continue with a diversified communications plan across platforms (Liao et al., 2010). Trust maintenance also occurs when protocols and procedures are developed; in the case of a pandemic, this can be preparation, standby, action, and stand-down (Australian Government, 2019; Henderson et al., 2020). Preparation includes relationship building, surveillance, and securing and making resources available if a response is needed; these are all things SJBPH can work on as the pandemic subsides that will help build trust and increase preparedness (Australian Government, 2019). This also includes continuing to build a better relationship with CDPHE to facilitate

communication and coordination when future events occur which is in alignment with De Salvo et al. (2020) to "establish and maintain regional and/or state-level backbone entities that can be leveraged during crises for shared action". DeSalvo et al. (2021) and the Institute of Medicine (2002) also noted that considerations for partner and community engagement such as exploring non-traditional partners, which SJBPH has already successfully implemented in their communities with the use of businesses and schools.

Once SJBPH determines the new steady state is reached, SJBPH should review its staffing plan for emergencies as well as normal times. This review will allow SJBPH to hire staff with necessary skillsets and allow for the cross-training of individuals when an event of this nature occurs in the future, which aligns with outcomes noted in the SJBPH COVID-19 Response Leadership Team interviews. This also aligns to DeSalvo et al.'s 2021 report noting the need to invest in workforce development including "supporting the retention and recruitment of diverse public health professionals and leaders who are representative of the community they serve," NACCHO's public health workforce recommendation and the American Medical Association's (AMA) commentary on addressing funding and understaffing in local public health (Bailey, 2021; NACHHO, 2017).

SJBPH should implement a standard operating procedure (SOP) on the use of the many platforms and modalities, including taking notes, file naming, and guidance on when to use each communication modality. This new SOP ensures clear tracking of information and communications and consistency across the entire SJBPH team and may also include streamlining the number of communications platforms. This recommendation aligns with SJBPH staff feedback during the interviews when discussions communication in the virtual environment as well as amongst the leadership team.

During the survey, multiple respondents indicated frustration with the change in the dashboard. SJBPH should consider a data reporting plan utilizing principles from NCI to increase understanding and usability and conduct user testing with their constituents once out of the pandemic. This will help facilitate trust and credibility. The Communications Team should consider reviewing their communication plans in accordance with the CDC Agency for Toxic Substances and Disease Registry Health Communications Playbook and completing training in health communications to bolster the usability of their messages and understanding by the target audience. This includes review of the CDC's Guide to Writing for Social Media as well as completing trainings such as "Cooperative Communication", "Social Media for Health and Development", and "Social Marketing for Health", on the Public Health Learning Navigator, supported by the Public Health Learning Network and the National Network of Public Health Institutes. Furthermore, the improved plans must include conducting usability testing of messaging (e.g., A/B or 'what do you think it's telling you') so messaging can be more targeted to the local area in the right words and on the right platforms utilizing the NCI's Pink Book on health communications as a guide. The SJBPH Communications Team can also explore gain-framed and loss-framed messages in Archuleta and La Plata Counties (Gallagher et al., 2011). Utilizing community-based participatory research in the form of data and co-production methods for messaging enhances community engagement, increases community empowerment, and facilitates improved reach of SJBPH constituents during COVID-19 and non-COVID-19 times (Maiden et al., 2021).

Conclusions

During the demanding, long-term COVID-19 pandemic, public health agencies were hard-hit in the form of staffing, time, programming, and emergency response requirements for

their respective areas. SJBPH in southwest Colorado was no exception. The purpose of this capstone project was to help SJPBH examine how engagement and sensemaking occurred with COVID-19 information and communications as well as how its leadership utilized collective action and sensegiving to inform their pandemic response. By examining these themes during the COVID-19 pandemic, I can help SJBPH improve and be better prepared for internal and external communications and better position leadership during future emergent events. The findings here may also be applicable to other similar rural public health agencies that were not as successful as SJBPH during the pandemic response.

A survey of residents of Archuleta and La Plata Counties revealed that more respondents went to SJBPH first for COVID-19 information than a federal agency or a medical provider. Overall, most respondents are using credible sources for COVID-19 information including the local public health department, a medical provider, or a federal health agency, which is promising in terms of seeking out information in a sea of misinformation. Credible information is science-based, objective, transparent and accountable (Kington et al., 2021). Within the top four indicated COVID-19 information sources (SJBPH, a federal health agency, a healthcare provider, and other), the main source, SJBPH, did not vary by respondent age or county of residence. Also, the main way users sought information from SJBPH, a federal health agency, a non-profit, or a religious source for COVID-19 information was a website that is not social media, indicating they used the organization's website. However, respondents indicated where they go for COVID-19 information may not be the same place as 'normal' times. Just over half indicated they used a different source such as their doctor, the internet, or multiple sources when the COVID-19 pandemic was not occurring. The different source may be due to the uncertain

and global nature of the pandemic compared to conditions or situations for which one may seek out medical or health information in normal times.

SJBPH communications reached respondents frequently with over 80% of respondents indicated they had seen or heard SJBPH communications at least two times in the 90 days prior to completing the survey. In addition to receiving the communications on vaccines, data, guidance, the COVID-19 dial level, and information, respondents also reported increased engagement with SJBPH, which may be a sign of increasing trust and credibility. Respondents indicated high trust for SJBPH, federal agencies, and healthcare providers for COVID-19 information.

Conversations with others and SJBPH communications both helped with pandemic sensemaking including understanding information about the pandemic, reducing uncertainty, helping them feel they could navigate the pandemic, and increasing understanding of the vaccine and its benefits. However, SJBPH communications increased sensemaking 5%-16% more for all the categories compared to conversations with others. When considering SJBPH's role in this public health emergency, it should be no surprise that SJBPH was able to increase sensemaking more due to their position and technical and scientific expertise. SJBPH communications also informed personal decisions related to protective health behaviors during the pandemic including mask-wearing, social distancing, limiting trips to essential services, and getting the vaccine. While SJBPH communications did not impact beliefs, knowledge, and attitudes as much as actions, those who trusted SJBPH "a lot" were more likely to indicate there was a change in beliefs, knowledge, and attitudes because of SJBPH communications. Those who indicated lower levels of trust for SJBPH were more likely to indicate the communications had no effect on beliefs, knowledge, and attitudes.

Finally, SJBPH uses a variety of tactics and processes under collective action. These include internal meetings, communications including the use of technology and information flow and sharing, leadership including transparency and expectations, teamwork including problem-solving, continuous improvement activities, and the change in organizational structure pre-COVID-19 and during the pandemic. The challenges due to the pandemic were multi-faceted and were internal facing such as shifts in technology and SJBPH's reactive stance and external such as inconsistent messaging from others and operational tempo dictated by others. The pandemic itself was a huge contributor to challenges at SJBPH including decreased human interaction. However, despite the challenges, SJBPH staff grew and connected and improved as an agency.

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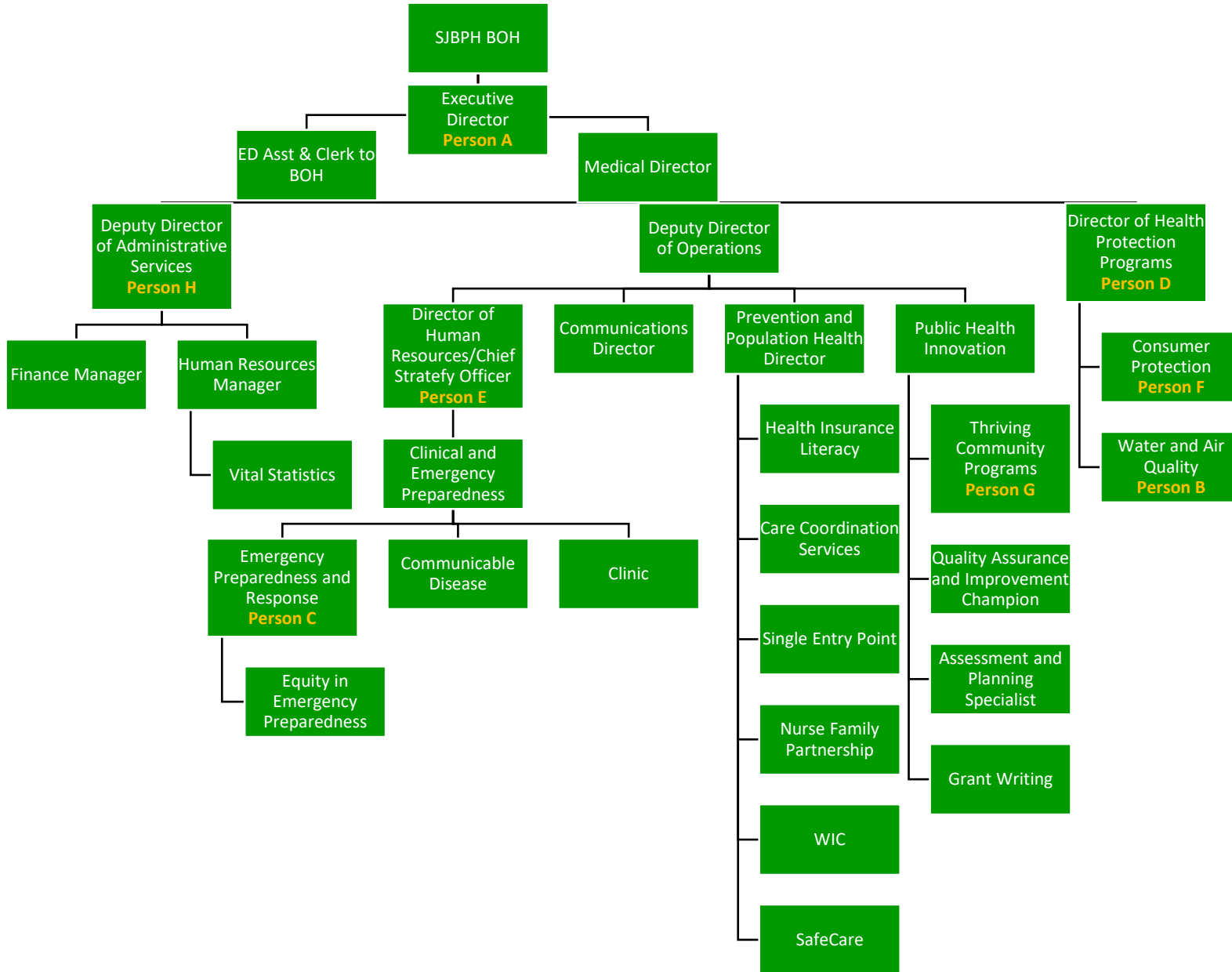
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Appendix A: SJBPH Pre-Pandemic Organizational Structure

Appendix B: SJBPH COVID-19 Operations, June 2021

Incident Commander
Person A

Deputy Incident Commander
Person B

Safety Officer
Person C

ESF8 Lead
Person C

Intelligence Officer

Assistant Intelligence Officer

Public Information Officer

Liaison Officer
Person D

Assistant Liaison Officer

Deputy Finance Section Chief

Finance Section Chief
Person H

Deputy Liaison Officer

Logistics Section Chief
Person C

Operations Section Chief
Person E

Deputy OPS Chief

Supply Unit Lead

Deputy OPS Chief

Documentation Unit Lead

Planning Section Chief
Person C

Disease Surveillance

Community Mitigation

Technical Specialist

DIC Case Investigation
Person F

Outbreaks

Outbreaks Lead

Outbreaks Lead

DIC Case Investigation Lead

Vaccination
Person G

Vaccine Coordinator

Appendix C: Survey Questions for Archuleta and La Plata Residents

Protocol:
Survey using existing platform that San Juan Basin Public Health has. Survey is anonymous and optional and is aimed at exploring communications during the COVID-19 pandemic as well as components of the sensemaking process. Those who complete the survey must be age 18 or older.

1. Which county do you live in?
   o Archuleta
   o La Plata

2. What is your age? (Free text)

3. On your original birth certificate, were you listed as male or female? (Male/Female)

4. What is your current gender identity? (Male/Female/Transgender/Gender non-conforming/Other)

5. Which best describes your occupational category? (Circle one)
   o Agriculture
   o Mining and utilities
   o Construction
   o Manufacturing
   o Transportation and warehousing
   o Wholesale and retail trade
   o Information
   o Finance, insurance, and real estate
   o Services like education, medical, and food
   o Government
   o Other
   o Not currently employed

6. What is your highest level of schooling?
   o Less than 12 years of high school
   o Completed high school or GED
   o Post high school training other than college (vocational or technical)
   o Some college
   o College graduate
   o Professional degree beyond bachelor's

7. If you had a strong need to get information about COVID-19, where would you go first?

- o Family (SKIP TO 9)
- o Friend/co-worker (SKIP TO 9)
- o Doctors or other traditional medical providers (SKIP TO 9)
- o Non-traditional/alternative healthcare providers (SKIP TO 9)
- o San Juan Basin Public Health (GO TO 8)
- o Federal health agency like the CDC (GO TO 8)
- o Non-profit organization (GO TO 8)
- o Religious organization (GO TO 8)
- o Newspaper (SKIP TO 9)
- o Television (SKIP TO 9)
- o Telephone hotline (SKIP TO 9)
- o Other (free text) (SKIP TO 9)

8. If you were to go first to San Juan Basin Public Health, a federal health agency, a non-profit, or religious organization, how would you get information from them:
   - o Internet website that is not social media
   - o Social media like Facebook, Instagram, or Twitter
   - o Other (free text)

9. Is this the same place you would go to get medical or health information for you or for your family during non-COVID times? (Yes/No)
   - o If no, where would you go to get medical or health information? (Free text)

10. Sometimes people use the Internet to connect with other people online through social networks like Facebook or Twitter. This is often called "social media." In the last 10 months, have you used the Internet for any of the following reasons (Check all that apply):
    - o To visit a social networking site, such as Facebook or LinkedIn for information on COVID
    - o To share information on COVID on social networking sites, such as Facebook or Twitter
    - o To participate in an online forum or support group about COVID
    - o To watch a COVID-related video on YouTube
    - o Other (free text)

11. In general, how much do you trust information about COVID-19 from each of the following (Scale for each: Not at all, a little, some, a lot, N/A)
    - o Family
    - o Friend/co-worker
    - o Doctors or other traditional medical providers
    - o Non-traditional/alternative healthcare providers
    - o San Juan Basin Public Health
    - o Federal health agency like the CDC

- o Non-profit organization
- o Religious organization
- o Newspaper
- o Television
- o Telephone hotline
- o Other

12. Have you and the people you know engaged in conversation about COVID and the pandemic? (Yes/No) (IF NO, GO to 14)

13. If yes, did these conversations….(Scale for each: not at all, a little, some, a lot)
    - o Help you make sense of what COVID is and what is happening
    - o Reduce your uncertainty on COVID
    - o Fill in information you did not previously have on COVID and the pandemic
    - o Help you understand more about the pandemic
    - o Make you feel like you can navigate the pandemic
    - o Help you understand about the vaccine and its benefits and risks
      CONTINUE TO Q14

14. In the past 90 days, how often have you seen or heard communications from San Juan Basin Public Health on COVID-19?
    (Scale: frequently (at least 4 times), sometimes (2-3 times), rarely (1 time), never)
    (Never skips to Q21)

15. Where did you see the communications? (Free text)

16. What was the communication telling you? (Free text)

17. What was the message missing? (What information did you wish you had but didn't) (Free text)

18. To what extent did the communications/information you saw or heard from San Juan Basin Public Health: (Scale for each: not at all, a little, some, a lot)
    - o Help you make sense of what COVID is and what is happening
    - o Reduce your uncertainty on COVID
    - o Fill in information you did not previously have on COVID and the pandemic
    - o Help you understand more about the pandemic
    - o Make you feel like you can navigate the pandemic
    - o Help you understand about the vaccine and its benefits and risks
19. How much did the San Juan Basin Public Health communications on COVID-19 inform/impact your decisions on the following: (Scale for each: not at all, a little, some, a lot)
    - o Wearing a mask

- o Social distancing (at least 6 ft from others)
- o Limited trips outside of your home for essential services only like food, medical, or work
- o Explored information to learn more about COVID
- o Getting the vaccine

20. How much did the San Juan Basin Public Health communication change the following: (Scale: did not influence, I took it more seriously, I relaxed my actions)
    - o Your beliefs about COVID-19 and the actions you should take to minimize your risks
    - o Your change in knowledge about how COVID-19 is spread
    - o Your attitude about COVID-19

21. Between March 2020 to now, how has your engagement with San Juan Basin Public Health changed?
    - o Increased
    - o Decreased
    - o Stayed the same
    - o N/A, I utilized another source to get COVID-19 information

Appendix D: Leadership Interview Questions for SJBPH

1. How long have you been with San Juan Basin Public Health?

2. What is your current role with San Juan Basin Public Health?
   - Have done any other roles? If so, what were they?

3. What did your average day look like pre-COVID-19?

4. What does your average day look like now (current pandemic)?

5. Did you have responsibilities on the leadership team during pre-pandemic?
   - If so, what were they?

6. What are your responsibilities on the leadership team during the pandemic?

7. From your viewpoint, how does the leadership team work together during the pandemic to process the information coming in (from CDC, the state, CDPHE, etc.)?

8. In your opinion, how does the leadership team use that to inform practices within San Juan Basin Public Health and external communications to Archuleta and La Plata residents?

9. Tell me about communications amongst the leadership team and within San Juan Basin Public Health.
   - Prompts: What tactics/strategies are used? What is the frequency? What are the most frequent topics? Are there any topics not addressed?

10. What do you think is the main source that Archuleta and La Plata residents use for COVID-19 information? Why do you think this?

11. Sensegiving is used to help others create meaning in a situation. In the context of the pandemic, it is San Juan Basin Public Health taking the information from the CDC, the states, and others, interpreting it, and then using it to inform constituent communications that would help them (the constituents) understand what is happening and inform action and meaning. How do you see San Juan Basin Public Health engaging in sensegiving?
    - The constituents are the residents of Archuleta and La Plata counties.
    - How does SJBPH build trust? Ensure its messages are clear and consistent? Reduce uncertainty amongst constituents?

12. What are some challenges you see at San Juan Basin Public Health amongst the leadership team and its standard practices as a result of COVID-19?
    - Practices are the day-to-day operations

13. What are some positives things you see at San Juan Basin Public Health amongst the leadership team and its standard practices as a result of COVID-19?