Heightening Fake information and Misinformation around COVID-19 Vaccine Controversy by Examining Super-Spreaders' Lies

CONFERENCE (work-in-progress)

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Heightening Fake information and Misinformation around COVID-19 Vaccine Controversy: Identifying Super-Spreaders and Their' Lies

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Abstract

Background: The benefits of vaccines administered have been widely recognized by medical experts, but public opinion about vaccination policies and practices is diversified. The current COVID-19 pandemic is one of the leading causes of illness and death worldwide and unvaccinated people continue to die in high numbers. It is assumed that the global population is at risk of being less informed, uninformed, and misinformed about vaccination (e.g., Dixon & Clarke, 2013). Collective attitudes regarding vaccine hesitancy and vaccine refusal could be fueled by uninformed, fake, misinformed, or even distorted vaccine information. The spread of misinformation through super-spreaders online can seriously affect COVID-19 vaccine confidence.

Methods: This study examines, vis-a-vis the COVID-19-vaccine debate, some ways doctors, experts, and scientists spread counter-vaccination misinformation and rumors. A number of anti-vaccination practitioners, including virologists, have called vaccination programs a mass formation psychosis. International news media data were crawled, including CNN, New York Times, Irish Times, and Reuters covered the high-profile doctors for spreading COVID-19 vaccine lies from January 2020 to March 2022. Automatic content analysis was employed in this study.

DivoMiner, a tool based on machine learning and text-mining platform was used, specifically for identifying Chinese and English language text. The platform of DivoMiner integrating artificial intelligence and automatic coding provides reliable and powerful research execution and management. The workflow of computer-assisted content analysis involved four steps: (1) data crawling and screening; (2) Word2vec embedding modeling for coding keywords development; (3) computational-assisted data processing; (4) statistical data analysis and results-reports visualizations. To investigate how the COVID-19 vaccine controversy spread and influenced judgments of vaccine risk, a codebook was developed and tested in DivoMiner.

Results: According to the framing results, a number of false claims around COVID-19 are: 1) government had frequently manipulated COVID-19 vaccines for depopulation as a planned operation; or 2) The COVID-19 vaccine killed more people than the disease and did not prevent any deaths. A total of 33 medical doctors are labeled as super-spreaders whose anti-coronavirus vaccine rumors were circulating on the Internet widely in the West and then translated to

different languages for spreading. Two-thirds of the various anti-coronavirus vaccine rumors circulating on the Internet are fabricated by 12 Americans who convinced millions of online followers. The false claims around COVID-19 vaccine made by academic in school of medicine were also observed for spreading fake information and misinformation around COVID-19 vaccines via social media for Chinese in Mainland China, Taiwan, and Hong Kong.

Discussions: The narratives from the high-profile doctors were a form of crowdsourcing, and their ideas created a vaccine controversy based on conspiracy theories. Even though some physicians supported the use of all vaccines, many health experts and government officials worried that these opinions circulated online would significantly impact anti-vaccine groups. An anti-vaccine advocacy group emphasized the anti-vax sentiment by stating that they are concerned about the credibility of information sources. In contrast, the pro-vaccine arguments focused on health risk and shaped perceived certainty about a virus-vaccine link. While abundant scientific evidence suggests the contrary, the general public continues to trust and believe these anti-link sentiment expressions to be true.

Conclusions: Evidence from our study suggested that false balance heightened followers' internal and external uncertainty regarding vaccines' relationship with the outbreak of the COVID-19 pandemic. The concept of super spreaders using social media can serve as a heuristic device for researching a wider range of online platforms in Asia. The conclusion acknowledged the initially muted response by the scientific and academic community in countering misinformation.

Keywords: fake news; belief in misinformation; disinformation; super spreaders

Introduction

The novel coronavirus continues to rage across the globe, remaining a major threat to the public health. As of March 6, 2022, there have been around 445 million confirmed cases and over six million deaths (Worldometers, 2022). From a public health perspective, vaccination is the most effective way to protect both individuals and communities from vaccine-preventable diseases. However, global coverage with vaccines, such the COVID-19 vaccine, has plateaued at 63.3 %; and approximately 87.9% of Chinese people in China are vaccinated against COVID-19 showing closest data available in February, 2022[1].

Progress has been made on vaccines development with scientific evidence to showing its safety and efficacy to public health, an alarming number of people remain highly suspicious and refuse vaccination. For example, around 17% of British people refused to receive COVID-19 vaccines, a proportion similar to the hesitant people (Burki, 2020). Similar phenomenon has also been observed in many other countries (Barello et al., 2020; Liu et al., 2021; Okubo et al., 2021) such as the United States in particular (Ehde et al., 2021). Vaccine hesitancy reflects the perceived threat of the disease and negative attitude towards the vaccine within the public (Burki, 2020). It has become a threat that hinders herd immunity.

Several factors were observed to affect individuals' intent to vaccination, such as lack of knowledge of disease and vaccine, distrust of government for medical advice (Salmon et al., 2015), and medical mistreatment (Strully, 2021). However, the main source of vaccine misinformation is social media. Misinformation may be amplified by social media algorithms that prioritize content likely to receive a high amount of engagement (Dib et al., 2021).

Based on the findings by Scannell and other researchers in 2021, a response framework—Health Information Persuasion Exploration (HIPE)—is proposed to address mis/disinformation and Anti-Vaccine messaging. it is still a very preliminary study and offered only a quite coarse view of vaccine persuasion, overlooking the interplay between crisis stage, public engagement and persuasive techniques.

Anti-vaccine Communication

Anti-vaccine communication is in its potential to spread and go viral. Lazić, & Žeželj (2021) reviewed the existing narratives on vaccination conspiracy theories and effects of exposure to pro-vaccine narratives. However, none of the narrative interventions aiming directly at conspiracy theories on a range of vaccination outcomes were observed. To map prerequisites for a narrative intervention to be successful, a systematic review of experimental work allowed

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[1] https://ourworldindata.org/explorers/coronavirus-data-explorer?zoomToSelection=true&facet=none&pickerSort=asc&pickerMetric=location&Metric=People+vaccinated+%28by+dose%29&Interval=7-day+rolling+average&Relative+to+Population=true&Color+by+test+positivity=false&country=ARE~PRT~CUB~CHL~CHN~IND~USA~IDN~PAK~NGA~BGD~RUS~MEX~JPN~ETH~PHL~EGY~VNM~TUR~IRN~DEU~THA~GBR~FRA~ITA~OWID_WRL

researchers to make evidence-based recommendations for future research and for public communicators. This might help pro-vaccine communication match.

- Research has found that there are several factors associated with increased susceptibility to COVID-19 misinformation, including vaccine misinformation. These include using social media as a key source of information and having a lower level of trust in scientists.

The number of followers of social media accounts promoting vaccine misinformation has increased since the start of the pandemic. A survey on 438 Chinese residents over 18 years old, found that people who heavily depended on social media for COVID-19 information were more inclined to refuse vaccination (Liu et al., 2021). However, established literature concentrated on the association between media exposure and vaccine hesitancy, but little is known about how vaccine-related messages within social media context were labelled.

There have been large volumes of inaccurate information about COVID-19 circulating since the beginning of the pandemic. More importantly, who was responsible for

Previous research on Twitter has found that anti-vaccine message is more likely to attract interactions, retweets or likes, compared with those pro-vaccine and the neutral ones (Blankenship et al., 2018). Likewise, as reflected by other study, videos sharing on YouTube against vaccination received more views, likes and reposts (Covolo et al., 2017). Some researchers argued that the success of anti-vaccine messages in engaging online users to interact results from legitimizing its unscientific claims by highlighting the importance of personal empowerment and individual freedom of choice (Wang et al., 2019). There is a lack of understanding of people's engagement with vaccine messages within the persuasion frameworks.

ORIGINAL RESEARCH article

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COVID-19 Vaccine Hesitancy Among Chinese Population: A Large-Scale National Study

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- Zhang S, Pian W, Ma F, Ni Z, Liu Y
  Characterizing the COVID-19 Infodemic on Chinese Social Media: Exploratory Study
  JMIR Public Health Surveill 2021;7(2):e26090
  doi: 10.2196/26090
    - https://post.parliament.uk/covid-19-vaccine-misinformation/

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What arguments on vaccinations run through YouTube videos in Italy? A content analysis

Goals of this study

There have been large volumes of inaccurate information about COVID-19 circulating since the beginning of the pandemic, including fake information and misinformation about vaccinations against the infection.

Although vaccine hesitancy in Mainland China and its neiboring has decreased in the early half of 2021, low vaccination rates among groups continue to slow herd immunity against COVID-19. Addressing this hesitancy requires tailored communication approaches, particularly with groups that have been disproportionately affected by the ongoing pandemic.This study examines the sources and types of COVID-19 vaccine misinformation and its potential public health impact. It also looks at the different approaches being used to fight COVID-19 vaccine misinformation, such as social media content moderation and guidance by academic community for the public.

It goes beyond traditional content analysis to develop theory and a nuanced understanding of the lived experience.

primarily interested in the nature of misinformation contained in false news, so that we can better detect it and distinguish it from real news. *Others focus on the susceptibility of users—why we fall for false news and how we can protect ourselves from this vulnerability.* Both are geared toward improving media literacy to protect consumers from false information.

Research Questions (RQ)

Vaccine misinformation may arise from true information that has been reconfigured or taken out of context, or may be entirely fabricated conspiracy theories about the vaccine and the pandemic more widely. Widespread misinformation about COVID-19 vaccines has included false or unsubstantiated claims about their safety, efficacy, ingredients, side effects and purpose.

How widespread is COVID-19 vaccine misinformation?

The trustworthiness of online media sources?

What is the public health impact of COVID-19 vaccine misinformation?

Methods

Widespread misinformation about COVID-19 vaccines has included false claims about their safety, efficacy, ingredients, side effects and purpose. Using qualitative research works better since we wish to underline concepts of misinformation, thoughts of conspiracy statements, and false claims. A search of content analysis as a subject heading term in the Cumulative Index to misinformation and vaccination literature produced more than 4,000 articles published between 2018 and 2022.

The conventional approach to content analysis is limited in both theory development and data size. Using **quantitative analysis (量化分析)** works better because testing and confirming narratives of conspiracy theory on the impact of vaccination decision was proposed. We collected posts related to COVID-19 misinformation published on major Chinese social media platforms from January 2020 to March 2022, by using PythonToolkit. Automated content analysis was employed to identify the quantity and source of prevalent posts and topic modeling to cluster themes related to the COVID-19 misinformation. Furthermore, we explored the quantity, sources, and theme characteristics of the COVID-19 misinformation over time.

COVID-19 infodemic on Chinese social media was characterized by gradual progress, videoization, and repeated fluctuations. Chinese posts related to the COVID-19 misinformation that were classified: chat platforms (1100/ 2745, 40.07%) represented the largest source of the COVID-19 infodemic, followed by video-sharing platforms (642/ 2745, 23.39%) and news-sharing platforms (607/2745, 22.11%). The proportions of health care platforms (239/2745, 8.71%) and Q&A platforms (157/2745, 5.72%) were relatively small.

Data collection

Rumble is a Canadian sharing site to manage videos. The newly established platform by Chris Puff in 2013 who allows users to access, share, and comment on videos, while host, distribute and monetize all users' social and viral video. Rumble's monthly downloads have experienced rapid user growth since July 2020, extending from 1.6 million monthly users to 31.9 million in Q1 2021 with posted 19% growth on monthly active users (MAUs) over the previous month, reaching 39 million MAUs in January 2022 (2022, Feb. 3)[2]. The Rumble platform is a site for videos banned by giant social media network such as YouTube and Facebook. Therefore, almost all videos published on the Rumble platform can be classified as problematic or controversial. However, there are plenty of online users who consider the Rumble is doing a good job of giving everyone the freedom to express any opinion they want. For example, in the readership of a

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[2] https://finance.yahoo.com/news/rumble-sets-records-user-engagement-153400587.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS5oay8&guce_referrer_sig=A QAAAGp4gl5hIhB6EYnG__SIGVo9oDlx7S0RPYuq49VLVxIXW680whfKHtvqnFr4PvFjIkSZx1eesW3YoJFOaqyayTp0UqZ NjX1JBI0cmS-5expRksh1yltxFPue8TJJcW0amnGaq3y8yiNo1hjM_CiCmmODt3AjvlzhjfB0RC8twqdV

website, some people think that YouTube and Facebook are biased towards Democrats, so they will ban speech that is biased towards Republicans. Regardless, the original English-language video was simply called Ask the Experts, and it was banned from YouTube and Facebook shortly after it was published.

Fact-Checking

McGill University in Canada has set up a website "Office for Science and Society" which dedicated to providing health information and combating pseudoscience. It published The Psychiatrist Who Calmly Denies Reality on 2020-9-24, and the subtitle of the article was: Dr. Andrew Kaufman went around in the early days of the new crown epidemic, claiming that the virus does not exist. Now he leads anti-maskers in public demonstrations and tells hundreds of thousands of YouTubers that everything they know about medicine is wrong.

Professor Lin CS has over 40 years of medical research experience by publishing nearly 200 medical referred papers, and serving as a reviewer for more than 60 world-renowned medical journals (e.g., New England medical journal, New England Journal of Medicine).

The core objective of the sampled websites for this study's fact-checking is to supply trusted and impartial analysis to the policy makers, researchers, and public. Thus, our advisers are in constant contact with experts from academia, and the third sector and beyond. Experts help to scan the horizon, identify literature, contextualize research evidence, and peer review the media content.

Codebook

We identify seven different types of online content under the label of "fake news" (false news, polarized content, satire, misreporting, commentary, persuasive information, and citizen journalism) and contrast them with "real news" by introducing a taxonomy of operational indicators in four domains—message, source, structure, and network—that together can help disambiguate the nature of online news content.

Procedure

Study I.

Study II. DivoMiner, a text-mining and automatic content analysis platform supported by machine learning algorithms, was introduced specifically for identifying Chinese language text. The computational platform combined automatic content analysis while considering traditional content analysis procedures. DivoMiner provides functions such as data processing and filtering, keywords establishing and screening, inter-coder reliability testing, machine/manual coding, and quality monitoring. Several studies have applied it to learn about health crises, disease news coverage, policy implementation, and other topics (Chang et al., 2020; Chang et al., 2021; Mak & Ao, 2019).

- Widespread misinformation about COVID-19 vaccines has included false claims about their safety, efficacy, ingredients, side effects and purpose.

Results

      Study I. This video was published on the Rumble platform entitled "Global Doctors and Medical Practitioners Warn about Covid Vaccines". The original video using English narratives was released on 2020-12-6. Adding subtitles/captions in traditional Chinese for circulation in seven months later on 2021-6-18. Existing study found that captions increase the time viewers spend watching a video by almost 40% and make viewers 80 percent more likely to watch a video through the end. Simply adding captions to video content drives up clicks, overall view time, and view longevity. In sum, captions can do a lot in building your search engine optimization efforts. However, take Taiwan for example: despite using Chinese for connecting to the Internet for COVID-19 information, the lack of exposure to COVID-19 in early days of pandemic allow low attention to the video.

      Research by the Center for Countering Digital Hate published in November 2020 suggested that the number of followers of the largest anti-vaccination social media accounts has increased by 25% since 2019. It also estimated that there are 5.4 million UK-based followers of anti-vaccine Twitter accounts.

earned it a very low death rate and sense of normalcy. m*self-ruled island's lack of exposure to COVID-19 has left policymakers hesitant to reopen to the world.*Audiences in Taiwan had no concern on COVID-19 and its vaccine before May 2021. Therefore, ing to publish such a traditional Chinese version of the film at this time to scare the Taiwanese people is really well-intentioned.

These 33 so-called experts gathered together through video to analyze the harm of so-called vaccines to human beings from a so-called professional perspective. Leading the charge is Andrew Kaufman. He is a doctor with a diploma and license (psychiatry), but his profession is naturopathic. He published The Big Virus Hoax on his personal website, claiming that there is no such thing as "virus" at all, and that "new coronavirus" and "new crown epidemic" are both illusions created by the government in order to control actions of the people. (Note: As of today, the new crown virus has caused more than 4 million deaths worldwide)

The second person to appear in the film is Hilde de Smet from Belgium. She is a naturopath and, like Dr. Andrew Kaufman, has absolutely no training or qualifications in virology, immunology, or epidemiology. She claimed that it is very dangerous to use the new crown vaccine directly on humans without animal testing, but in fact the new crown vaccines are all tested on animals. For example, please see the COVID-19 shot protects monkeys published in top scientific journals.

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The third person to appear in the film is Norway's Nils Fosse. He claims that the so-called new crown epidemic does not exist, but in fact in December 2020, the new crown pneumonia has killed nearly 1.6 million people worldwide.

The fourth person to appear in the film is Elizabeth Evans from England. She claimed that there is no evidence that the new crown vaccine can prevent the spread of the virus, but in fact, as early as November 2020, the Pfizer vaccine has been proved to be 94% protective.

The fifth person to appear in the film is Mohammad Adil from the UK. He also believes the so-called Covid-19 pandemic does not exist, and was suspended for 12 months for making such remarks publicly.

The sixth person to appear in the film is Vernon Colman of Great Britain. He believes the entire so-called Covid-19 pandemic is the biggest hoax in human history. Regarding this person's bizarre behavior, the British Independent published What seems to be the problem Doctor Coleman? on 2011-10-22. The article was subtitled: "He was reprimanded by the Press Complaints Commission and banned by the advertising watchdog. As host of a phone helpline including how to make a big penis look smaller, Dr Coleman angered just about everyone. Then why is he so angry?"

False claims

- **False claims that the COVID-19 vaccination contains 'microchips' that can be used to track and control people**

- **False claims that the vaccine causes infertility or death**

- **False claims that the vaccine will alter human DNA**

- **False claims that the pharmaceutical industry has fabricated the results of vaccine trials or covered up harmful side effects to boost its profits.**

Reponses & feedbacks from the followers CNN 13.5 million subscribers. #CNN #News 'I think you're crazy': CNN reporter confronts doctor Dr rashid buttar spreading Covid-19 lies

- 觀看次數：1,256,132 次　2021 年 10 月 21 日　CNN Disables the comment section on all these Covid videos?
- Dr. Buttar is telling the truth and that a fact

Well done CNN you have managed to make this doctor a hero, and exposed yourselves to be the manipulator of truths.

Leave it to CNN to call someone a liar when they themselves don't know what the truth is.

A news reporter telling a licensed doctor he does not know what he is talking is just insane!

Whoever takes medical advice from a journalist deserves what they get.

Based on the findings, a response framework—Health Information Persuasion Exploration (HIPE)—is proposed to address mis/disinformation and Anti-Vaccine messaging

Discussions

- Research has found that there are several factors associated with increased susceptibility to COVID-19 misinformation, including vaccine misinformation. These include using social media as a key source of information and having a lower level of trust in scientists.
    - Strategies to tackle the spread of vaccine misinformation include moderation of content on social media platforms, ensuring the public have access to accurate and reliable information, and providing education and guidance to people on how to address vaccine misinformation.
    - Echo chambers can cause [certain beliefs to be amplified](#) because users don't get shown information or opinions from an alternative perspective that may challenge their attitudes.

Hong Kong's early success in containing the outbreak was the starting point for its complacency, which is now deadly. Officials have been too slow to prepare for the wider outbreak and too little to address misinformation about vaccines, social workers and experts say. For many of the city's 1 million residents over the age of 70, the risk of getting sick has always seemed low enough to keep them from getting vaccinated. Some of the initiatives to tackle vaccine misinformation and encourage vaccine uptake are aimed at specific elder groups, in which there is a historically lower level of vaccine uptake.

Before this outbreak, less than half of people in this age group had been vaccinated. Among those in nursing homes, the proportion is even lower, at 20 percent, according to the Hong Kong Council of Social Service. Now, they are bearing the brunt of the city's worst outbreak. More than 200 people have died from the virus this month, many in their 70s and unvaccinated.

The limitations of this study includes the followings: 1. whether anti-vaccine messages with sentiments, and persuasion techniques at different stages was difficult to decide.

Spreaders of factual information, misinformation spreaders who may retweet lies with good faith or neutral intent, and

A disinformation maker who creates and spreads lies for political, economic or social gain. These three groups are also active in traditional media environments, however, the 90-9-1 rule of the Internet

It is pointed out that 90% of social media users only consume information, 9% will engage in some interaction, and 1% will engage in frequent interaction. 17,30 The challenge ahead is to identify those 10% that are likely to

People who retweet in any online community and try to understand what drives them to do so and identify the 1% who have the potential to be invited to use the various influences they may have

Active users who strive to defend the global public interest. People with online influence often have economic resources and social and cultural influence, invest a lot of time in online communication, and have influence.

The ability and knowledge of the algorithm. 26 Together these traits can be positively reinforced, allowing these users to build their follower base. On a global scale, access to the Internet

Not equal, and most online content is in English. However, in some ways, the online environment provides a level playing field because there are no economic resources, infrastructure or

Formally qualified individuals can also compete with institutions with more resources

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Appendix 1:

说起来你可能不信，国外媒体曾经报道过：目前网络上流传的各种反新冠疫苗的谣言，有 2/3 是 12 个美国人编造的。12 个人都是干啥的呢？给大家介绍一下：

1. Joseph Mercola：美国替代医学（比如传统医药、保健品等）支持者，同时卖保健品。Joseph Mercola, 67, a doctor in Florida, has long been criticized and regulated for promoting unproven or unapproved treatments. Mercola has published more than 600 articles on social networking sites, questioning the new crown vaccine, and claiming that the new crown vaccine is a "medical fraud" and that the injection is harmful to the human body. For the past decade, Mercola has been promoting and profiting from her natural health remedies. During the Covid-19 pandemic, he also started promoting vitamin supplements, which he claimed could ward off infections. As a result, he and his girlfriend Erin Elizabeth have both been included in the list of Just 12 People Behind Most Vaccine Hoaxes On Social Media,".
2. Robert F. Kennedy Jr.：美国律师，约翰·肯尼迪的侄子，Facebook（现 Meta）反疫苗广告的主要买家。
3. Ty and Charlene Bollinger：无医学背景前健美运动员，推荐吃保健品等方式替代正规疗法治疗癌症。
4. Sherri Tenpenny：美国骨科医生兼反疫苗社会活动家，坚信和传播"疫苗导致自闭症"等已被科学否定的谣言。
5. Rizza Islam：在美国的伊斯兰国成员，反疫苗，反 LGBT，反犹太。
6. Rashid Buttar：美国骨科医生用未经批准的假药治病被 FDA 点名批评，还用螯合剂治疗自闭症。
7. Erin Elizabeth：另类健康倡导者，通过抹黑疫苗卖保健品获利数百万美元。
8. Sayer Ji：已解散的前杂志编辑，宣传传统精粹比如以形补形。
9. Kelly Brogan：美国替代医学倡导者，用咖啡灌肠（是的就是字面意思）治疗抑郁症。
10. Christiane Northrup：妇产科医生，相信气功可以治疗女性疾病，认为增加阴道中的"气"可以带来更好地性高潮。
11. Ben Tapper：退休按摩师，坚信戴口罩和健康无关。
12. Kevin Jenkins：反疫苗组织的 CEO，基本上就是个造谣和搞抗议活动的无业游民。

基本上，现在 Mainland China 国内能流行的大部分疫苗谣言也是来自于这些人。中国政府已使用微博提供关于 COVID-19 的数据、详细信息和公共卫生讯息。除了用微博来获取卫生建议之外，中国的年轻人还用它来进行社交互动、参加"云狂欢"(虚拟舞会)，

并上传他们在隔离期间制作的诙谐视频。2

CNN report, American doctor, Dr rashid buttar spreading Covid-19 lies
High-profile doctors spreading Covid-19 disinformation collectively reach millions of Americans, and a dangerous number of people believe their falsehoods. CNN speaks to one of these doctors and counters each incorrect statement with the truth. CNN's Drew Griffin reports.

其他 33 位專家就繼續(台灣科學網站) 數落下去。有個記錄,把他們的名字及國家列表如下:

1. Anne Fierlafijn – 比利時醫生
2. Anna Forbes – 英國醫生
3. Andrew Kaufman 精神科醫生 ,自然療法。根本就沒有《病毒》這種東西《新冠病毒》和《新冠疫情》都是政府創造出來的假象,目的是要控制人民的行動。網站 The Big Virus Hoax(大病毒騙局)The Big Virus Hoax(大病毒騙局)
4. Barre Lando – 美國醫生
5. Boris Dragin – 瑞典針灸師
6. Carrie Madej – 美國醫生
7. Daniel Cullum – 美國脊椎按摩師
8. Dolores Cahill。愛爾蘭 維他命 C,D,和鋅可以非常有效地治療新冠肺炎
9. Elke F. de Klerk – 荷蘭醫生
10. Elizabeth Evans 英國醫生 沒有證據顯示新冠疫苗能阻止病毒傳播
11. Heiko Santelmann – 德國醫生
12. Hilde de Smet 比利時自然療師
13. Johan Denis – 比利時順勢療師
14. Kate Shemirani – 英國護士
15. Kelly Brogan – 美國醫生
16. Kevin P Corbett – 英國退休護士
17. Konstantin Pavlidis – 英國形而上學家
18. Margareta Griesz-Brisson – 德國神經學家
19. Mikael Nordfors – 瑞典醫生
20. Mohammad Adil。英國醫生新冠疫情並不存在 。
21. Moritz von der Borch – 德國記者
22. Natalia Prego Cancelo – 西班牙醫生
23. Nils Fosse 挪威醫生 新冠疫情並不存在
24. Nour De San – 法國醫生
25. Piotr Rubas – 波蘭醫生
26. Ralf ER Sundberg – 瑞典醫生
27. Rashid Buttar – 美國醫生
28. Sandy Lunoe – 挪威藥劑師
29. Senta Depuydt – 比利時記者
30. Sherri Tenpenny – 美國醫生
31. Tom Cowan – 美國醫生
32. Vernon Colman。英國醫生 整個所謂的新冠疫情是人類歷史上最大騙局。
33. Zac Cox – 英國牙醫和 順勢療師

Appendix 2: Keywords for automated content analysis via DivoMiner

"COVID-19 vaccine" OR "vaccine rumors" OR "vaccine hesitancy" OR "vaccine refusal" OR "vaccine hesitancy" OR "vaccine refusal" OR "anti-vaccine" OR "Joseph Mercola" OR "Robert F. Kennedy Jr" OR "Ty and Charlene Bollinger" OR "Sherri Tenpenny" OR "Rizza Islam" OR "Rashid Buttar" OR "Erin Elizabeth" OR "Sayer Ji" OR "Kelly Brogan" OR "Christiane Northrup" OR "Ben Tapper" OR "Kevin Jenkins" OR "退休按摩师" OR "戴口罩和健康无关" OR "Andrew Kaufman" OR "Hilde de Smet " OR "Nils Fosse" OR "Elizabeth Evans" OR "Mohammad Adil" OR "Vernon Colman" OR "Dolores Cahill" OR "Zac Cox" OR "Anna Forbes" OR "Ralf ER Sundberg" OR "Johan Denis" OR "Daniel Cullum" OR "Moritz von der Borch" OR "Anne Fierlafijn" OR "Tom Cowan" OR "Kevin P Corbett" OR "Carrie Madej" OR "Barre Lando " OR "Kate Shemirani" OR "Sandy Lunoe" OR "Boris Dragin" OR "Piotr Rubas " OR "Natalia Prego Cancelo" OR "Rashid Buttar" OR "Nour De San" OR "kelly Brogan" OR "Konstantin Pavlidis" OR "Sherri Tenpenny" OR "Senta Depuydt" OR "Heiko Santelmann" OR "Margareta Griesz" OR "Mikael Nordfors" OR "Elke F. de Klerk"

One of the latest controversial statements about the vaccines came from Robert F. Kennedy Jr., a nephew of former President John F. Kennedy, and one of the biggest sources of anti-vaccine rhetoric today, as he spoke to Louisiana lawmakers.

Kennedy was given the floor for about 20 minutes during a <u>Dec. 6 Louisiana House oversight meeting</u> on a proposal that would require students to get vaccinated against COVID-19 before entering school. <u>The meeting ended</u> several hours later with the state House Committee on Health & Welfare voting 13-2 to oppose requiring vaccination.

Kennedy used his time to make a series of problematic and false statements about the COVID-19 vaccines and, at one point, argued that the shots' record "confirms that this is the deadliest vaccine ever made."

Pointing to a pie graph that compiled deaths reported in the federal government's Vaccine Adverse Event Reporting System over the last 30 years, Kennedy claimed that there are "more people who have died in eight months from this vaccine than from 72 vaccines over the last 30 years."

But there are several errors with Kennedy's claim. We address them here, one by one.

VAERS is unreliable

The biggest issue is the low-quality data that Kennedy relies on to make his point.

VAERS, which is run by the U.S. Centers for Disease Control and Prevention and the Food and Drug Administration, was established in the late 1980s to help health agencies and researchers collect and analyze data on vaccine after-effects and to detect patterns that may warrant a closer look. But the database is an open-access system and unlike other government data sources that are screened before being made available to the public.

VAERS is designed so that anyone — parents, patients and health care professionals — can freely report any health effects that occur after a vaccination, according to the CDC, whether or not those effects are believed to be caused by a vaccine.

The reports aren't verified before they're entered and have included car accidents and incidents of self injury. Still, anyone with a computer can search the data, download it, and interpret the numbers as they wish — making VAERS fertile ground for vaccine misinformation.

The VAERS search engine has a prominent disclaimer that says: "The number of reports alone cannot be interpreted or used to reach conclusions about the existence, severity, frequency, or rates of problems associated with vaccines." VAERS reports alone "cannot be used to determine if a vaccine caused or contributed to an adverse event or illness," it says. People using the database are required to click on a form saying that they understand these limitations.

Dr. Paul Offit, director of the Vaccine Education Center and physician in the Division of Infectious Diseases at Children's Hospital of Philadelphia, said VAERS is misnamed because it leads people to believe that if something was reported, it's automatically an adverse effect of the vaccine.

"At its best, VAERS is a hypothesis-generating mechanism. It really should be titled 'suspected adverse event,'" Offit said. "There is no screening. You could report that your child got the vaccine and turned into the Incredible Hulk."

More than 459 million doses of COVID-19 vaccines have been administered in the United States from Dec. 14, 2020, through Nov. 29, 2021, according to the CDC. During this time, VAERS received 10,128 reports of death (0.0022%) among people who received a COVID-19 vaccine, agency spokesperson Martha Sharan told PolitiFact in an email. That includes people who died of any cause.

"Reports of adverse events, including deaths, do not necessarily mean that a COVID-19 vaccine caused a health problem," Sharan added. "Statements that imply that reports of deaths to VAERS following vaccination equate to deaths caused by vaccination are scientifically inaccurate, misleading and irresponsible."

Health officials have data on billions of individuals who have received multiple doses of the COVID-19 vaccines, said Dr. Rebecca Weintraub, an assistant professor in the Department of Global Health and Social Medicine at Harvard Medical School.

"So yes, we are confident that we have a robust database that these vaccines are as safe and effective as other vaccines," Weintraub said. "It prevents death, it prevents

severe disease and it decreases transmission. And we know that for those who are vaccinated who get breakthrough cases, they clear the virus faster."

On average, 2,800 people die each day in the U.S., and health officials say that there will always be people who got a vaccine who die afterward from unrelated causes. This is especially true for a vaccine that over 70% of the country's population has received.

"Hank Aaron is one example," Offit said. "He died of a stroke because he was in his mid-80s, not because of a vaccine."

The CDC said in an email to PolitiFact that it hasn't detected any unusual or unexpected patterns for deaths following immunization that would indicate that the COVID-19 vaccines are causing or contributing to deaths, outside of six confirmed deaths following the Johnson & Johnson vaccine due to complications from a rare and serious adverse reaction called thrombocytopenia syndrome. The reaction prompted officials to pause injections of the vaccine for about 10 days.

In an email, Kennedy's spokesperson, Rita Shreffler, cited the same VAERS numbers and said that a 2010 study found that, as opposed to overcounting, VAERS vastly undercounts vaccine injuries — fewer than 1%.

But that study evaluated an automated system that tracked a patient's health changes following a vaccination, rather than the voluntary reporting system that Kennedy drew his numbers from. It also didn't explain how it calculated the percentage.

In VAERS, the degree of underreporting varies widely depending on the symptom being reported, the Department of Health and Human Services said on its website.

"As an example, a great many of the millions of vaccinations administered each year by injection cause soreness, but relatively few of these episodes lead to a VAERS report," HHS says. "Physicians and patients understand that minor side effects of vaccinations often include this kind of discomfort, as well as low fevers. On the other hand, more serious and unexpected medical events are probably more likely to be reported than minor ones, especially when they occur soon after vaccination, even if they may be coincidental and related to other causes."

COVID-19 vaccines compare with other vaccines

René Najera, an epidemiologist and editor of the College of Physicians of Philadelphia's History of Vaccines website, said that Kennedy's statement is typical of anti-vaccine activists who make inflammatory comments without credible evidence.

Najera said that it's difficult to compare the COVID-19 vaccines with vaccines from decades ago because the technology and communication are better. If anything, he said, a very small signal of an adverse reaction would be identified and detected more quickly now than back then.

"First, we had the smallpox vaccine in the early 1800s," Najera said. "It was given to millions around the world, but we just don't know how many people may have died from it — there was no such thing as a clean needle back then. But we do know that it prevented smallpox, and the epidemic started to die down afterward."

The closest thing to a "deadly" vaccine was the result of a lab accident, Najera said, not the therapeutic itself.

When the polio vaccine was licensed in the 1950s, independent labs started to create it. One California lab, Cutter Laboratories, didn't deactivate the virus used in the vaccine as it should have, and several thousand children were exposed to the live polio virus, with several dozen dying as a result.

When the flu vaccine rolled out in the mid-to-late 1970s, it was found that on very rare occasions, people developed Guillain-Barré syndrome after being vaccinated. Guillain-Barré is a disorder in which the immune system attacks the nerves, and it can also result from the flu itself. In the late 1990s, the live virus RotaShield vaccine was found to be a rare cause of intussusception, a type of bowel blockage caused when the intestine folds into itself like a telescope. There was one death, and the vaccine was pulled from the market.

"This was caught by the same surveillance systems we have now, and while it was very treatable it was still taken off the market," Najera said.

Offit said vaccines have in rare cases been associated with adverse events, including the diseases they're meant to prevent, but that Kennedy's claim is "just not true."

"The COVID-19 shots are very typical of vaccines, which have associated adverse events," he said. "The mRNA COVID-19 vaccines are a rare cause of myocarditis. The J&J vaccine is a very rare cause of one in 500,000 for blood clots.

"The flu vaccine can rarely cause Guillain-Barré syndrome. The polio vaccine that we used from the early '60s to 2000s was a rare cause of polio. The yellow fever vaccine can cause yellow fever for about one per million recipients."

Meanwhile, few measures in public health can compare with the impact of vaccines, which medical officials and analysts say have saved more lives than any other single medical advance. Vaccinations have reduced disease, disability, and death from a variety of infectious diseases by protecting those vaccinated and by reducing the spread of disease. One 2017 report highlighted the impact in the U.S. of immunization against nine diseases, including smallpox, measles and polio. All were shown to have been reduced by 90% or more.

Kennedy claimed that the COVID-19 vaccine is the deadliest vaccine ever made according to deaths reported in VAERS.

VAERS is an unreliable source, and the agencies that run it say its reports cannot be used on their own to establish whether a vaccine caused any adverse event.

Health officials and experts said that the COVID-19 vaccines are safe and comparable to others, and that they would have been discontinued if they had caused many deaths.

事实信息散播者、可能出于善意或中立的意图而转发谎言的错误信息散播者，以及为 谋取政治、经济或社会利益而制造并散播谎言的虚假信息制造者。这三类群体在传统媒体环境中也很活跃，然而，互联网的 90-9-1 法则 指出，90%的社交媒体用户只消费信息，9%的用户会参与一些互动，1%的用户会经常参与互动。17,30 摆在面前的难题是要识别那 10%可能会 在任何一个在线社区中转发信息的人，并试图了解什么驱使他们这样做，同时要识别那 1%有潜质可获邀去运用他们可能拥有的各种影响 力以捍卫全球公共利益的活跃用户。有网络影响力的人往往拥有经济资源和社会文化影响力，在网络沟通上投入大量时间，并且具备影 响算法的能力与知识。26 这些特质走在一起可以获正面增强，从而让这些用户建立他们的关注者群。在全球范围而言，使用互联网的机会并不平等，而且大多数在线内容都是英文。然而，在某方面，网络环境又提供了一个公平竞技的舞台，因为没有经济资源、基础设施或 正式资格的个人也能与掌握着更多资源的机构竞争

事实信息的散播者：除了官方机构之外，具社会影响力的个人也会通过他们的个人社交媒体账户散播关于 COVID-19 的事实信息。诸如 red dit 等平台以及维基百科等其他众包平台设有健康论坛，这些论坛的用户已经形成了试图用事实信息来对抗错误信息的风气。reddit 最近 的一项研究表明，该社区的成员通常会给那些包含正确信息的帖子投票，这些帖子因而给放在显著位置，并变得更显眼。 17 专家也参与 这些论坛，并以事实信息回答用户直接发布的问题。17 众包社交媒体平台和官方平台各有所长。官方消息来源传递的是经确认属实的信 息，而众包信息的来源或准确性可能就难以核实。另一方面，众包平台往往更迅速提供回应，也允许言论自由，而官方来源则可能反应 迟缓，而信息要受政府或官方机构控制。 错误信息的散播者：这个群体中的人无意中传递了他们信以为真的不准确信息。用户必须受鼓励在转贴前核实消息。挑战权威的互联网 用户给视为具有"社运人士"的特征，他们出于善意试图制造新知识，但不总是做得对，而"有魅力的业余人士可以成为具有影响力的 错误信息来源。" 27 文献已记载，那些不能及时对错误信息做出反应并且/或者纠正错误信息的专家机构，败给了那些更成功以有利于自 己的方式使用社交媒体的机构。27 与受灾社区沟通（CDAC）网络将谣言分为三类：基于人们的希望而编造的愿望谣言、以焦虑为基础的 恐惧谣言，以及基于威胁而创造的敌意谣言。12 在人道主义危机中，恐惧谣言通常是三者中最盛行的。 虚假信息的制造者和散播者：虚假信息的制造者不计其数，其中有政客、高调和知名的阴谋论者，以及那些希望攫取经济和社会利益的 人。政府和组织，包括社交媒体平台在内，面临着越来越大的压力要去打击虚假信息。例如，纽约州总检察长最近命令美国广播节目主 持人、阴谋论者亚历克斯•琼斯(Alex Jones)停止推广和贩售他误称能治愈 COVID-19 的产品。亚历克斯•琼斯一边声称美国国土安全部正 在抢购应急食品，一边在他的网店上宣传口粮。32 他的网站有时达到 140 万的日访问量，超过了《经济学人》和《新闻周刊》等主流新闻 媒体。33,34 无独有偶，美国电视福音传道者吉姆•巴克(Jim Bakker)因在其电视节目中推广所谓 COVID-19 治疗方法而遭起诉。35 研究表明， 个人和团体会试图從这类事件中獲利，以煽情的手法描绘事件来壮大其受众基础并且/或者利用他们在社交媒体上的知名度创造可以转化 为财务利益的"点击诱饵"。28,36 支持川普、阴谋论和反疫苗的组织匿名者 Q 声称，COVID-19 是一场"有计划的"、"给散播出来的"疾 病，是比尔•盖茨阴谋的一部分，这一阴谋论获得接受，包括在推特、面书和优兔上获多番转发。 14 在这次疫情中，美国官员还报告称， 数以千计与俄罗斯有关的社交媒体账户发动有组织的舆论攻势，用多种语言发送几乎相同的讯息，宣称 COVID-19 是美国中央情报局制造 的生物武器。这些账户曾经就其他全球事件发表过亲俄的言论，账户上可以找到类似俄罗斯新闻媒体（例如今日俄罗斯（RT）和卫星社 （Sputnik））发布的讯息。37 值得注意的是，生物武器之说并非第一次出现，在过去爆发疫情时这种说法也曾流行过，包括西非的埃博 拉 38 和拉丁美洲的赛卡 39。人们发现，发生出乎意料或悲剧事件之后阴谋论激增，因为它有助人们解释或减轻失控或混乱感。48,49 合作伙伴 意识到可能会出现的阴谋论，就可以让他们准备好讯息，在这些阴谋论出现时给予迎头痛击。然而， 另一些类型的虚假信息旨在加剧焦 虑和制造混乱，使人们不再接触并且不再信任所有媒体。这类虚假信息及其潜在的影响是非常难对抗的。 简化性与措辞：能够流传开来的谣言和讯息通常都非常简单。40 引人注目、在文字或图像运用上巧妙的消息，更容易引发人们把它重述。 简单又幽默的媒因（例如，带有诙谐文字的照片)、推文以及包括视频或音频记录在内的多媒体信息，更有可能被疯传。包括文盲或不习 惯长时间专注文字为主的沟通的受众，都能轻易和迅速消化这些形式的讯息，甚至对而言。

https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/15178/SSHAP_Brief
_Online_Information_COVID-19_CN.pdf?sequence=14&isAllowed=y

谣言一：在中国打疫苗出了问题后受害者无处讨公道，疫苗打完的所有不良反应都会被判定为偶合。

事实：疑似预防接种异常反应（AEFI）不一定和疫苗有关。严重不良事件到底是疫苗接种所致，还是与疫苗接种并无因果关系的偶合事件，有很严谨和科学的调查判定标准，不仅会有疾控专家参与，还会邀请临床多科室一起进行分析。如果对调查诊断结果不接受可以继续申请医学鉴定。

而网络上很多指责疫苗安全性问题的人，既有不去申请调查诊断或者鉴定直接宣称疫苗有安全性问题的，也有对调查诊断结果不接受后在网上传递疫苗负面信息的，并且引发很多关注和起哄。

很多人恶意将不配合诊断/鉴定的行为抹黑为"官方不负责"或者"懒政"，将对自己不满意的结果描述为"全都定为偶合"，引起公众误解，还出现过"国际友人"参与到一些相关的负面事情当中**......**

谣言二：新冠疫苗可导致严重疾病，有人打疫苗后患上了白血病。

事实：时间逻辑不代表因果关系，这个道理简单但很多人都不懂，且目前全球都并未发现接种新冠疫苗后会提高白血病的发生风险。

无论打不打新冠疫苗，我国每月白血病新确诊病例都有数千例，只不过以前不接种新冠疫苗所以没有人会认为是疫苗引起。

白血病，图源：xue63.com

当然，部分媒体也存在一定的责任，之前某些官媒大肆宣传某个国家接种外国的新冠疫苗【后】出现多个白血病病例的新闻，现在来看已经出现明显的反噬。

谣言三：新冠疫苗引起出生率低下。

事实：一方面现在生育压力确实大，我国国内出生人口数已经连续多年下降，但非要扯上疫苗那真的说不过去。

同时，国外有反疫苗群体传播类似的谣言，很明显播被"嫁接"到国内了，不少人就开始就这个话题跟风起哄。

孕妇接种新冠疫苗，图源：sohu.com

实际上，即便疫苗从动物试验阶段开始就做过生殖毒性研究，仍有很多医务人员在没有任何依据的前提下给出"接种疫苗后一段时间内不要怀孕"、"备孕期不能接种疫苗"、"怀孕时候打疫苗对孩子不好"等主观臆断的信息并且引发传播，导致很多人开始怀疑疫苗的安全问题。

谣言四：疫苗含有毒成分会对身体有害。

事实：新冠疫苗成分非常简单，除了抗原（国内用的疫苗包括灭活的病毒、重组后的腺病毒、亚单位蛋白）、水之外，主要就是一些无机盐和佐剂成分，与常规接种的疫苗没有本质区别，只不过很多人故意夸大某种成分的危害。

以铝佐剂为例，很多反疫苗人士叫嚣着佐剂中含铝，摄入过多的铝会对人的神经有影响。但实际上，疫苗中佐剂的铝含量很低，直接点说一支疫苗的铝含量都低于日

常吃一口油条，甚至远低于给婴幼儿吃的一些豆奶奶粉制品，根本不会引起中毒更不会影响神经发育。

相比较而言，不打疫苗如果感染病原体——如新冠病毒——反而患病后的并发症可能影响神经系统健康，要知道新冠病毒感染后可能引起认知障碍。

谣言五：疫苗中的灭活剂含量高，会导致疾病。

事实：以灭活疫苗为例，灭活疫苗确实采用了 β-丙内酯对病毒进行灭活，然而灭活剂的使用并不代表灭活剂完全会被留在疫苗中，而是采用纯化的方式尽可能去除疫苗中灭活剂的残留达到极低的水平。

β-丙内酯，图源：mumuxili.com

对于其他采用甲醛灭活的疫苗也是一个道理，可一些人就是要无视疫苗生产中要尽可能去除灭活剂的事实，或者夸大残留灭活剂的危害导致恐慌，这种揣着明白装糊涂的犯坏案例比比皆是。

在讨论疫苗的时候就抛开剂量谈毒性，在讨论一些传统精粹时候就抛开毒性谈剂量可不好。

谣言六：国产疫苗未经试验就给人（或某群体）使用。

事实：为了不让国内疫苗接种工作推进，很多人尤其是某些伪装成医学专业人员的群体可谓煞费苦心，杜撰了**"疫苗没经过试验就给 XX 人群使用"**的谣言，在

长

时间内让一些人误认为自己是**"小白鼠"**，但实际上任何疫苗获批使用都是有明确安全性、免疫原性证据的。

当然，即便有了相关证据并在实际应用当中被进一步证实也可以继续挑毛病，比如不顾研究管理要求愣是要说**"参与试验人数少"**、**"结果数据不够"**、**"有人说有问题"**等，那真的没辙，毕竟有句话说得好——欲加之罪何患无辞。

然而，这也是个值得讨论的问题——什么样的数据才会让人满意？

从科学角度而言，现有的数据早已足够。但无论你提供多么充足的证据，那些反疫苗反的走火入魔的人都永远不会满意。

谣言七：现在给人们用的疫苗残留超标。

事实：也是属于故意抹黑。在疫苗生产完成后，我国中检院会对疫苗进行多种检定项目的检测，每种检测都设置了严格（甚至比国际标准更严格）的指标，如果有任何一项未达到要求都不会获批。

乍看之下一些人**"义正言辞"**的在质疑疫苗安全性，实际上只是心知肚明的在煽动一些不了解情况的人们去质疑官方权威性而已。

这种情况真的非常需要关注。

谣言八：疫苗内含有微型芯片，接种疫苗后能够检测到人体信号。

事实：真的有人在宣传这种信息，并且这种舶来品信息的宣传者和倡导者很多也是传统文化的坚定拥护者，非常有意思，不多讨论了。

简单来说，疫苗企业生产的是疫苗，不生产芯片，更做不出"微芯片"，但就是有的人故意犯蠢或者犯坏，这真的是没办法的事。

谣言九：最近新发病例都是疫苗的 ADE 效应？

事实：ADE 效应即抗体依赖性增强作用，简单来说就是假设不接种疫苗风险可能是 1，接种疫苗再接触病原体风险可能就会变成 2，甚至更高的情况。

然而，至今没有发现任何一个新冠疫苗在真实世界中存在 ADE 效应。

已经获批应用的新冠疫苗都具有明确的有效性，能够大幅降低新冠病毒感染后的发病、住院、重症，甚至死亡风险，只是很多人故意无视这些结果而是拼接负面信息引发新对疫苗新的负面认知罢了。

谣言十：接种疫苗还发病证明疫苗无效。

事实：人们对疫苗的期望太高，当然也和之前一些错误的信息传递有关。

事实上任何疫苗都不能保证 100%避免每一个人在接触病原体后感染或患病，但在一些情况下人们的关注点都在发病的人身上，却无视了被疫苗保护的更多群体，以至于直接主观认定疫苗无效。

除了基础科学素养不足的原因外，一些外部输入信息直接干扰了对国产疫苗的选择和使用，最直接的灌输方式就是传递"国产疫苗无用论"的信息，使得假话说多了也会变成让人相信的真话。

需要强调的是，我们应该客观看待这些问题，有些情况发生后其实有正确的行为可以选择：

- 任何情况都不能主观否认疫苗接种后可能存在异常反应，但需要告知可以调查诊断和医学鉴定的流程信息；

- 任何群体都不应该反对人们对疫苗成分以及临床研究的担忧和质疑，但应该引导人们不去相信和传播谣言；

- 任何时候都不能轻易被一些引导性言论煽动，但需要有更全面的科普和教育去从根源上让人们能够客观思考。

另外，疫苗的安全性、免疫原性、有效性确实有优劣之分，但**无论哪种疫苗接种后都比不接种要好**

，但有些群体就是要疯狂输送错误的负面信息以达到个人或整体的一些目的，我们一定要当心。

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