

MisinfoRx



A Toolkit for Healthcare Providers



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Harm lies in the power of false information to shape offline health behaviors and undermine individual and public health.

About

The COVID-19 pandemic has brought into sharp focus the threat of medical, health, and science misinformation. However, medical misinformation did not begin with the COVID-19 pandemic nor will it end with it. Misinformation are longstanding challenges that operate at the interplay of psychological, social, economic, technological, and political dynamics. COVID-19 misinformation is only the latest expression of new and enduring myths and conspiracies that are (re) framed to fit current contexts.

Harm lies in the power of false information to shape offline health behaviors and undermine individual and public health. Human psychology and sociocultural factors leave humans highly vulnerable to accepting and spreading false health information. Simultaneously, technological advances have fostered an age where misinformation can be widely accessed and shared. As a result, medical misinformation is now pervasive, standing as one of the top threats to public health worldwide.

In clinical settings, providers have been forced to grapple with this challenge. Yet, addressing misinformation in person with patients has been largely left out of medical education and training.

This toolkit aims to help fill that gap. Designed for providers across the spectrum of care, MisinfoRx offers an overview of the mechanics of medical misinformation and dives deep into the factors that make individuals susceptible to its impacts. Grounded in the science of misinformation, the toolkit then provides strategies for addressing patient-held misinformation in clinical settings. In our “Three C” approach, providers are encouraged to practice empathy, employ curiosity, and acknowledge resource constraints through compassionate conversations oriented towards patient-provider relationships built on trust and supporting the health and wellbeing of patients.

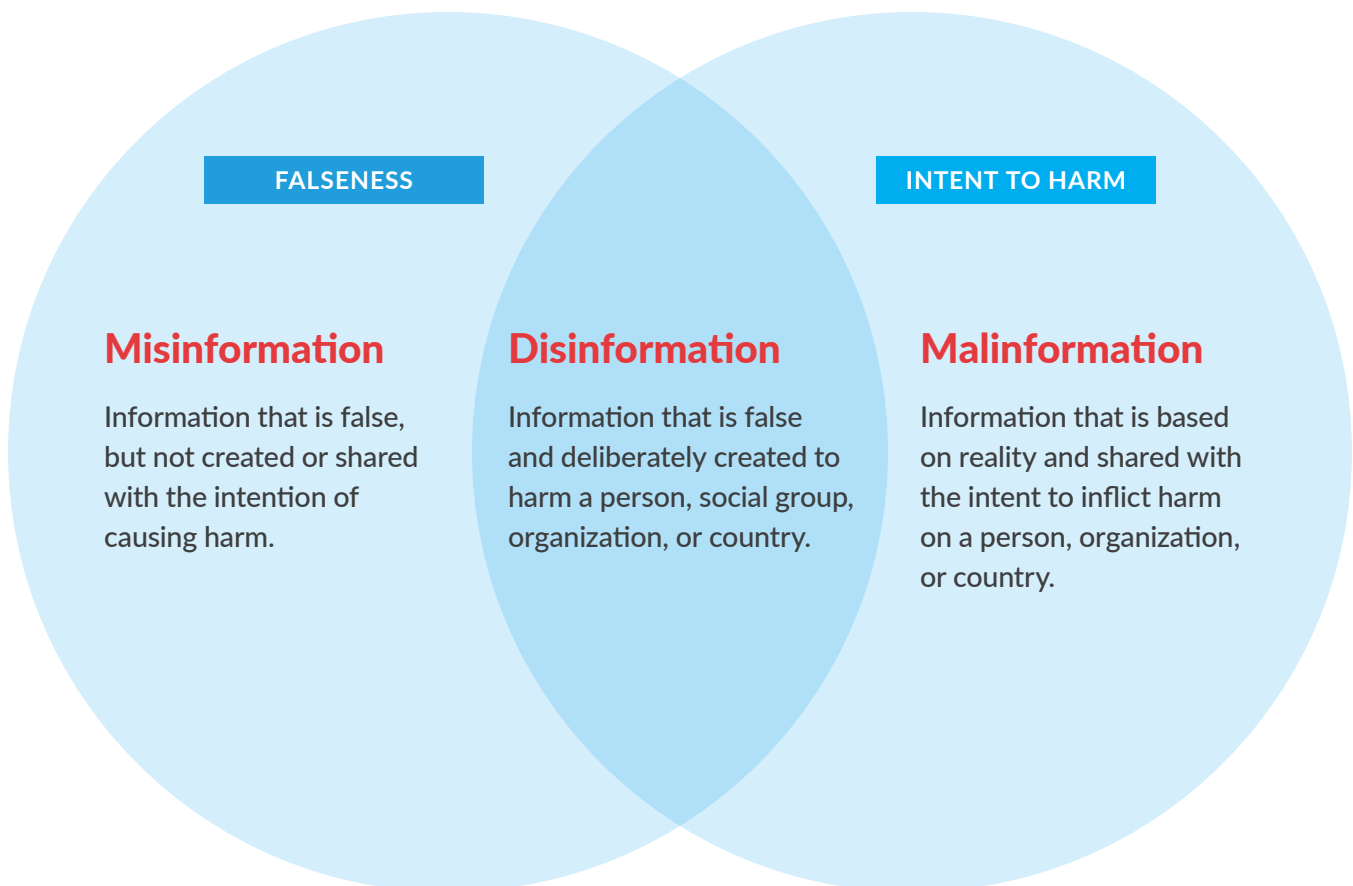


1 Information Disorder

The current digital age has allowed for unparalleled advances across nearly all aspects of daily life. With unprecedented amounts of information being rapidly shared across countless mediums, true and false information, spread by both well-intentioned and corrupt actors, has become severely intertwined. As a result, the global information ecosystem has become dangerously murky and polluted, threatening the health of people and communities. →

Mis-, Dis- and Malinformation

False and misleading news have been referred to in multiple ways, from “fake news” to mis- and disinformation. Wardle (2019) of First Draft—a leading civil society organization dedicated to understanding and protecting communities against harmful misinformation—elaborated the “Information Disorder” framework. This framework identifies and characterizes three forms of harmful information:

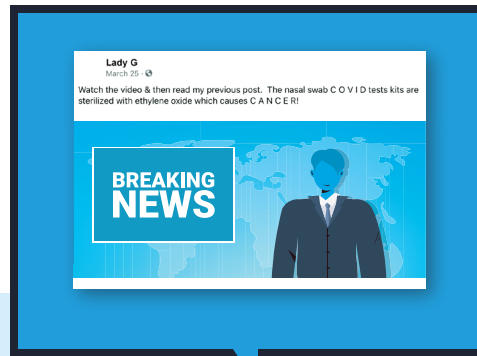


To simplify, in this toolkit, we use “misinformation” as an umbrella term to refer to the spread of false and misleading information, independently from whether this is shared with or without intention (Chandler & Munday, 2020).

Credit to First Draft and Claire Wardle for this conceptualization of information disorder (2019).

Types of Misinformation

The spread and influence of misinformation is shaped by the complex interplay of motivations, behaviors, psychological processes, and technological variables. Making sense of these inputs can make it easier to understand why some patients regard inaccurate or conspiratorial information they've encountered online as true.



Credit to First Draft and Claire Wardle for this conceptualization of information disorder (2019).

Who Spreads Misinformation and Where

A diverse group of agents and actors, acting as a group or independently, spread misinformation for a wide range of reasons that may be fueled by political, social, or financial objectives.

MEDIA

In this report, we define media as the news and entertainment publishers that provide news and feature stories to the public and are not owned or controlled by the state. Stories may be distributed over broadcast (TV and radio), online, or print media. Outlets include independent and alternative publishers, mainstream corporate press, and publicly funded organizations that are free from state interference (ex. BBC and NPR) (The Code Book, 2020).

The current media ecosystem fosters conditions that incentivize the spread of misinformation. For example, news publishers are often rewarded for sensationalism and novelty. Despite efforts to be accurate, news outlets may report incorrect information under the pressure of the rapidly evolving news cycle. Other times, information might be deemed worthy of breaking coverage but later require updating. Outlets' dependence on growth-oriented analytics and metrics, social media, and clickbait as components of their revenue streams further the incentive to sensationalize headlines and produce stories that offer novel insights. In turn, misleading headlines or unverified stories become viral sources of misinformation.

The media can also oversimplify, misrepresent, or overdramatize research results that are not representative of scientific consensus, thus fostering misunderstanding.

The current media ecosystem fosters conditions that incentivize the spread of misinformation.

In the U.S., expert voices have repeatedly expressed alarm at the decline in “hard” news coverage since the 1990s and the growth of sensationalist coverage devoid of critical analysis or in-depth investigation. This is further exacerbated by the fact that audiences often skim headlines in order to cope with the floods of information before them.

Moreover, media outlets can unwittingly become amplifiers of misinformation as they report on media manipulators and misinformation campaigns themselves. Coverage of manipulator’s messages lends visibility to both the inaccurate content and the sources. This is true even when

coverage employs an explicitly critical stance. Reporting on falsehoods, antagonisms, and manipulations gives the actors a level of legitimacy and visibility, inflating them from culturally peripheral to culturally principal (Wardle & Derakhshan, 2017).

Further, hyper-partisan media outlets, especially within the relatively new and increasingly influential right-wing media ecosystem that has developed since the 2008 election, commonly spread misinformation, conspiracy theories, rumors, and attacks on the mainstream media that further entrench audiences in ideologically driven echo chambers (Benkler, 2017). The growing consumer base for these stories enables the growth of these outlets and the continued spread of false information.

INDUSTRY

Some of those who produce or distribute misinformation do so merely for financial gain, as in the case of PR firms, fabricated news outlets, or private companies whose business models rely on spreading inaccurate information. Fabricated 'news' websites created solely for profit have existed for years, capitalizing off of the economic incentives for producing misinformation. These websites often share clickbait-esque articles that feature sensationalized headlines meant to grab readers attention. Such actors monetize off of the resultant views, clicks, and internet traffic through advertising (Tambini, 2017).

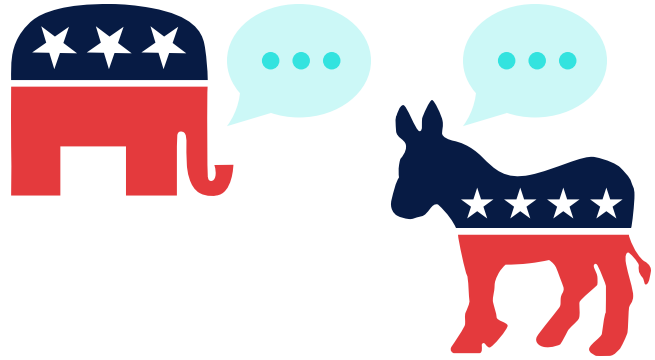
A number of the world's largest industries rely on misinformation to drive financial gain. The wellness industry, which grew 12.8% from 2015-2017, from a \$3.7 trillion to a \$4.2 trillion global market (Global Wellness Institute, 2018), is a stark example of this. Many products marketed within the industry are backed by misleading studies (Kolata, 2019), lack scientific basis, and may actually be harmful to health (El-Sayed, 2021).

One of the most notorious examples of industry leveraging misinformation for self-interest is that of the tobacco industry. In 2006, a U.S. Federal Court ruled that domestic industry leaders in cigarette manufacturing were guilty of conspiring to distort, deny, and minimize the hazards of cigarette smoking (Smith et al., 2011). Tactics used by industry leaders included funding research to contradict legitimate scientific findings that smoking is dangerous and preventing the publication of industry-funded research that had unfavorable findings.

GOVERNMENT & POLITICAL LEADERS

The socio-political legitimacy and visibility of political leaders make them key players in influencing the spread of ideas. With such influence, politicians at times increase the spread of misinformation, such as when politicians bolster inaccurate narratives or denounce opponents' false claims or fringe ideas.

The 2016 U.S. presidential election provided a seminal example. Then Republican nominee Donald Trump was a vocal proponent of several conspiracy theories, such as the "birther theory" (which questioned the birthplace of Barack Obama despite clear evidence that he was born in



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the United States), as well as anti-vaccination claims (Lewis and Marwick, 2017). In interviews, Trump would frequently reference several media outlets that were serving as superspreaders of these myths. In doing so, Trump not only amplified false information but, also gave credit to the media outlets sharing the false information.

In addition, mainstream media outlets further amplified the spread of the misinformation with their own coverage of such events.

2016 Democratic nominee Hillary Clinton, as a means of delegitimizing Trump as a candidate, utilized a campaign strategy of associating Donald Trump with the fringe and the false ideas he expressed. However, this strategy had the adverse effect of further amplifying the false information and by calling out the "alt-right" by name and associating Trump with his outlandish claims, the spreaders and sources of misinformation were given a sense of importance (Lewis and Marwick, 2017).

Controlled research experiments have found that politicians can benefit from spreading falsehoods under certain conditions, thus increasing the incentive to do so. For example, one study found that even when constituents are aware that a politician is lying, the politician may be rewarded with the constituents' support if the politician is perceived to be challenging a flawed or illegitimate political establishment (Hahl et al., 2018).

Recent research suggests that messaging apps are also an effective vehicle of misinformation, disinformation, and uncivil and dangerous speech.

PRIVATE MESSAGING APPS

Throughout the world, mobile messaging apps are an irreplaceable tool of social life. Multiple factors have led to their success world-wide: affordability, user friendliness, and user flexibility in terms of sharing content across formats (text, audio, video, etc.), control over the selection of who sees such content (there is no algorithmic content curation), and feelings of privacy (mostly given by the presence of encryption protocols). In addition, on messaging apps, users tend to know each other personally, suggesting a prevalence of close contacts—a factor that further contributes to a perceived sense of privacy.

However, recent research suggests that messaging apps are also an effective vehicle of misinformation and uncivil and dangerous speech. Their use has fomented pressing concerns around elections, ethnic violence, and other damaging consequences. False and misleading information spread through WhatsApp has been linked to tipping Brazilian, Indian, and Nigerian elections to authoritarian candidates (Cheeseman et al., 2020; Garimella & Eckles, 2020; Machado et al., 2019), the genocide and forced migration of Rohingya Muslims in Myanmar (Myanmar's Rohingya Crisis, 2017), and deaths due to disinformation about a global kidnapping ring (Banaji & Bhat, 2019). During the COVID-19 outbreak, hoaxes, anonymous rumors, and conspiracy theories spread widely on messaging apps worldwide (Naeem & Bhatti, 2020).

SOCIAL MEDIA PLATFORMS, ACTORS, AND ALGORITHMS

Online, the status and tactics of certain networks and individuals allow for high degrees of influence over the spread of misinformation on social media platforms. By breaking down barriers to online communication, collaboration, and information propagation, social media affords individuals and networks the capability to efficiently spread narratives across large networks of individuals for purposes of media manipulation.

Platforms have taken some action to counter the spread of misinformation but have largely failed to sufficiently prevent or mitigate bad actors from spreading misinformation. Research has shown that platforms fail to act on 95% of the COVID-19 and vaccine misinformation reported to them ("Failure to Act," 2020). A major challenge lies in the fact that platforms benefit from rates of engagement, including the spread of potentially dangerous false information to millions of users.

In addition, algorithmic recommendations built into social media platforms may propose additional misleading or inaccurate content to users who engage with misinformation online. For example, evidence has been found that Instagram's algorithm actively recommends similar misinformation to users who view various forms of false or misleading content on the platform ("Failure to Act," 2020). These features threaten users by further entrenching them in false information. However, platforms once again face a perverse incentive in that this content often leads to more engagement and thus more revenue.

95%



OF POSTS CONTAINING MISINFORMATION WERE NOT ACTED ON BY SOCIAL MEDIA COMPANIES

SOCIAL MEDIA PLATFORMS, ACTORS, AND ALGORITHMS *continued*

Across social media platforms, some online actors are more likely to be the spreaders of misinformation. These actors include:

**BOTS**

Bots allow a small number of voices to mimic broad social consensus through automated processes that amplify information on social media platforms. For example, bot armies can manipulate trending algorithms and artificially amplify perspectives by retweeting or sharing misinformation at high rates. This activity may trigger trending algorithms on social media platforms to show the content in the feeds of users, which will facilitate human engagement and further amplification of the misinformation (Silverman, 2020).

**CONSPIRACY THEORISTS**

Platforms provide few barriers to the dissemination of information across networks. As a result, users can efficiently share false theories across their networks and/or dissect accurate or false content instantaneously, forming theories that match their worldview. For those who join online conspiracy theory-based communities, exposure to dissenting information can become increasingly limited as skeptics opt out and networks become increasingly polarized echo-chambers (Lewis and Marwick, 2017).

**HATE GROUPS & IDEOLOGICAL NETWORKS**

Social media platforms have long served as mediums for recruitment for hate groups and ideological networks, such as white nationalists and white supremacists. Media manipulation tactics, such as trolling, serve as methods for both recruitment of new members and the dissemination of ideologies and ideologically-consistent disinformation (Lewis and Marwick, 2017).

**INFLUENCERS**

Particular individuals might rely on their status as online influencers to drive the spread of a media manipulation campaign. To propagate their narratives, these individuals might employ manipulation tactics that include altering one's identity or the source of the artifact, changing the meaning or context of an artifact, and using artificial coordination, such as bots (Silverman, 2020). The expression "trading up the chain" refers to how key users first popularize narratives on message forums (e.g., 4chan) and then increase the visibility of those same narratives via more mainstream media actors, such as social media influencers, bloggers, commentators, and partisan media personalities (Lewis and Marwick, 2017).

**TROLLS**

Although "trolls" initially referred to those who deliberately provoked people online, it is now a catch-all term that encompasses a variety of asocial internet behaviors characterized by the use of offensive language, antipathy towards mainstream media, desire to elicit an emotional response in targets, and maintaining ambiguity around intent (e.g., making it difficult to decipher whether the actor is joking or serious) (Lewis and Marwick, 2017).

Why People Believe & Spread Misinformation Online

The spread and influence of misinformation is shaped by the complex interplay of motivations, behaviors, psychological processes, and technological variables. Making sense of these inputs can make it easier to understand why some patients regard inaccurate or conspiratorial information they've encountered online as true.

It is important to note that drivers of online sharing behavior can contrast significantly from, even superseding, assessments of the accuracy of information found online. In a series of studies that examined the spreading behaviors of individuals exposed to true and false headlines, researchers found that of the

false content that participants indicated they would share, 67% could not be explained by confusion about accuracy. Of the 67%, 16% of headlines were shared despite being identified as false and roughly 51% of sharing could be attributed to inattention to accuracy (Pennycook et al., 2021; Pennycook & Rand, 2021).

HEADLINE SHARING BEHAVIORS

67%



COULD NOT BE EXPLAINED BY CONFUSION ABOUT ACCURACY

51% ATTRIBUTED TO INATTENTION TO ACCURACY

16% SHARED DESPITE BEING IDENTIFIED AS FALSE

The following section provides a non-exhaustive list of the many factors that influence why people believe and spread misinformation.

INSUFFICIENT REASONING & ATTENTION

People have been shown to share false content largely because they fail to think sufficiently about the accuracy of content when deciding what to share. Simply nudging people to think about accuracy before sharing content is one effective intervention for increasing people's truth discernment in choices about what to share online (Pennycook et al., 2021).

THEY HAVE GOOD INTENTIONS

When individual users share information and news online with others, they propose what others should read, demonstrating not only what is valuable to them as individuals but also what they believe is important, interesting, entertaining, or useful to others (Singer, 2014).

SOCIAL INCENTIVES

Various social motivations often drive online misinformation sharing. For example, some social media users distribute misinformation, even when they do not necessarily trust the veracity of the information, because they would like to conform or belong to a group. For this reason, some users will 'perform' accordingly (Wardle & Derkhshan, 2017).

Further, studies have found that social gratifications and social status are motivators of news sharing on social media (Bright, 2016). News sharing allows users to develop a sense of connection with the online community (Lee & Ma, 2012), satisfy a need for social interaction, demonstrate their opinions, and clarify their personal positions relative to media content (Weeks & Holbert, 2013).

Additionally, perceived social standing can be advanced by sharing news deemed useful to those receiving it, which can "make the person passing it on appear well informed and intelligent" (Bright, 2016, p. 346). News sharing may thus help people gain status among peers (Lee & Ma, 2012), particularly if they feel that they were informed earlier than others (Kubey & Peluso, 1990).

IT FEELS GOOD TO SHARE

Social media platforms offer rewards for users' activities in the form of likes, comments, and shares. These forms of positive reinforcement are applied regardless of the veracity of content. There are often no repercussions from social media platforms when false information is shared nor are posts required to be validated prior to being shared. Therefore, there is a lack of distinguishability for which posts users can receive rewards for. Users may also experience a sense of agency when sharing news on social media (Oeldorf-Hirsch & Sundar, 2015). Further, sharing information offers users low-barrier opportunities to demonstrate their values and act in ways they perceive to be consistent with past behaviors or beliefs, which is a typical psychological preference (Buchanan, 2020).

Further, studies have found that social gratifications and social status are motivators of news sharing on social media





PSYCHOLOGICAL FACTORS

Analytic Thinking	There is a positive correlation between analytic thinking skills and the ability to discern false from real news (Pennycook & Rand, 2019).
Biased Assimilation	People tend to favor information that aligns with pre- dispositions and reject information that is disconfirming. This practice of biased assimilation makes individuals especially vulnerable to misinformation that aligns with their existing beliefs about the world (Lord, 1979).
Confirmation Bias	People tend to view information that aligns with preexisting beliefs as more credible than disconfirming information. Research has found that social media users consider news headlines that align with their preexisting political opinions to be credible, even when flagged as being false (Moravec, 2018). This makes individuals especially vulnerable to misinformation that appears to align with existing beliefs.
Credibility Heuristic	People are more likely to perceive information as credible when it comes from their in-group (people they identify with). For example, trusted endorsements have been shown to increase perceived message credibility of fabricated online content (Mena et al., 2020) and, in some cases, act as a stronger predictor of news content selection than peripheral cues (source characteristics analyzed to judge credibility (e.g., visual cues or statements of expertise)) (Messing & Westwood, 2014). The same applies to sources when a source is perceived to be from the in-group of the individual, it is more likely to be seen as accurate (Pornpitakpan, 2006).
Dunning-Kruger Effect	The Dunning-Kruger effect is the tendency for people to inaccurately assess their own levels of competence and ignorance. When people are unaware of their limited understanding of a subject relative to available information, the Dunning-Kruger effect can contribute to conspiratorial thinking and false confidence in various forms of medical misinformation (Motta et al., 2018).
Emotion	When evaluating the accuracy of information, reliance on emotion, as opposed to reasoning, is predictive of belief in misinformation (Martel et al. 2020). Specific emotions, such as anger or anxiety, may increase susceptibility to misinformation and may also influence spreading behaviors. For example, during the pandemic, individuals expressing higher levels of anger were found to more actively disseminate misinformation about COVID-19 (Han et al., 2020). The role of emotion is especially significant considering the fact that online misinformation are often designed to be emotionally evocative (Pennycook & Rand, 2021).



PSYCHOLOGICAL FACTORS continued

Frequency Heuristic	<p>People tend to favor information that they have heard more frequently, even if the information is false (Shu et al., 2018).</p>
Fundamental Attribution Error/ Correspondence Bias	<p>Fundamental attribution bias is a phenomenon where people tend to attribute a complex set of situational reasons to explain their own behavior but attribute the same behavior in other people to dispositional factors (e.g., their character or personality). This bias is one explanation for conspiratorial thinking (Weeks, 2015), which drives various forms of medical misinformation.</p>
Motivated Reasoning	<p>Acceptance of and consideration for evidence is often emotionally-biased. People have been known to often seek out evidence that confirms pre-dispositions (Sunstein, 2016).</p>
Peripheral Cues	<p>People often use peripheral cues to determine source credibility. Such cues can include the layout of online content or the use of references. Misinformation can often appear credible when people simply rely on peripheral cues with little reflection (Paul and Matthews, 2016).</p>
Selective Perception	<p>Selective perception describes the way in which people's predispositions, attitudes, and identities (especially group memberships) influence how information is received and why the same event may be perceived differently across groups (Hastorf & Cantril, 1954).</p>
Social Credibility	<p>People are more likely to perceive a piece of information as credible if other people also perceive the piece of information to be credible. This is especially true when there is limited information on the accuracy of a source (Shu et al., 2017).</p>
Third Person Effect	<p>People tend to perceive their own ability to detect 'fake news,' as well as members of their in-group, to be greater than that of distant others (Corbu, 2020). Thus, individuals might underestimate their vulnerability to medical misinformation and fail to take appropriate actions to discern the accuracy of information.</p>



SOCIO-TECHNICAL FACTORS

This table lists some of the socio-technical factors that can encourage the spread of false information online. The list is not complete.

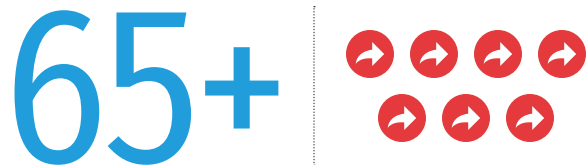
<p>Constricted Information Flow</p>	<p>Rational, collective decision making is dependent in part upon access to information. Despite the idea of the internet creating a common space for the open exchange of information and ideas, information often does not flow freely. As seen in echo chambers, social networks can restrict the flow of information by limiting exposure to diverse viewpoints. Other phenomena that also restrict or distort access to information include information gerrymandering (e.g., partisan bubbles restricting knowledge of how others feel about issues) as well as the influence of bots (which can distort perceptions of public opinion and the narratives circulated within an information ecosystem) (Stewart, 2019).</p>
<p>Echo Chambers & Filter Bubbles</p>	<p>People prefer spending time in echo chambers, or communities/connections with those who hold worldviews similar to their own. Such communities require less cognitive work and provide safe spaces for expressions of identity and viewpoint. The personalized experiences algorithmically engineered on platforms create echo chambers and filter bubbles for users, exposing them to content they are likely to enjoy and that reinforces their worldviews. As a result, insular like-minded communities and limited exposure to disconfirming content creates filter bubbles where what they see largely matches what they already think. The spread of misinformation within echo chambers can be especially salient considering the lack of dissenting voices as well as the significance of social credibility (information shared by confidants is more likely to be seen as credible) (Wardle & Derakhshan, 2017).</p>
<p>Information Overload</p>	<p>The open access nature of social media platforms allows for high volumes of medical information to be shared. The sheer volume of information available can make it difficult for users to distinguish true from false information, especially considering users' limited attention. Further, information overload can decrease people's ability to discern the credibility of information (Qiu et al. 2017) and even prevent some users from encountering accurate medical information (Wardle & Derakhshan, 2017).</p>
<p>Information Volume</p>	<p>People tend to favor information from experts when information volume is low; however, when information is more frequently encountered by users (high information volume), people tend to favor information from other users rather than experts (Pornpitakpan, 2006).</p>
<p>Repetition</p>	<p>Repetition of falsehoods is effective in increasing acceptance of misinformation (Paul and Matthews, 2016) and has been shown to increase people's perceptions of message accuracy (Dechêne et al., 2010). When messages are consistent across multiple sources, people tend to find arguments even more persuasive. Repetition increases "fluency," or the ease with which information is processed. Increased levels of fluency are correlated with a higher probability that statements are judged to be true (Reber & Unkelbach, 2010).</p>

What Makes Us Vulnerable

The proliferation of misinformation online has prompted researchers to examine what may explain people's belief in false information and their inclination to spread it online. The latest research points to the following factors:

AGE

While research on factors such as age and education is still in its infancy, preliminary studies suggest that being older is generally associated with higher susceptibility to misinformation (Allen et al., 2020). Guess et al. (2019) found respondents in each age category were more likely to share 'fake news' than respondents in the next-youngest group and that adults over the age of 65 were seven times more likely to share political 'fake news' on Facebook than were those between 18 and 29. Additionally, during the 2016 presidential election, users over 50 were overrepresented among "supersharers," a group responsible for 80% of 'fake news' shares (Grinberg et al., 2019). The effect of age holds after controlling for partisanship, education, and overall posting activity (Guess et al., 2019). This may be explained by cognitive declines, social changes, and digital illiteracy in older adults (Brashier and Schacter, 2020). Recent research has found that the reason older adults share false information on social media more frequently than do younger adults is not because of cognitive declines but because older adults have lower digital literacy than younger adults (Scherer and Pennycook, 2020).



THOSE OVER THE AGE OF 65 WERE SEVEN TIMES MORE LIKELY TO SHARE POLITICAL 'FAKE NEWS' ON FACEBOOK THAN WERE THOSE BETWEEN 18 AND 29

HEALTH, TECHNOLOGY, AND MEDIA LITERACY

Many scholars agree that low health literacy can make people more susceptible to believing and spreading medical misinformation they find online. Low health literacy has been found to be associated with patients who are older, lower income, have limited education, and with the presence of chronic conditions (Hickey et al., 2019). People with lower health literacy have been found to be less likely to trust health information from specialist doctors and dentists, but more likely to trust television, social media, blogs/celebrity webpages, friends, and pharmaceutical companies. People with limited health literacy had higher rates of using and trusting sources such as social media and blogs, which might contain lower quality health information compared to information from healthcare professionals (Chen et al., 2019).

EDUCATIONAL ATTAINMENT

Numerous studies have shown that those with higher educational attainment are less likely to believe misinformation and conspiracies (Plohl & Musil 2021; Scherer et al., 2021). For example, Pan et al. (2021) found that individuals with lower educational background were more receptive to health misinformation compared to those who received higher education. van Prooijen (2017) found that the relationship between education level and belief in conspiracies to be the result of the complex interplay of multiple psychological factors that are associated with education, including cognitive complexity and feelings of control.

POLITICAL IDEOLOGY

Some work has observed that a large and significant majority of false information consumption occurs amongst those who identify along the political right-wing, suggesting that conservatives are more susceptible than liberals to believing 'fake news,' or applying the 'fake news' label to content that they politically oppose

(the ideological asymmetry hypothesis) (Harper & Baguley, 2019) (Garrett & Bond, 2021). However, other work suggests that liberals and conservatives are equally as likely to engage in motivated social cognition about information that is politically salient (the ideological symmetry hypothesis) (Brandt, 2017; Crawford & Pilanski, 2014; Harper & Baguley, 2019). These discrepancies may be the result of differences in methods or the political climate during which the studies were conducted. Further research is needed in this debate over whether bias is ideologically asymmetrical.

RACIAL/ETHNIC/SOCIO-ECONOMIC IDENTITIES

Some research has reported an association between self-reported minority status and belief in conspiracy theories, noting that feelings of deprivation and long-standing histories of marginalization “lead marginalized minority members to perceive the social and political system as rigged, stimulating belief in both identity concordant and nonconcordant conspiracy theories” (van Prooijen et al., 2018). These reactions are rooted in a rational distrust for healthcare and other socio-political systems that have not proven themselves to be trustworthy and continue to perpetuate disproportionate harms against historically marginalized groups. Misinformation campaigns often target marginalized communities in an attempt to exploit this existing, rational distrust.

Further, interventions designed to mitigate the reach and impact of misinformation campaigns have excluded those holding minority identities. Fact checking efforts and strategies to combat misinformation by social media companies have largely neglected to act upon non-English misinformation (Woollacott, 2021). For example, Facebook was found to fail to act upon 56% of fact-checked misinformation in major non-English European languages, compared with only 26% of English language content debunked by US-based fact checkers (“Left Behind,” 2021).

In regard to socio-economic status, studies have found that lower income individuals tend to be more vulnerable to misinformation. For example, Pan et al. (2021) found that lower-income individuals were more receptive to health misinformation compared to those with higher incomes.

RELIGION

Research has found that those who hold stronger religious beliefs tend to be less deferential to scientists and less scientifically literate (Druckman et al., 2021). Three studies by Bronstein et al. (2019) showed that dogmatic individuals and religious fundamentalists were more likely to believe false news (but not more likely to believe true news). Their findings suggested that these relationships may be fully explained by analytic cognitive style; specifically, engaging in less analytic and actively open-minded thinking. Druckman et al. (2021) found religiosity to have a significant positive relationship with holding misperceptions about COVID-19.

Social media companies failed to act upon non-English misinformation



OF FACT-CHECKED MISINFORMATION IN MAJOR NON-ENGLISH EUROPEAN LANGUAGES



OF FACT-CHECKED MISINFORMATION IN ENGLISH LANGUAGES

Media Manipulation Lifecycle

Online medical misinformation can take many forms; some result from a media phenomenon called media manipulation—the socio-technical process whereby motivated actors leverage specific conditions or features (collaboration, communication, peer- production) within an information ecosystem to increase visibility and influence public discourse through deceptive, creative, or unfair means (Donovan et al., 2021).

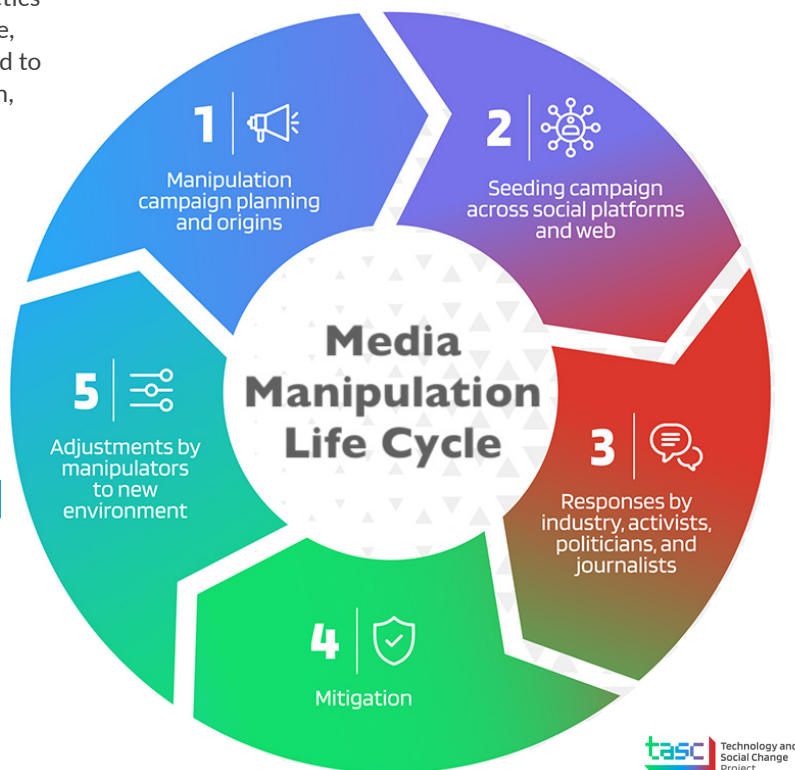
Though media manipulation can often result in the spread of medical misinformation, it is relatively understudied and therefore continues to pose a major threat to public health.

Campaigns or operations that engage in media manipulation may use several tactics, such as memes, viral videos, forged documents, or leaked information. Media manipulation tactics are not exclusive to any actor or group, nor are they inherently good or bad. Activists, constrained by heavy censorship in traditional media, for example, may rely on media manipulation in the digital space to circumvent such information controls. However, extremists may likewise use the same platforms and tactics to mainstream hateful and harmful speech. Furthermore, media manipulation is a broad term in that it can be used to describe a variety of other terms, such as disinformation, information operations, or influence operations.

Though media manipulation can often result in the spread of medical misinformation, it is relatively understudied and therefore continues to pose a major threat to public health.

The “media manipulation lifecycle” is a tool developed by the Technology and Social Change project (TaSC) at Harvard University to understand and research disinformation campaigns online (Donovan et al., 2021).

Note that media manipulation is distinct from “media control,” which occurs at the top-level by the state and private sector. Media control instead refers to activity like ISP-level content blocking, government censorship agencies, media ownership, content filtering, or distribution and licensing regimes.



Credit to Joan Donovan and the TASC project for this conceptualization of the media manipulation life-cycle (2019).

The 5 Stages of the Media Manipulation Life Cycle



Stage 1: Manipulation campaign planning and origins

The first stage documents the origins or planning stage of a campaign and is generally limited to conversations by a small group of operators or campaign participants, who develop narratives, images, videos, or other material to be spread online as “evidence.” In effect, it details the intended strategies, tactics, and goals of the campaign.



Stage 2: Seeding the campaign across social platforms and the web

Stage 2 documents the tactics and relevant materials used to execute the campaign. In other words, this stage details the dissemination and propagation of content relevant to the operation.



Stage 3: Responses by industry, activists, politicians, and journalists

After content has been seeded, the campaign moves on to Stage 3, which documents how actors and organizations outside the campaign (e.g., civil society organizations, politicians, political parties, mainstream media outlets) react. The third stage of the operation is usually a turning point indicating whether the campaign was effective in gaining attention via amplification or if it led to another observable outcome.



Stage 4: Mitigation

The fourth stage of a manipulation campaign documents actions by tech companies, government(s), journalists, or civil society to mitigate the spread of a campaign’s content, messaging, and effects.



Stage 5: Adjustments by manipulators to new environment

The fifth stage of a manipulation campaign involves how the operators and campaign participants adapt according to mitigation efforts described in Stage 4 and the resulting changes in the information ecosystem.

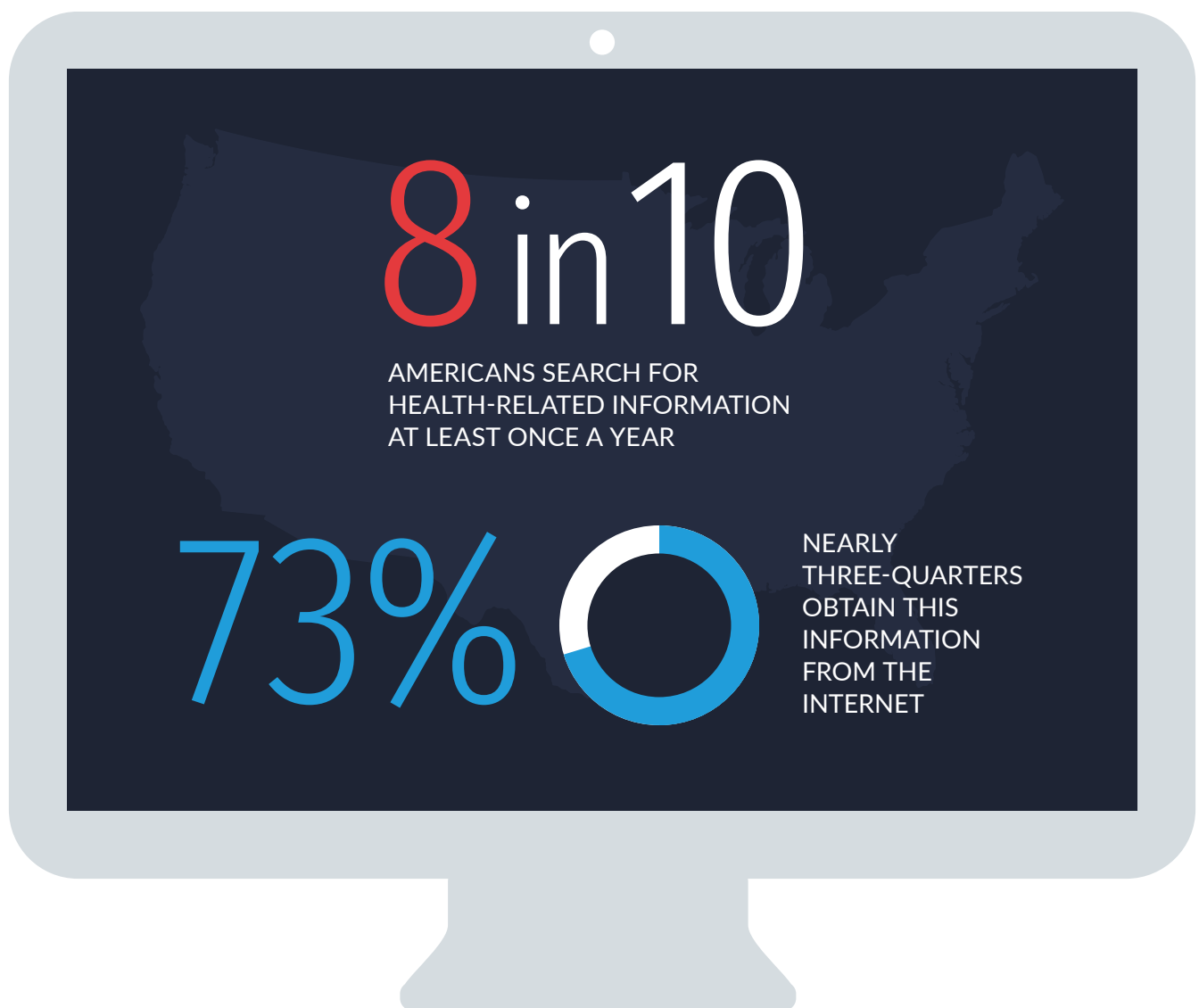
2 Medical Misinformation

Medical misinformation refers to incorrect or unverified information about the form and function of the human body, and/or misperceptions of health practitioners and medical science (Donovan et al., 2021).

Today, medical misinformation is recognized as one of the greatest threats to global health. By undermining trust in science and public health interventions, medical misinformation threatens the health of individuals and communities and the effectiveness of public health interventions. It can further hinder the cohesiveness of societies by increasing existing social inequities, stigmas, gender disparities, and generational rifts. →

The Internet and Health

The internet has become a primary source for medical and health information during the digital age. 8 in 10 Americans search for health-related information at least once a year, and nearly three-quarters (73%) obtain this information from the internet (The Great American Search, 2018). With misinformation existing alongside, overshadowing, or even discrediting factual sources across online platforms, internet users are extremely vulnerable to exposure to and persuasion by health misinformation.



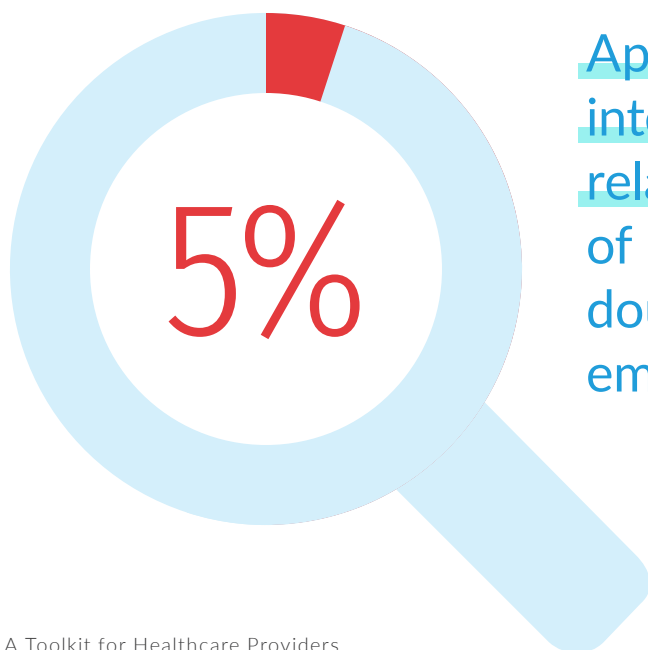
Where People Go Online to Find Information

DIRECT SOURCES

Direct sources include sites that users specifically visit to search for information, bypassing search engines. The quality depends on the source. For example, some users may visit the Center for Disease Control website for information about COVID-19, while others may receive their information from an independent blog.

SEARCH ENGINE

Search engines are online softwares that offer results to users based upon keywords or specified characters. Approximately 5% of all internet searches are health related, with the number of health-related searches doubling the week prior to an emergency department visit. Although most people report that searching online empowers their health decision making, the first challenge to finding online information is often choosing the correct symptoms or diagnosis to search for in the first place (Swire-Thompson and Lazer, 2020).



Approximately 5% of all internet searches are health related, with the number of health-related searches doubling the week prior to an emergency department visit.

USER-GENERATED CONTENT & SOCIAL MEDIA PLATFORMS

Major hubs of user-generated content and social media platforms include Wikipedia, blogs, Facebook, Twitter, and TikTok. Across these platforms, there is a broad range of what constitutes misinformation and parameters for what is, or is not, allowed to be posted and shared.

MOBILE APPS

The expansion of mobile health apps has largely been without regulation or oversight, and the quality of these apps is highly variable. For example, smoking cessation apps were found to rarely follow established medical guidelines (Swire-Thompson and Lazer, 2020).

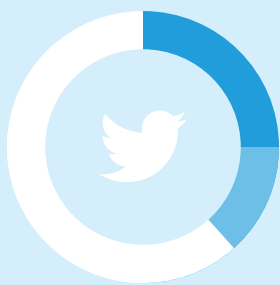
Prevalence of Health & Medical Misinformation Online

It is difficult to get a clear picture of the amount of health and medical misinformation online because (1) data is not publicly available for researchers to analyze, and (2) it is resource intensive to distinguish accurate information from false, misleading, or clickbait content on a large scale from both human and machine learning approaches.

Despite this, most investigations have highlighted the fact that a significant amount of misleading or inaccurate medical information circulates online. For example:

- In a recent study, researchers found 24.8% of their **sample tweets included misinformation**, and 107 tweets (17.4%) included unverifiable information regarding the COVID-19 epidemic (Kouzy et al., 2020).
- Gage-Bouchard et al. (2018) found that of cancer-related information on Facebook, 19% was **not scientifically accurate** and 14% described unproven treatment modalities.
- A study of YouTube videos about the 2015–16 Zika virus pandemic found 23.8% of **videos contained misleading information** and were more popular than videos containing only accurate information (Bora et al., 2018).

Studies of Medical Information on Social Media Found



COVID-19

24.8% OF TWEETS INCLUDED MISINFORMATION

17.4% OF TWEETS INCLUDED UNVERIFIABLE COVID-19 INFORMATION



CANCER-RELATE

19% OF POSTS WERE NOT SCIENTIFICALLY ACCURATE

14% OF POSTS DESCRIBED UNPROVEN TREATMENT MODALITIES



2015-16 ZIKA VIRUS PANDEMIC

23.8%

OF YOUTUBE VIDEOS CONTAINED MISLEADING INFORMATION

The Consequences of Health Misinformation

Some research has been done to quantify the offline effects of misinformation, but investigators are just beginning to understand the extent to which online misinformation exposure affects health-related behaviors, attitudes, knowledge, and outcomes at the individual or population level; or how exposure to misinformation intersects with existing health disparities.

Preliminary study findings reveal how misinformation can influence behavior and, thus, health outcomes. Below, we describe some of the early evidence and recount a few of the identified instances where medical misinformation has had real world health consequences.

COVID-19 NEWS COVERAGE

Misinformation threatens not only the health of those who consume it, but it can also undermine broader public health strategies. In one study, researchers examined the two most popular cable news shows in the United States: *Hannity* and *Tucker Carlson Tonight*, which are aired back-to-back on the same network yet differed significantly in their coverage of the COVID-19 pandemic. Findings revealed that greater exposure to *Hannity*, who was particularly dismissive of the virus, relative to *Tucker Carlson Tonight*, who—although opposing vaccination and mask mandates—was more insistent that the virus posed a significant threat, increased the number of total cases and deaths in the initial stages of the coronavirus pandemic (Bursztyn et al., 2020).

ONLINE VACCINE MISINFORMATION

Vaccine medical misinformation has polluted online mediums and is impacting health behaviors. Exposure to online vaccine misinformation has been shown to reduce intent to receive a COVID-19 vaccine by up to 8.8% (Loomba, 2021). This is particularly significant considering the fact that anti-vaccine accounts across Facebook, Instagram, and Twitter held a following of 59.2 million users in December 2020 (“The Disinformation Dozen,” 2021). A drop in the rates of childhood vaccination against measles, mumps, and rubella (MMR) has been directly linked to debunked misinformation linking the MMR vaccine to autism diagnoses (Leask et al., 2010).

EBOLA VIRUS MISINFORMATION

A number of studies examined the ways in which misinformation countered efforts to stop the spread of the Ebola virus in West Africa during the 2014-2015 outbreak. For example, Oyeyemi et al., (2014) studied the quality of Ebola-related information on Twitter by collecting and examining all tweets in English with the terms “Ebola” and “prevention” or “cure” from Guinea, Liberia, and Nigeria during a single week in September 2014. They not only found that most tweets and retweets contained misinformation, but that misinformation had a much larger potential online reach than accurate information. Findings from Vinck et al., (2019) suggest that belief in misinformation was linked to reduced adherence to preventive behaviors against the Ebola virus.

Anti-vaccine accounts across Facebook, Instagram, and Twitter

59.2M



Medical Misinformation Case Study: *The Plandemic* Documentary

In **Distributed Amplification: The Plandemic Documentary**, author Jennifer Nilsen from Harvard's Technology & Social Change Project offers an analysis of "The Plandemic" documentary film in the context of the media manipulation lifecycle, which is summarized in this section (Nilsen, 2020).

The film was one of the most prominently circulated pieces of COVID-19-related medical misinformation in 2020. Released on May 4, 2020, the 26-minute conspiratorial video featuring discredited scientist Judy Mikovits claimed that the pandemic was planned by a cabal of global elites (e.g., Bill Gates), health experts (e.g., Anthony Fauci), and politicians (e.g., Barack Obama), amongst other conspiracy theories, for nefarious purposes. The video shared false, misleading claims about the COVID-19 pandemic—such as that vaccines are harmful and that wearing a mask will “activate” the virus—and was quickly elevated online by fringe conspiracy and anti-vaccination groups.

The 5 Stages of the Media Manipulation Life Cycle



Stage 1: Manipulation campaign planning and origins

Plandemic was released during a time when many people were concerned about the coronavirus and the rapid development of COVID-19 vaccines. By misquoting researchers and referencing conspiracy theories, the video made inaccurate claims that resonated with anti-vaccine communities and fringe groups who were already distrustful of government, pharmaceutical companies, and medical experts. On May 4th, producer Mikki Willis uploaded the video to various platforms, including YouTube, Vimeo, and the video's website. In order to amplify the video despite platform mitigation efforts, Willis encouraged viewers to download and re-upload the video themselves; a tactic known as distributed amplification.



Stage 2: Seeding the campaign across social platforms and the web

Shortly following the launch, re-uploads to YouTube and shares across pre-existing social media networks enabled the video to go viral. The video's message resonated with various fringe groups. Posts referencing Plandemic were most frequent in Facebook groups related to QAnon, anti-vaccine misinformation, and conspiracy theories more generally (Newton, 2020). Scarcity marketing tactics (e.g., "watch before the video is banned") also helped to bolster the video's rapid spread.



Stage 3: Responses by industry, activists, politicians, and journalists

In just a few days, major news outlets, including BuzzFeed, NPR, Wall Street Journal, and BBC News, and pro-vaccine advocacy groups covered the newly viral video. The removal of the video from platforms further increased Plandemic's attention, coverage, and popularity (Ohlheiser, 2020).



Stage 4: Mitigation

Social media companies responded to Plandemic uniquely. However, by May 6th, 2020, Facebook, YouTube, and Vimeo had banned the content from their platforms. Twitter, in particular, did not ban the video, but rather removed specific hashtags related to the video from its searches and trends sections. Fact-checking organizations and various news outlets moved quickly to review and debunk the content in the video.



Stage 5: Adjustments by manipulators to new environment

The instructions for viewers to download and re-upload the video spread Plandemic from major platforms to less-known websites. The video was translated in other languages, enabling the video to reach a broader global audience. On August 8th, a second video, Indoctrination, was uploaded by the campaign operators and utilized the same strategy of distributed amplification. However, this video was anticipated by social media companies, whose pre-emptive mitigation efforts prevented the video from having the same reach as Plandemic (Kearney, 2020). The two videos still live on lesser-known websites in many languages.

Credit to Joan Donovan, Jennifer Nilsen and the TASC project for the development of the Plandemic case study.

3 Patients & Medical Misinformation

Effectively addressing patient held medical misinformation goes beyond simply attempting to debunk myths or misperceptions. In fact, we strongly encourage against approaching this issue as a matter of debate or correcting patients. Research has found that simply stating that something is wrong or giving a brief explanation is largely ineffective. Instead, empathetic, collaborative interactions are far more effective. Such interactions offer providers valuable opportunities to gain insights into their patient's values, health attitudes, and information diets while helping to build trusting patient-provider relationships.

Part 3 of this toolkit outlines key considerations for addressing medical misinformation in- person and offers a 3-step dialogue guide (with conversational simulations) for providers when addressing patient-held medical misinformation. →

Key Considerations for Patient Conversations

Maybe your patient is a new mom who has shared that she is hesitant about her child receiving the MMR vaccine because of articles that other women have posted online in their new mother groups about vaccine injuries. Or maybe your patient is a 55-year-old man who wants to stop their chemotherapy treatments for a strictly natural regimen of supplements and vitamins.

The patient explains to you that they have done their own research and believe that the all-natural treatment regimens will be more beneficial for treating their cancer and prolonging their life than the chemotherapy. To a provider, these claims might seem outlandish given the scientific evidence refuting them. However, before you dismiss or correct your patient's perspective, we encourage you to remember that these beliefs and behaviors are often the sum of:

Personal values and principles that have developed over an entire lifetime and have been consistently reinforced by social norms.

AND

Exposure to convincing yet false or misleading information on the internet or online social network platforms, which are specifically designed to influence, engage, and capitalize off of users.

AND

Psychological and cognitive particularities that make humans fundamentally vulnerable to media manipulation.

The medical beliefs of patients are in many ways intertwined with their deep stories, identities, access to resources, and membership in communities.

Together, these factors shape the decisions that all people make about their health. The medical beliefs of patients are in many ways intertwined with their deep stories, identities, access to resources, and membership in communities. Simply fighting misinformation with information has proven to be largely ineffective in fostering behavioral change and may do more harm than good. However, there are a wealth of evidence-based strategies grounded in social and behavioral science that can be harnessed to help support patients in making beneficial health decisions.

To be clear, these strategies are not intended to manipulate or coerce patients. Rather, these considerations are meant to equip health care providers with the knowledge and skills to enter into empathetic dialogue with patients and navigate conversations oriented towards improving health outcomes.

CONVERSATION GUIDE

The Three “C’s” Approach

The goal of this intervention is to equip healthcare providers with tools and strategies to have conversations with patients about medical misinformation. The following 3-step conversation guide is designed to illustrate key principles for holding empathetic, collaborative conversations with patients that maintain trust, build strong patient-provider relationships, and protect patient health.

When addressing patient-held medical misinformation, providers should avoid simply telling a patient they are wrong, only offering corrective information, or not treating the patient’s beliefs as worthy of time or respect. Such approaches are largely ineffective and can even be counterproductive, further grounding patients in their existing beliefs. Rather, providers should initiate an empathetic and collaborative dialogue where they seek to understand what patients believe, why they believe it, and how they can best support the patient in making health-promotive decisions as a trusted partner.

Providers should ... seek to understand what patients believe, why they believe it, and how they can best support the patient in making health-promotive decisions as a trusted partner.



The “**Three C’s**” are guiding principles for holding such conversations with patients. Within each of the three steps, we’ve included tips or specific strategies to support providers as they create space for these potentially uncomfortable, yet worthwhile conversations.

It’s important to note that although the Three C’s are ordered in a list—**Compassionate Understanding, Connection, and Collaboration**—they are guiding principles that should be used in any order as conversations allow.

STEP 1



Compassionate Understanding

Initiating conversations with patients about medical misinformation can feel unproductive or even risky. When providers approach such discussions in prescriptive or authoritative manners, patients-provider relationships can be damaged, especially in the terms of reduced trust and diminished influence. However, bi-directional, empathetic conversations offer opportunities to build trust, support patients in making informed, health-promotive decisions, and mitigate the impacts of harmful medical misinformation.



Conversations about medical misinformation can be initiated proactively when hesitancy is observed or reactively in response to patients' assertions about inaccurate medical information. As Parts 1 and 2 outlined, there are a lot of powerful mechanisms that might push a patient to believe inaccurate information they find online. Thus, it is critical that providers initiate these conversations with an approach centered upon empathetic listening, patience, and humility. These practices will help patients to feel understood and respected and will orient providers towards a collaborative, open approach. Otherwise, patients may feel alienated, be less receptive to provider insights, and/or lose trust for the provider—which can be damaging to the long-term health and safety of patients and their communities. Patient-provider approaches that are overly-direct, authoritative, or judgmental have been proven to be counterproductive and should be avoided.

STEP 1

Compassionate Understanding

TIP 1: Initiate a Bi-directional Conversation

Set the stage for bi-directional (not unilateral) discussions by initiating the conversation with open-ended questions, such as:

		Useful Questions
Patient expresses belief in medical misinformation		“Why do you feel that way?”
		“Can you tell me more?”
Patient expresses hesitancy about medical treatment		“What concerns you about this treatment?”

TIP 2: Allow for Patient Self-Expression

Self-expression helps patients to feel “heard,” or that their values and concerns are respected and understood. Allow patients to express what it is they believe and why it is important to them. Providers should actively listen, employ an open posture, and offer non- verbal cues that demonstrate that they are actively trying to understand the patient. Patients may share cultural beliefs, fears, hesitations, or areas of concern that they wished they knew more about. Providers should avoid judging the patient, which can alienate the patient and damage their trust in the provider. This step also allows patients to create new narratives around why their misinformation isn’t the full picture or shouldn’t be followed. Patient self-expression is critical to maintaining a collaborative approach to conversations and should be maintained across the Three C’s.



COMPASSIONATE UNDERSTANDING continued

TIP 3: Identify What Matters to the Patient

Before responding to the information that patients share, direct the conversation to what is most important to them. Listening to understand patients' fears, motivations, and values may allow providers to proceed with a collaborative approach built upon common goals. Questions that can help you understand what matters to your patient include:

“Can you share with me what matters most to you in this decision?”

“Why does [e.g., this alternative medicine] appeal to you?”

“Can you teach me more about your needs?”

As shared in Part 1, there are a number of motivations behind medical misinformation beliefs that you can listen for to make your responses in Step 2 more resonant with patients.

WHAT TO LISTEN FOR:

- **Cultural Characteristics** - e.g., ideologically conservative; member of a disenfranchised group; member of orthodox religious community
- **Individual Morals, Values, and Goals** - e.g., value taking actions that are beneficial to larger community; concerned about their child's long-term health; desire to play an active role in decisions about their health
- **In Group Norms & Approved Behaviors** - e.g., trust the opinions of in-group leaders; wish to act in ways that align with their social network

STEP 2



Connection

After patients have been afforded space to openly express their beliefs and concerns, providers should express compassion, seek to empathize with the patient, and meet the patient where they are at. Compassion can be rooted in a recognition of the initiative that a patient took to search for potentially health-promotive information or to advocate for what they believe to be in the best interest of their health.

Providers should avoid authoritative approaches in this step. When offering to confirm what is true/false about the information the patient shared or seeking to discuss patient resources, providers should always ask for permission before doing so, be open to feedback, and practice humility (e.g., honesty about what is known and unknown about medical treatments).

STEP 2

Connection

TIP 4: Meet with Compassion

Meet with compassion by empathetically receiving information in Step 1 and then affirming the patients' efforts, goals, and values. Affirmative responses by providers may include:

"Thank you for sharing so openly with me about your concerns and goals for your health."

"I'm so happy you are looking into your health."

"I applaud your commitment to your child's health."

Providers should affirm patients when they share evidenced based information or demonstrate that they are working hard to find accurate information. Positive reinforcements may help to strengthen these behaviors in patients, which can protect against the influence of misinformation. In turn, providers can highlight the ways in which these actions are beneficial to both the individuals and their communities (e.g. thanking vaccinated patients for protecting both themselves and their community against the transmission of an infectious disease).

TIP 5: Confirm What is True and What is False

Offer patients new evidence to consider. Begin by gaining permission from your patient to share what you know about the topic. If they give permission to do so, begin by acknowledging parts of what the patient offered that are true.

Then proceed to briefly explain what is false and why. Avoid simply telling the patient that they are wrong. Instead, spend more time focused on why the new evidence you have is correct and what that means in relation to the patient's conditions. After sharing, maintain the open dialogue by returning the mic to the patient. Ask if they have thoughts, questions, and how they feel about receiving the information that you just shared.

"Would you like for me to share with you my understanding of the latest research around [treatment]?"

"I am curious to know what questions you have based upon the information I just shared."
"How are you feeling right now, especially after receiving that new information?"

TIP 5: CONFIRM WHAT IS TRUE AND WHAT IS FALSE *continued*

When you are attempting to respond to the inaccurate information or conspiratorial beliefs shared by a patient, you can use distinct methods that account for the values, motivations, biases and influences that you identified when learning about what mattered to your patient.

The following table explains how patient motivations can inform how to frame what you say when discussing what is accurate. Note this is not an exhaustive list but is intended to illustrate how accounting for these variables can make your responses more resonant.

Motivation	Response Framing	What to Say
Collective Interests & Social Motivations	Appeal to in-group (members of the patient's community) norms and highlight social group approval	<p>"Almost half the girls your age have received the HPV vaccine"</p> <p>"A lot of my older patients with the same condition were at first skeptical but then ultimately decided to get the treatment"</p>
	Share how you, as a leader, are prototypical of the group and act in interest of the group as a whole	"Even though I am a physician, I too integrate complementary and alternative therapies like mindfulness into my own care plans, but I have found the best results come when I use them as an addition rather than a replacement"
	Elevating the in-group without demeaning others > Use role models to motivate people to put their own values into action; Reference respected politicians, celebrities, and community leaders (distinctly relevant to the patient) who model helpful behavior	"[Insert name of relevant celebrity, professional athlete, etc.] just shared on his Instagram how they have started using some natural supplement alongside their prescribed medications as part of their treatment plan"
	Give patients a sense of collective self-efficacy and hope > Cultivate a sense of "we are all in this together" and contribution	"This outbreak is really impacting a lot of people in our community, and we are all in this together. Luckily, we can all make choices and take steps to help our community recover"

TIP 5: CONFIRM WHAT IS TRUE AND WHAT IS FALSE *continued*

Motivation	Response Framing	What to Say
Political Affiliations	Highlight an overarching identity or highlight bi-partisan support	“A lot of Republican Congress Members were at first suspicious of the vaccine but after consulting their expert advisors about its safety, most of them have received both doses of the vaccine”
Align with Individual Interests & Values	Focus on how their decision could be beneficial to others	“Getting vaccinated for the flu is an important way we can protect the people we love, like our grandparents, who are more susceptible”
	Illuminate the fact that all choices have consequences; Communicate how inaction, not just action, has implications	“Although I understand you are concerned about the side effects of your medication, it is important that you know that you will be at a higher risk for a heart attack if you choose to forgo taking your medication.”

TIME PERMITTING Discuss Resources

EXAMINE PATIENT REFERENCES & SOURCES

Explore your patient’s medical sources (e.g., family/friends, news, websites, etc.) and seek to understand the patient’s preferred method for obtaining information (e.g., TV, radio, internet, podcasts, family, etc.). This can give a sense of the patient’s health literacy level. Time permitting, ask patients if they would like to look at the article/source they are referencing together.

Reminder: avoid shaming or expressing judgement when exploring these resources.

- “Where do you get your medical information?”
- “Let’s look at the article, news clip, you mentioned”

OFFER REPUTABLE & ACCURATE RESOURCES

Offer resources, reading materials or evidence of what’s true and why. Utilize the patient’s preferred method of obtaining information and provide resources in that category:

- “Here are some great resources for further reading.”
- “One great resource that some of my patients and I like to use is [reputable source].”

STEP 3



Collaboration

After discussing a patient's beliefs, identifying what matters most to them, and offering what you know to be true, providers should employ a collaborative, patient-centered approach to determining next steps.

Ultimately, the final decisions about patients' health are up to the patient. However, providers can act as consultants or partners in these decisions. Providers should collaborate with the patient on the common ground of working towards shared goals for the patient's health. Avoid applying authoritative approaches that seek to compel patients to abide by the providers' medical advice or discount the medical misinformation. Such coercive interactions will likely have short and long-term negative implications (e.g., sowing or deepening distrust of healthcare practitioners). Providers should receive permission to share their recommendations for how the patient should move forward and then leave space for the patient's input.

Maintaining a strong, trusting patient-provider relationship is almost always more valuable than momentary behavior change. Considering the plethora of social, psychological, and environmental factors that make us all vulnerable to medical misinformation, having these conversations is in and of itself a win, and remaining an influential source of evidence-based medical information in a patient's life is a valuable, and potentially rare, position to hold. Even if this approach does not immediately inspire a patient to consider a provider's recommendations, it could help to build trust, which may lead to a greater willingness to consider the provider's expertise in the future.

STEP 3

Collaboration

TIP 6: Build on Common Ground

Identify the common ground (mutual goals) between your goals for the patient and the patient's goals for themselves. Articulate to the patient what you perceive these mutual goals to be and your intention to support them in working towards these outcomes.

"We both want your diabetes under control and for you to feel safe taking your medication."

"It is clear to me that we both wish to move forward in whatever way is best for your child's long term-health."

TIP 7: Offer Recommendation, Allow Input

Based upon the common goals, providers should offer recommendations for what they believe to be in the best interest of the patient's health. Afterwards, patients should be given space to share their thoughts. This step allows the provider to identify remaining fears and concerns that may be discussed in a follow up.

"Thank you for sharing so openly today. Would you like me to share what I would recommend for next steps?"

"How do you feel about this recommendation? Do you have any remaining concerns?"

TIP 8: Wrap Up, Follow Up, and Readdress

When concluding the conversation, summarize the plan with the patient. Providers can use the "teach back" method for summarizing shared goals. Offer a follow up time/appointment to discuss again. Understand that some topics require readdressing frequently. Thank the patient for their honesty and express gratitude for the conversation.

CASE 1

Type 2 Diabetes

Conversation Simulation & Role Play

CLINICAL PRESENTATION:

A 56-year-old female with type 2 diabetes comes in for a follow up appointment. Her HbA1c rose from 6.8% to 7.4% in the last 6 months. She has a history of controlled essential hypertension on Lisinopril 20 mg qd and obesity with a BMI of 34.

Concerned that her blood sugars rose significantly despite taking Metformin 1000 mg PO BID, you ask her what has changed.

The patient states she stopped taking her Metformin and started taking 5 g of Fenugreek twice daily. She explains that she read online that Fenugreek lowers blood sugar and feels that it is a better alternative for her than taking Metformin.

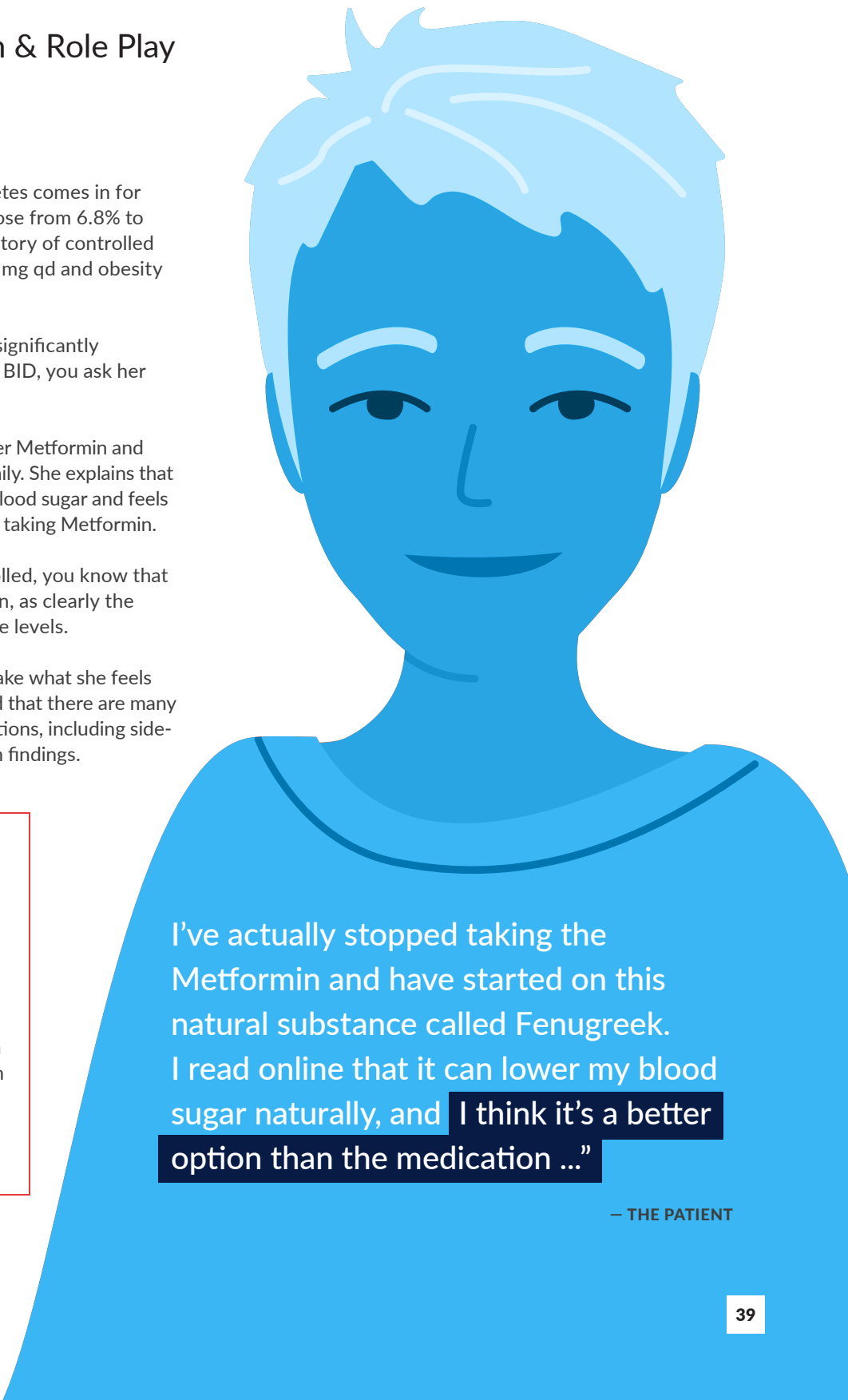
With her glucose levels being uncontrolled, you know that she needs to get back on her Metformin, as clearly the Fenugreek is not controlling her glucose levels.

The patient is persistent and wants to take what she feels are more natural remedies. She has read that there are many long-term side-effects to taking medications, including side-effects that are not reported in research findings.

SOCIAL CONTEXT:

The patient lives in a middle-class community where many residents are affiliated with the Democratic party and maintain ideologically “liberal” ideals.

The patient is active on social media and receives a majority of her health information from what appears on her social media feed and through search engines.



I've actually stopped taking the Metformin and have started on this natural substance called Fenugreek. I read online that it can lower my blood sugar naturally, and I think it's a better option than the medication ...”

– THE PATIENT

STEP 1 Compassionate Understanding

<p>Tip 1: Initiate a Bi- directional Conversation</p>	<p>PROVIDER: Can you share with me what you know about Metformin? And what concerns you about it?</p>
<p>Tip 2: Allow for Patient Self-Expression</p>	<p>PATIENT: Well, I know that it is meant to keep my blood sugar in check. However, it's unnatural and probably just a mix of chemicals that may be helping my health now, but are likely harmful in the long term. Medications are also so expensive on my insurance plan.</p>
<p>Tip 3: Identify What Matters to the Patient</p>	<p>PROVIDER: What I am hearing is that you are you looking for an option that will keep your blood sugar in check and be affordable while not threatening your health in the long term. Is this correct? Is there anything else that has been on your mind when thinking about this decision?</p> <p>PATIENT: Cost and long term safety have been my biggest considerations. I am a part of a neighborhood Facebook group where a lot of people share helpful articles about natural remedies. My friend posted about Fenugreek, and when I direct messaged her, she explained that it doesn't give her the stomach pain that she had with Metformin. A link she shared listed a bottle of Fenugreek for only \$15.</p>

STEP 2 Connection

<p>Tip 4: Meet with Compassion</p>	<p>PROVIDER: Thank you for sharing so openly with me about your preferences and concerns. It's very helpful for me to know as I try to help you make decisions about your health that you can feel comfortable with. With these important considerations on your mind, I understand why you are looking to explore all of your options.</p> <p>Would you like for me to share with you my understanding of the latest research on these medicines?</p> <p>PATIENT: Yes, that would be helpful.</p>
<p>Tip 5: Confirm What is True and False</p>	<p>PROVIDER: Starting with Metformin, this is one of the most common medications that we prescribe to patients with high blood sugar, like yourself. It is true that Metformin may have serious side effects on long term health; however, this has been found to be very rare in research performed by researchers without connections to the company. Metformin was first discovered in the 1920s. It has been used for a long time in countries all around the world, and I am very confident in the quality of research around it. It is also true that Fenugreek can lower your blood sugar. Unfortunately, this is not the case for everyone who tries it. Based upon your rise in HbA1c, it currently doesn't appear to be effective in lowering your blood sugar.</p>

STEP 3 Collaboration

<p>Tip 6: Build on Common Ground</p>	<p>PROVIDER: It seems clear that we both have the same goals of ensuring that your glucose levels are under control, and it's important to me as your provider to work with you to identify an option that safe, affordable, and works for you.</p> <p>Would you like me to share what I would recommend for next steps?</p> <p>PATIENT: Yes. I recognize that my glucose levels are too high at this point. I am curious to hear what you think is best.</p>
<p>Tip 7: Offer Recommendation, Allow Input</p>	<p>PROVIDER: There are a few medications that we can explore that may be cheaper and in more in line with what you are looking for. Some options include Alpha-Glucosidase Inhibitors, Bile Acid Sequestrants, Dopamine-2 Agonists, DPP-4 inhibitors, Meglitinides, SGLT2 Inhibitors or Sulfonylureas. One medication that might interest you is Berberine, which is derived from various plants. [Offer details on the medication to the patient, especially since they may encounter misinformation about it in the future. Also share resources that may help to lower the cost.]</p> <p>How would you feel about trying this option? Do you have any concerns?</p> <p>PATIENT: I am open to trying Berberine, but I want some time to look into it myself before taking it.</p> <p>PROVIDER: Would you like for me to send you home with a few websites and articles that will help you learn more about Berberine? Why don't we make a follow up appointment in two weeks so we can talk through any remaining concerns. How does that sound?</p> <p>In the meantime, I do want to ensure that you are safe and that your glucose levels remain in check. Based upon your glucose levels today, choosing to wait and only taking Fenugreek would likely mean that your glucose levels will remain dangerously high until we meet again. I want to ensure that you are safe and protected while you think more about this. Would you be comfortable resuming the Metformin until we meet again?</p>
<p>Tip 8: Wrap Up, Follow Up, and Readdress</p>	<p>PATIENT: I would rather start the Berberine today than restart the Metformin. Can we still meet in two weeks after I get a chance to look more into it?</p> <p>PROVIDER: Yes, that sounds like a good plan. I will send a prescription for Berberine to your pharmacy so you can start taking Berberine today, and we will plan to meet in two weeks to discuss how you are feeling on the medication and any other questions you may have.</p> <p>Thank you again for sharing so openly with me today. I look forward to seeing you again in two weeks. Please do not hesitate to reach out with questions in the meantime.</p>

CASE 2

COVID-19 Vaccine

Conversation Simulation & Role Play

CLINICAL PRESENTATION:

A 65-year-old African American female with a history of coronary artery disease, diabetes, and hypertension arrives for a routine physical. During her appointment, you ask if she has received, or plans to receive, a COVID-19 vaccine. The patient states that she does not plan to get vaccinated and does not trust that those encouraging her to get vaccinated have the best interests of Black people in mind.

SOCIAL CONTEXT:

The patient is known to live in a suburb of a major city where vaccination rates are slightly below the national average and public institutions have historically been underfunded by state and local governments.



I'm not taking the COVID-19 vaccine.

I know the history of how they have experimented on Black people, and I read online that they are doing the same thing with the COVID-19 vaccine. I'm not going to pay to be experimented on."

— THE PATIENT

STEP 1 **Compassionate Understanding**

<p>Tip 1: Initiate a Bi- directional Conversation</p>	<p>PROVIDER: I hear you. Between the everyday moments of racism that Black people like myself face from the healthcare system and the long history of medical exploitation, there are a lot of reasons to be distrustful. Can you tell me more about why you feel hesitant about receiving this vaccine?</p>
<p>Tip 2: Allow for Patient Self-Expression</p>	<p>PATIENT: Well, I read an article online about how the companies making the vaccines are experimenting on Black folks, using them as guinea pigs. It said that even though they say that they want Black people to get priority for the vaccine, it's just a cover up to use us as the test subjects to see if the vaccine will actually work.</p> <p>Besides, we all know how the healthcare system has exploited and mistreated Black people in America. Even today, we only have one hospital in our community, and no one wants to go there. It makes it hard to trust the medical system.</p>
<p>Tip 3: Identify What Matters to the Patient</p>	<p>PROVIDER: Please know that you are justified and not alone in your concerns. These issues are very important to me both personally and as a health professional. I hope that as your physician, we can work together to find ways to improve your experience so that you feel more comfortable with and confident in the health resources we offer here.</p> <p>When thinking about COVID-19, what makes you most worried about receiving a vaccine?</p> <p>PATIENT: I just don't want to be another Black test subject. And I don't want my community, or my family, to be exploited. It's not just me that I am worried about. I don't want this to happen to anyone.</p>

STEP 2 Connection

<p>Tip 4: Meet with Compassion</p>	<p>PROVIDER: I understand why you are feeling fearful about the vaccine after seeing that video, and I admire your intention to protect your loved ones. Thank you for sharing with me. It's helpful to know how my patients are feeling so I can do my best to support their health.</p>
<p>Tip 5: Confirm What is True and False</p>	<p>PROVIDER: Can I share with you my understanding of the vaccine?</p> <p>PATIENT: Yes, that would be helpful.</p> <p>PROVIDER: Like we said, medicine has yet to prove itself trustworthy to all people. There is a long history of medical exploitation and forced experimentation on Black Americans, like the Tuskegee Study. On top of that, Black Americans on average, don't get the same quality of care from the healthcare system as White people and are underrepresented in clinical research.</p> <p>In the case of the COVID-19 vaccines, the companies who have developed the vaccines reported that people of color were underrepresented in clinical trials, as we have seen historically and as your article suggested. However, we also know that the large trials were conducted correctly, didn't cut any corners, and showed that the vaccines are safe and effective. Although people of color were underrepresented in the trials, thousands of people did participate, and millions have received the vaccine since. I can confidently say that the vaccine is in fact effective for Black people. I have been following the clinical trials very closely, and I don't have any reason to believe that exploitative experimentation is occurring.</p> <p>Underrepresentation is a big issue though, especially considering that it is more likely for BIPOC Americans to be infected and die from COVID-19. That is why so many leaders in our community have been encouraging Black folks to get vaccinated. Many of our neighbors already have and this is the major reason why we have seen cases and deaths decline so much. I personally received a vaccine and feel proud of the fact that I am helping to protect my loved ones and those who are most vulnerable.</p> <p>The vaccine is also completely free, so you would not have to pay anything to receive it. Do you have any questions about what I shared or remaining worries?</p>

STEP 3 Collaboration

<p>Tip 6: Build on Common Ground</p>	<p>PROVIDER: It is clear to me that we both want the same things, for you and our community to be safe.</p>
<p>Tip 7: Offer Recommendation, Allow Input</p>	<p>PROVIDER: I recognize that this decision is yours to make, and as your doctor, I want to support you in making a decision that is in your best interest. Would you like for me to share some things that I am encouraging all my patients to consider in this decision?</p> <p>PATIENT: Sure.</p> <p>PROVIDER: As I'm sure you know, this virus is very dangerous. Considering that you are in a high-risk group, not only are your chances of being infected higher, but you're also more likely to get sick, potentially seriously. I care deeply about you and want to protect your health. As the medical community had hoped, the currently available vaccines have proven to be safe and effective and are the best way to protect yourself and your friends/family against the virus.</p> <p>I recently saw a video of a few local community leaders discussing this. I would be happy to share it with you, if you are interested.</p> <p>What are you thinking?</p>
<p>Tip 8: Wrap Up, Follow Up, and Readdress</p>	<p>PROVIDER: [If patient expresses interest in getting vaccinated] Let me connect you with some resources that will make it easy to schedule an appointment or find a walk in clinic.</p> <p>[If patient does not express interest in getting vaccinated] Why don't we chat over the phone in a few days. You can have some time to watch the video I gave you and think of further questions or concerns. How does that sound?</p>

CASE 3

Blood Pressure

Conversation Simulation & Role Play


CLINICAL PRESENTATION:

A 42-year-old male comes in with blood pressure 170/100 mmHg p 70. He was on Lisinopril 40 mg for the last year with well controlled blood pressure readings. When asked if anything has changed with his medication, he responds, "I watched a video on YouTube about how Lisinopril causes severe dizziness, so I stopped taking it."

The doctor asked, "Were you experiencing dizziness with this medication?" The patient responded, "No, but I didn't want to develop dizziness, so I stopped. I also saw online that taking too much blood pressure medication is bad for your heart."

SOCIAL CONTEXT:

The patient is known to live in a low to middle-class rural area where many residents are affiliated with the Republican party and are largely ideologically "conservative".



I watched a video on YouTube about how Lisinopril causes severe dizziness, so I stopped taking it."

— THE PATIENT

STEP 1 **Compassionate Understanding**

<p>Tip 1: Initiate a Bi- directional Conversation</p>	<p>PROVIDER: Can you tell me more about what you have heard about the medication?</p>
<p>Tip 2: Allow for Patient Self-Expression</p>	<p>PATIENT: I watched a video with a doctor who was saying that Lisinopril causes dizziness, and that even though a lot of people take the drug, the pharmaceutical companies hide how many people have bad side effects, so they can continue to make money. It's all about profits with these companies. They don't care about me.</p>
<p>Tip 3: Identify What Matters to the Patient</p>	<p>PROVIDER: I can see why you were hesitant to take the medication after watching that video. Can you tell me a little bit more about your concerns? Specifically, what are you worried might happen if you continue to take the medication?</p> <p>PATIENT: Well, I know that my blood pressure needs to be under control, but I don't want to get dizzy and don't trust the medication. And if I do get dizzy, I am worried about what could happen. Before my mother had a stroke, she was feeling dizzy and had a bad fall. I don't want something like that to happen to me. I am worried that this pill might cause me to feel dizzy and the same thing will happen. Also, as the doctor said, we don't know how often this happens because the pharmaceutical company is hiding things.</p>

STEP 2 Connection

<p>Tip 4: Meet with Compassion</p>	<p>PROVIDER: Thank you for sharing so openly about your concerns. First off, I am sorry about your mother. That must have been really difficult for her and for you. Second, I want to make sure that we move forward in a way that you feel safe.</p> <p>Would it be helpful for me to share what I know about this medication?</p> <p>PATIENT: Yes, that would be helpful.</p>
<p>Tip 5: Confirm What is True and False</p>	<p>PROVIDER: It is true that dizziness can be a side effect of blood pressure medication. Whenever this happens, I will switch my patients' medications and monitor how they are feeling to ensure that they are safe. We don't want a medication creating problems when other options are available. Even though it can happen, people very rarely experience dizziness with Lisinopril.</p> <p>From my experience, I have often seen patients have far more health challenges from untreated high blood pressure than from taking blood pressure medications. As I'm sure you know, high blood pressure can also cause dizziness. So it important that we find a medication that is safe and works for you.</p> <p>In my twenty years as a physician in our county, I have prescribed Lisinopril quite frequently to patients in our community who experience high blood pressure. Many have had a lot of success in lowering their blood pressure with it and have experienced few side effects, similar to you. I have had only a handful of patients report feeling dizzy, which was often not severe. In the few instances when dizziness did occur, it often occurred when patients started taking the medication. I have found this to be quite common with other doctors I speak to. This is why I often recommend Lisinopril as a good option for patients like yourself. And I have not seen any patients have a stroke from the medication, which is also what a majority of research has found.</p> <p>Do you have any questions based upon the information that I have shared thus far?</p>

STEP 3 Collaboration

<p>Tip 6: Build on Common Ground</p>	<p>PROVIDER: It is clear to me that we both want your blood pressure to be under control and for you to avoid dizziness and be at a low risk of stroke. I think these are great goals and admire your self-advocacy.</p> <p>Can I recommend a pathway that might help us to work towards these goals?</p> <p>PATIENT: Sure, I am curious to know what you think.</p>
<p>Tip 7: Offer Recommendation, Allow Input</p>	<p>PROVIDER: For the last year, your blood pressure has consistently remained at the levels that we are looking for with the Lisinopril, which is great. Since you have not experienced dizziness, it is unlikely that this side effect will arise. I do think it is safe to continue using the Lisinopril if you are comfortable doing so. Of course, if you experience dizziness or other side effects, we can find an alternative. If this isn't something that you are comfortable with, we can discuss other medication options. I don't want you to feel that you have to take the medication if you will be uncomfortable taking it.</p> <p>Would you be comfortable resuming the medication and sticking to it? I can provide you with our office's phone number to call if you do end up experiencing side effects.</p>
<p>Tip 8: Wrap Up, Follow Up, and Readdress</p>	<p>PROVIDER: Why don't we see you back in 2 to 4 weeks to see how things are going. Please feel free to keep a blood pressure log and report any dizziness you have so we can be quick to respond.</p> <p>Thank you again for sharing so openly with me today. Please do not hesitate to reach out with questions in the meantime.</p>

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