# History, vaccine misinformation, and the power of narratives

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These views do not necessarily reflect the views of USAID.

A narrative consists of an account of connected events or experiences, often retold as stories.

We make sense of the world through retelling and digesting stories.

Stories that make up narratives can be accurate or not.

How we act on narratives can affect our health.

Source: McCall, B., Shallcross, L., Wilson, M., Fuller, C., & Hayward, A. (2021). Storytelling as a research tool used to explore insights and as an intervention in public health: a systematic narrative review. International journal of public health, 66, 1604262.

# What do narratives and stories have to do with vaccines and misinformation?

While the causes underlying vaccine hesitancy are complex, the influence of narratives is notably salient as antivaccine advocates frequently rely on personal testimonies to argue that vaccines are neither safe nor effective. Research finds that these adverse narratives have a disproportionate impact on vaccine attitudes and behaviors even when paired with accurate scientific risk information, and this biasing effect of narrative information is stubbornly difficult to counter.

COLLOQUIUM PAPER

SOCIAL SCIENCES

# The narrative truth about scientific misinformation

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Edited by Elizabeth Neeley, The Story Collider, Washington, DC, and accepted by Editorial Board Member Susan T. Fiske March 28, 2020 (received for review August 14, 2019)

**Science and storytelling mean different things when they speak of truth. This difference leads some to blame storytelling for presenting a distorted view of science and contributing to misinformation. Yet others celebrate storytelling as a way to engage audiences and share accurate scientific information. This review disentangles the complexities of how storytelling intersects with scientific misinformation. Storytelling is the act of sharing a narrative, and science and narrative represent two distinct ways of constructing reality. Where science searches for broad patterns that capture general truths about the world, narratives search for connections through human experience that assign meaning and value to reality. I explore how these contrasting conceptions of truth manifest across different contexts to either promote or counter scientific misinformation. I also identify gaps in the literature and identify promising future areas of research. Even with their differences, the underlying purpose of both science and narrative seeks to make sense of the world and find our place within it. While narrative can indeed lead to scientific misinformation, narrative can also help science counter misinformation by providing meaning to reality that incorporates accurate science knowledge into human experience.**

narrative | science | misinformation | education | persuasion

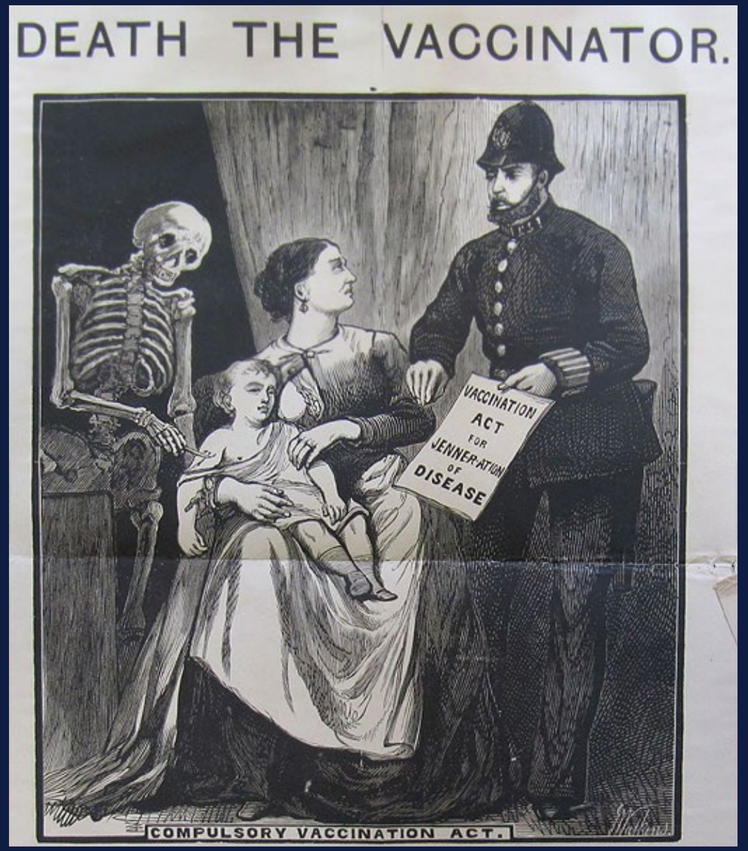
story will generalize to some larger truth. The vaccine story that begins this review exemplifies this contrast. While science searches for broad patterns that capture general truths about the world, storytelling celebrates the particulars of a single experience, regardless of how representative that experience may be. Additionally, in many cases, a particular experience can be more influential upon decision making.

However, the role that storytelling plays within the creation and dissemination of scientific misinformation may not be so clear. There are just as many calls that promote storytelling as a means to benefit science and potentially combat misinformation. Storytelling is claimed to better engage audiences with science (5), make science more meaningful (6), and portray science as more inclusive (7). Storytelling can communicate accurate scientific information both within the classroom (8) and through fictional entertainment (9).

The vaccine story that begins this Introduction also exemplifies the complex relationship between misinformation and storytelling. While it may not be representative of what science has determined is likely to happen and while a reader may likely make the mistake of assigning causation where there is only correlation, nothing in the story is scientifically inaccurate. The story may accurately capture an individual's experience related to vaccines. This represents a very different type of mis-

Source: Dahlstrom, M. F. (2021). The narrative truth about scientific misinformation. Proceedings of the National Academy of Sciences, 118 (15), e1914085117.

https:// www.loc.gov /resource/cph.3g03147/

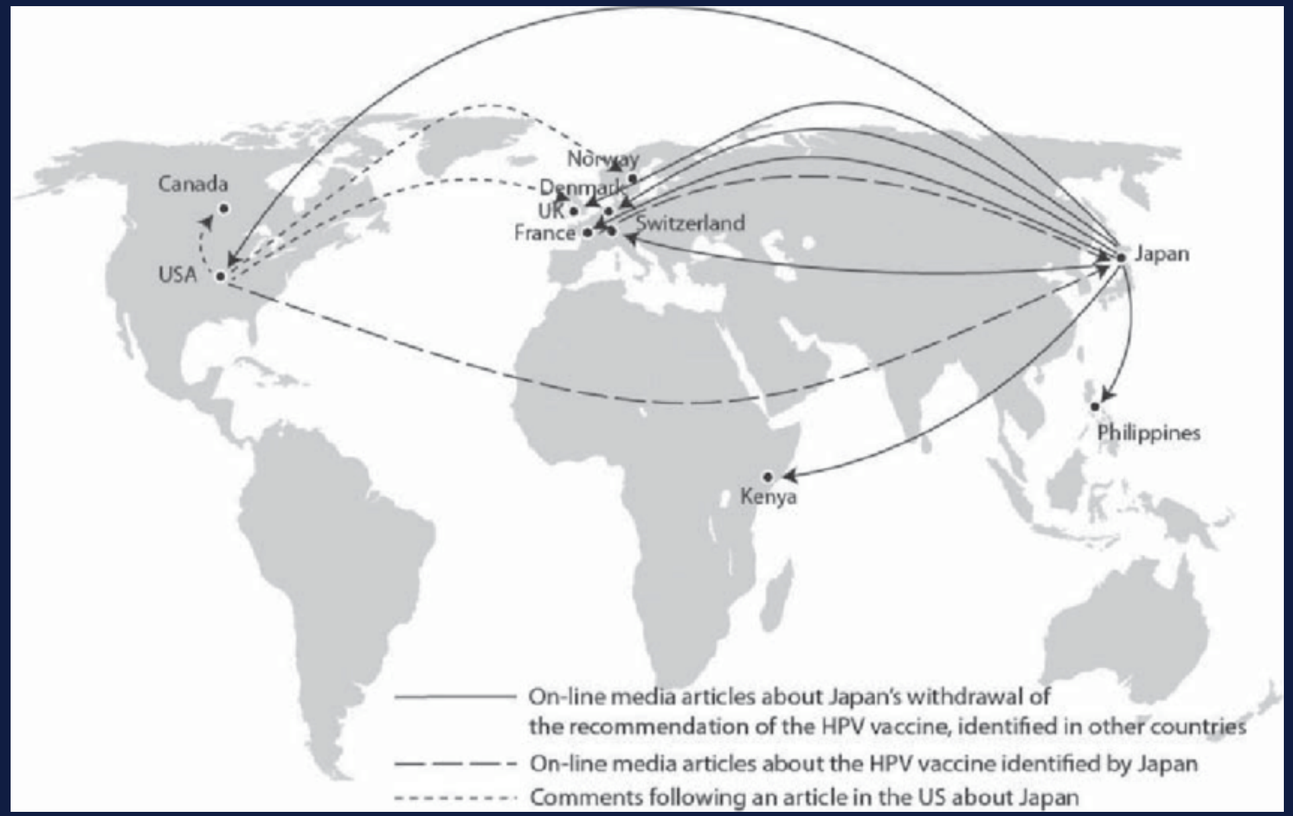



https://historyofvaccines.org/blog/death -the-vaccinator

# Vaccine misinformation isn’t new.

# Negative narratives impacting vaccine uptake are also not new.

These continue to harm confidence in vaccines, the vaccinators, and the health system they come from.




https://pubmed.ncbi.nlm.nih.gov/25483472/#:~:text=Results%3A%20Online%20media%20collected%20and,primary%20concern%20being%20vaccine%20safety.

https://www.science.org/content/article/dengue-vaccine-fiasco-leads-criminal-charges-researcher-philippines

# Why is addressing our current information environment so difficult in public health?

Diminished public trust in officials, coupled with increasing diversity of online platforms, creates a context vulnerable to the spread of misinformation.

Debunking misinformation will have limited effectiveness unless the larger social and cultural forces that bolster misinformation are addressed, which requires evidence-based approaches that leverage socio-behavioral and epidemiological insights.

NATIONAL ACADEMIES

Proceedings of a Workshop—in Brief

Navigating Infodemics and Building Trust During Public Health Emergencies

Proceedings of a Workshop—in Brief

Over the past 15 years, narratives that influence knowledge, attitudes, perceptions, and behaviors related to public health emergencies have circulated faster in our increasingly digitized society. To keep pace, health authorities must be quicker to identify and respond to circulating narratives.

Exerpted from the National Academy of Sciences, Engineering and Medicine Workshop on Navigating Infodemics and Building Trust during Public Health Emergencies, April 2023

# Common vaccine narratives

Development, provision and access to vaccines

Safety, efficacy and necessity of vaccines

Political and economic motives

Morality and religion

Conspiracy theories

Liberty and freedom

Source: FirstDraft https://firstdraftnews.org/wp-content/uploads/2020/11/FirstDraft_Underthesurface_Fullreport_Final.pdf?x21167

# Common vaccine narratives

Development, provision and access to vaccines

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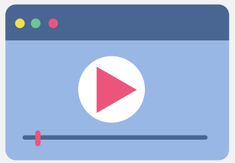
Can't be effectively addressed by heath authority

Source: FirstDraft https://firstdraftnews.org/wp-content/uploads/2020/11/FirstDraft_Underthesurface_Fullreport_Final.pdf?x21167

# How the new information environment can impact vaccine confidence and uptake

Types of Content

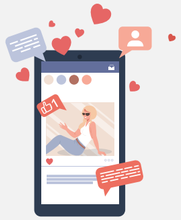


Video

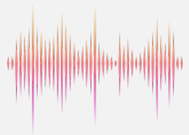
Memes

Images

Messages



Online posts



Audio

Online news

## Common Vaccine Narratives & Misinformation

- Purity of vaccines / vaccine ingredients
- Vaccine side effects
- Vaccine safety
- Doubts about vaccine efficacy
- Conspiracy theories
- Vaccine manufacture, testing and approval
- Alternative treatments and cures

## Can Affect a Person's

- Perception of social support
- Vaccine knowledge
- Vaccine perceptions (safety, efficacy)
- Vaccine confidence
- Vaccination intent

best predictor of vaccine uptake

# What are some of the elements needed for a narrative to “go viral?”

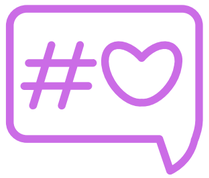
Pushes emotional buttons and appeals to audience values

Contains images or video specifically formatted for a particular audience and channel

Tells a story

Uses humor or satire

Provides a simple explanation for a complex problem



Uses language that is appealing to the audience (e.g. slang, memes)

Narratives are amplified through networks, both online and offline.

They also self-reinforce one another as they are repeated and mutate with new variations.

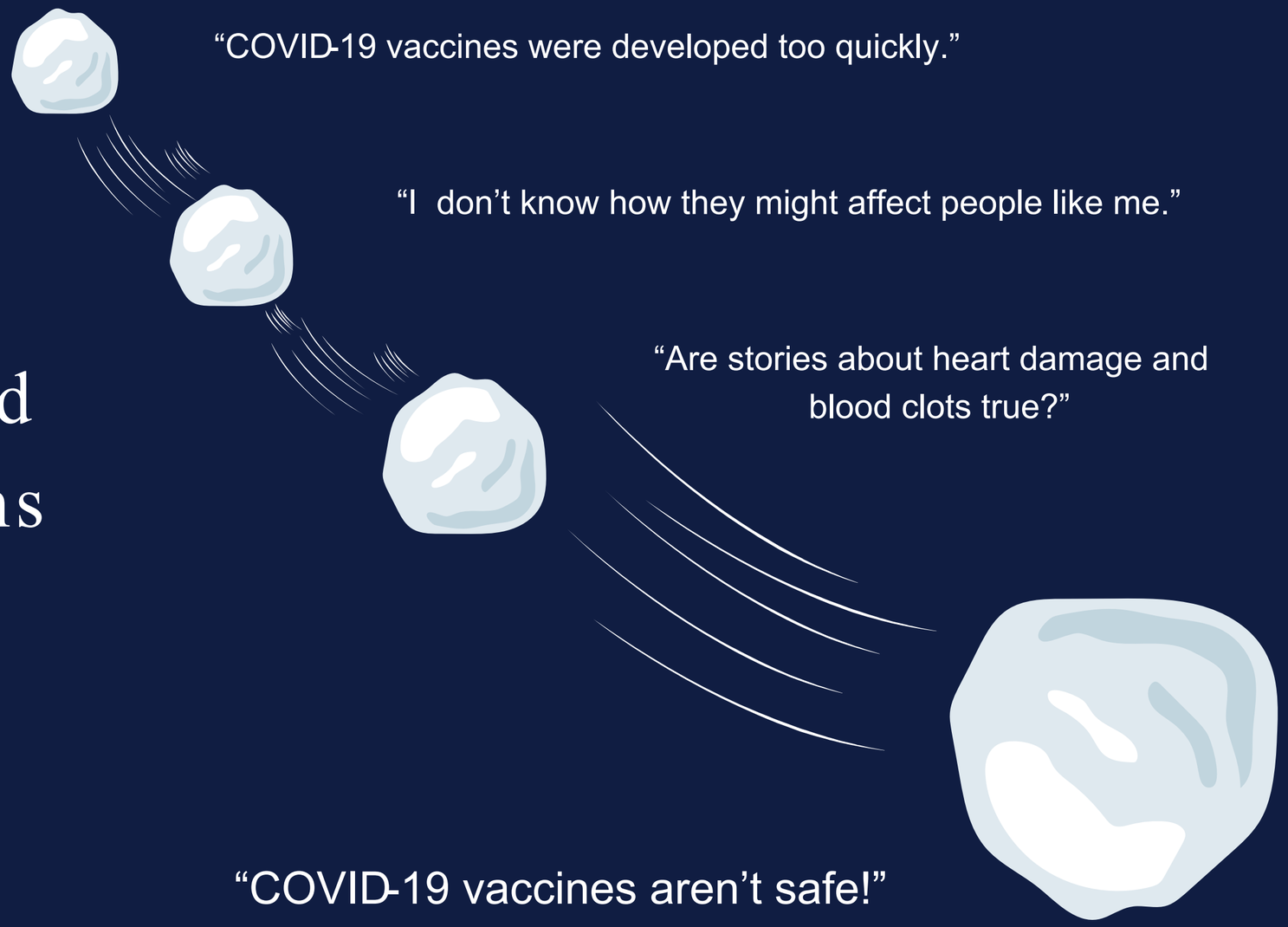
Community

Community Influencers

News Media

Social Media Platforms

Misinformation, alongside unaddressed questions and concerns and information voids, can snowball into narratives that can cause harm.



Narratives that go unaddressed can also fuel mistrust.

“Mistrust is the outgrowth of the perception that promises were broken and values were violated.”

--Dr. Barbara Reynolds

"Zombie" vaccine misinformation perpetuates harmful narratives that...

- Vaccines aren't safe.
- That diseases stem from "over there."
- Vaccines can damage your future.

They keep coming back because they are emotionally resonant and seem easy to believe, often because they are shared by people you trust.

## Zika Virus Found In Recent Shipment Of Bananas; CDC Is Warning Of Safety Concerns

https://leadstories.com/hoax-alert/2019/06/fake-news-zika-virus-shipment-bananas-cdc-warns.html

## Bananas do not help prevent the coronavirus

https:// apnews.com/article/archive-fact-checking-8631011043

## What was fake on the Internet this week: HIV blood in bananas and SeaWorld whales in plastic bags

https://www.washingtonpost.com/news/the-intersect/wp/2015/11/13/what-was-fake-on-the-internet-this-week-hiv-blood-in-bananas-and-seaworld-whales-in-plastic-bags/

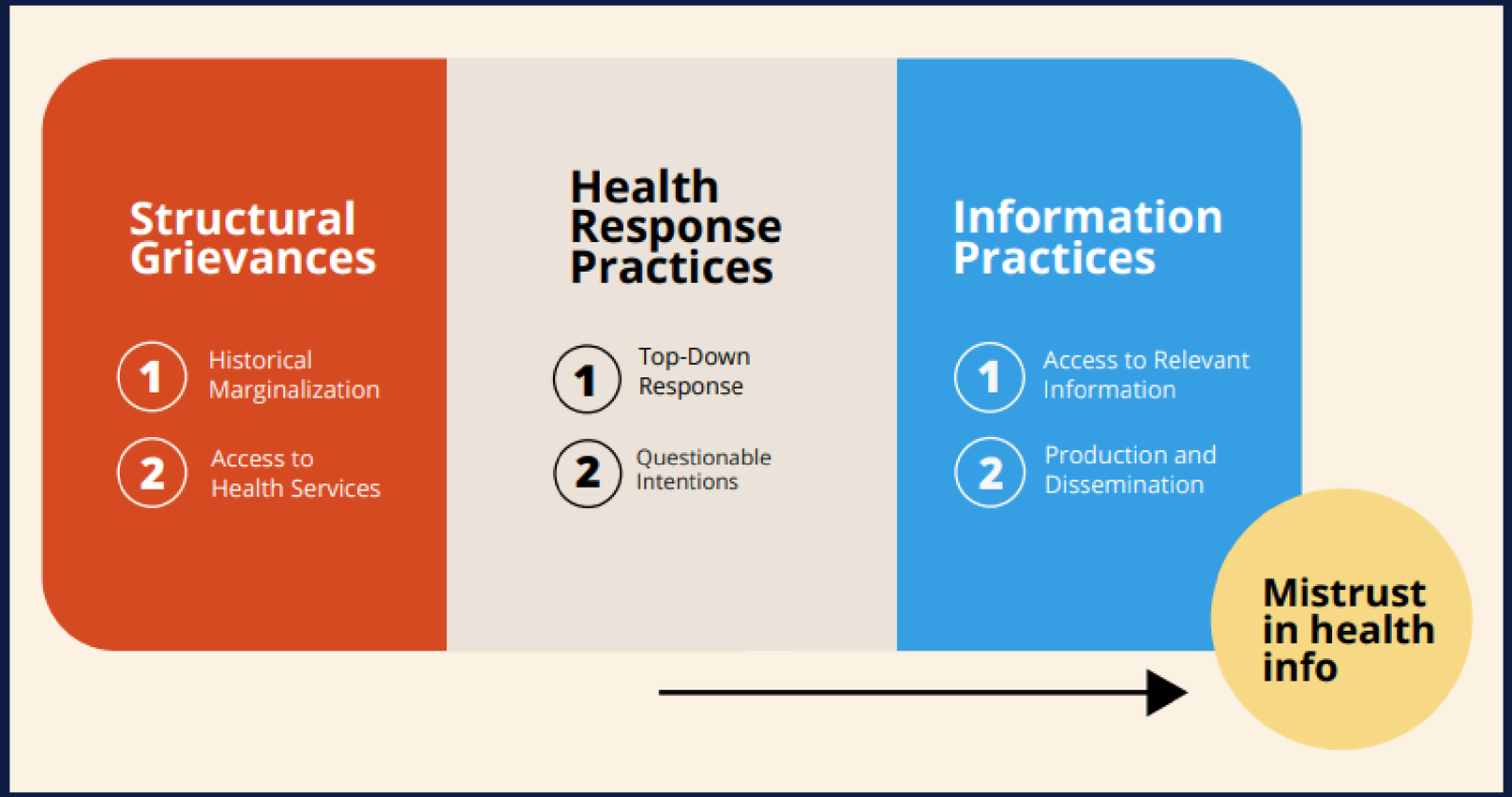
https://mythdetector.ge/en/banana-conspiracy-timeline-from-ebola-to-coronaviruses/

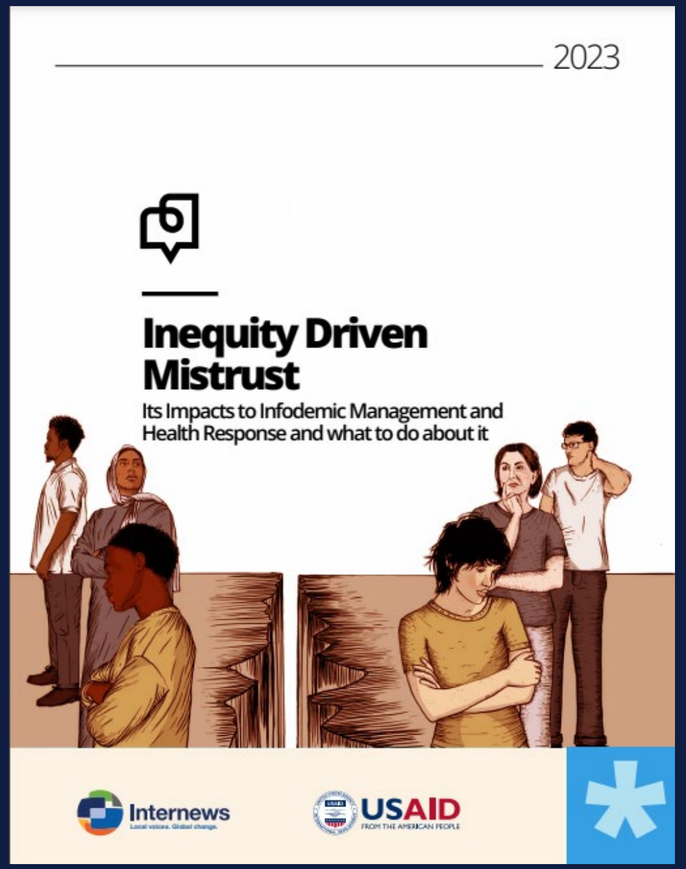
# Understanding gist: What is the real, underlying meaning of a narrative?

Understanding gist can also help you identify underlying meanings and values that may be propelling a narrative.

| Example Narrative<br>what is said | Example Gist<br>what is heard |
| --- | --- |
| Vaccines aren't safe. | The government and health system don't have our best interests at heart. |
| That diseases stem from "over there." | The diseases come from less developed places but it doesn't really affect us. |
| Vaccines can damage your future. | Someone is gaining a short term benefit at the risk of our future health. |

Inequity and health system and government actions also can sharpen mistrust and make it more difficult to address people's health information needs.



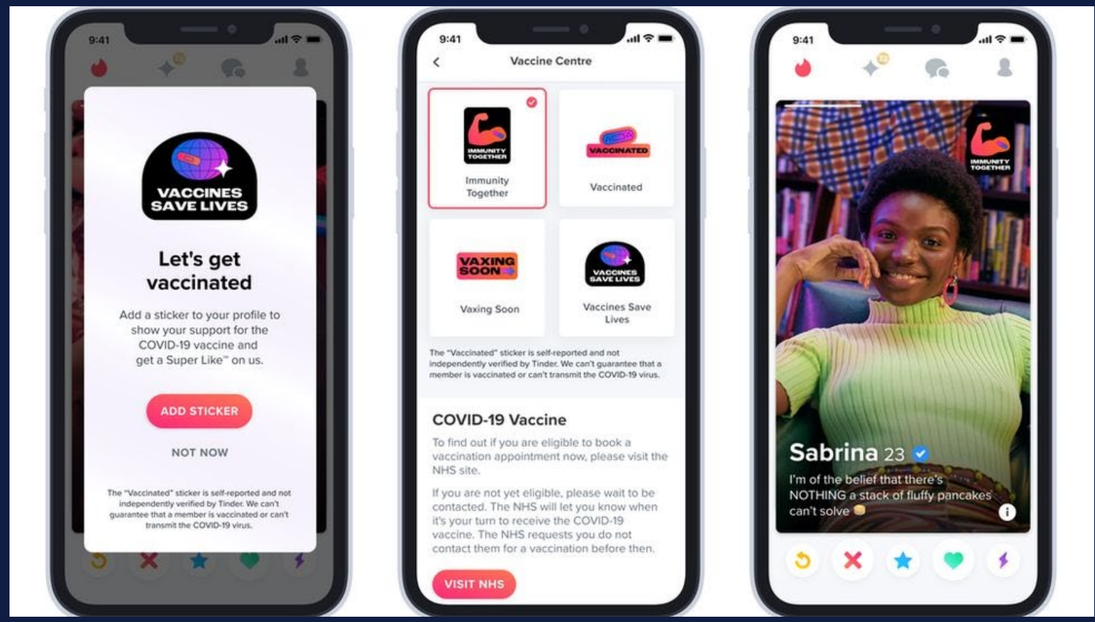

https:// internews.org /resource/inequity -driven -mistrust -its -impacts -to -infodemic -management -and -health -response -and -what -to -do -about -it/

# Social norms and cues, especially in online spaces, are also a part of narratives that can affect vaccine confidence.

Positive examples

https://www.sac -
isc.gc.ca/eng/1620651064206/1620651084248

https://www.dazeddigital.com/life -
culture/article/51696/1/influencers -in-indonesia -
are-the-first -in-line-for-the-covid-vaccine




https://www.bbc.com/news/technology -57379034

WHO renames monkeypox as mpox, citing racist stigma

https://www.npr.org/sections/goatsandsoda/2022/11/28/1139403803/who-renames-monkeypox-as-mpox-citing-racist-stigma

People lost faith in childhood vaccines during COVID pandemic, UNICEF says

https://www.reuters.com/business/healthcare-pharmaceuticals/people-lost-faith-childhood-vaccines-during-covid-pandemic-unicef-says-2023-04-20/

COVID vaccine hesitancy leads to child health concerns in PNG

https://www.aljazeera.com/news/2022/12/30/covid-vaccine-hesitancy-leads-to-child-health-concerns-in-png

Addressing larger narratives that can harm vaccine confidence defy easy solutions. They can't be solved with communications alone.

'Got polio?' messaging underscores a vaccine campaign's success but creates false sense of security as memories of the disease fade in US

https://theconversation.com/got-polio-messaging-underscores-a-vaccine-campaigns-success-but-creates-false-sense-of-security-as-memories-of-the-disease-fade-in-us-190518

COVID-19 boosters: If everyone is at risk, no one is at risk

https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(23)00299-9/fulltext

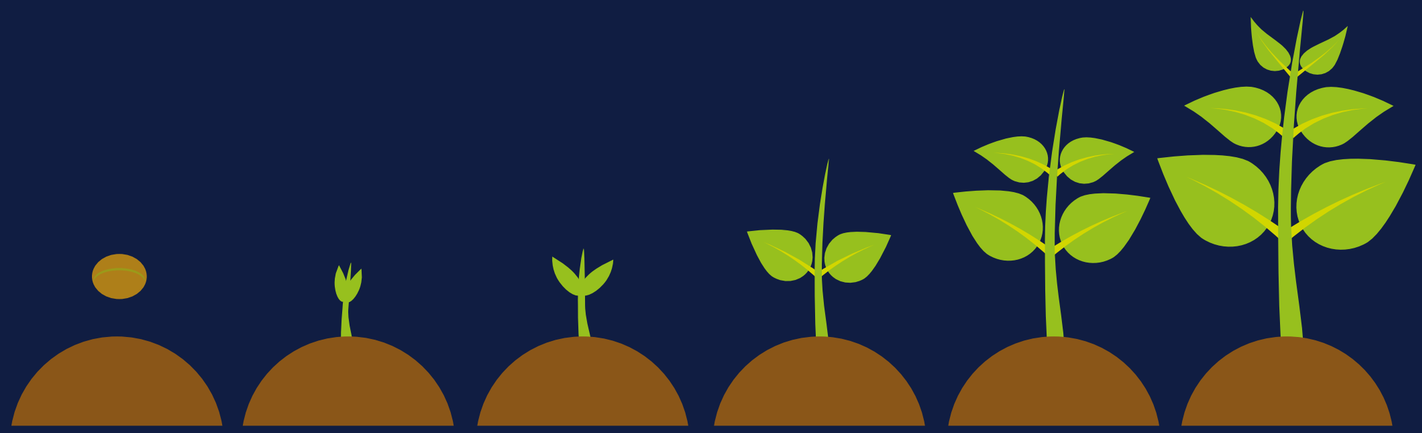
# How to address these narratives?

Debunking narratives is extremely difficult to do because often, they contain an element of truth and because they are already widespread.

It's better to prevent harmful health narratives from taking root in the first place.

Source: Tuckerman, J., Kaufman, J., & Danchin, M. (2022). Effective approaches to combat vaccine hesitancy. The Pediatric Infectious Disease Journal, 41(5), e243.

# How to more effectively address future anti-vaccine narratives



Remember, this will take time. Displacing dominant narratives is very difficult.

# 1. Understand the information environment.

Conduct social listening and infodemic management activities and develop insights reports

https://iris.who.int/handle/10665/370317

Routinize sociobehavioral data collection and analysis to understand changes in perception and behavior

https://demandhub.org/behavioral-and-social-drivers-of-vaccination-besd/

# 2. Consider values and gist when developing more effective messages.

Leverage participatory and novel evaluation methods to understand narratives and how they move through communities (e.g. social network analysis, social media narrative analysis, Most Significant Change, PhotoVoice).

https://www.betterevaluation.org/methods-approaches/approaches

Test messages and materials more rapidly and consistently via digital pretesting and A/B testing.

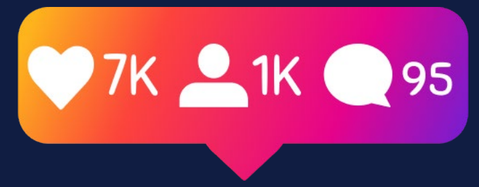
https://www.vitalstrategies.org/resources/using-a-b-testing-for-campaigns-on-digital-media/

# 3. Utilize relationship-based outreach strategies.

Develop peer-to-peer approaches to sharing vaccine information and addressing vaccine misinformation which includes balancing personal experience, storytelling and fact-based content.

https://www.ncbi.nlm.nih.gov/books/NBK572168/

Adapt approaches such as Motivational Interviewing to online contexts to reach online observers.




https://www.sciencedirect.com/science/article/pii/S0747563222004290

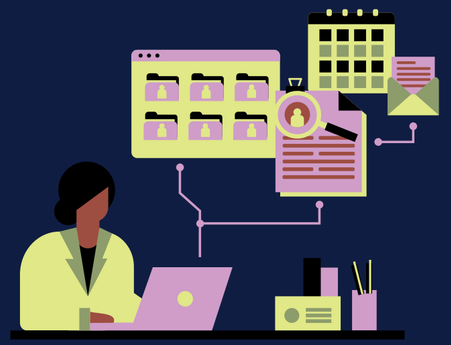
# 4. Keep your promises and publicize them.

Share program successes and actionable “news you can use” for different stakeholders in different formats (e.g. livestreams, social media tiles, infographics).

Create community feedback loops for stakeholders to improve health service delivery and programming.

# 5. Invest in and strengthen digital communication with the public.

Develop pro-vaccine, pro-social narratives that work for each priority population and develop segmented approaches for reaching them.



Capacity build and appropriately resource health promotion and communications functions to improve quality and quantity of social media content and more channels through which people can seek information.

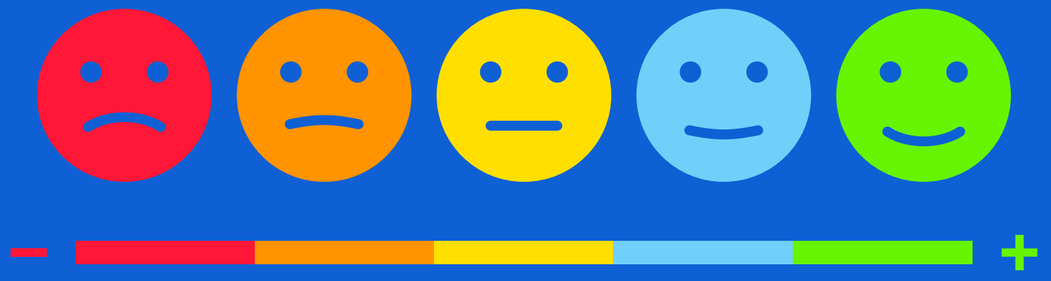
# Thank you.

ewilhelm@usaid.gov

Further COVID-19 vaccine resources and country examples

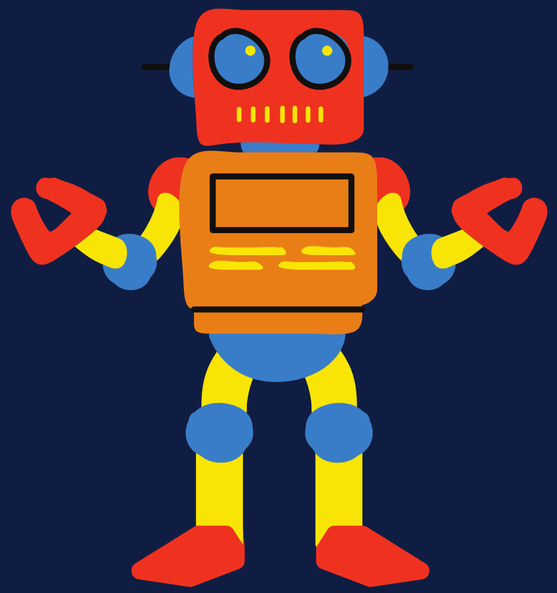
https:// knowledgesuccess.org/20-essential-resources-covid-vaccine-high-priority-populations/

# Additional Slides




Narratives do not need to rely on words alone to spread.

Today’s information environment has provided new challenges.



What about debunking?

# Narrative, norming and digital techniques are used to evade content moderation and boost anti-vaccine content

## Disguise Tactics

- Pronouns
- Written text
- Hand gestures
- Synonyms
- Anagrams
- “Leetspeak”
- “Just asking questions”
- Contradictory or ironic titles
- Upload of past content
- Live streams
- Disguised channels

## Replication Tactics

- Content mirroring
- Backup channels

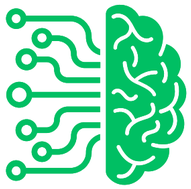
## Dispersion Tactics

- Collaboration
- Alternative services

Source: Machado, D. F. T., de Siqueira, A. F., Shimizu, N. R., & Gitahy, L. M. C. (2021). Ithwho-must-not-be-named: Covid-19 misinformation, tactics to profit from it and to evade content moderation on YouTube.

# What can affect someone's exposure and ability to act on health information, especially online?

Access to the internet can be expensive, which may shape user behavior



Digital literacy skills affect how well someone can navigate and understand digital information

Form of internet access, whether on smartphone or computer

Algorithms affect what information we see; we are likely to see content and connections that we agree with

Social norms affecting who should access social media and why (gender)

Language used to browse internet and use social media

# But harmful narratives are common in other areas of health too

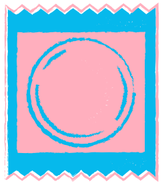
Health topic areas that are represented in health misinformation research

Vaccinations

Alternative Medicine

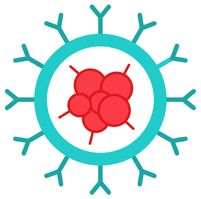
Nutrition and Diet

Mental Health

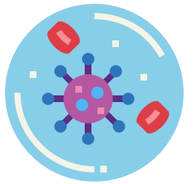


Sexual and Reproductive Health

Chronic Diseases



Cancer



HIV/AIDS

Exercise and Fitness

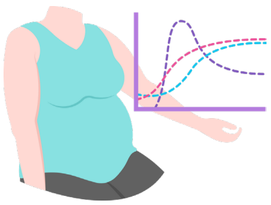
Allergies and Intolerances

Chronic Pain

Substance Abuse

Sleep Health

Aging and Anti-Aging



Genetic Testing and Personalized Medicine

Environmental Health