Effective Messaging Can Improve Public Trust

by

Dominick Falo

BPhil, Biological Sciences, University of Pittsburgh, 2023

BA, Philosophy, University of Pittsburgh, 2023

Submitted to the Graduate Faculty of the

Department of Health Policy and Management

School of Public Health in partial fulfillment

of the requirements for the degree of

Master of Public Health

University of Pittsburgh

2024

UNIVERSITY OF PITTSBURGH

SCHOOL OF PUBLIC HEALTH

This essay is submitted

by

Dominick Falo

on

April 26, 2024

and approved by

Essay Advisor: Martin Raniowski, MA, CAE, FCPP, Adjunct Professor, CEO Pennsylvania Medical Society, Health Policy and Management, School of Public Health, University of Pittsburgh

Essay Reader: Beth Hoffman, PhD, Assistant Professor, Behavioral and Community Health Sciences, School of Public Health, University of Pittsburgh

Effective Messaging Can Improve Public Trust

Dominick Falo, MPH

University of Pittsburgh, 2024

Abstract

There has been a declining amount of faith and trust between the general public and public health organizations, specifically in how the public perceives government communication sources and healthcare systems. Preserving and strengthening a trusting and transparent relationship between health providers and their community is fundamental for improving healthcare access, quality, and outcomes. This relationship is essential for patient-centered care and vital for promoting community health and well-being.

This essay aims to evaluate why this relationship has and continues to weaken and how to develop solutions that restore trust immediately and effectively. To first illustrate this concern, I identify evidence of the United States population's declining confidence in domestic health systems and organizations through community responses to COVID-19 vaccination efforts, related vaccine hesitancy, and overall community responses to public health messaging and recommendations. Next, I consider frameworks for the public health system and organizational communication strategies and how the resulting messages are developed and delivered. From this evaluation, I explore why the messaging did not resonate well with some audiences, demonstrated by an increasing distrust towards health systems at an organizational level. Then, I explore why this distrust has seemingly not translated to an individual level, observed from higher trust levels associated with one-on-one relationships between health providers and individuals.

As a result of this exploration, I suggest how communication approaches at an individual level can be implemented at an organizational level, resulting in a stronger relationship between health providers and the community. By analyzing the structure through which public health messages are crafted and delivered by public healthcare systems and the factors that influence their reception by the populations they serve, health organizations and providers gain perspective for strategies to improve public trust.

Table of Contents

List of Tables

List of Figures

Preface

My sincere appreciation goes to all faculty and administration at the University of Pittsburgh School of Public Health for making my graduate journey an unforgettable experience. The milieu and the daily example created and embodied by all team members present a supportive environment that has helped motivate me to explore and pursue my passion for public health communication and strategic management.

I would like to give a special thank you to all associated with the Department of Health Policy and Management for their unwavering support and guidance throughout these two years. It has been a privilege to have had the chance to learn from you all.

A deep-hearted thank you goes to all of my classmates, who I am grateful to have experienced these two years together, flourishing relationships that will last a lifetime.

I am happy to extend a special expression of gratitude to our program director, Dr. Cindy Bryce, who has helped balance my undergraduate studies, graduate studies, research experience, and professional experience, enabling me to excel in multidisciplinary aims to the best of my ability.

I would like to express my gratitude to Heather Mediate, Janice Citeroni, Ryan Witt, and all other members a part of the Minutes Matter team who have made this collaborative practicum opportunity an enlightening and fulfilling experience, resulting in what will hopefully be an everlasting outcome.

My sincere thanks go to my essay reader, Dr. Beth Hoffman, for joining my committee and providing me with outstanding direction and support throughout this process.

I extend my sincere appreciation to my primary reader and essay advisor, Martin Raniowski, for leading by a remarkable example that inspires me to grow, both personally and professionally, to the best of my ability.

Finally, I would like to thank all my friends and family alongside me through my undergraduate and graduate journey at the University of Pittsburgh. Because of their encouragement, I continue to explore and pursue my passion full-heartedly and to the utmost of my capability.

1.0 Introduction

United States public health systems and organizations have strong relationships with the populations they serve at local, state, and national levels. Foundational factors that make up these strong relationships include trusted personal relationships, a fluid understanding of community interests and public health organization goals, transparent aims and objectives between all parties, and honest, straightforward communication channels through which each party can engage in coherent and effective exchange. Public health communication proves essential for creating trusting and transparent relationships between public health providers and the neighborhoods they protect and enhance.

However, because of the COVID-19 pandemic, these strong relationships have seemingly disappeared. The public's perception of public health systems and organizations is unrecognizable compared to what it once was. Communities across the United States have lower trust in their public health networks. There has been a declining faith and trust between public health organizations and the general public, particularly in relationship to the public's perception of the validity of government and healthcare system messaging.

Preserving and strengthening a trusting and transparent relationship between health providers and their community is fundamental for improving healthcare access, quality, and outcomes. It is vital for patient-centered care and plays a significant role in promoting overall community health and well-being. Effective communication channels are crucial for increasing access to health care, reducing health disparities, patient empowerment, crisis prevention and response, community engagement, and fostering long-term relationships between healthcare providers and community members.

Specifically, evidence of the United States population's declining confidence in domestic health systems and organizations and their associated messaging is identified. Primarily, this is evaluated through community responses to COVID-19 vaccination efforts, related vaccine hesitancy, and overall community responses to public health messaging and recommendations.

Next, I identify why this happened through a literature review to assess how health systems and public health organizations communicate with diverse audiences and communities, demonstrating how public health communication frameworks are crucial for fostering trust by building relationships and improving public health outcomes through transparent messaging.

From this, group messaging strategies and responses to communication on a personalized, individual level are compared, suggesting that health communication through an individual personalized exchange is an effective form of health communication that could result in a more trusting relationship between health providers and community members. Here, I reflect on my experience through my collaborative practicum in the community health initiative of UPMC Minutes Matter and the University of Pittsburgh School of Public Health. This comparison and reflection illustrate that trusted relationships are the backbone of effective communication in public health.

Taken together, I propose a strategy for how techniques used in micro, individualized interaction between health providers and community members can be translated into macro, organizational relationships between health systems and populations. Specifically, this strategy suggests that messages crafted through an effective communication framework delivered through an established relationship can improve public trust in public health organizations.

2.0 Observing a Decline in Public Trust

Before exploring how effective public health communication is defined in the United States, and whether barriers to effective public health communication can be identified, it is necessary to establish the rationale for doing so. It is vital to improve public health communication channels and strategies because these are foundational mechanisms to restore weakened relationships between public health organizations and systems and the communities they serve. This erosion of trust can present significant challenges to the effectiveness of public health initiatives by hampering the ability of organizations to engage with and guide communities. The degree to which distrust amplified during the pandemic was influenced by a complex interplay of factors. Geographic, cultural, economic, and political dynamics, coupled with the related public health messaging all played roles in shaping the level of distrust within specific communities.

Considering these factors, it is necessary to ask whether there is statistical support for the perceived decline in public trust and responsiveness to public health system messaging during and after the COVID-19 pandemic. Specially, I evaluate this decline in community trust toward public health organizations via quantitative COVID-19-related measures such as vaccine hesitancy, children's return-to-school rates, and responses to isolation, quarantine, and stay-at-home measures, and qualitative data including general social perceptions and consequences attained through conversational collection techniques.

2.1 Estimates of Vaccine Hesitancy for COVID-19 Vaccines

Vaccine hesitancy serves as a measurable manifestation of the public's distrust of public health organizations. Individuals who hesitate to be vaccinated often harbor doubts about the effectiveness and credibility of public health organizations, questioning the transparency and reliability of the information provided. The decision to forego vaccination can be seen as an expression of skepticism towards the guidance and recommendations offered by health authorities, further highlighting a breakdown in the trust relationship.

The graphs below show vaccine hesitancy for COVID-19 via state, county, and local assessments. This data collection and associated state estimates are provided by the Office of Assistant Secretary for Planning and Evaluation (ASPE) and the Center for Disease Control. Specifically, each map shows COVID-19 vaccine hesitancy rates using data from the US Census Bureau's' Household Pulse Survey (HPS). To estimate hesitancy rates, data was collected by using HPS from the period of May 26, 2021, to June 7, 2021. Estimated values to predict hesitancy rates in more granular areas were also determined using the Census Bureau's 2019 American County Survey (ACS) 1-Year Public Use Microdata Sample (PUMS).

Hesitancy and associated strength were determined by the HPS survey question, "Once a vaccine to prevent COVID-19 is available to you, would you…get a vaccine?", which provides the following options: 1) "definitely get a vaccine"; 2) "probably get a vaccine"; 3) "unsure"; 4) "probably not get a vaccine"; 5) "definitely not get a vaccine." Three descriptions were used to capture the strength of hesitancy to receive a vaccine.

Strongly hesitant: includes only survey responses indicating that they would "definitely not" receive a COVID-19 vaccine when available.

Hesitant: includes survey responses indicating that they would "probably not" or "definitely not" receive a COVID-19 vaccine when available.

Hesitant or unsure: includes survey responses indicating that they would "probably not" or "unsure" or "definitely not" receive a COVID-19 vaccine when available.

Below are the results for **"strongly hesitant", "hesitant",** and **"hesitant or unsure"** respectively.

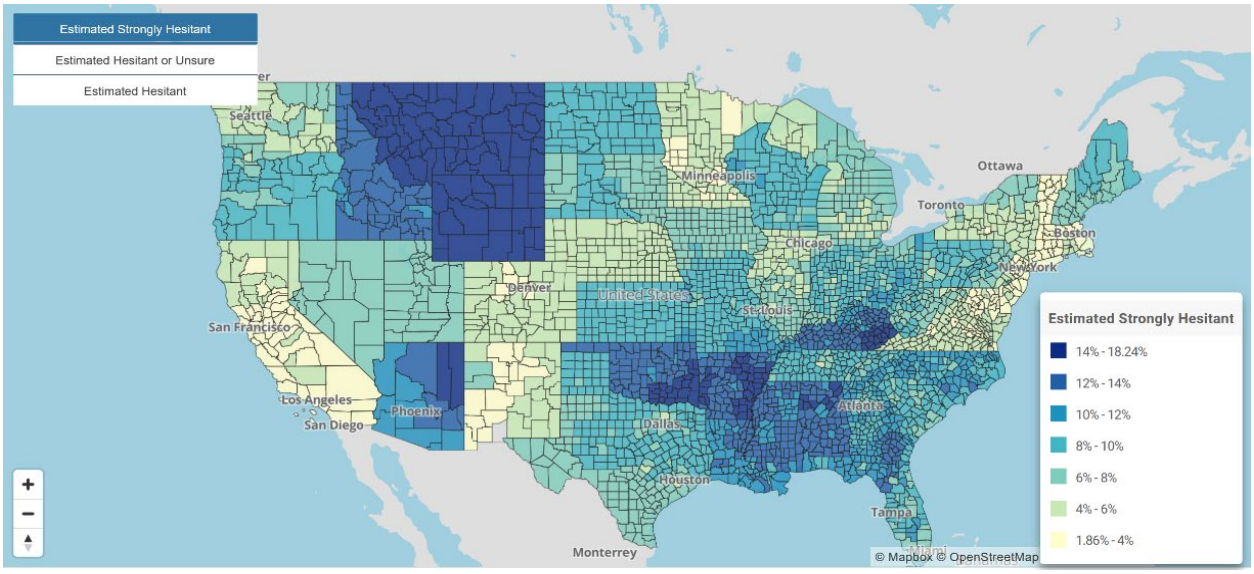

Figure 1. Estimated strongly hesitant

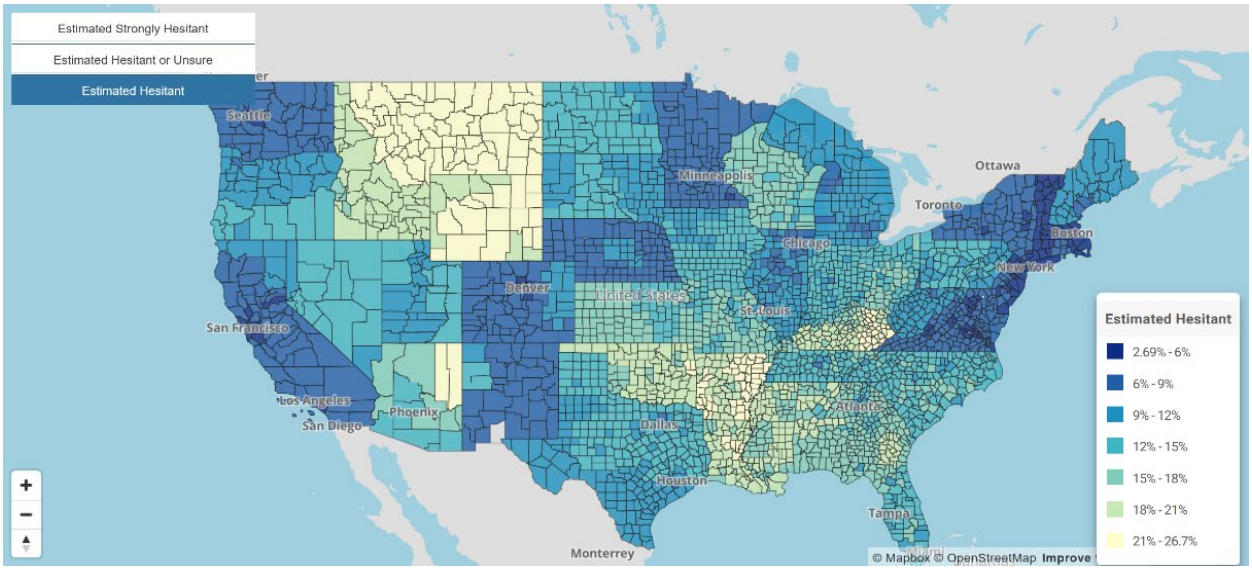

Figure 2. Estimated hesitant

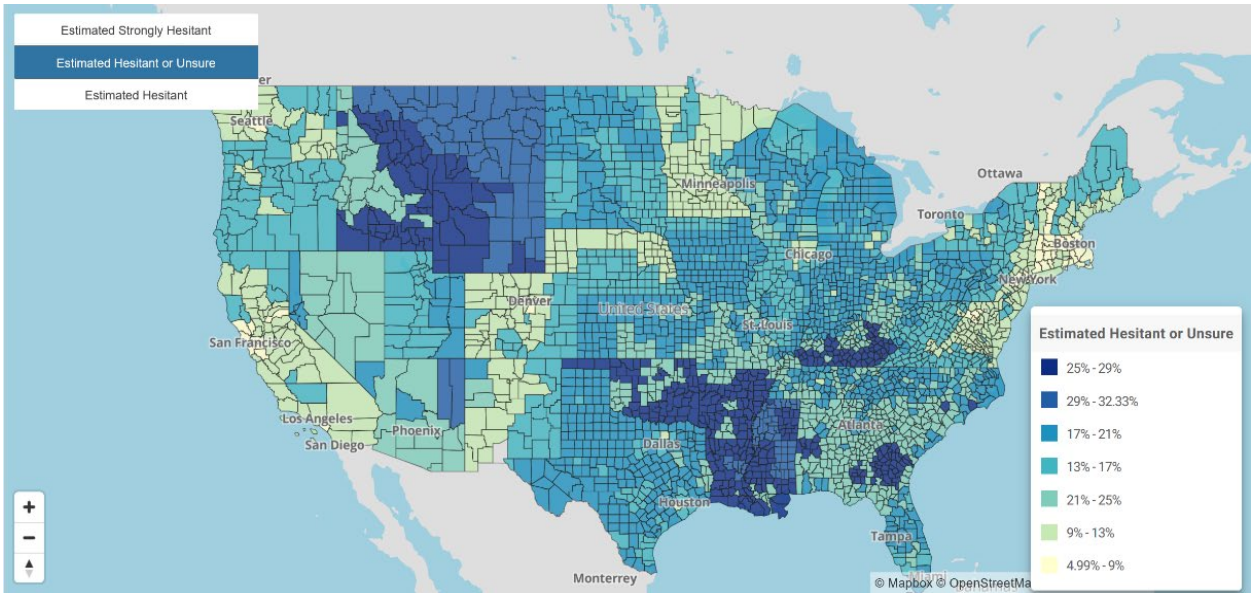

Figure 3. Estimated hesitant or unsure

Data presented here displays the prevalence of counties across the country that are reportedly hesitant or unsure about receiving the COVID-19 vaccine in 2021. Most notably, states with relatively high “Hesitant or Unsure” rates include Arizona, Oklahoma, Louisiana, Arkansas,

Kentucky, Wyoming, and Montana. They have counties that have a “hesitant” or “unsure” status as high as 25-29%. More so, these states have counties with “strongly hesitant” rates as high as 14-18.24%. 46 states had counties with “unsure or hesitant” rates between 17 and 21%.

Taken together, the data show an unusually high prevalence of vaccine hesitancy across the United States. This hesitancy may stem from various factors, including concerns about potential side effects, doubts regarding the thoroughness of vaccine testing, or skepticism about the motivations behind public health initiatives. The decision to delay or refuse vaccination implies a suspicion of the information provided by public health organizations, suggesting that individuals may question the transparency and reliability of the guidance offered. Vaccine hesitancy, therefore, acts as a visible indicator of a broader breakdown in trust, emphasizing the need for public health organizations to address underlying concerns, communicate transparently, and rebuild confidence in their efforts to safeguard the public’s health.

2.2 Back to School Rates (Post COVID-19)

Back-to-school rates are an alternative mechanism to measure community trust in public health systems and their associated messaging. If families are hesitant to send their children back to school (along with the children themselves) when schools reopen, this may indicate a lack of trust in local public health measures and ongoing apprehension about the safety of the school environment despite messaging to the contrary. Many factors contribute to why some parents may be hesitant to send their children back to school.

Specific to COVID-19, perceived safety concerns of the schools themselves appear significant. Safety measures implemented by schools may be considered insufficient. This might

include concerns about the adequacy of sanitation practices, ventilation, or social distancing measures. If parents and children do not feel confident in the safety measures implemented by schools to prevent the spread of infectious diseases, this lack of confidence could lead to hesitancy. Further considerations that factor into these safety concerns include a lack of confidence in vaccination efforts that can negatively impact trust in broader public health systems and public schools.

By providing accurate information supporting their decisions and addressing concerns, both public health organizations and public schools could have fostered greater trust in the communities they serve. Lack of clear communication and transparency from public health authorities and schools could contribute to uncertainty and distrust. Providing accurate and timely information about safety measures, the success of vaccination efforts, and the overall public health situation is likely important for building trust. Unclear communication may result in confused perceptions and limit the trust in information public health authorities and schools provided. For example, some of these details may include specifics about sanitation practices, ventilation improvements, and any adjustments to school routines to mitigate the spread of infectious diseases. Unclear delivery of these details and the rationale for their use could have contributed to parents acting cautious or feeling uncomfortable sending their children back to public schools.

Data to the right shows state-school pupils absent for 10% or more of the academic year. This is shown as collective data specific to each state. These rates are presented in a pre- (2018-2019) and post (2021-2022) pandemic time frame.

Taken together, this data shows Alaska, New Mexico, Michigan, Oregon, and Nevada are states with the highest rates of pupils absent after COVID-19. These are the top five states reporting student absences for at least 10% of the school year. Before the 2018-2019 period, about 20% of

the student body was reportedly absent in all four states, outside of Alaska. During the 2021-2022 period, all five states observed a ~20% increase in students missing at least 10% of the school year. New Mexico, Michigan, Oregon, and Nevada report about 35-40% of their state school pupils absent for at least 10% or more of the academic year. Alaska reports this observation for 50% of its student body.

The five states with the lowest rates observed are Tennessee, Virginia, Oklahoma, New Jersey, and Alabama. All five states observe an initial rate of state-school pupil absences of 10% or more of the academic year in 10-15% of their student body for the 2018-2019 academic year. Following COVID-19, all states observed a ~10% increase in their state-school pupils absenteeism for about 10% or more of the academic year; the five states (Tennessee, Virginia, Oklahoma, New Jersey, and Alabama) with the lowest rates of state-school pupil absenteeism for at least 10% or more of the academic year observed this in ~20% of their student body after the pandemic.

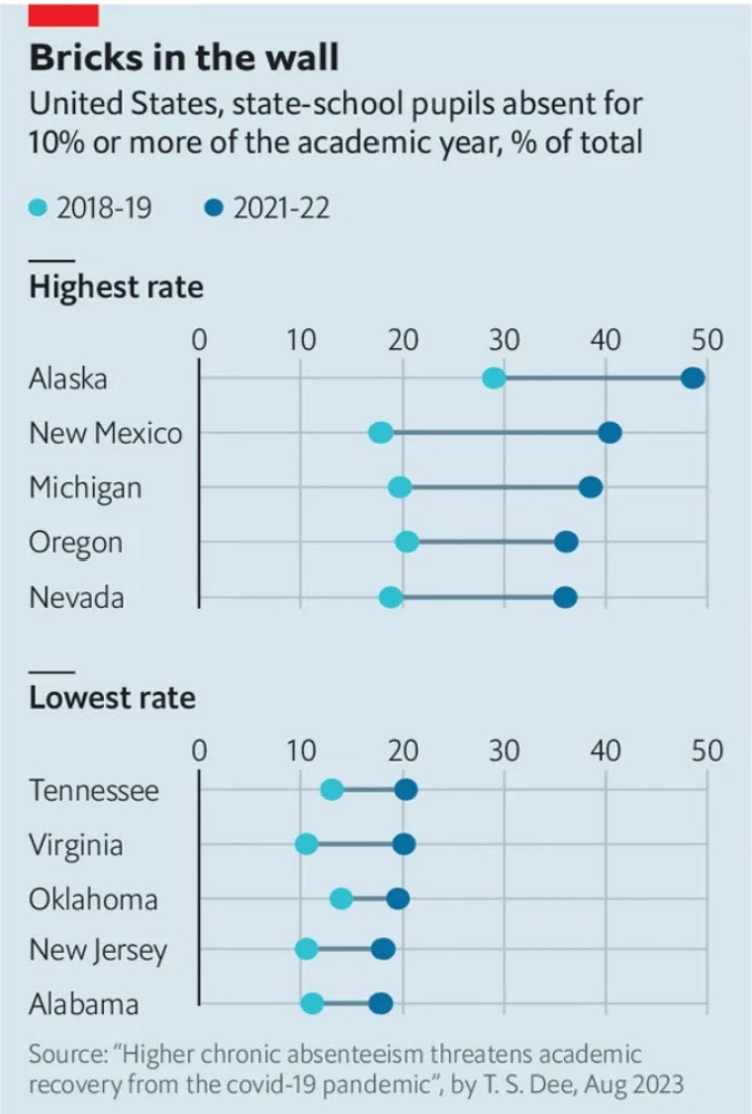

Figure 4. United States, state-school pupils absent for 10% or more of the academic year, % of total

Considering that states with the lowest absentee rates still reported a 10% increase for at least 10% of the school year demonstrates that families across the country, regardless of state, were more hesitant to send their children to school than they were before the pandemic. Some states are affiliated with families that show strong hesitancy in sending their children back to school after COVID-19, reporting as high as a 20% increase, applying to anywhere between 35%-50% of the population measured. What may appear most surprising is that states that show families with the

strongest hesitancy in sending their children back to school were the states that seem to be least hesitant in receiving COVID-19 vaccinations. This may indicate public hesitancy and skepticism toward messaging and instruction administered via public organizations.

Collectively this data supports the conclusion that there was an increase in distrust in the messaging coming from public health leaders, systems, and organizations since the COVID-19 pandemic. Specifically, this is supported by estimates of vaccine hesitancy with significant rates (at least 17%) in nearly all states. Skepticism toward public organizations and associated messaging, in general, can be suggested by the decrease in back-to-school attendance rates during the 2021-2022 time period, with increases in school absences of at least 10% in all states.

An interesting aspect of the data is the trend toward alignment of responses to messaging with political leanings. States with strong vaccine hesitancy included traditionally republican states such as Kentucky and Louisiana, while greater hesitancy of families in sending their children back to school occurred in relatively Democratic-leaning states such as Oregon and Virginia. A possible explanation for these results at the state level could be the perception each population has towards COVID-19. For example, populations in Republican-leaning states appeared to be more hesitant to be vaccinated and less hesitant to send their children back to school. This could be because of the degree of seriousness (or level of fear) individuals in these states have toward COVID-19. If these populations are less fearful of the threat of COVID-19, they may be expected to be less motivated to be vaccinated and less concerned about sending their children back to public schools. Consistent with this, if populations in democratic leaning states perceive COVID-19 as a more serious threat than populations in Republican-leaning states, this could explain their higher vaccination rates and greater concern with sending their children back to public schools.

In any case, the data suggests a declining level of trust in public health systems and sources in both traditionally conservative and liberal populations. Further, this data collection and interpretation shows a weakening relationship and an overall declining degree of faith and trust between communities and their local, state, and national public health systems. This phenomenon does not appear to be specific to a group traditionally associated with a certain political background, philosophy, geography, or foundation. It has been demonstrated in a variety of neighborhoods and populations across the United States and likely varies more with the content of the message.

The data shows a troubling decline in faith and trust among the general population. It is important to consider the direct consequences of this eroded trust. Individuals who delay or refuse vaccination compromise the effectiveness of immunization programs and increase the risk of preventable diseases. The decline in vaccination rates is particularly alarming as it poses a threat to community immunity (herd immunity). Lower immunization rates increase the likelihood of disease outbreaks, affecting unvaccinated individuals and those unable to receive vaccines for medical reasons. Further, delayed back-to-school rates may be associated with learning and socialization deficits in school-age children. These are important examples of how the erosion of trust undermines public health efforts, hindering the ability of authorities to respond effectively to health crises. Cooperation between the public and health organizations is essential for successful disease prevention and control. Rebuilding this trust requires a comprehensive approach that addresses the root causes, and actively engages with communities to improve communication strategies.

3.0 Analyzing Public Health Communication

A loss of faith and trust in public health systems in subpopulations across the United further weakens the relationship between communities and their local health systems. With this problem established, it is necessary to consider its root cause and potential solutions and improvements to address it. These root causes and potential solutions can be explored through analyzing existing public health frameworks at an organizational level. Through this analysis, barriers to the delivery of public health messages can be identified. With fluent, understandable, and transparent communication between public health authorities and the general public, a more trusting relationship between them could be restored.

To accurately identify current gaps and barriers in American communication procedures and processes, a template is necessary to evaluate what is and what is not considered effective public health communication. To measure effective public health communication, we must first establish a definition of what "effective public health communication" is. From this, we can identify effective public health communication execution. With an established template and definition for what effective public health communication is and what it looks like when fulfilled successfully, we can better identify interactions in which public health communication is effective and where barriers exist.

3.1 International Public Health Communication

The World Health Organization has developed a framework for effective communications (World Health Organization, 2017). Specifically, the WHO Strategic Communication Framework presents a strategic approach for how to effectively message public health information, guidance, and advice on a broad range of health issues. These health issues range from chronic issues to emerging and novel risks. This framework can also guide authorities and leaders on how to effectively message public health information and recommendations in public health emergencies.

This framework is not designed to address particular diseases, circumstances, health observations, or geographic areas. The principles and tactics presented can be used as a framework to develop specific strategies to message subpopulations in an approach that is actionable, accessible, relevant, timely, understandable, and credible. As described by the WHO, their communication goal with the aid of this framework is to "provide information, advice, and guidance to decision makers (key audiences) to prompt action that will protect the health of individuals, families, communities, and nations" (World Health Organization, 2017).

Specifically, the WHO Strategic Communication Framework presents six core principles for effective communication: accessible, actionable, credible, relevant, timely, and understandable. According to this framework, public health leaders, organizations, and health systems should strive to ensure that these principles are at the core of their communication activities. To better understand each principle, it is necessary to understand how each measure can be accurately defined and observed. Each core principle is defined and summarized below.

Figure 5. World Health Organization (WHO) principles for effective communications

Public health messages should be crafted toward **(1) actionable** next steps for populations. Actionable messages should provide clear and concise directives, guiding the audience toward specific actions. Using actionable language and presenting information in a step-by-step format empowers individuals to take immediate, tangible steps. Whether it's adopting preventive measures, seeking vaccination, or accessing healthcare services, the information should prompt and facilitate action.

Measuring the effectiveness of delivering actionable information involves assessing the extent to which individuals translate knowledge into behavior. Observable outcomes may include increased adoption of recommended practices like higher vaccination rates, improved hygiene practices, or prompt healthcare-seeking behaviors. Tracking behavioral changes over time, analyzing community-wide adherence to recommended actions, and conducting surveys to gauge individual understanding and application of the provided information are essential to analyzing the successful delivery of an actionable message.

(2) Accessibility is paramount to ensuring that information reaches a broad audience. This involves presenting information in various formats, such as text, audio, and video, to accommodate different learning preferences. Employing diverse communication channels, including online platforms, traditional media, and community spaces, enhances the reach of the message. Additionally, providing information in multiple languages and formats accessible to individuals with diverse literacy levels ensures inclusivity.

The accessibility of information can be observed through the reach and engagement metrics across various communication channels. Analytics tracking website visits, social media interactions, and attendance at community events can provide insights into the effectiveness of diverse communication mediums. Success is defined by the inclusivity achieved, ensuring that information is accessible to a broad spectrum of the population, including those with varying levels of digital literacy, language proficiency, and cultural backgrounds.

(3) Credibility is built on the foundation of trustworthy information. Messages should reference authoritative sources, scientific evidence, and expert opinions. Clearly communicating the basis for recommendations and decisions helps establish credibility. Highlighting the credentials of experts or organizations providing the information adds weight to the message and reinforces its reliability.

The credibility of information can be observed through the public's perception of trustworthiness. Surveys assessing the perceived reliability of public health messages, the recognition of authoritative sources, and the extent to which the audience incorporates recommended practices into their lives contribute to the measurement of credibility. Defined success involves building and maintaining a positive reputation for the credibility of public health information, as evidenced by increased public trust and adherence to recommendations.

(4) Relevance is key to capturing and maintaining the audience's attention. Tailoring messages to address the specific needs, concerns, and interests of the target audience ensures that the information resonates. Connecting public health measures to the current context and real-life situations emphasizes the practical significance of the information, making it more likely to be embraced.

Relevance can be observed by monitoring the resonance of messages within the context of the target audience. Success is defined by the degree to which individuals perceive the information as pertinent to their lives and community. Surveys and qualitative research exploring the perceived relevance of public health messages, as well as assessing changes in community behaviors aligned with the provided information, serve as key indicators of success.

(5) Cultural sensitivity acknowledges and respects the diverse cultural backgrounds within the audience. This involves using culturally appropriate imagery, examples, and metaphors. Collaborating with community leaders or representatives ensures that the message aligns with cultural norms and values. Culturally sensitive information enhances the message's impact and fosters a sense of inclusivity.

The cultural sensitivity of information can be observed through community feedback, inclusivity metrics, and the alignment of messages with cultural norms. Success is defined by the extent to which the information resonates authentically with diverse cultural groups, fostering a sense of understanding and connection. Qualitative methods such as interviews, focus groups, and community consultations provide valuable insights into how well public health messages align with cultural contexts.

Presenting information in plain language, free from unnecessary jargon, is essential for ensuring comprehension. **(6) Transparency** in communication involves explaining the decision-

making process behind public health recommendations, acknowledging uncertainties, and communicating changes openly. Providing real-time updates during evolving situations builds trust by keeping the public informed.

Observing the understandability of information involves assessing the clarity of messages and the absence of ambiguity. Defined success is evident when surveys or assessments indicate that the target audience comprehends the information accurately. Transparency is observable through the openness of communication channels, public acknowledgment of uncertainties, and the public's perception of the honesty and clarity of the information provided.

3.2 The Complexity of the Multi-Messaging Landscape

Effective message development is a dynamic process that considers the unique characteristics of the audience while prioritizing clarity, accessibility, credibility, relevance, cultural sensitivity, and transparency. By carefully crafting messages that embody these principles, public health communicators can contribute to a more informed, engaged, and empowered community, ultimately improving health outcomes and fostering a culture of well-being. Importantly, each measure's success can be observed through a combination of quantitative and qualitative methods, including surveys, analytics, focus groups, and community consultations, providing a comprehensive understanding of the impact of public health communication strategies.

This communication framework is particularly effective on a macro, international level. For example, when this framework is applied to the World Health Organization’s operations, messaging strategies, and communication delivery to a multinational audience, the six principles of the framework work well. This is because the principles are formulated and defined under the

assumption there is a primary messenger for a general audience. This is correct on an international scale, as few global public health organizations match the size, reputation, and impact of the World Health Organization. Thus, the WHO is not necessarily over-concerned with competing messages that may overshadow their own. Even if this were the case, one has to consider how much a competing message would differ in advice and context when addressing a multinational audience.

However, when applying this framework to national and domestic organizations and messengers, things become more complex. In these instances, national public health organizations often release messages alongside politicians, government, news organizations, scientists, doctors, and health experts. With alternative sources of communication and messaging to account for, a framework that considers how to operate the complex and dynamic nature of multiple messengers is necessary.

To analyze what communication sources countries trusted most on an international and national level, Alexa Schulter and team conducted an eight-country cross-sectional study (Schulter et al., 2023). Specifically, Schulter et al. used data from eight countries (Canada, the United States of America, England, Switzerland, Belgium, the Philippines, New Zealand, and the territory of Hong Kong) to "epidemiologically describe levels of trust in health, government, news media organizations, and experts, and measure the impact of political orientation and COVID-19 information sources on participants level of trust" (Schulter et al., 2023). Methods involved simultaneously conducting a stratified randomized online cross-sectional analysis of adults across eight countries (at least 18 years or older) between Nov. 6 and Nov. 18, 2020 (Schulter et al., 2023). Across all countries, 9,027 adults were included, with a mean age of 47 years (standard deviation (SD) = 17.0 years). Participants were asked to rate their trust levels for scientists, doctors, and health experts (1), National Health org. (2), Global Health org. (3), News org. (4),

Government (5), and politicians (6), on a scale from 1 (very low) to 10 (very high). Shown below are results from Schulter and her team.

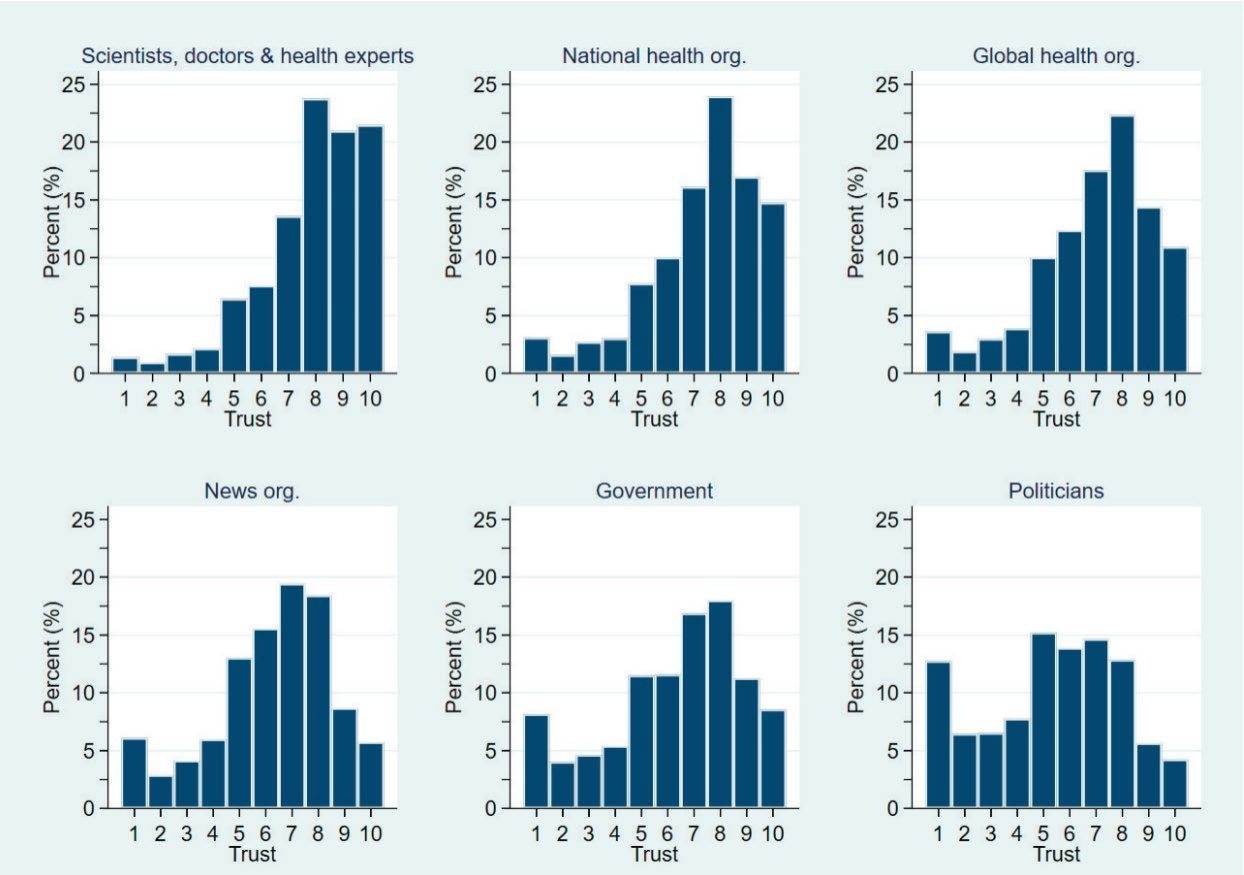

Figure 6. Histograms of respondent's reported level of trust in experts and organizations (org.) the trust scale ranges from 1 (very low) to 10 (very high)

When analyzing all six questions, Schulter et al. found comparable levels of trust in all groups except for politicians. However, a proportion of participants reported very low levels of trust for each domain. Trust in health experts ranked the highest overall in each of the eight countries, while trust in politicians ranked the lowest overall in each of the eight countries (Schulter et al., 2023). Further, trust in national health organizations ranked second (except in Hong Kong,

where participants ranked trust in news organizations second), and trust in global health organizations ranked third (except in Switzerland and New Zealand, where participants ranked trust in government third) (Schulter et al., 2023).

Table 1. Mean and standard error for the six reported levels of trust variables - overall and partitioned by country

Level of trust, x̄ (SE)	Overall	Canada	USA	England	Belgium	Switzerland	Hong Kong	Philippines	NZ
Health experts	7.83 (0.02)*	8.09 (0.06)*	7.80 (0.08)*	7.61 (0.06) *	7.65 (0.06) *	7.25 (0.07) *	7.70 (0.06) *	8.24 (0.07) *	8.07 (0.06) *
National health org.	7.30 (0.03)†	7.65 (0.07)†	7.05 (0.08)†	7.59 (0.06)†	7.07 (0.07)†	6.91 (0.07)†	6.37 (0.08)§	7.97 (0.07)†	7.81 (0.06)†
Global health org.	6.97 (0.03)‡	7.19 (0.07)‡	6.83 (0.09)‡	7.03 (0.07)‡	6.69 (0.06)‡	6.35 (0.07)§	6.54 (0.08)‡	7.63 (0.08)‡	6.90 (0.07)§
Government	6.28 (0.03)§	6.70 (0.07)§	5.28 (0.09)‖	5.86 (0.08)‖	5.42 (0.08)‖	6.44 (0.08)‡	5.59 (0.10)‖	7.14 (0.09)‖	7.37 (0.08)‡
News org.	6.26 (0.03)‖	6.27 (0.07)‖	5.78 (0.10)‡	6.14 (0.07)‡	5.92 (0.07)‡	5.92 (0.07)‖	6.56 (0.06)†	7.17 (0.08)‡	6.30 (0.07)‖
Politicians	5.34 (0.03)¶	5.68 (0.08)¶	4.32 (0.09)¶	5.13 (0.09)¶	4.84 (0.08)¶	5.54 (0.08)¶	5.13 (0.09)¶	5.61 (0.10)¶	6.18 (0.08)¶

x̄ – mean, SE – standard error, USA – United States of America, NZ – New Zealand
*Rank 1.
†Rank 2.
‡Rank 3.
§Rank 4.
‖Rank 5.
¶Rank 6.

From results collected from Schulter et al., we observe the universally high levels of public trust placed in health experts and authorities, on both an international and domestic level from the countries analyzed. From this analysis, Schulter et al. find that "entrusting and empowering health authorities and experts to provide (and be seen providing) coordinated accurate health messaging, information, and recommendations is likely a fundamental strategy in ensuring the highest likelihood compliance. Coordination is also key, as political trust is instrumental for compliance with health measures." (Schulter, 2023). Thus, a takeaway recommendation and future direction Schulter et al. conclude from this study (applicable to an international scale) is for governments and policymakers to coordinate their response with health experts and authorities, thereby maximizing the population health impact.

This conclusion suggests that the effective communication framework presented by the World Health Organization should account for the complexity of health communication on a domestic level. In addition to the six principles presented, messages delivered should account for alternative messages in which different evidence may be presented to the same audience. Effective communication frameworks should account for the coordination of all relevant communication sources so that one singular message can be delivered in a presentation that is as straightforward and transparent as possible. Uncoordinated communication is associated with confusion and mistrust in the population; people don't know who or what to listen to.

Effective communication and messaging should come from a coordinated response that inspires public action. If there is more than one prominent message relayed to the public at one time, the delivery of these messages loses transparency because of alternative narratives presented. If a message is unclear, action that results from a trusting and faith-driven relationship cannot be expected.

With this, we turn to regional messaging to analyze which communication strategies and messages associated with a coordinated response result in greater and lesser trusting relationships between organizations and the general public. It is necessary to evaluate how these communication strategies are developed and delivered at an organizational level. From this evaluation, we can study messages communicated via health providers, experts, and organizations that are intended for audiences on the national and state levels. Through this analysis, we evaluate the degree to which these messages are coordinated with other public messengers and the degree to which these messages resonate with public audiences. We then consider whether or not this impacts the public's trust in public health organizations and associated faith-driven relationships.

3.3 Regional Public Health Communication

When analyzing public health communication tactics and efficacy at an organizational level, it is important to do so on an international scale to gauge an understanding of strategy and response across different climates, cultures, and political philosophies. The World Health Organization has effectively created a broadly applicable global communication framework. This has been impactful, given the complexities of collecting and validating information on a global scale and then developing a communication strategy that conveys an internationally relevant coherent message. In these efforts, the WHO has benefited from a well-established global reputation that minimizes the impact of conflicting messaging from other sources.

When communicating to a national audience, message development becomes more complex, as there can be multiple messengers with similar reputations delivering conflicting messages to the same population. Government, health organizations, and health providers need to consider coordination with other messengers (especially those with an aligned interest) in their strategic communication framework. If one clear and consistent message can be relayed by the government, health organizations, and health providers, a more trusting relationship could be restored with the communities they serve.

Leah Rand and her team explore the impact of complex communication networks and how this translates to “Securing the Trustworthiness of the FDA to Build Public Trust in Vaccines" (Rand et al., 2023). As Rand explains, ultimately, two relevant types of decision makers (messengers) exist when making and communicating decisions related to vaccines: “those with technical expertise and those with a political remit to make value-based decisions” (Rand et al., 2023). By “those with technical expertise” concerning FDA vaccine regulation and information, Rand includes reviewers and scientists for the FDA. The individuals with agency expertise are

considered proper decision-makers in this situation. As such, these experts should be considered authoritative in this circumstance.

Further, Rand acknowledges that "a scientific expert is distinct from being expert or authoritative on political or public values. Decisions like what minimum efficacy and maximum safety requirements should be set as thresholds for vaccines are, in part, value judgments and so should be informed by scientific expertise and made in consultation with appointees, who act as an interface between the agency's mission to serve the public's health and social values as revealed through elections" (Rand et al., 2023). As such, there will naturally be some overlap in roles between a scientific expert and an expert on political and public values if each is to deliver a consistent and effective message. Further, for this message to be appropriately cultivated, both positions ought to consider each other's roles, influences, and expertise to communicate a message that is both accurate and received well by the population it is intended for. Rand adds, "There is some overlap here: scientists make value decisions in the application of their expertise, as with interpreting evidence; elected officials rely on facts to inform political decision" (Rand et al., 2023).

Rand et al. explore this dynamic further, and how this translates to a condition of trustworthiness, an explanation of the condition, and the application to COVID-19 vaccine authorizations. These conditions are presented in the table below titled "Conditions of Trustworthiness and Examples of How Each Did or Did Not Occur during the Reviews and Authorizations of COVID-19 Vaccines."

Table 2. Conditions of trustworthiness and examples of how each did or did not occur during the reviews and authorizations of COVID-19 vaccines

Condition	Explanation	Application to Covid-19 vaccine authorizations
Consistency with rules	The agency should adhere to rules governing the review process and prespecify rules to improve their consistent application. The rules themselves should optimize the mission of the agency (e.g., there should be standards for evidence).	Guidance on submission and review requirements published prior to the first manufacturer submissions to the FDA for Covid-19 vaccines included standards like efficacy thresholds that should be met.
Expert decision-makers	The appropriate expert engages in decision-making and the interpretation of evidence.	FDA reviewers conducted their own evaluation of clinical trial evidence. Nonscientific experts should not have made inaccurate claims about vaccine efficacy.
Noninterference	Decisions are made on the basis of appropriate reasons (scientific integrity) and are free from inappropriate political interference.	In 2020, White House officials pressured the FDA to authorize Covid-19 therapies and to approve a vaccine before November 2020. Such political interests should not be the basis of vaccine authorization or approval. Despite political pressure, the FDA acted consistently with its rules of review, including follow-up safety plans for vaccine authorization, which were not supported by political officials.[1]
Connection to public preference	Public preferences (i.e., what the U.S. public at large will generally find appropriate rather than one group's reasons) should inform decisions.	Different groups may have had different interests in Covid-19 vaccine authorization and trading off safety, efficacy, and speed. Minimum efficacy thresholds and safety requirements published in FDA guidance weighted efficacy and safety more heavily than speed. In addition, FDA bureau and division chiefs communicated directly with the public to assure them of their commitment to scientific evaluation of the vaccines.
Transparency	The agency should explain the reasoning behind a decision in ways that are available and accessible and make transparent the interpretation of evidence and the approval process.	The FDA convened an advisory committee to publicly review the vaccine clinical trials, discuss risks and benefits, and make a recommendation on authorization, explaining its reasoning. In addition, the FDA could have released an action package disclosing meetings between appointees, elected officials, and reviewers.

Rand's point is specifically analyzed under the condition of "Expert decision-makers" in COVID-19 authorization. Her team's explanation describes the condition as "the appropriate expert engages in decision-making and the interpretation of the evidence". In the team's

description of the COVID-19 example, this is further explained as Rand and her team explain "Nonscientific experts should not have made inaccurate claims about vaccine efficacy." This builds on her initial point regarding two relevant decision makers. When communicating a topic that is strictly scientific (vaccine efficacy) it should be decided and authorized by the proper decision maker (FDA researchers and scientists). However, when this piece of scientific information translates to more public and ethical decisions (mandatory vaccine mandates) it becomes appropriate to consider additional relevant decision-makers to communicate to the public as effectively as possible. Rand et al. further address this rationale in the table when considering the transparency condition. Regarding the transparency of COVID-19 authorizations, Rand adds, "The FDA could have released an action package disclosing meetings between appointees, elected officials, and reviewers." Thus, the communication of a process underlying the decision that included facilitated collaboration between elected officials, researchers, and scientists would have likely led to a more transparent message to the general public, further highlighting the value of coordination when communicating a message.

4.0 Building Trusted Sources for Health Information

To advance public trust levels within public health organizations and health systems, it is necessary to identify current sources for health information Americans associate with high degrees of trust. Exploring these attributes for how highly trusted sources relay health information helps navigate strategies to implement similar qualities in less trusted sources for health information.

4.1 The Current State of Trusted Sources for Health Information

A coordinated response should be developed through collaborations between scientific experts (scientists and researchers) and public policy and opinion experts (elected officials). The degree to which this occurred during COVID-19 varied with the location and population. However, a clear consensus is emerging that collaborative efforts were not optimal. In the event of another public health emergency, more connected messaging from scientific experts and public officials would likely result in a more responsive population.

Conflicting messages create an obstacle to creating a coordinated message. The additional pressure of delivering a timely response compounds this challenge. Considering these variables that affect the nature of the message produced, it is not surprising that communications can be difficult to interpret. As a result, levels of trust between constituents, government organizations, and healthcare providers are not as strong as they could be.

Further, this is shown through studies by SteelFisher in a “first-of-its-kind nationally representative survey of 4,208 US adults to learn the public’s reported reasons for trust in the

federal, state, and local public health agencies" (SteelFisher, 2022). SteelFisher et al.'s first exhibit presents public trust in sources of health information among US adults by the degree of trust (designated as "A great deal, somewhat, not very much, not at all"), 2022:

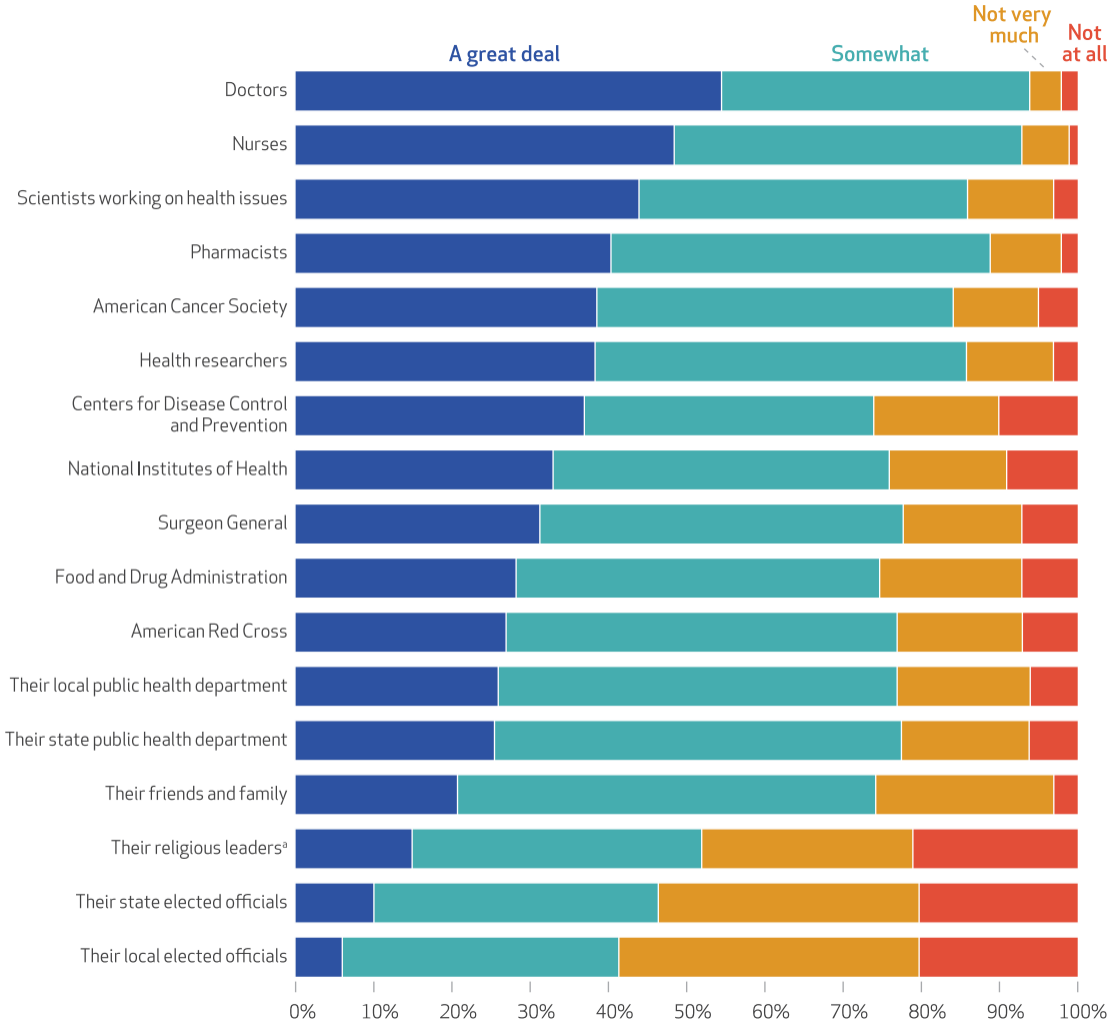

Figure 7. Public trust in sources of health information among US adults, by degree of trust, 2022

This data suggests that the four most trusted sources of health information are doctors, nurses, scientists working on health issues, and pharmacists. These four sources all report the highest level of "a great deal" of trust and the lowest levels of "not very much" to "not at all" when

surveyed. Health sources that received the lowest levels of "a great deal" of trust and the highest levels of "not very much" to "not at all" are reported as local elected officials, state elected officials, and religious leaders. According to SteelFisher, doctors and nurses received the highest ratings overall, with about half of the public saying they trusted them a great deal (54 percent and 48 percent respectively) (SteelFisher, 2022).

Health sources that received relatively moderate ratings are the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the American Red Cross, local public health departments, and state public health departments. Importantly, the study reveals that health sources that received the highest ratings typically operate in environments where they are communicating with either a patient or community member in a personalized, one-on-one conversation. The "middle third" consists of health organizations that are run and supported by scientists, health experts, and researchers who are part of teams that address larger audiences on either a national, state, or local level. Sources of health information that rank the lowest are public opinion experts or elected officials who also address larger audiences on either the state or local level.

SteelFisher and team also categorized US adults into groups with "higher and lower" levels of trust. Within these groups, they explored reasons for the lack of trust in the CDC, and state and local public health departments, among US adults in the context of COVID-19 information (SteelFisher, 2022). The fourth exhibit presents trust levels of US adults with lower levels of trust, segmented by degrees of trust (similar to exhibit 1). In Exhibits 2, 3, and 4 (shown below) reasons for levels of trust in public health agencies, reasons for lower trust across agencies, and reasons for lower trust by different degrees of trust are reported, respectfully.

Major reasons for trust	CDC (*n* = 418–452)	Public health departments	
		State (*n* = 339–357)	Local (*n* = 345–372)
Followed scientifically valid research	94%[b,c]	87%	85%
Have the experts	92[b,c]	75	67
Made vaccines and testing widely available	83	86	88
Have given clear recommendations for people to protect themselves	79	81	87[a]
Information matched other sources I trust	71	80[a]	82[a]
Provided detailed information	70	64	63
Provided information frequently	68	67	68
Staff worked hard under difficult circumstances	65	73[a]	79[a]
Seemed to care about people	64	69	73[a]
Steered clear of private-sector influence	56	54	51
Steered clear of a lot of politics	56	50	54
Provided good care at public health clinics	49	58[a]	71[a,b]
Have done a good job at controlling COVID-19 spread	49	53	55
I trust the government generally	24	34[a]	29

Figure 8. Major reasons for trust in the Centers for Disease Control and Prevention (CDC) and state and local public health departments to provide accurate information about Covid 19, among US adults with high trust, 2022

Major reasons for lacking trust	CDC (*n* = 803)	Public health departments	
		State (*n* = 915)	Local (*n* = 898)
Political influence on recommendations and policies	74%	72%	70%
Have given too many conflicting recommendations	73[a,b]	61	58
Private-sector influence on recommendations and policies	60[a,b]	53	48
Inconsistency in following scientifically valid research	51[b]	48	43
Restrictive recommendations go too far	44	38	42
I don't trust the government generally	39	39	42
Lack of action to stop the spread of COVID-19	35	34	31
Not respected religious beliefs	28	25	23
Lack of fair treatment for rural communities	21	21	22
Lack of fair treatment for racial and ethnic minority communities	19	25	20

Figure 9. Major reasons for lacking trust in the Centers for Disease Control and Prevention (CDC) and state and local public health departments to provide accurate information about Covid 19, among US adults with lower trust, 2022

Major reasons for lacking trust	CDC			Public health departments					
				State			Local		
	Somewhat (*n* = 401)	Not very much (*n* = 211)	Not at all (*n* = 191)	Somewhat (*n* = 545)	Not very much (*n* = 218)	Not at all (*n* = 152)	Somewhat (*n* = 567)	Not very much (*n* = 193)	Not at all (*n* = 138)
Political influence on recommendations and policies	61%	84%[a]	91%[a]	62%	83%[a]	92%[a]	57%	88%[a]	93%[a]
Have given too many conflicting recommendations	60	87[a]	86[a]	52	73[a]	79[a]	48	69[a]	84[a,b]
Private-sector influence on recommendations and policies	48	62[a]	81[a,b]	45[a]	65[a]	66[a]	40	58[a]	71[a]
Inconsistency in following scientifically valid research	32	65[a]	76[a]	33	64[a]	79[a,b]	29	60[a]	76[a,b]
Restrictive recommendations go too far	24	51[a]	76[a,b]	24	50[a]	68[a,b]	29	58[a]	71[a]
I don't trust the government generally	27	45[a]	57[a]	31	45	55[a]	34	55[a]	57[a]
Lack of action to stop the spread of COVID-19	31	43[a]	33	35	29	33	27	36	38[a]
Not respected religious beliefs	16	32[a]	49[a,b]	15	33[a]	45[a]	15	28[a]	52[a]
Lack of fair treatment for rural communities	14	24[a]	30[a]	22	15	25	19	20	32[a]
Lack of fair treatment for racial and ethnic minority communities	21	17	18	27[b]	19	23	19	20	27

Figure 10. Major reasons for lacking trust in the Centers for Disease Control and Prevention (CDC) and state and local public health departments to provide accurate information about Covid 19, among US adults with lower trust, segmented by degrees of trust, 2022

When examining exhibit 2, SteelFisher reports the top reason adults had high trust (a great deal) in the CDC was related to scientific expertise. Specifically, highly trusting adults believe the CDC followed scientifically valid research (94%) and is composed of scientific experts (SteelFisher, 2022) positioned to be adequate decision-makers for public health emergencies. Additional top reasons include that the "CDC's actions made vaccines and testing widely available" as well as "agreeing that they have given clear recommendations for people to protect themselves" (SteelFisher, 2022).

Many of the same reasons carry over to how highly trusting adults felt about their state and local government, yet were reported in slightly lower numbers when compared to the CDC. For

example, highly trusting adults reported that their state or local health department followed scientifically valid research (87% and 85%, respectively), made vaccines and testing widely available (86% and 88% respectively), and had clear recommendations for people to protect themselves (81% and 87% respectively).

SteelFisher reports a key difference in reported reasons for trust in federal, state, and local agencies is that scientific expertise was cited and mentioned more often in CDC reporting and advising. Specifically, 92 % of those with high trust in the CDC said it was because they have experts, whereas only 75% and 67% of those with high trust in state and local public health departments cited this reason (SteelFisher, 2022); this suggests that even "highly trusting" US adults prefer rationale delivered by scientific experts or at least using the same scientific information communicated by the scientific experts. Further, this study suggests that had state and local health departments had better crafted a message through collaboration with scientific experts, the message may have been more trusted and better received by its intended audience.

These themes are further resembled in the reported reasons for lower trust across federal, state, and local public health agencies. The top reason for lower trust among health agencies was political reasons for recommendations on policies (74%, 72%, and 70% respectively). Major reasons that follow include giving too many conflicting recommendations (73%, 61%, and 58%) and inconsistently following scientifically valid research (51%, 48%, and 43%). Whether considering political reasons for recommendations, multiple conflicting messages, or not aligning messages with scientifically valid research, it is clear that the rationale for distrust displayed in exhibits 3 and 4 stems from the complexity of balancing different messengers and motivations. Specifically, the nature of organizational and agency communication must be cognitive of their specific roles as relevant decision-makers when delivering messages, how they should

communicate with other messengers to best deliver a singular narrative to the public, and how they could account for alternative messages that may persuade their target audience. Thus, an effective communication strategy for crafting messages delivered via agency and organizational outlets must present a coordinated message that considers the necessary and diverse expertise of decision-makers. This message should be coordinated on federal, state, and local levels to present a message as one singular narrative associated with transparent direction and action.

Further suggested by Exhibit 1, this coordinated response may not be necessary for communication on an individual level. When community members and patients visit with their doctors, nurses, or pharmacists, the interaction is personalized to the two individuals involved. More specifically, the patient communicates a demand of the physician that is specific to their self. Naturally, the physician's primary focus is to address that patient's demand with a solution that is specifically effective for that individual.

Not nearly as much coordination with other health organizations and providers is necessary for the relationship between patients and physicians, compared to the coordination required across agencies when addressing a population with diverse values and demands; this eases the process for a physician to deliver a message that is transparent for the patient, clear for the required next steps necessary, and is naturally presented as a singular narrative. As Exhibit 1 suggests, both high-trusting and low-trusting US adults report their most trusted health sources stem from one-on-one relationships. To further explore and evaluate how to restore public trust in health agencies and organizations, it is necessary to investigate why US adults seem to have higher levels of trust in their physicians, nurses, and pharmacists than in public health agencies.

4.2 Health Communication at an Individual Level

The results of SteelFisher and the team's survey draw critical attention to the state of trusted relationships between community members and sources of health information. The least trusted sources for health information come from local and state elected officials, receiving low ratings from US adults who are even considered to have "high levels" of trust. The next grouping of trusted sources consists of health agencies at federal, state, and local levels that incorporate health researchers, scientists, and experts (appropriate decision makers) and their associated conclusions into their messaging to large audiences. Although these agencies are, overall, trusted by US adults with high trust levels, these health organizations do not appear nearly as trusted as sources for health information that communicate with and work with others on an individual level. High-trusting US adults rank doctors, nurses, and pharmacists as the most trusted sources of health information. Even less trusting US adults rank these sources the highest and, ultimately, as trustworthy sources for health information.

This finding from SteelFisher - health providers who operate with others in more personalized circumstances and interactions are perceived as the most trustworthy by community members - has earned attention from other investigators and reporters. The Journal of American Medical Association reports on the study explaining how the "Public Had Most Trust in Advice from Physicians, Nurses During Pandemic" (JAMA, 2023). JAMA recaps takeaways from SteelFisher's findings highlighting "Physicians and nurses were the most highly trusted sources of health information during the pandemic, with 54% and 48%, respectively, of respondents reporting high confidence in their guidance. Scientists and pharmacists also received high marks, with 40% or more of participants citing "a great deal" of trust in their recommendations" (JAMA, 2023).

JAMA further reports how these trusting ratings are significantly higher than those attributed to health organizations (the CDC and NIH) with state and local authorities.

As the level of trust associated with these relationships continues to gain attention, we can begin to question why these results are the way they are. What specifically about these personalized interactions leads to more trusting relationships? What can health organizations and health providers learn from physician-patient interactions? Is it possible for health agencies to implement strategies used in personalized interactions to generate similar trust levels among the public? With this, it is necessary to evaluate this rationale.

One explanation for these observations is that a coordinated response may not be necessary at an individual level. When community members and patients visit with their doctors, nurses, or pharmacists, the interaction is personalized to the two individuals involved. Specifically, patients communicate demands specific to them. Naturally, the physician's primary focus is to address that patient's demand with a solution engineered specifically for the individual, not having to consider additional values and demands. Not nearly as much coordination with other health organizations and providers is necessary for a relationship between patients and physicians compared to the coordination required across agencies when addressing a population with diverse values and demands; this eases the process for a physician to be able to deliver a message that is transparent for the patient, clear for the required next steps necessary, and is naturally presented as a singular narrative.

The nature of communication during patient-physician interactions brings out three core features that are essential for formulating trusting relationships. The following three features appear innate if communication on an individual level is conducted successfully (the patient is satisfied): **transparency, improved health status, and building partnerships.**

Transparency is realized in patient-physician interactions when doctors are effective in personalized communication and information sharing. Transparency in physician-patient interactions refers to the open and honest exchange of information between the healthcare provider and the patient. It involves sharing relevant medical information, discussing treatment options, risks, and benefits, as well as addressing questions the patient may have. Thus, an integral attribute of transparency in this relationship is creating an open communication channel. Specifically, physicians who practice transparency openly communicate with patients about their medical condition, diagnosis, and treatment plan. They use clear and understandable language to ensure patients fully comprehend their health situation and the recommended course of action.

Clear communication in these interactions also involves a comfortable exchange with the patient sharing information, so the physician can address these concerns as effectively as possible. Trusted physicians typically encourage patients to ask questions and express any concerns they may have about their health or treatment. They listen attentively to patient concerns and provide honest answers and explanations, which helps ease anxiety and build trust by demonstrating that the physician values the patient's input and respects their autonomy. By addressing these concerns openly and confidently, physicians in turn can better address the patient demand. More so, this enables them to be in a position where they may openly share relevant information with the patient. Transparency involves sharing relevant medical information with patients, including test results, treatment options, and potential outcomes. Physicians who share information openly empower patients to make informed decisions about their health care, which enhances trust by promoting patient autonomy and involvement in the decision-making process. These attributes demonstrate how transparent interactions are innate to successful physician-patient relationships, creating and sustaining trust-driven relationships.

The second aspect derived from patient-physician interactions is dependable, good performance that results in an **improved health** status. This “good performance” element can be thought of as physicians doing what they are saying they are going to do. Or, from a patient perspective, having confidence that physicians will provide you with whatever treatment or care is necessary to meet patient expectations for improved health outcomes.

The path towards an improved health outcome starts with effective communication and patient satisfaction levels. Consider a scenario where a patient visits a physician with concerns about a persistent health issue. The physician actively listens to the patient's description of symptoms, asks clarifying questions, and provides clear explanations about the potential causes and treatment options. By addressing the patient's concerns comprehensively and engaging in open dialogue, the physician demonstrates effective communication skills. As a result, the patient feels heard, understood, and satisfied with the consultation, leading to increased trust in the physician's expertise and care.

Improved health outcomes are continued through physician accessibility and continuity of care. A patient with a complex medical condition requires ongoing management and support from their physician. The physician ensures accessibility and continuity of care by being available for appointments, responding promptly to messages or inquiries, and coordinating care with other healthcare providers as needed. Through consistent availability and personalized attention, the physician meets the patient's needs and concerns, resulting in improved health outcomes, satisfaction, and trust in their ongoing care. Improved health outcomes that stem from dependable physician performance are crucial for successful patient-physician interaction and are necessary to create and sustain trusting relationships.

The third piece of patient physical interactions that leads to trusting relationships is building a genuine relationship and **partnership** with one another on an individual level. Before considering the medical content and planning in these relationships, relationship building can be observed almost immediately by actions demonstrated by most physicians. Typically, physicians greet patients by establishing rapport. They greet patients warmly, show genuine interest in their well-being, and engage in small talk to establish a connection. By building rapport, physicians create a comfortable and trusting environment where patients feel valued and respected.

As the conversation continues, physicians usually demonstrate active listening. Building relationships in physician-patient interactions involves active listening. Physicians listen attentively to patients' concerns, validate their feelings, and acknowledge their experiences. By demonstrating empathy and understanding, physicians show patients that their voices are heard and that their perspectives matter, leading to increased trust and satisfaction.

This active listening leads to shared decision-making and collaborative care planning for the patient's future health direction. Physicians who value partnerships in care engage patients as active participants in the decision-making process. They provide information about treatment options, discuss risks and benefits, and consider patients' preferences and values when making decisions. By involving patients in decision-making, physicians empower them to take ownership of their health and treatment, leading to increased trust and adherence to the treatment plan. Further, building relationships in physician-patient interactions involves collaborative care planning. Physicians work with patients to develop personalized care plans that address their unique needs, goals, and preferences. By tailoring care plans to individual patients, physicians demonstrate respect for their autonomy and build trust by prioritizing their well-being and preferences.

This team aspect is also observed in continuity of care. Building relationships in physician-patient interactions is integral to continuity of care. Physicians establish long-term relationships with patients, follow up on their progress, and provide ongoing support and guidance. By maintaining continuity of care, physicians demonstrate commitment and dedication to their patients' well-being, leading to increased trust and confidence in their care.

These three core principles of individualized interactions between a patient or community member and a health provider (whether a physician, nurse, or pharmacist) are transparent communication, good performance, and establishing a partnership. When a dynamic between physicians and patients (or any individualized health provider dynamic) is considered healthy, there is a strong likelihood that these attributes are observed in the one-on-one relationship through communication and action. It follows that these healthy relationships result in an earned sense of trust that the patient has then granted to their health provider by fulfilling these three attributes and ultimately creating a successful relationship.

Are these principles observed when health organizations and elected officials craft messages for a larger audience? The complexity of coordinating a response while also competing with other messages that may not align with the organization's intentions is a natural challenge when communicating on an organizational level. This dynamic makes it difficult to deliver a transparent message, whereas this dynamic is not present for health providers when delivering a message in an individual setting. Good performance needed for improved health outcomes is often not realized at the federal, state, or local level. The message (at least from the observance of the COVID-19 pandemic) is constantly shifting due to population preferences and everchanging political power and position. With this comes different demands within the same populations; thus, making it difficult to create partnerships and trust between organizations and populations on

federal and state levels. What strategy should federal, state, and local agencies adopt to regain public trust?

4.3 Exploring How to Restore Public Trust

In August of 2023, the new director of the Centers for Disease Control, Dr. Mandy Cohen, was interviewed on National Public Radio about her vision for the CDC and similar health agencies moving forward after the COVID-19 pandemic. She emphasized how regaining public trust was an integral aim. She explained "Trust is a critical foundation for a healthy society. Trust in institutions, such as government, media, or business, has been eroding in recent years. This lack of trust has led to polarization, to division" (Pfeiffer, 2023).

During the COVID-19 pandemic, Cohen was an internist who led the North Carolina Department of Health and Human Services during the pandemic. When reflecting on her experience, she was asked if she learned any key lessons she plans to implement on the federal level. She responded: "Well, it was an honor to serve North Carolina through the COVID crisis. And I think that we were able to be successful in our response effort because we put trust at the center and we worked on being transparent. We worked on making sure that we delivered for the people of North Carolina and that we built relationships. We built them with historically underserved communities. We built them with our hospital system so that we executed as a team and did our work as a team." (Pfeiffer, 2023).

As the interview continued, she made clear that these lessons learned on a state level could be further applied to her three-step approach for rebuilding trust with the public on the federal

level. Cohen was specifically asked about declining levels of trust in reference to the reports from SteelFisher et al. The referenced reports showed a quarter of respondents saying they trusted the CDC either “not very much” or “not at all”. When asked about how she plans to rebuild trust with the US, she had this to say: “Well, I think there's really three important steps. First is making sure that we are being transparent. We're having clear communications that are simple and accurate, that folks can understand, that they know that there are common sense solutions for them to protect their health. And the second is making sure that we execute or have a good performance in what the CDC is meant to do. And so making sure that we are doing what we say we're going to do. Just as you trust in your own personal life, I want to make sure that you trust that we are going to do that for you. And the third, very important, is about building relationships and partnerships. Protecting the health of this country is a team sport. And so those are that we need to bring partners together in order to protect people's health. We can't do it alone from the CDC.” (Pfeiffer, 2023).

CDC Director Mandy Cohen’s 3 step approach to rebuilding trust with the public:

1. **Be Transparent in Messaging**
2. **Demonstrate Good Performance**
3. **Build Partnerships with Community Members**

As previously mentioned, these principles often come to fruition naturally in successful, patient-care provider relationships. As reported by SteelFisher et al., US adults rank their most trusted source for health information to be care providers involved in one-on-one interactions: the micro level. Cohen suggests applying these principles found in successful micro-sized relationships on a macro level could restore public trust in health providers and organizations.

More specifically, the aim for public health agencies (whether on a federal, state, or local level) is to eliminate any notion that large health agencies should speak and act with some form of authoritative "big brother" presentation in their messaging. Agencies should address populations to create partnerships and a team atmosphere to address population health challenges. This approach is similar to how physicians work with patients to develop collaborative care planning that specifically addresses a patient's needs.

Whether this can translate as effectively on a macro population level is challenging to predict, as various demands from subpopulations may be present. What is fair to state is that if health organizations aim to create stronger partnerships with the populations they serve and make clear that local communities are necessary players in the team dynamic to achieve well-being on a population level, then issues deemed socially important by the community can be better realized than they are today. In turn, this allows agencies to understand their communities better, further blossoming the relationship between the two.

With partnerships strengthened and demand better realized, good performance from health providers and organizations is more likely. Understanding demands (whether social issues or specific to health emergencies) unique to specific subpopulations can enable agencies to better focus their attention on what matters to the subpopulation. This improved focus can help lead agencies to develop solutions that work to meet the respective demands raised by each community. This good performance, ultimately the health organization doing what they say they are going to do, further strengthens trust and partnerships between health agencies and the community that knows they are a dependable partner for satisfying community demands.

Transparency can be realized as a result of stronger partnerships and better performance and can serve as the first step to expedite the other two steps. Health agencies should focus

communications to be simple, straightforward, and comprehensible for constituents with all education levels. On a public health level, health agencies should illustrate common sense solutions before addressing specific recommendations for a certain circumstance or emergency. Short and simple statements that permit open communication and comfortable exchange are necessary for audiences to feel respected and understand the organization's aims and recommendations. Transparent communication is vital for agencies to provide shared decision-making opportunities that lead to collaborative care planning on a population level.

With the value and function of these principles understood on a macro scale, it is necessary to consider examples of how health organizations and health providers can implement these steps in their communication strategies and frameworks. When Cohen was a top public health official in North Carolina during the COVID-19 pandemic, the North Carolina Department of Health and Human Services embodied and executed these three steps during the pandemic, serving as an example of how these principles can be implemented on an organizational level. Another example of how these steps can be realized through a health provider perspective is observed in UPMC's community initiative: Minutes Matter. I was fortunate to join the Minutes Matter team during a collaborative practicum experience between UPMC and the University of Pittsburgh School of Public Health. During my time with Minutes Matter, our team was able to strategically plan, implement, and practice these trust-restorative aims firsthand.

4.4 Building Public Trust in Health Providers

UPMC Minutes Matter provides community members across Pennsylvania with access to basic emergency information and education on life-saving interventions. Specifically, this

community initiative presents health information and training through events focused on teaching community members how to respond in emergencies when minutes matter most. Training and events are provided for Pennsylvania residents to ensure they know how to respond if they find themselves first on the scene of an emergency situation. Specifically, Minutes Matter connects with community members to provide basic emergency health information when faced with situations of overdose, cardiac arrest, uncontrolled bleeding, and response to mental health crises. Providing community members with basic knowledge related to life-saving interventions and emergency information is an important factor in improving health outcomes.

As a UPMC community health initiative, Minutes Matter is an example of how health providers can implement Cohen's three-step approach to restoring public trust in health organizations and providers. Specifically, Minutes Matter demonstrates how health providers can connect with community members through one-on-one interactions in personalized settings. Health providers must take the next step to present themselves as teammates. Through events and training offered by Minutes Matter, health providers present themselves as individuals connecting with community members face-to-face, in a format similar to physician-patient interactions. These personalized dynamics show how health providers, organizations, and public health officials can embody a patient relationship with a public health focus.

When I joined Minutes Matter, a significant focus was on creating relationships and strengthening partnerships within our local communities. Minutes Matter has an expansive network, offering training and events in locations spanning from Erie to Harrisburg. Relationships in Allegheny County are especially strong; Minutes Matter partners with the Pittsburgh Steelers, the Pittsburgh Penguins, iHeartRADIO, and the local news network WPXI. Minutes Matter also has strong relationships with Pennsylvania elected officials, as we held an event aimed toward and

attended by representatives from offices of state and national congressmen and senators, as well as Pennsylvania Governor Steve Shapiro.

During my practicum experience, we made a great effort to continue to expand our partnerships within our local communities. We initiated the first event with any school or University, specifically, we initiated a partnership with the University of Pittsburgh.

I was honored to play a role in creating this partnership as I was an active University of Pittsburgh student and I coordinated the planning of the event and tailored it to appeal to University of Pittsburgh undergraduate and graduate students. In addition to the traditional event format that covered domains of how to respond to cardiac arrest, overdose, uncontrolled bleeding, and emergency mental health situations, we extended the curriculum to involve an introduction to university resources and emergency response information specific to the Oakland campus. Specifically, we partnered with the University of Pittsburgh's Student Health Services to increase awareness of mental health services and opportunities provided by the University's wellness centers. Further, we partnered with Pitt Public Safety to provide emergency response information specific to Oakland campus including where to access AED kits and direct contact mechanisms specific to any emergency that could occur.

Through partnering with graduate and undergraduate offices at the University of Pittsburgh, Minutes Matter was able to create face-to-face relationships with university students. These prompted opportunities for feedback and fresh perspectives on how health providers may be able to better communicate and connect with community members. University students often bring new and innovative ideas to the table. Their diverse backgrounds, interests, and areas of study can offer fresh perspectives on public health challenges and potential solutions. These open communication channels further allow for professional development for health providers and

future healthcare leaders. Collaborating with university students allows public healthcare providers to mentor and support the next generation of healthcare professionals. This interaction can be mutually beneficial, providing students with valuable real-world experience and healthcare providers with an opportunity to shape and guide future leaders in the field.

Newfound relationships with the student body at the University of Pittsburgh improve community engagement for the UPMC Minutes Matter community initiative. University students are often deeply involved in their communities and can help public health care providers engage with the larger community effectively. They can assist in organizing outreach events, conducting health education programs, and facilitating communication between healthcare providers and community members.

Our first event with the University of Pittsburgh amplifies the transparency in our messaging from a health provider perspective. The nature of one-on-one interactions created an atmosphere similar to one a community member may experience with their physician, thus allowing for opportunities for open communication, active listening, and first-person interpretation of how well community members are able to receive and practice the information. To provide visuals for these open, face-to-face communication channels, we present photographs taken from the first UPMC Minutes Matter training event for University of Pittsburgh students.

Figure 11. Minutes Matter: University of Pittsburgh Public Safety and Emergency Management

Figure 12. Minutes Matter: personal communication

Figure 13. Minutes Matter: community engagement through the press

Our first event with the University of Pittsburgh showed how partnering with university students creates opportunities for open dialogue and communication channels between public healthcare providers and the public. In many cases, this was one of the earliest exposures of students to the health system. Importantly, this provided an opportunity to establish trusting relationships in a non-emergent situation and to build a foundation of trust important for effective communication during more urgent situations, such as an individual emergency or pandemic. These communication channels also allow for feedback and review to help sharpen the clarity of the messages health providers communicate to their local communities. University students can provide valuable feedback on public health messaging materials, such as educational materials, campaigns, and outreach efforts. Their input can help identify potential biases, inaccuracies, or areas for improvement, leading to more transparent and effective messaging.

Further, transparent messages strengthened through university partnerships can facilitate personalized community engagement. University students are often deeply connected to their communities and can help public healthcare providers engage with community members in a transparent and authentic manner. They can serve as liaisons between healthcare providers and community members, facilitating two-way communication, addressing concerns, and promoting transparency in decision-making processes. By involving students in community outreach efforts, public healthcare providers can foster trust, address misconceptions, and ensure that messaging is culturally relevant and accessible to diverse populations.

These communication channels and improved community relationships transfer to social media and digital engagement as well. Through community initiatives and training events like Minutes Matter, healthcare providers can grow their digital network in number and nourish relationships through pre-established personal connections. Not only are health providers better connected with the local communities they serve, but community members and university students are enabled to communicate messages in a style that is unique to their personalized platforms. University students are often proficient in digital communication tools and social media platforms. Partnering with students can enhance public health care providers' presence on social media and digital channels, allowing for real-time updates, interactive engagement, and transparent dissemination of information to a wider audience.

These events can further enhance education and training among community members, paving the way to provide examples of how local community engagement can lead to good performance and better messaging by healthcare providers. Collaboration with university students provides an opportunity for public healthcare providers to mentor and train the next generation of healthcare professionals. By offering practical experience and hands-on training opportunities,

providers can help students develop the skills and competencies necessary to address public health challenges and contribute to improved health outcomes in the future.

This UPMC Minutes Matter initiated partnership with the University of Pittsburgh is an example of how health providers can implement the three-step approach proposed by the new CDC director Mandy Cohen to restore public trust. Minutes Matter's partnership with the University of Pittsburgh demonstrates how health providers can create a team atmosphere through personalized and transparent communication that translates to good performance. The ability of large organizations to implement a communication strategy based on personalized individualized interactions with community members, similar to that found in the physician-patient relationship, could positively impact the effectiveness of their communication. As demonstrated by reports and studies of SteelFisher et al., this personalized, face-to-face communication and messaging approach seems to be what US adults associate with being the most trustful source of health information. Shifting from macro-scaled messaging to micro-scaled communication is a strategy large agency can use to embody the attributes that naturally arise in physician-patient communication. Through this messaging approach, public trust may be restored in health organizations and providers.

5.0 Putting It All Together

To review, this essay has presented evidence that suggests that the United States population has declining confidence in domestic health systems and organizations and their associated messaging). Specifically, this has contributed to an underperforming response to COVID-19 vaccination efforts, related vaccine hesitancy, and reduced back-to-school rates after the COVID-19 pandemic. To explore a rationale for this loss of trust in messaging, I assessed how health systems and public health organizations communicate with diverse audiences and communities on international, national, and local scales.

From this, I compared these messaging approaches to communication strategies associated with higher trust levels: health information delivered in a personalized atmosphere. Through this, I identify principles naturally embodied through a successful, individual personalized exchange associated with community member responses, suggesting that this approach to health communication results in a more trusting relationship between health providers and community members. These principles align with the CDC's three-step strategy for restoring public trust in health organizations and providers. An example of how this three-step strategy can be brought to fruition was observed through my collaborative practicum experience with the community health initiative of UPMC Minutes Matter and the University of Pittsburgh School of Public Health.

Through this comparison, I develop an approach for how techniques used in micro, individualized interaction between health providers and community members can be translated into macro, organizational relationships between health systems and populations. Health communication and messaging strategies can be developed by analyzing these mechanisms through which public health messages are crafted and delivered on a micro and macro level and

the corresponding trusting or skeptical relationships that result. Specifically, this analysis highlights the value of crafting messages through public health communication frameworks and delivering messages from the position of a trusted source for health information. Henceforward, a future paradigm for communication strategy should be based on the delivery of messages crafted through a public health communication framework and delivered to familiar audiences with pre-established relationships.

This strategy could be implemented among public health organizations through local public health departments when communicating public safety and back-to-school information. As reviewed earlier, back-to-school rates in the 2021-2022 school year were alarmingly low, demonstrated by high chronic absenteeism that threatened academic recovery from the COVID-19 pandemic and remains elevated today. These actions, attached to family hesitancy and uncertainty in sending their children back to school, suggest a weak relationship and relatively low trust levels between communities and their local health departments which are responsible for communicating public safety information relevant to local school districts.

Further supported by Exhibit 1 of SteelFisher et al., local public health departments were associated with some of the lowest public trust levels of sources of health information. Under 25% of US adults surveyed are considered to have a great deal of trust toward local public health departments, leaving the remaining participants (about 75%) to report trust levels of somewhat or lower. According to those surveyed, reasons for lacking trust in health sources include having too many recommendations and inconsistency in following scientifically valid research. When applying these factors to local public health departments, this rationale underlies and directly applies to their messaging tactics.

These observations, taken together, suggest local public health departments would have benefited from using an alternative messaging mechanism when communicating health information concerning public safety and back-to-school rationale to their neighborhoods. This example can be used to apply the proposed paradigm for effective messaging to provide an example of how it could have been used by local public health departments. Specifically, local public health departments can apply the three core features found in communication in patient-physician interactions into larger-scale interactions between public health organizations and communities, illustrating how micro, individualized interaction between health providers and community members can become translated into macro, organizational relationships between health systems and populations. This example shows how local public health departments can **build partnerships, deliver transparent messages, and improve health status within communities through good performance**:

If put in a situation where a local health department must respond to a public health emergency or communicate developing public health information, the organization shouldn't be introducing themselves to their communities while doing so. In the case of local public health departments communicating back-to-school information post-COVID-19, forming connections with the local schools, families, and students in the area before the pandemic could have facilitated more effective pandemic communication. **Building partnerships** with school districts creates a channel for local public health departments to disseminate health information efficiently. Schools often act as central nodes within communities, linking families and students.

As such, an example of what this partnership would look like in practice could take the form of school health programs. Working closely with schools to support comprehensive school health programs that promote physical, mental, and social well-being among students is a

community benefit regardless of the severity of public health circumstances or emergencies. This further creates collaboration opportunities for a two-way flow of information, enabling public health departments to deliver guidance and gather valuable feedback.

With these programs and networks in place, schools, families, and students become more familiar and involved with their local public health departments. These connections enable health departments to be more likely to be trusted and credited by respective families and children when messaging becomes essential for communicating health information. If the message produced by local public health departments is developed consistently with the WHO strategic communication framework, then it will be more likely to be better received by audiences who are familiar with the messenger compared to audiences who are not.

These pre-established partnerships underlie credibility and cultural sensitivity principles within the WHO communication framework. By collaborating with trusted community-based organizations and school districts, public health departments can formulate their messaging to address the particular concerns and circumstances of families concerned with sending their children back to school, similar to the way a physician would communicate with a patient. These connections enhance the credibility of health messages, as they are disseminated through trusted channels created and endorsed by respected community members. This approach ensures that public health messages are culturally sensitive, respectful, and perceived as reliable, further fostering trust and engagement among school districts and associated families.

Through these inclusive communication channels, local public health departments can **develop transparent messages** for health information by crafting messages around the four remaining principles (actionable, accessible, relevant, and transparent) presented by the WHO communication framework. Local health departments can make back-to-school information

actionable and accessible by providing clear, practical guidance in formats that are easy to understand and readily available. This involves breaking down complex health recommendations into simple steps and actionable behaviors, ensuring that individuals know exactly what steps to take, by presenting the information in plain language and easily accessible and understandable formats.

Following these two principles brings to fruition a transparent delivery of relevant back-to-school information. Through openness and clarity, health departments establish trust by openly sharing the source of information, explaining the rationale behind recommendations, and acknowledging any uncertainties. This clarity enables individuals to understand the basis for the guidance provided, empowering them to make informed decisions about returning to school. Simultaneously, by customizing messages to address the diverse characteristics of the community, health departments demonstrate accountability and foster trust, thereby increasing the likelihood of adherence to recommended guidelines for a safe return to school.

Pre-established partnerships and transparent messaging could work hand in hand to **improve population health outcomes** during back-to-school transitions after COVID-19. Through partnerships between public health departments, schools, and community organizations, coordinated efforts can be made to address health challenges comprehensively. This collaboration enables the development and implementation of strategies to promote vaccination uptake, mitigate the spread of infectious diseases, and ensure a safe return to the school environment.

Simultaneously, messaging developed through communication frameworks can be culturally focused on preventive measures and available resources that meet the specific needs of school districts and families. An understandable and culturally sensitive presentation of relevant health information empowers community members to make informed decisions and adopt healthy

behaviors. For example, clear messaging about mask-wearing, hand hygiene, physical distancing, and vaccination can alleviate concerns and reassure stakeholders about the safety of returning to school, leading to higher compliance rates and improved population health outcomes.

Health information from local health departments can be relayed through educational initiatives and outreach programs organized in collaboration with community partners, offering an alternative presentation of a similar message, and creating multiple styles and opportunities to encourage students, families, and school staff to take proactive steps to protect their health and well-being. By combining partnerships and clear messaging, public health efforts can effectively promote compliance with health guidelines and access to resources, ultimately leading to improved population health outcomes in school communities.

This example demonstrates how local public health departments can implement this alternative paradigm for effective messaging to improve public trust. Prioritizing aims for building communal partnerships, transparent message delivery, and improved population health status reflect valued communication approaches seen in micro, individualized interactions between health providers and community members. This representation shows how messages crafted through a communication framework and delivered through an established relationship translate into macro-organizational relationships between health systems and populations.

A similar strategy should be recognized and implemented to build resilient relationships characterized by mutual trust and reciprocity, laying the foundation for continued support and cooperation between health organizations and the communities they serve. This sustained engagement strengthens the resilience of health systems and communities, enabling them to navigate health challenges and promote long-term well-being. By prioritizing a messaging strategy committed to crafting messages through effective communication frameworks and relaying this

message through communication strategies that model the approach of a physician-patient relationship, public health organizations can demonstrate that effective messaging can improve public trust.

Bibliography

Agley, Jon. "Assessing changes in US Public Trust in science amid the COVID-19 pandemic." *Public Health*, vol. 183, June 2020, pp. 122–125, https://doi.org/10.1016/j.puhe.2020.05.004.

Ashton, John. "In god we trust: The collapse of trust in public health." *Journal of the Royal Society of Medicine*, vol. 112, no. 10, Oct. 2019, pp. 442–443, https://doi.org/10.1177/0141076819880399.

Besley, John C., and Leigh Anne Tiffany. "What are you assessing when you measure 'trust' in scientists with a direct measure?" *Public Understanding of Science*, vol. 32, no. 6, 3 Apr. 2023, pp. 709–726, https://doi.org/10.1177/09636625231161302.

Blendon, Robert J., and John M. Benson. "Trust in medicine, the Health System & Public Health." *Daedalus*, vol. 151, no. 4, 2022, pp. 67–82, https://doi.org/10.1162/daed_a_01944.

Caplan, Arthur L. "Regaining Trust in Public Health and Biomedical Science following covid: The role of scientists." *Hastings Center Report*, vol. 53, no. S2, Sept. 2023, https://doi.org/10.1002/hast.1531.

Choi, Yongjin, and Ashley M. Fox. "Mistrust in public health institutions is a stronger predictor of vaccine hesitancy and uptake than trust in trump." *Social Science & Medicine*, vol. 314, Dec. 2022, p. 115440, https://doi.org/10.1016/j.socscimed.2022.115440.

Costa-Font, Joan, and Cristina Vilaplana-Prieto. "Trusting the health system and Covid 19 restriction compliance." *Economics & Human Biology*, vol. 49, Apr. 2023, p. 101235, https://doi.org/10.1016/j.ehb.2023.101235.

Devine, Daniel, et al. "Political Trust in the first year of the COVID-19 pandemic: A meta-analysis of 67 studies." *Journal of European Public Policy*, vol. 31, no. 3, 30 Jan. 2023, pp. 657–679, https://doi.org/10.1080/13501763.2023.2169741.

Equils, Ozlem, et al. "Restoring Trust: The Need for precision medicine in infectious diseases, public health and vaccines." *Human Vaccines & Immunotherapeutics*, vol. 19, no. 2, 19 July 2023, https://doi.org/10.1080/21645515.2023.2234787.

Fiske, Susan T., and Cydney Dupree. "Gaining trust as well as respect in communicating to motivated audiences about science topics." *Proceedings of the National Academy of Sciences*, vol. 111, no. supplement_4, 15 Sept. 2014, pp. 13593–13597, https://doi.org/10.1073/pnas.1317505111.

Frieden, Joyce. "How Can Public Health Officials Increase Trust in Their Agencies?" *Medical News*, MedpageToday, 6 Mar. 2023, www.medpagetoday.com/publichealthpolicy/publichealth/103411.

Fuleihan, Christina. "Shattering the Mirage: The FDA's early COVID-19 pandemic response demonstrates a need for reform to restore agency credibility." *American Journal of Law & Medicine*, vol. 48, no. 4, Dec. 2022, pp. 307–342, https://doi.org/10.1017/amj.2023.1.

Gilson, Lucy. "Trust in health care: Theoretical perspectives and research needs." *Journal of Health Organization and Management*, vol. 20, no. 5, 1 Sept. 2006, pp. 359–375, https://doi.org/10.1108/14777260610701768.

Guo, Jianfeng, et al. "Herding in policy responses to coronavirus disease 2019." *Science and Public Policy*, vol. 50, no. 5, 17 June 2023, pp. 893–904, https://doi.org/10.1093/scipol/scad033.

Harris, Emily. "Public had most trust in advice from physicians, nurses during pandemic." *JAMA*, vol. 329, no. 13, 4 Apr. 2023, p. 1053, https://doi.org/10.1001/jama.2023.3310.

Hautea, Samantha, et al. "Communicating Trust and trustworthiness through scientists' biographies: Benevolence beliefs." *Public Understanding of Science*, 18 Feb. 2024, https://doi.org/10.1177/09636625241228733.

Hermesh, Barak, et al. "The cycle of distrust in health policy and behavior: Lessons learned from the negev bedouin." *PLOS ONE*, vol. 15, no. 8, 20 Aug. 2020, https://doi.org/10.1371/journal.pone.0237734.

"Higher Trust in Public Health Agencies during COVID-19 Driven More by Beliefs That Agencies Led with Clear, Science-Based Recommendations and Provided Protective Resources, than by Beliefs That Agencies Controlled Outbreak." *News*, 12 Apr. 2024, www.hsph.harvard.edu/news/press-releases/higher-trust-in-public-health-agencies-during-covid-19-driven-more-by-beliefs-that-agencies-led-with-clear-science-based-recommendations-and-provided-protective-resources-than-by-beliefs-that-agenci/.

Holroyd, Taylor A., et al. "Development of a scale to measure trust in public health authorities: Prevalence of trust and association with vaccination." *Journal of Health Communication*, vol. 26, no. 4, 3 Apr. 2021, pp. 272–280, https://doi.org/10.1080/10810730.2021.1927259.

Hutchinson, Marie. "The Crisis of Public Trust in Governance and institutions: Implications for nursing leadership." *Journal of Nursing Management*, vol. 26, no. 2, Mar. 2018, pp. 83–85, https://doi.org/10.1111/jonm.12625.

Kapadia, Farzana. "Supporting local public health departments: A public health of consequence, January 2022." *American Journal of Public Health*, vol. 112, no. 1, Jan. 2022, pp. 12–13, https://doi.org/10.2105/ajph.2021.306612.

"Lack of Trust Has Helped Fuel the COVID-19 Pandemic, New Study Shows." *Institute for Health Metrics and Evaluation*, www.healthdata.org/news-events/newsroom/news-releases/lack-trust-has-helped-fuel-covid-19-pandemic-new-study-shows. Accessed 2 Apr. 2024.

Latkin, Carl A, et al. "An Assessment of the Rapid Decline of Trust in US Sources of Public Information about COVID-19." *Journal of Health Communication*, U.S. National Library of Medicine, 2 Oct. 2020, www.ncbi.nlm.nih.gov/pmc/articles/PMC7968001/.

Lloyd, Shawnta L, et al. "Assessing the Role of Trust in Public Health Agencies and COVID-19 Vaccination Status among a Community Sample of African Americans in North Carolina." *Journal of Racial and Ethnic Health Disparities*, U.S. National Library of Medicine, 5 June 2023, www.ncbi.nlm.nih.gov/pmc/articles/PMC10241131/.

Ma, Haijing, and Claude H. Miller. "The effects of agency assignment and reference point on responses to covid-19 messages." *Health Communication*, vol. 36, no. 1, 16 Nov. 2020, pp. 59–73, https://doi.org/10.1080/10410236.2020.1848066.

Miller, Jon D, et al. "Citizen attitudes toward science and technology, 1957–2020: Measurement, stability, and the trump challenge." *Science and Public Policy*, 22 Jan. 2024, https://doi.org/10.1093/scipol/scad086.

Nouri-Goushki, Mohadese, and S. Navid Hojaji. "Herding behavior and government policy responses: Evidence from covid-19 effect." *Heliyon*, vol. 9, no. 7, July 2023, https://doi.org/10.1016/j.heliyon.2023.e17964.

Patel, Neeraj G., et al. "Trust and regulation: Assuring scientific independence in the FDA's emergency use authorization process." *Journal of Health Politics, Policy and Law*, vol. 48, no. 5, 24 Mar. 2023, pp. 799–820, https://doi.org/10.1215/03616878-10637726.

Paul, Pamela. "When Public Health Loses the Public." *The New York Times*, The New York Times, 18 Jan. 2024, www.nytimes.com/2024/01/18/opinion/public-health-trust.html.

Pfeiffer, Sacha, et al. "The New CDC Director Outlines 3 Steps to Rebuild Trust with the Public." *NPR*, NPR, 2 Aug. 2023, www.npr.org/2023/08/02/1191302954/the-new-cdc-director-outlines-3-steps-to-rebuild-trust-with-the-public.

Pitts, Peter J., and Gregory A. Poland. "Trust and science: Public health's home field advantage in addressing vaccine hesitancy and improving immunization rates." *Vaccine*, vol. 41, no. 38, Aug. 2023, pp. 5483–5485, https://doi.org/10.1016/j.vaccine.2023.08.003.

Platt, Jodyn, and Susan Dorr Goold. "Betraying, earning, or justifying trust in health organizations." *Hastings Center Report*, vol. 53, no. S2, Sept. 2023, https://doi.org/10.1002/hast.1524.

Plohl, Nejc, and Bojan Musil. "Trust in science moderates the effects of high/low threat communication on psychological reactance to covid-19-related public health messages." *Journal of Communication in Healthcare*, vol. 16, no. 4, 2 Oct. 2023, pp. 401–411, https://doi.org/10.1080/17538068.2023.2279395.

"Post-Covid, American Children Are Still Missing Far Too Much School." *The Economist*, The Economist Newspaper, www.economist.com/united-states/2023/08/24/post-covid-american-children-are-still-missing-far-too-much-school. Accessed 5 Feb. 2024.

Rand, Leah Z., et al. "Securing the trustworthiness of the FDA to Build Public Trust in vaccines." *Hastings Center Report*, vol. 53, no. S2, Sept. 2023, https://doi.org/10.1002/hast.1525.

Saechang, Orachorn, et al. "Public Trust and policy compliance during the COVID-19 pandemic: The role of professional trust." *Healthcare*, vol. 9, no. 2, 2 Feb. 2021, p. 151, https://doi.org/10.3390/healthcare9020151.

Saleska, Jessica Londeree, and Kristen R Choi. "A behavioral economics perspective on the COVID-19 vaccine amid public mistrust." *Translational Behavioral Medicine*, vol. 11, no. 3, 1 Mar. 2021, pp. 821–825, https://doi.org/10.1093/tbm/ibaa147.

Sarah C. Stallings, PhD. "Perceptions of Research Trustworthiness Scale for Minoritized Racial and Ethnic Groups." *JAMA Network Open*, JAMA Network, 29 Dec. 2022, jamanetwork.com/journals/jamanetworkopen/fullarticle/2799969.

Schluter, Alexa P, et al. "In the COVID-19 Pandemic, Who Did We Trust? An Eight-Country Cross-Sectional Study." *Journal of Global Health*, U.S. National Library of Medicine, 1 Sept. 2023, www.ncbi.nlm.nih.gov/pmc/articles/PMC10471152/.

Siegrist, Michael, and Angela Bearth. "Worldviews, trust, and risk perceptions shape public acceptance of covid-19 public health measures." *Proceedings of the National Academy of Sciences*, vol. 118, no. 24, 27 May 2021, https://doi.org/10.1073/pnas.2100411118.

Simmons-Duffin, Selena. "Poll Finds Public Health Has a Trust Problem." *NPR*, NPR, 13 May 2021, www.npr.org/2021/05/13/996331692/poll-finds-public-health-has-a-trust-problem.

Stallings, Sarah C., et al. "Development and validation of the perceptions of research trustworthiness scale to measure trust among minoritized racial and ethnic groups in biomedical research in the US." *JAMA Network Open*, vol. 5, no. 12, 29 Dec. 2022, https://doi.org/10.1001/jamanetworkopen.2022.48812.

SteelFisher, Gillian K., et al. "Trust in US federal, state, and local public health agencies during COVID-19: Responses and policy implications." *Health Affairs*, vol. 42, no. 3, 1 Mar. 2023, pp. 328–337, https://doi.org/10.1377/hlthaff.2022.01204.

Suhay, Elizabeth, et al. "Americans' trust in government and health behaviors during the COVID-19 pandemic." *RSF: The Russell Sage Foundation Journal of the Social Sciences*, vol. 8, no. 8, Dec. 2022, pp. 221–244, https://doi.org/10.7758/rsf.2022.8.8.10.

"Survey Reveals Low Trust in US Public Health Agency Information amid Pandemic." *CIDRAP*, www.cidrap.umn.edu/covid-19/survey-reveals-low-trust-us-public-health-agency-information-amid-pandemic. Accessed 22 Feb. 2024.

"Vaccine Hesitancy for Covid-19." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, data.cdc.gov/stories/s/Vaccine-Hesitancy-for-COVID-19/cnd2-a6zw/. Accessed 5 Feb. 2024.

Vogel, Lauren. "Forming Trust with vaccine fence-sitters." *Canadian Medical Association Journal*, vol. 188, no. 12, 8 Aug. 2016, pp. 857–857, https://doi.org/10.1503/cmaj.109-5306.

Weingart, Peter, et al. "Democratic and expert legitimacy: Science, politics and the public during the COVID-19 pandemic." *Science and Public Policy*, vol. 49, no. 3, 11 Feb. 2022, pp. 499–517, https://doi.org/10.1093/scipol/scac003.

World Health Organization, *WHO Strategic Communications Framework for Effective Communications.* World Health Organization, 2017. www.who.int/docs/default-source/documents/communicating-for-health/communication-framework.pdf. Accessed 20 Jan. 2024.