Evaluating vaccine information online:

Fact vs. fiction

Online vaccine resources: The current landscape

The online landscape contains a limitless amount of content. Information is readily obtainable through a variety of media from websites, to social media posts, to videos, and everything in between. With the volume of information available at our fingertips, it is imperative to know how to tell the good information from the bad information, especially when it comes to vaccines. This factsheet provides tools and tips to help you discern between what is reliable vaccine information, and what is unreliable vaccine misinformation and disinformation.

Misinformation vs. disinformation: What is the difference?

Misinformation:
information that is inaccurate/false but is spread innocently and without the intention of causing harm. For example, people may read of or talk about a vaccine myth, not knowing that the information is incorrect. This would be considered misinformation.

Disinformation:
information fabricated by a person or group to deliberately confuse, manipulate, or cause harm to others.

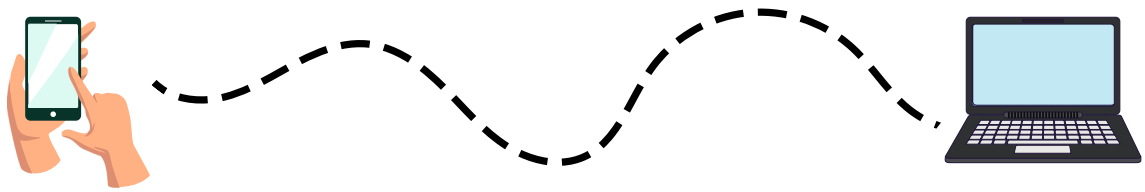
General verification framework: The SIFT Method

Whenever you encounter vaccine information on social media, through your web searches, or via links sent to you by friends and family, it is always a good idea to stop and evaluate how reliable the information is before believing or sharing it—especially if the source or content is unfamiliar to you. SIFT is a framework created by Mike Caulfield that can help you assess the trustworthiness, as well as the vaccine content, of each vaccine information source you encounter.

SIFT stands for:

- **S**top
- **I**nvestiate the source
- **F**ind better coverage
- **T**race claims

The SIFT framework is not only useful for evaluating vaccine information, but can also be applied to verify other claims you encounter online!



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Step One: STOP

Before you even start to engage with reading, listening to, or watching content you found or someone sent to you online, stop and ask yourself the following questions:

- Am I familiar with this information source (i.e., the website, the organization, the content creator, etc.)?
- Do I know how trustworthy the source is? Is the source reputable?

If you are unsure on any of the above questions, move on to the next step: investigate the source.

Pro tip: Check your biases

Our algorithms present us with content that they think aligns with our interests and beliefs, based on our online activity. In other words, algorithms cater to our biases. If you come across new information/ content online that matches with your beliefs, still stop and go through the rest of the SIFT method to verify the information and source—especially if the content riles up your emotions.

For more information on how algorithms work, see ScienceUpFirst's resource here.

Step Two: INVESTIGATE THE SOURCE

If you are unsure about a source of information, it is a good idea to look more closely at the source itself.

Two resources you can use to quickly learn about a source are:

- Online search engines (e.g., Google, Microsoft Bing, DuckDuckGo, Brave Search)
- Wikipedia

Wikipedia is a good starting point for information gathering, as it commonly has general information related to certain people's and organizations' biases, political leanings, reputation, and possible areas of expertise. (Refer to the section *Expertise and vaccine research: Are they really an expert?* in this factsheet for tips on how to identify a true vaccine expert.)

Step Three: FIND BETTER COVERAGE

Now that you have a general idea of the information source's reputation, if you consider it potentially trustworthy, the next step is to investigate the claim it is making. You can do so by investigating whether other reputable and trustworthy information sources address the claim. This is known as lateral reading.

Ask yourself as you look at other sources:

- Do other sources support the claim?
- Do other sources refute the claim?
- Does the claim seem contentious?

The trick with this step is finding multiple reputable sources that address the claim you are investigating to determine what the general consensus is about that claim.

Refer to the section *Evaluating scientific research: Is the science good?* in this factsheet for how to find better coverage for vaccine research.

Using generative AI? Conduct lateral reading

While AI may be a useful tool for quickly searching for information, the overviews it generates can be misleading or simply false. Generative AI, such as Google AI Overview or ChatGPT, pulls from sources across the Internet when it answers prompts, but it is unable to determine whether the sources it uses are reliable. When you ask AI a question, find better coverage/conduct lateral reading to verify if the information generated is accurate or not.

Step Four: *TRACE CLAIMS*

The final step involves tracing the claim to the original source. Some actors spread disinformation by deliberately presenting information —such as videos, images, or quotes— out of context in order to mislead others and drive their own narrative. This tactic is known as cherry picking, which you can learn more about here. By tracing the claim to its original source, you can identify whether any important context is missing.

If the source you are investigating does not provide a link to the original information, you can:

- Use an online search engine to look up the claim, quote, or video to see if you can find the original context
- Conduct a reverse image search for any images in question (refer to this tip sheet from Media Smarts on how to conduct a reverse image search)

Additional tips: Verifying vaccine information on websites and social media

In addition to using the SIFT method, here are extra tips you can use to determine if the vaccine information you encounter on websites and social media accounts is accurate.

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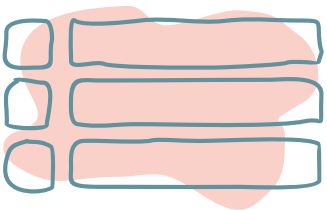
1. Check who owns the website or social media profile.

- The person or organization running the website or social media account should be apparent and not hidden.
- For websites, look for a page titled “About Us” or “About [Sponsor’s Name]”. This page should provide contact details such as an e-mail address and/or telephone number, as well as information about the website’s or organization’s purpose.
- For social media, look at the account bio. Regardless of the social media platform, the account bio should provide you with the organization’s or creator’s purpose. Facebook bios may provide more content details, such as an email address, a telephone number, and/or a link to their website.

2. Check whether the website or social media account is providing up-to-date vaccine information.

- The more up-to-date the vaccine information is, the more likely it is that the website or social media account is reputable.



3. Check whether the website or social media account is trying to sell you something.

- Be wary of any website or social media account selling health products that could be marketed as a replacement for vaccines. The interest of these companies may steer you away from evidence-based information and ignite a sense of fear to persuade you to believe their messaging and purchase their health products.

4. Check whether the website or social media account directs you to additional information or organizations.

- The website or social media account should link to other reputable health agencies or agencies that maintain standards, such as the National Advisory Committee on Immunization in Canada. Websites specifically should also be endorsed by these agencies.

5. Check whether the website or social media account appears professional.

- Poor grammar and spelling, and amateurish visual design, are all signs that an information source is probably not credible.

Looking closer: What counts as good vaccine research and expertise?

Evaluating vaccine expertise: Are they really an expert?

Anyone online can claim to be an expert. How do you tell who is actually an expert from who is not? The answer is not always straightforward, but true vaccine experts will generally:

1. State who they are and provide their credentials.
   - You can always double-check a health or public health professional's credentials by verifying whether they are affiliated with a reputable medical or public health organization (e.g., your province's or territory's college of physicians, college of nurses, college of pharmacists, or public health authority).

2. Have a history of working with vaccines or evidenced-based education related to vaccines.

For more tips on how to spot a true vaccine expert vs. a fraud, refer to this post on GAVI: The Vaccine Alliance's website.

Evaluating scientific research: Is the science good?

Say you want to go out for dinner and try a new place. One of the restaurants you are interested in has 150 reviews. The vast majority of honest reviews are positive, except for three bad reviews. Would you trust the 147 good reviews, or the 3 bad reviews? This same thinking applies to evaluating scientific research.

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When assessing whether a claim based on a vaccine study is reliable, check to see if other studies support the same conclusion. If the majority of the research on the topic is in agreement, the claim is more likely to be credible. If no other studies support the findings being cited, the vaccine claim may be unreliable and should be interpreted with caution or disregarded.

Other questions you should ask when evaluating claims based on vaccine research include:

1. How many people were involved in the study?
   - Were there hundreds or only a handful?
   - The more people involved in a study, the more confident you can be in the study's results.

2. Were the studies peer reviewed?
   - Peer review is when experts in the field review a study before it is published. Peer reviews help to ensure a study's methods and conclusions are sound.

3. Are the study's strengths and weaknesses addressed?
   - Good studies will clearly state their limitations. Authors may note that the study did not produce clear results, or that more research is needed before drawing firm conclusions—both of which are good signs of credibility.

4. Is the study endorsed by groups or institutions whose purpose is to uphold science, such as professional/public health associations and universities? If so, the study is most likely scientifically rigorous.

Checklist for evaluating vaccine expertise and research

For vaccine experts:

- **Do they state who they are and what their credentials are?**
- **Do they have a history of working with vaccines or evidence-based education related to vaccines?**

For vaccine research:

- **Do enough studies support the vaccine claim I encountered?**
- **How many people were involved in the study?**
- **Was the study peer reviewed?**
- **Does the study list its strengths and weaknesses?**
- **Is the study endorsed by established, well-respected organizations/institutions?**

Vaccine information: A list of trusted resources

Immunize Canada is a national coalition of non-governmental, professional, health, government, and private sector organizations dedicated to promoting the benefits of immunization. We produce evidence-based materials on vaccines and vaccine-preventable diseases for both the public and health professionals. These materials include, but are not limited to, factsheets, pocket guides, videos, webinars, podcasts, articles, posters, and social media images—all of which can be found on our website.

All our member organizations are Canadian and are reliable sources of vaccine information. You can find the full list of member organizations, and links to our members' websites, here.

Additional Canadian sources

- Public Health Agency of Canada
- Canadian Immunization Guide
- National Advisory Committee on Immunization (NACI)
- National Collaborating Centre for Indigenous Health (NCCIH)
- National Collaborating Centre for Infectious Diseases (NCCID)
- SickKids: AboutKidsHealth
- Children's Hospital of Eastern Ontario (CHEO)
- First Nations Health Authority
- Caring for Kids
- Kids Boost Immunity (KBI)

- Your province's or territory's health ministries and vaccine information pages:
  - British Columbia
  - Alberta
  - Saskatchewan
  - Manitoba
  - Ontario
  - Quebec
  - New Brunswick
  - Prince Edward Island
  - Nova Scotia
  - Newfoundland and Labrador
  - Yukon
  - Northwest Territories
  - Nunavut

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Sources from the United States of America (USA)

- Children's Hospital of Philadelphia Vaccine Education Centre
- Immunize.org
- Voices for Vaccines
- National Network of Immunization Coalitions
- American Academy of Pediatrics (AAP)
- Vaccine Ambassadors

International sources

- World Health Organization
- Pan-American Health Organization
- GAVI: The Vaccine Alliance
- Vaccine Safety Net
- Vaccine Confidence Project

Sources specifically on digital media literacy

- Media Smarts
- ScienceUpFirst

Many of the organizations in our list of trusted vaccine resources have a presence on social media as well.

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