

**Understanding the Role of Facebook in Vaccine Misinformation during the COVID-19
Pandemic using Care Ethics**

STS Research Paper
Presented to the Faculty of the
School of Engineering and Applied Science
University of Virginia

By

Elizabeth Korte

March 19, 2021

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Signed: _____

Approved: _____ Date _____
Benjamin J. Laugelli, Assistant Professor, Department of Engineering and Society

Introduction

According to a Pew Research Center study conducted in early September 2020, 49% of Americans said they would “definitely or probably would not get vaccinated at this time” to prevent the Coronavirus Disease 2019 (COVID-19) (Tyson et al., 2020). Out of those adults, 90% cited concern about side effects and 85% wanted to understand how the vaccine works better before receiving it (Tyson et al., 2020). Health misinformation has been a growing issue on social media platforms for years, and the COVID-19 pandemic has exacerbated the need for promoting accurate health information as vaccine hesitancy has increased. Since the beginning of the COVID-19 pandemic, the number of new followers on anti-vaccine pages has grown, with one group finding that followers on anti-vaccine pages on Facebook increased by over 300,000 users between the period of July 2020 and December 2020 (CCDH, 2020). With COVID-19 vaccines now available in December 2020, the concern for ensuring that people have accurate information about the vaccine grows even more important.

To understand the spread of vaccine misinformation on social media, researchers have currently sought to analyze existing posts and gather themes. One report in December 2020 analyzed COVID-19 vaccine misinformation posts and grouped the content into six major themes: political and economic motives; safety, efficacy, and necessity; development, provision, and access; liberty and freedom; conspiracy theory; and morality and religion (Smith et al., 2020). While these approaches provide an added understanding to why users are posting and interacting with vaccine misinformation, they fail to take into account the role of the platform provider. There is little research on the role of the platform provider in moderating content and disseminating misinformation to its users, and without understanding this, the problem of

vaccine misinformation cannot be fully addressed. If the platform provider's role is not considered, then misinformation will continue to spread and impact vaccine confidence.

To understand the problem of COVID-19 vaccine misinformation, I will analyze how Facebook has contributed to the circulation of COVID-19 vaccine misinformation due to its delay to act and lack of clarity in policies. I will use care ethics, an ethical framework that focuses on the role of relationships, to understand how Facebook performed poorly in providing care to its users. Care ethics allows researchers to analyze the relationships between caregivers and care receivers with respect to the four elements of care: attentiveness, responsibility, competence, and responsiveness (Tronto, 1998). To support this claim, I will analyze Facebook's policy actions and implementations over the course of the pandemic.

Background

Over the last decade, vaccine misinformation online has become a growing issue as the anti-vaccination movement has grown, and the United States has seen multiple measles outbreaks, such as the Clark County, Washington measles outbreak in 2019 (Romo & Neighmond, 2019). During this time, social media platforms have allowed anti-vaccination groups to spread common vaccine misconceptions, such as that vaccines have toxins or cause autism (Stecula et al., 2020). The results of a 2019 survey found that social media users who have been exposed to vaccine misinformation on the platform were more likely to be misinformed about vaccines than those who follow traditional media (Stecula et al., 2020). However, despite these concerns, social media platforms maintained a neutral stance to vaccine misinformation for many years. This first changed in 2019 after a Senate hearing examined how to stop preventable diseases, where more attention was brought to the role of social media platforms in the dissemination of vaccine misinformation to their users (Romo & Neighmond,

2019). Representative Adam Schiff wrote to Mark Zuckerberg, CEO and Founder of Facebook, to address “Facebook's shortcomings in counteracting the dissemination of inaccurate facts” (Romo & Neighmond, 2019). In response, Facebook announced its first steps to combatting vaccine misinformation: reducing the ranking of vaccine misinformation groups on users’ News Feed and Search pages, banning ads that have misinformation about vaccines, and exploring ways to share more accurate vaccine information to users (Bickert, 2019). Despite these announcements, many anti-vaccine pages continued to expand as the COVID-19 pandemic began.

Literature Review

Several scholars have examined vaccine misinformation in the past. Most previous research has focused on the various themes in general anti-vaccine content on social media to better understand what individuals are spreading misinformation, and many scholars have not yet adequately considered the role of the social media company in upholding accurate information on its platform, particularly health information. As a result, scholars have not yet addressed the role of social media companies in moderating vaccine misinformation content.

In 2017, N. Smith and T. Graham mapped the anti-vaccination movement over time by examining and identifying characteristics from six anti-vaccination pages on Facebook. For each page, the authors analyzed user participation and engagement through techniques such as network and text analysis. The researchers concluded that the existing Facebook pages encourage a “small world” attitude, where users feel more immersed in a community; that most participants anti-vaccination pages were women, reflecting stereotypical parental standards; and that much of the existing content reflects conspiracy rhetoric (Smith & Graham, 2017). This

research allowed a greater understanding in the typical user on anti-vaccination pages but failed to acknowledge any role or responsibility of Facebook in moderating the content.

In a more recent research study, D. Dhaliwal and C. Mannion (2020) analyzed current anti-vaccine messages on four major Facebook anti-vaccine pages between January 2019 and May 2019 to understand themes of anti-vaccine messaging as well as the characteristics of websites typically shared. The researchers identified multiple claims that were typical on the pages, such as that vaccines fail and that vaccines contain harmful ingredients that could cause other diseases. Additionally, they identified many themes from the shared websites that included testimonies from mothers and “experts”, as well as “accusations towards the government and physicians for promoting vaccines to make money” (Dhaliwal & Mannion, 2020). The researchers enforce the idea how Facebook has allowed a “platform to promote their anti-vaccine beliefs,” with multiple anti-vaccine Facebook pages having over 100,000 likes (Dhaliwal & Mannion, 2020).

While there is great value in understanding the user profile and content themes on anti-vaccination pages, there is also an importance in understanding the role that the social media company has in ensuring accurate health information. As a result, this paper will seek to address how Facebook specifically has contributed to and responded to vaccine misinformation since the beginning of COVID-19.

Conceptual Framework

To analyze Facebook’s response to preventing the dissemination of vaccine misinformation, I will use the care ethics framework. Initially developed by Carol Gilligan, care ethics can be described as “an ethical theory that emphasizes the importance of relationships” and how these relationships are often intertwined with elements of care (Poel & Royackers,

2016). Joan Tronto, another prominent philosopher who has contributed to the care ethics framework, described care as the following:

Care is a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web. (Fisher and Tronto, 1990, p.40, as cited in Tronto, 1998)

As a result, Tronto describes how care is an activity, action, and standard, and researchers of care ethics are therefore able to examine the relationships between different groups by evaluating the dynamics and responsibilities of care at hand (Tronto, 1998; Poel & Royakkers, 2016). These relationships may not always be equal between the giver and receiver, and there are also power dynamics that interplay within care (Tronto, 1998). To analyze these relationships, Tronto identified four different elements of care: attentiveness, responsibility, competence, and responsiveness. Attentiveness refers to the ability and tendency of perceiving need from others; responsibility corresponds to the “willingness to respond and take care of need” (Sander-Staudt, n.d.); competence refers to the adequacy and quality of the care given; and responsiveness is the ability to consider the position of others (Sander-Staudt, n.d.).

In the following analysis, I will investigate how Facebook acted immorally in its address of COVID-19 vaccine misinformation through its role as caregivers to its users. Specifically, I will examine how Facebook breached its relationship between its users with respect to the four elements of care: attentiveness, responsibility, competence, and responsiveness.

Analysis

When users create an account with Facebook, they must agree to follow the community standards set out by the company, and then the company in turn has the responsibility to remove

any content on its platform that does not follow its policies. Consequently, Facebook carries a role as a caregiver to its users, by being responsible for moderating other users' posts who might not be adhering to the required terms and determining the content users see on their homepage. During the age of COVID-19, this role has become even more important in the face of misinformation, as health misinformation prospers and could lead to false beliefs that would then cause harm (Yang et al., 2019). At the same time though, Facebook must also be weary of over-censorship when removing posts that may be ambiguous in terms of misinformation, and there is a need for a balance in social media companies on protecting health information while still avoiding strict censorship (Yang et al., 2019).

The following sections will explore Facebook's response to widespread vaccine misinformation by examining its actions with respect to responsibility, attentiveness, competence, and responsiveness. Specifically, I will focus on how Facebook failed to uphold its attentiveness, responsibility, competence, and responsiveness in responding to vaccine misinformation in a timely manner.

Attentiveness

Facebook did not include vaccine-specific misinformation in its COVID-19 policy updates until December 2020, suggesting that the company failed to recognize the gravity of vaccine misinformation on its platform during the beginning of the pandemic. Attentiveness in care ethics refers to "being able to perceive needs in self and others" (Tronto, 1998), signifying that there is an element of attentiveness that is related to being aware of a care receiver's need (Sander-Staudt, n.d.). As a result, it is important to determine whether Facebook recognized the issue of widespread vaccine misinformation on its platform. To assess this, I will examine specific policy updates since March. In January 2020, the World Health Organization (WHO)

announced an international public health emergency in response to COVID-19 (Jin, 2020). Immediately after the announcement, Facebook released a statement stating that it is dedicated to limiting the spread of misinformation about the virus (Jin, 2020). In the following couple months, Facebook was quick to announce its cooperation with the Centers for Disease Control and Prevention (CDC) to combat COVID-19 misinformation and began other policies to combat COVID-19 misinformation, such as by informing users who had interacted with harmful COVID-19 claims and creating a COVID-19 information center (Rosen, 2021).

While this quick action to limit COVID-19 misinformation is commendable, it is important to highlight the absence of vaccine-specific misinformation in the updates listed on Facebook Newsroom until mid-December 2020, when Facebook finally announced restrictions of COVID-19 vaccine misinformation. There are two articles on Facebook Newsroom that aggregate Facebook's policy changes in the face of fighting COVID-19 misinformation, and both articles neglected to provide any specific information about combatting misinformation against the COVID-19 vaccine until mid-December, despite reports documenting increases in anti-vaccination followings on Facebook and misinformation content (CCDH, 2020). For example, one of the articles listed updates on combatting COVID-19 misinformation on April 16, May 12, December 15, and February 8, and the first announcement that included action items against COVID-19 vaccine misinformation was on December 15 (Rosen, 2021). This absence of vaccine-specific misinformation suggests that Facebook failed to acknowledge the extent of COVID-19 vaccine misinformation on its platform during the beginning of the pandemic.

Responsibility

The second element of care is responsibility, and Facebook did not uphold its responsibility to protecting its users against vaccine misinformation due to its delay in enacting

policies. In order to assess how responsible Facebook has acted in the face of vaccine misinformation, first it is important to determine what responsibility Facebook has to its users. Traditionally, social media companies have removed themselves from any responsibility in the content that their users post. This approach is reinforced legally with Section 230 of the Communications Decency Act, which in part states that no provider is liable for content posted on its platform (47 U.S.C. § 230). However, this does not mean that Facebook and other social media companies do not have a duty to their users to see accurate information, especially when it relates to health and vaccines. WHO reinforced this idea in a statement by urging social media companies to take control of misinformation, saying “major digital organizations have a responsibility to their users – to ensure that they can access facts about vaccines and health” (WHO, 2019). Consequently, I assert that Facebook lacked responsibility by failing to act in a timely manner to the threats of COVID-19 vaccine misinformation.

To understand Facebook’s failure to act in a timely manner, I will continue to examine Facebook’s timeline in handling COVID-19 vaccine misinformation. In September 2020, Facebook still had not reported any specific policy updates to combat COVID-19 vaccine misinformation when Mark Zuckerberg completed an interview with Axios on HBO that highlighted Facebook’s stance on vaccine misinformation. The interviewer began by explaining how Facebook has moved very fast to combat COVID-19 misinformation and then asked if Facebook plans to do the same thing to those who spread vaccine misinformation (Rummler, 2020). In response, Zuckerberg answered by saying “we work with the CDC and we work with the WHO and trusted health organizations to remove clear misinformation about health-related issues that could cause an imminent risk of harm” (Rummler, 2020). He then continued to explain the challenges associated with moderating anti-vaccination content due to the partial

truths often included, alluding to that Facebook currently did not plan to mitigate anti-vaccine content (Rummler, 2020). Zuckerberg's response suggests that he and Facebook were aware of their role in vaccine misinformation but chose to not clearly act on it in September 2020; instead of choosing to answer the interviewer directly about how Facebook will respond to vaccine misinformation, he avoided answering the question by reinforcing that he and Facebook are currently working towards preventing harmful misinformation. Consequently, Zuckerberg indicated Facebook's failure to choose to respond to the situation in a timely manner.

This stance slowly began to change on October 13, 2020, when Facebook announced it would ban ads globally that discourage vaccines (Jin & Leathern, 2020). December 3, 2020 marked Facebook's first major departure in remaining silent over COVID-19 vaccine misinformation, when Facebook announced it would be removing false claims about COVID-19 vaccines, including "false claims about COVID-19 vaccines [that] contain microchips, or anything else that isn't on the official vaccine ingredient list" (Jin, 2020). This was expanded even further on February 8, 2021 by including general vaccine misinformation (Rosen, 2021). While these most recent policy implementations are welcomed, they still fail to acknowledge that vaccine misinformation has been spreading throughout the pandemic, even before the COVID-19 vaccines were first made available. These actions are positive but reinforce that they did not occur in a timely fashion.

While vaccine misinformation has been problematic throughout the pandemic, Facebook was not willing to respond for many months. Proponents of Facebook could argue that Facebook upheld its responsibility to users by implementing new policy changes, but this fails to take into account the time element during the pandemic. By September 2020, COVID-19 vaccine misinformation had already been infiltrating the platform for multiple months; R. Smith et al.

found that Facebook pages and groups had over 5 million interactions on vaccine misinformation content between June and September, accounting for 44% of the interactions they analyzed from different platforms (2020). As a result, vaccine misinformation relating to COVID-19 was already prospering for months when Facebook finally decided to enact tougher restrictions on COVID-19 vaccine misinformation.

Competence

The third element of care is competence, and I believe that Facebook provided inadequate care to users by delay in identification of misinformation. According to Tronto, “caregiving requires that individuals and organizations perform the necessary caring tasks” (1998). When moderating content to users, Facebook has two major responsibilities for vaccine misinformation: identifying vaccine misinformation and presenting its policies clearly. Since Facebook’s policy updates to protecting against COVID-19 vaccine misinformation, Facebook has been diligent in labeling misinformation posts through independent fact-checkers. Nevertheless, many posts surfaced over Summer 2020 with misinformation.

To examine this further, Figure 1 is an example of a conspiracy theory spread about Bill Gates in April 2020. As can be seen in the figure, it was not flagged by Facebook as being misinformation. Figure 2 is another example of a misinformation post about Bill Gates that was flagged, this time in June 2020. This post was marked by Facebook’s independent fact-checkers to indicate that the link has false information. Despite this action, this post was still reacted to by over 2,600 users and shared over 2,100 times. This post serves as an example of where, despite Facebook now labeling it as false information, many users were still able to interact with it, suggesting that there are situations in which users are still exposed to false information before it can be labeled in time. While this conspiracy theory has been debunked, both posts reflect how

misinformation was more easily spread in the beginning of the pandemic, and the difference in labeling also raises question to the ways that misinformation posts are identified.

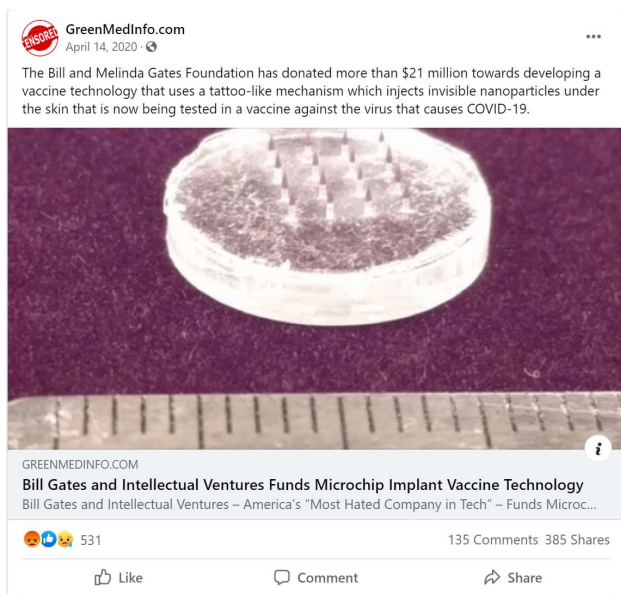


Figure 1. A misinformation post that was not fact-checked and connects Bill Gates to a conspiracy theory about adding microchips to vaccines so he can control people (GreenMedInfo.com, 2020).

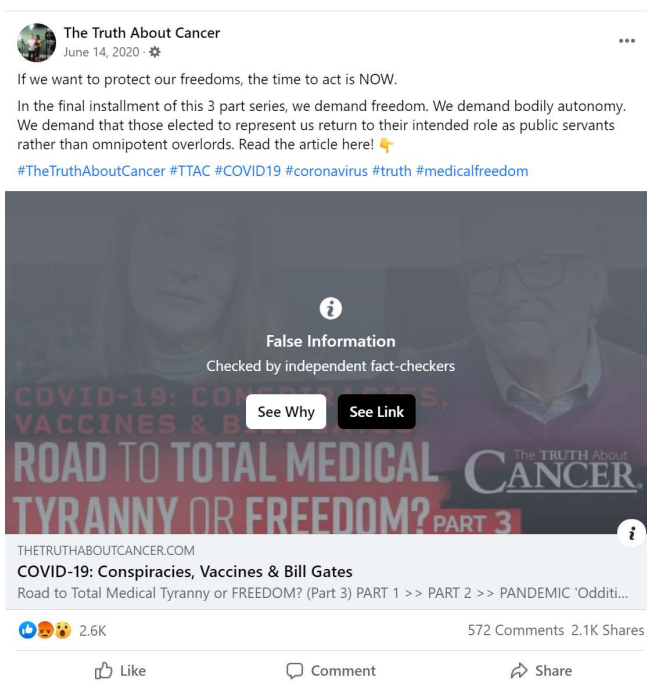


Figure 2. A misinformation post that connects Bill Gates to a conspiracy theory and was identified as false information (The Truth About Cancer, 2020).

Many posts with misinformation were able to spread during the beginning of the pandemic before they could be labeled as false, suggesting that Facebook failed to effectively protect users from misinformation. Since December 2020, Facebook has given increasing focus to COVID-19 vaccine misinformation. According to Facebook in February 2021, it is actively working to remove harmful content and has removed over 12 million pieces of harmful, general COVID-19 misinformation content together on Instagram and Facebook since the beginning of the pandemic (Jin, 2021). However, there is no breakdown available for COVID-19 vaccine specific content, and viral posts have still been able to slip through the mitigation system. Most recently, a conspiracy theory video called “Planet Lockdown” went viral on multiple social media platforms and included COVID-19 vaccine fallacies, such as that the vaccine will modify people’s DNA (Shepherd, 2021). According to the original source, the video was first released in late December 2020 on two different YouTube channels and received a total of over 16 million Facebook engagements (Kaplan, 2021). While these posts have now been removed, many other uploads continued to circulate (Kaplan, 2021). These posts suggest gaps in the current misinformation detection system, despite Facebook’s public attempts to reduce circulation of misinformation on its platform.

Responsiveness

During policy implementation, Facebook did not adequately respond to the position of its users; its delay to act against misinformation contributed to greater confusion among users about vaccines, and its lack of clarity in moderation policies fostered distrust among users responsible for distributing misinformation. The fourth element of care ethics reflects how well care receivers respond to the care that they are given and how the caregiver considers the positions of others (Tronto, 1998; Sander-Staudt, n.d.). As content moderator, Facebook controls what

content users see on their newsfeed, creating a power dynamic where users are subject to the information that Facebook allows them to view. Consequently, it is important to understand how Facebook's response has affected its users.

Many Americans have expressed uncertainty over receiving the vaccine, with 20% of Americans stating that they either would not receive the vaccine or would receive it only if it was mandatory in January 2021 (Hamel et al., 2021). Results from the same report stated that one-third of unvaccinated people were exposed to misinformation about the COVID-19 vaccine that led them either to believe in a myth or be unsure if it was true; examples of these falsehoods included common rumors like the COVID-19 vaccine contains live virus or causes infertility (Hamel et al., 2021). While there are numerous factors that contribute to vaccine hesitancy, these myths are commonly spread online, emphasizing how misinformation has contributed to the public's confusion on vaccines. Alongside Facebook's delay in defining clear policies against vaccine misinformation during the pandemic, these results reinforce how misinformation has spread over channels like Facebook and has influenced beliefs about the vaccine.

The other users involved are the individuals and organizations responsible for spreading misinformation. These groups have responded negatively and are accusing Facebook of censorship since the policy implementations on COVID-19 vaccine misinformation. As seen in Figure 3, this Facebook page updated its profile and cover page to reflect its opinion of censorship back in October 2020, suggesting that many of these groups felt immediately violated by Facebook's new policies. This could be expected from the groups that are responsible for posting misinformation, but it also reflects Facebook's failure to ensure transparency throughout the process of moderating content.

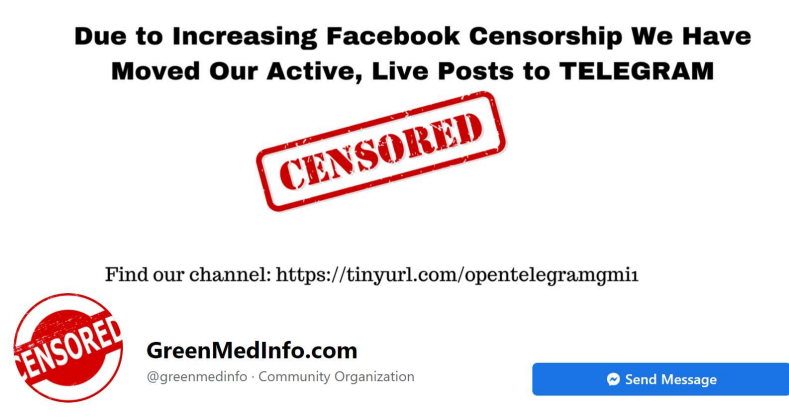


Figure 3. The cover photo of a Facebook page accusing Facebook of censorship (GreenMedInfo.com, n.d.).

Facebook did not list what constitutes removal of COVID-19 vaccine misinformation distinctly on any platform until the Facebook Oversight Board recommended an increase in transparency in late January 2021, months after the first clear policy on COVID-19 vaccine misinformation and a year since the pandemic began (“COVID-19 and vaccine policy updates & protection,” 2021; Facebook, 2021). As a result, the criteria Facebook was following was not always clear for users who were experiencing the removal of content, and this could have contributed to users’ feelings of censorship. Without clear transparency, Facebook risks losing these users to platforms with minimal content moderation (as seen in Figure 3), effectively moving the sources of misinformation to other platforms.

Conclusion

While the response to COVID-19 vaccine misinformation is rapidly changing, it is important to determine Facebook’s responsibility to its users in combatting vaccine misinformation since January 2020, when COVID-19 was declared an international public health emergency. Analyzing Facebook’s policy decisions and implementations over the course of the pandemic can provide new insight into how COVID-19 vaccine misinformation has spread, particularly when relating to the timeliness of content moderation and clarity of its policies. By using a care ethics framework, Facebook proves irresponsible by failing to perceive, act,

mitigate, and respond to the extent of the COVID-19 vaccine misinformation during the pandemic.

As a major social media platform, Facebook is a technology that allows users to interact and spread information at a broad scale. Social media platforms serve as an intersection of technology and society, where the technology determines what information users can see and are interested in. As a result, it is important to understand how the decisions of these platforms can influence public information and trust, particularly relating to health misinformation that can cause harm. Understanding the responsibility of social media moderating misinformation content to its users will ultimately provide greater insights into how misinformation spreads and how it may be deterred in the future.

Word Count: 3,806

References

- Bickert, M. (2019, September 4). *Combatting vaccine misinformation*. Facebook News. Retrieved March 13, 2021, from <https://about.fb.com/news/2019/03/combating-vaccine-misinformation/>
- CCDH (2020, December). *Failure to act: How tech giants continue to defy calls to rein in vaccine misinformation*. Center for Countering Digital Hate. Retrieved March 13, 2021, from <https://www.counterhate.com/failure-to-act>
- Communications Decency Act, 47 U.S. Code § 230 (1996).
<https://www.law.cornell.edu/uscode/text/47/230>
- COVID-19 and vaccine policy updates & protection* (2021). Facebook Help Center. Retrieved March 17, 2021, from <https://www.facebook.com/help/230764881494641>
- Dhaliwal D., & Mannion C. (2020). Antivaccine messages on Facebook: Preliminary audit *JMIR Public Health Surveill*, 6(4):e18878, DOI: 10.2196/18878
- Facebook (2021, February 25). Oversight board selects case on hydroxychloroquine, azithromycin and COVID-19. *Facebook News*. Retrieved March 17, 2021, from <https://about.fb.com/news/2020/12/oversight-board-selects-case-on-hydroxychloroquine-azithromycin-and-covid-19/>
- GreenMedInfo.com (n.d.). *Home* [Facebook page]. Facebook. Retrieved March 14, 2021 from <https://www.facebook.com/greenmedinfo>
- GreenMedInfo.com (2020, April 16). The Bill and Melinda Gates Foundation has donated more than \$21 million towards developing a vaccine [Facebook post]. Retrieved March 14, 2021, from <https://www.facebook.com/greenmedinfo/posts/10158083904748490>
- Hamel, L., Kirzinger, A., Lopes, L., Kearney, A., Sparks, G., & Brodie, M. (2021). *KFF COVID-19 vaccine monitor: January 2021 - vaccine hesitancy*. Kaiser Family Foundation.

<https://www.kff.org/report-section/kff-covid-19-vaccine-monitor-january-2021-vaccine-hesitancy/>

Jin, K. (2020, December 18). *Keeping people safe and informed about the coronavirus.*

Facebook News. Retrieved March 14, 2021, from

<https://about.fb.com/news/2020/12/coronavirus/#latest>

Jin, K. & Leathern, R. (2020, October 13). *Supporting public health experts' vaccine*

efforts. Facebook News. Retrieved March 14, 2021,

<https://about.fb.com/news/2020/10/supporting-public-health-experts-vaccine-efforts/>

Kaplan, A. (2020, February 9). YouTube and Facebook allowed another COVID-19

conspiracy theory video to go viral. *Media Matters for America.* Retrieved March 17,

2021, from [https://www.mediamatters.org/coronavirus-covid-19/youtube-and-facebook-](https://www.mediamatters.org/coronavirus-covid-19/youtube-and-facebook-allowed-another-covid-19-conspiracy-theory-video-go-viral)

[allowed-another-covid-19-conspiracy-theory-video-go-viral](https://www.mediamatters.org/coronavirus-covid-19/youtube-and-facebook-allowed-another-covid-19-conspiracy-theory-video-go-viral)

Poel, I.V., & Royakkers, L.M. (2016). Care ethics, *Ethics, technology, and engineering: An*

introduction (pp. 102-108). Wiley-Blackwell.

Romo, V., & Neighmond, P. (2019, March 7). *Facebook vows to quash anti-vaccine*

misinformation. NPR. Retrieved March 13, 2021, from

[https://www.npr.org/2019/03/07/701358833/facebook-vows-to-quash-anti-vaccine-](https://www.npr.org/2019/03/07/701358833/facebook-vows-to-quash-anti-vaccine-misinformation)

[misinformation](https://www.npr.org/2019/03/07/701358833/facebook-vows-to-quash-anti-vaccine-misinformation)

Rosen, G. (2021, February 8). *An update on our work to keep people informed and limit*

misinformation about COVID-19. Facebook News. Retrieved March 14, 2021, from

[https://about.fb.com/news/2020/04/covid-19-misinfo-update/#removing-more-false-](https://about.fb.com/news/2020/04/covid-19-misinfo-update/#removing-more-false-claims)

[claims](https://about.fb.com/news/2020/04/covid-19-misinfo-update/#removing-more-false-claims)

Rummler, O. (2020, September 9). *Zuckerberg: Facebook won't target anti-vaccination posts like*

COVID misinformation. AXIOS. Retrieved March 14, 2021, from

<https://www.axios.com/coronavirus-vaccine-facebook-mark-zuckerberg-9eac01a2-e6b2-4f4c-a48c-986bac665a2b.html>

Sander-Staudt, M. (n.d.). Care ethics. *Internet Encyclopedia of Philosophy*. Retrieved March 14, 2021, from <https://iep.utm.edu/care-eth/#H2>

Shepherd, K. (2021, February 10). Facebook and YouTube ban ‘Planet Lockdown’ film filled with coronavirus falsehoods, after it was shared by millions. *Washington Post*.
<https://www.mediamatters.org/coronavirus-covid-19/youtube-and-facebook-allowed-another-covid-19-conspiracy-theory-video-go-viral>

Smith, N., & Graham, T. (2017). Mapping the anti-vaccination movement on Facebook. *Information, Communication & Society*, 22:9, 1310-1327, DOI: 10.1080/1369118X.2017.1418406

Smith, R., Cubbon, S. & Wardle, C. (2020). *Under the surface: Covid-19 vaccine narratives, misinformation & data deficits on social media*. First Draft.
<https://firstdraftnews.org/long-form-article/under-the-surface-covid-19-vaccine-narratives-misinformation-and-data-deficits-on-social-media/>

Stecula, D. A., Kuru, O., & Jamieson, K. H. (2020). How trust in experts and media use affect acceptance of common anti-vaccination claims. *Harvard Kennedy School (HKS) Misinformation Review*. <https://doi.org/10.37016/mr-2020-007>

The Truth About Cancer (2020, June 14). If we want to protect our freedoms, the time to act is now [Facebook Post]. Retrieved March 14, 2021 from <https://www.facebook.com/thetruthaboutcancer/posts/3092371507522804>

Tronto, J. (1998). An ethic of care. *Generations: Journal of the American Society on Aging*, 22(3), 15-20. Retrieved March 8, 2021, from <http://www.jstor.org/stable/44875693>

- Tyson, A., Johnson, C., & Funk, C. (2020, September 17). *U.S. public now divided over whether to get COVID-19 vaccine*. Pew Research Center. Retrieved from https://www.pewresearch.org/science/2020/09/17/u-s-public-now-divided-over-whether-to-get-covid-19-vaccine/ps_2020-09-17_covid-19-vaccine_0-03-2/
- WHO (2019, September 4). Vaccine misinformation: Statement by WHO director-general on Facebook and Instagram, *World Health Organization*. Retrieved March 12, 2021, from <https://www.who.int/news/item/04-09-2019-vaccine-misinformation-statement-by-who-director-general-on-facebook-and-instagram>
- Yang, Y., Broniatowski, D., & Reiss, D. (2019). Government role in regulating vaccine misinformation on social media platforms. *JAMA Pediatr.* 2019;173(11):1011–1012. doi:10.1001/jamapediatrics.2019.2838