Science Communication by Federal Agencies

Kathleen Hall Jamieson
President’s Council of Advisors on Science and Technology (PCAST)
March 24, 2022
Presupposition: foundational health knowledge matters

The model:

• Standardized paths in SEM of predictors of change in vaccination intention. All paths were within 99% CIs. Paths for demographic and political controls are not shown.

• Of the 10,243 respondents recruited at wave 1, 82.9% had complete vaccination intention data at both waves 6 and 10, with similar attrition at both waves (834 not participating in wave 6 and 898 not participating in wave 10).

Recommendations

- Establish a misconception monitoring, prevalence assessment, and response system for OSG, FDA, NIH, and within CDC (by centers) that builds on the CDC Insight project and the NIH CEAL iHeard St. Louis project.

- Make all monitoring, prevalence assessment, and response data available to scholars in real time.

- Use direct contact with the public to communicate foundational knowledge and bolster trust.

- Audit the language of all CDC, NIH, and FDA public-facing materials to flag and fix instances that increase public susceptibility to misconceptions.
At least four offices/agencies monitor/recommend responses to health-related misconceptions.
Recommendation: Create an integrated, coherent, cross-agency response system
A Community Toolkit for Addressing Health Misinformation

Information that is false, inaccurate, or misleading according to the best available evidence at the time
Food and Drug Administration

1. Monitoring fraudulent claims about products

Beware of Fraudulent Coronavirus Tests, Vaccines and Treatments

“The FDA is actively monitoring for any firms marketing products with fraudulent COVID-19 diagnostic, prevention, and treatment claims. The FDA is exercising its authority to protect consumers from firms selling unauthorized products with false or misleading claims.”

2. Public input to FDA

“In addition, the FDA is monitoring complaints of fake coronavirus treatments, vaccines, and tests. Consumers and health care professionals can help by reporting suspected fraud to the FDA’s Health Fraud Program or the Office of Criminal Investigations.”

3. Sharing health knowledge

Multilingual COVID-19 Vaccines Myths Social Media Toolkit

7 Can I get #COVID19 from #COVID19Vaccines?  
× NO

#FDAVaccineFacts: Approved and authorized #COVID19Vaccines do not contain the live virus that causes #COVID19. Learn more about the #COVID19Vaccines development.  
www.fda.gov/COVID19Vaccines

7 ¿Puedo contraer el #COVID-19 al vacunarme contra el #COVID19?  
× NO

#VacunasFDA: Las vacunas aprobadas y autorizadas contra el #COVID19 no contienen el virus vivo que causa el #COVID19. Obtén más información sobre el desarrollo de las vacunas contra el #COVID19 en https://go.usa.gov/xMznjF
The Community Engagement Alliance (CEAL) Against COVID-19 Disparities works closely with the communities hit hardest by COVID-19.

Our Mission

To provide trustworthy, science-based information through active community engagement and outreach to the people hardest-hit by the COVID-19 pandemic, with the goal of building long-lasting partnerships as well as improving diversity and inclusion in our research response to COVID-19.
CDC’s COVID-19 State of Vaccine Confidence Insights Report:

- Collects data from over 24 quantitative and qualitative data sources:
  - Digital media, social media, polls, literature, CDC-INFO, web metrics, etc.
- Identifies themes using integrated and thematic analysis
- Assigns a threat level to vaccine uptake and information spread
- Suggests actions for each theme
- Disseminates to c. 1000 internal and external partners

<table>
<thead>
<tr>
<th>Type</th>
<th>Input</th>
<th>Cadence</th>
<th>Sources</th>
<th>Tactics for Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Media</td>
<td>Communication Surveillance Report</td>
<td>Daily on weekdays</td>
<td>[Google news, MediaTamer, CrowdTangle, Native platform searches]</td>
<td>Share of voice topic analysis to identify themes</td>
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<td>Listening &amp; Media</td>
<td>Melwater</td>
<td>Daily</td>
<td>[Facebook, Twitter, Instagram, Blogs, News media, Online forums]</td>
<td>Emerging topics</td>
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<td>Monitoring</td>
<td>CDC-INFO Metrics</td>
<td>Weekly</td>
<td>[CDC-INFO Inquiry line list, Prepared response (PR) usage report]</td>
<td>Cross-compare PR usage with inquiry theme analysis</td>
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<td>Direct Reports</td>
<td>VIF Media Requests</td>
<td>Weekly</td>
<td>[Media request line list]</td>
<td>Sentiment analysis</td>
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<tr>
<td></td>
<td>Web Metrics</td>
<td>Weekly</td>
<td>[Top pages, Google search queries, Top FAQs, Referring domains]</td>
<td>Identify information gaps/voids</td>
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<tr>
<td></td>
<td>Poll Review</td>
<td>Weekly</td>
<td>[Harris Poll, PEW research, Gallup Poll, KFF, Nave data related to vaccine hesitancy]</td>
<td>Identify socio-behavioral indicators related to motivation and intention to vaccinate</td>
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<tr>
<td>Research</td>
<td>Literature Review</td>
<td>Weekly</td>
<td>[PubMed, LitCovis, ProQuest Central, Nave data related to vaccine hesitancy]</td>
<td>Identify current vaccination intention, Identify barriers to vaccination</td>
</tr>
<tr>
<td></td>
<td>CrowdTangle content insights report</td>
<td>Biweekly</td>
<td>Facebook</td>
<td>Top pages (voices), groups</td>
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<td></td>
<td>Project VCTR</td>
<td>Weekly</td>
<td>Proprietary methods</td>
<td>National and regional trends in negative attitudes toward vaccination, Conversations around Legislation</td>
</tr>
</tbody>
</table>
Myths and Facts about COVID-19 Vaccines

Updated Dec. 15, 2021  Languages  Print

Accurate vaccine information is critical and can help stop common myths and rumors. It can be difficult to know which sources of information you can trust. Learn more about finding credible vaccine information.

Below are myths and facts about COVID-19 vaccination.

Have more questions? Visit FAQs about Vaccination.

Bust Common Myths and Learn the Facts

MYTH: The ingredients in COVID-19 vaccines are dangerous.

FACT: Nearly all the ingredients in COVID-19 vaccines are also ingredients in many foods - fats, sugars, and salts.

Exact vaccine ingredients vary by manufacturer. Pfizer-BioNTech and Moderna COVID-19 vaccines also contain messenger RNA (mRNA) and the Johnson & Johnson/Janssen COVID-19 vaccine contains a harmless version of a virus unrelated to the virus that causes COVID-19. These give instructions to cells in your body to create an immune response. This response helps protect you from getting sick with COVID-19 in the future. After the body produces an immune response, it discards all the vaccine ingredients just as it would discard any information that cells no longer need. This process is a part of normal body functioning.

COVID-19 vaccines do NOT contain ingredients like preservatives, tissues (like aborted fetal cells), antibiotics, food
1. Monitoring, prevalence assessment, and response system for OSG, FDA, NIH, and CDC that builds on the CDC Insight project and the NIH CEAL iHeard St. Louis project.
Identify consequential misconceptions

Assess prevalence in social and mainstream media

Assess public opinion uptake

Identify responses from fact-checkers, public health agency experts

Disseminate responses on a cross-agency centralized webpage and through individual agency channels, building on iHeard/CEAL’s capacities

Mainstream and social media monitoring

Insight teams

Insight teams

Health experts in cities

National polling + Polling in sentinel cities

State and local health agencies

O.S.G.

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1. Possible model for website

NIH/CEAL’s iHeard St. Louis project

Is COVID going away?

The Omicron surge is ending and COVID is going away. The number of new omicron cases has declined in recent weeks when you look at the US as a whole. However, we saw the same after the Delta surge and we cannot fully predict what new challenges the COVID-19 pandemic will bring in the future. Nevertheless, we do know that full vaccination with booster shots protects against severe COVID-19 outcomes. 

TOP CONCERNS THIS WEEK

1. Cloth masks won’t stop omicron?
2. Is COVID going away?
3. Test to treat?
4. Kids bullied for wearing masks?
5. Unkind to the unmasked?
Goal: Accelerate research on ways to increase public understanding of foundational health concepts and reduce public susceptibility to consequential misconceptions.

2. Make all monitoring, prevalence assessment, and response data available to scholars in real time.
Identify consequential misconceptions

Assess prevalence in social and mainstream media

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Research Community assesses effects

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State and local health agencies

O.S.G.
Use direct contact with the public

Foundational vaccination knowledge:

Understanding How Vaccines Work

Diseases that vaccines prevent can be dangerous, or even deadly. Vaccines greatly reduce the risk of infection by working with the body’s natural defenses to safely develop immunity to disease. This fact sheet explains how the body fights infection and how vaccines work to protect people by producing immunity.

The Immune System—The Body’s Defense Against Infection

To understand how vaccines work, it is helpful to first look at how the body fights illness. When germs, such as bacteria or viruses, invade the body, they attack and multiply. This invasion is called an infection, and the infection is what causes illness. The immune system uses several tools to fight infection. Blood contains red blood cells, for carrying oxygen to tissues and organs, and white or immune cells, for fighting infection. These white cells consist primarily of B-lymphocytes, T-lymphocytes, and macrophages:

- Macrophages are white blood cells that swallow up and digest

For more information on vaccines, vaccine-preventable diseases, and vaccine safety:
http://www.cdc.gov/vaccines/conversations

How Vaccines Work

Vaccines help develop immunity by imitating an infection. This type of infection, however, does not cause illness, but it does cause the immune system to produce T-lymphocytes and antibodies. Sometimes, after getting a vaccine, the imitation infection can cause minor symptoms, such as fever. Such minor symptoms are normal and should be expected as the body builds immunity.

Once the imitation infection goes away, the body is left with a supply of “memory” T-lymphocytes, as well as B-lymphocytes that will remember how to fight that disease in the future. However, it typically takes a few weeks for the body to produce T-lymphocytes and B-lymphocytes after vaccination. Therefore, it is possible that a person who was infected with a disease just before or just after vaccination could develop symptoms and get a disease, because the vaccine has not had enough time to provide protection.

Types of Vaccines

Scientists take many approaches to designing vaccines. These approaches are based on information about the germs (viruses or bacteria) that cause specific diseases. Some of the most common types of vaccines include:

- Inactivated vaccines
- Live-attenuated vaccines
- Subunit vaccines
- Toxoid vaccines
- Recombinant DNA vaccines

For more information on vaccines, vaccine-preventable diseases, and vaccine safety:
http://www.cdc.gov/vaccines/conversations
Use direct contact with the public

Basic knowledge about mRNA vaccines:
3. Use direct contact with the public to communicate foundational knowledge and bolster trust

**Basic COVID vaccination Knowledge:**

**COVID-19 Vaccination Is a Safer Way to Build Protection**

Getting a COVID-19 vaccination is a safer way to build protection than getting sick with COVID-19. COVID-19 vaccination helps protect you by creating an antibody response without you having to experience sickness.

Getting sick with COVID-19 can have serious consequences.

- Getting sick with COVID-19 can cause severe illness or death, even in children, and we can’t reliably predict who will have mild or severe illness.
- You may have long-term health issues after COVID-19 infection. Even people who do not have symptoms when they are initially infected can have these ongoing health problems.
- People who are sick with COVID-19 may spread COVID-19 to others including friends and family who are not eligible for vaccination and people at increased risk for severe illness from COVID-19.
Use direct contact with the public

Basic COVID-19 testing knowledge:

### Need a COVID-19 test?

<table>
<thead>
<tr>
<th>REASONS TO GET TESTED</th>
<th>TYPES OF VIRAL TESTS</th>
<th>ACTIONS AFTER RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you have COVID-19 symptoms</td>
<td>Laboratory Test</td>
<td>If positive</td>
</tr>
<tr>
<td>At least 5 days after known or suspected exposure to COVID-19</td>
<td>Sample can either be a nasal swab or saliva</td>
<td>If positive</td>
</tr>
<tr>
<td>For screening (schools, workplaces, congregate settings, etc.)</td>
<td>Results usually in 1-3 days</td>
<td>If positive</td>
</tr>
<tr>
<td>Before and after travel</td>
<td>Results are reliable for people with and without symptoms</td>
<td>If positive</td>
</tr>
<tr>
<td>When asked by a healthcare professional or public health official</td>
<td>No follow-up test required</td>
<td>If positive</td>
</tr>
<tr>
<td></td>
<td>Common Example: PCR test</td>
<td>If positive</td>
</tr>
<tr>
<td></td>
<td>Rapid Test</td>
<td>If negative</td>
</tr>
<tr>
<td></td>
<td>Sample is usually a nasal swab</td>
<td>If negative</td>
</tr>
<tr>
<td></td>
<td>Results usually in 15-30 minutes</td>
<td>If negative</td>
</tr>
<tr>
<td></td>
<td>Results may be less reliable for people without symptoms</td>
<td>If negative</td>
</tr>
<tr>
<td></td>
<td>Follow-up test may be required</td>
<td>If negative</td>
</tr>
<tr>
<td></td>
<td>Common Example: Antigen test</td>
<td>If negative</td>
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Need additional help? CDC’s Viral Testing Tool is an online, mobile-friendly tool that asks a series of questions, and provides recommended actions and resources based on the user’s responses.

cdc.gov/coronavirus
3. Use direct contact with the public to communicate foundational knowledge and bolster trust

**Share basic COVID-19 knowledge**

- In 15 minute post-vaccination observation period
- Box and contents of government-provided at-home test kits
- The digital and physical waiting rooms of health care providers
3. Use direct contact with the public to communicate foundational knowledge and bolster trust

**Messaging currently distributed during the 15 minute post-vaccination observation period**

**WHAT ARE THE RISKS OF THE VACCINE?**
There is a remote chance that the vaccine could cause a severe allergic reaction would usually occur within a few minutes to one hour after vaccination. For this reason, your vaccination provider may ask you to stay for monitoring after vaccination. Signs of a severe allergic reaction include:

- Difficulty breathing
- Swelling of your face and throat
- A fast heartbeat
- A bad rash all over your body
- Dizziness and weakness

Signs of a severe allergic reaction may occur:

- Myocarditis (inflammation of the heart muscle) and pericarditis (inflammation of the lining outside the heart) have occurred in some people who have received the vaccine, more commonly in males under 40 years of age than among females and older males. In most of these people, symptoms began within a few days following receipt of the second dose of the vaccine. The chance of having this occur is very low. You should seek medical attention right away if you begin to experience chest pain, shortness of breath, or feelings of having a fast-beating, fluttering, or pounding heart.

Side effects that have been reported in clinical trials with the vaccine include:

- Injection site reactions: pain, tenderness and swelling of the lymph nodes in the same arm of the injection, swelling (hardness), and redness
- General side effects: fatigue, headache, muscle pain, joint pain, chills, nausea and vomiting, fever, and rash

Side effects that have been reported during post-authorization use of the vaccine include:

- Severe allergic reactions
- Myocarditis (inflammation of the heart muscle)
- Pericarditis (inflammation of the lining outside the heart)
- Fainting in association with injection of the vaccine

These may not be all the possible side effects of the vaccine. Serious and unexpected side effects may occur. The possible side effects of the vaccine are still being studied in clinical trials.
Messaging currently on and in government-distributed, in-home testing kits

Q: WHAT IF YOU TEST NEGATIVE?

A: A negative test result indicates no antigens for COVID-19 were detected. It is possible for this test to give a negative result that is incorrect (false negative) in some people with COVID-19, and negative results are presumptive and may need to be confirmed with a molecular test. This means that you could possibly still have COVID-19 even though the test is negative. If you test negative and continue to experience symptoms of fever, cough and/or shortness of breath you should seek follow up care with your healthcare provider immediately. Your healthcare provider may suggest you need another test to determine if you have contracted the virus causing COVID-19. If you are concerned about your COVID-19 infection status after testing or think you may need follow up testing, please contact your healthcare provider.

Q: WHAT IS THE DIFFERENCE BETWEEN AN ANTIGEN AND MOLECULAR TEST?

A: There are different kinds of tests for COVID-19. Molecular tests (also known as PCR tests) detect genetic material from the virus. Antigen tests, such as the FlexCheck COVID-19 Antigen Test, detect antigens from the virus. Antigen tests are very specific for the COVID-19 virus but not as sensitive as molecular tests. This means that a positive result is highly accurate, but a negative result does not rule out infection. If your test result is negative, you should discuss with your healthcare provider whether an additional molecular test is necessary and if you should continue isolating at home.

Q: HOW ACCURATE IS THIS TEST?

A: The performance of FlexCheck COVID-19 Antigen Home Test was established in an all-comers clinical study conducted between March 2021 and May 2021 with 172 nasal swabs.
Use direct contact with the public

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Results usually in 1-3 days  
Results are reliable for people with and without symptoms  
No follow-up test required  
Common Example: PCR test | If positive  
**Isolate (at least 5 days).** Learn more about isolation timelines and precautions.  
Seek a confirmatory, follow-up laboratory test if recommended by healthcare professional  
Monitor your symptoms |
| At least 5 days after known or suspected exposure to COVID-19 | **Rapid Test**  
Sample is usually a nasal swab  
Results usually in 15-30 minutes  
Results may be less reliable for people without symptoms  
Follow-up test may be required  
Common Example: Antigen test | If negative  
If up to date on vaccines: return to normal activities. Wear a mask indoors in areas of high or substantial community transmission.  
If not up to date on vaccines and have symptoms or exposure, continue to quarantine for at least 5 days.  
If not up to date on vaccines and no symptoms or exposure: return to normal activities. Take steps to get up to date on vaccines to protect yourself and others. |
| For screening (schools, workplaces, congregate settings, etc.) |  |  |
| Before and after travel |  |  |
| When asked by a healthcare professional or public health official |  |  |

Need additional help? CDC’s Viral Testing Tool is an online, mobile-friendly tool that asks a series of questions, and provides recommended actions and resources based on the user’s responses. [cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)
Use direct contact with the public

In the digital and physical waiting rooms of health care providers
4. Audit the language of all CDC, NIH, and FDA public-facing materials to flag and fix instances that increase public susceptibility to misconceptions

**Examples:**

- Distinction between *elimination* and *eradication* is confusing
- *Community immunity* captures intended meaning better than *herd immunity*
- The name -- *Vaccine Adverse Event Reporting System* (VAERS) – implies that the event is vaccine caused and that the causal relationship has been confirmed

**Review categorical claims:**

- Not “*safe*” but “*safer than*” or in the case of bioengineered crops: “*as safe as conventionally grown crops*”
Eradicate vs. eliminate

Example: Press trying to clarify the confusion

“Eradicate” vs. “eliminate”
Audit the language of all CDC, NIH, and FDA public facing materials to identify and change instances that increase public susceptibility to misconception.

VAERS: change name and call data “unconfirmed” or “raw”

Alternative name for “VAERS”

“Vaccination Safety Watch” OR “Vaccination Safety Sentinel”

Dec. 6, 2021: RFK, Jr. testifies at the LA statehouse against Gov. Edwards’ proposal to add Pfizer’s COVID vaccine to Louisiana’s childhood vaccine schedule.
Recommendations

• Establish a misconception monitoring, prevalence assessment, and response system for OSG, FDA, NIH, and within CDC (by centers) that builds on the CDC Insight project and the NIH CEAL iHeard St. Louis project

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