How to Interpret News About Cancer Causes

New discoveries about what causes (or might cause) cancer seem to be made nearly every day. When you see a story in the news linking something to cancer, especially if it's something you're exposed to on a regular basis, your first reaction is often to think that we need to avoid it at all costs. But it's not usually that simple.

Often it's hard to get the full story. And it's not always easy to figure out what the information really means for you. Studying cancer (and what causes it) is complex. Study findings are usually not black and white – they need to be viewed in the context of other research on the subject. Even then, many times answers aren't clear. Sometimes there just isn't enough information to say for sure how the findings might apply to you. Media reports can sometimes cloud the issue even further if they don't present study results in the proper context.

Asking the right questions can help you better understand the information and decide if it's something you might need to act on.

What's the source of the information?

It's important to consider where the information is coming from.

Can the news source provide the right context?

Major news sources generally try to provide accurate, unbiased information. They tend to have reporters and journalists who have experience covering health-related issues and who understand what's important. But smaller news organizations might not have as much experience and may have a harder time providing the right context.

Are there space limitations?

Even when the news comes from a source you trust, headlines often boil down a complex topic into something short, simple, and catchy. A headline can't convey the nuances or uncertainty of study findings. Even full articles can have space limits that might mean leaving out important details**.** Often the whole story can't be told in a short article or a 60-second news clip.

Is the source biased?

Sometimes what looks like a news story is really a press release directly from a university or medical journal or from a medical group or other organization. Some groups promoting new findings (such as industry trade groups, environmental groups, animal rights groups, groups that promote specific diets, etc.) might have a particular agenda that affects their ability to provide unbiased information.

This doesn't always mean their information isn't valid. Still, unless you're familiar with the source of the information, do some research. A quick online search can often reveal a lot about who's in a group and what their goals are. Try to look at their information objectively to see if they might be emphasizing certain points that are in line with their goals.

Can the original source be traced?

Chain emails, texts, blog posts, and social media are increasingly common sources of information for many people. These posts and emails often spread alarming information and ask people to share them with friends. The original source of the story is often impossible to find, and the actual content can change over time. This type of information needs to be checked against more reliable sources.

What did the research actually find?

Getting past the headlines (or article, news story, email, social media post, etc.) and to the heart of the matter isn't always easy. Here are some important questions you should ask:

Is the news actually based on new research?

Often it is, especially if it's being reported in reliable news media outlets. But sometimes it's not clear where the information actually came from. Rumors passed around in chain

emails are often a good example of this. If a source is cited, can it be verified?

Who conducted the research? Who paid for it?

Most cancer studies are done by researchers at universities, medical centers, or government agencies. Some research is done by other groups, such as advocacy organizations. Funding for studies can come from federal or state funds, non-profit groups, or other interests. Finding out where the study was done and who funded it can give you a better idea of how trustworthy it might be.

What kind of research was it?

Lab studies (tests done on cell cultures or animals) and studies in people can both be valuable in learning about the causes of cancer. But they both have drawbacks to be aware of.

- **Lab studies:** Results of tests done in the lab on cell cultures or on animals can often suggest something might cause cancer, but it's not always clear if the results will be the same in people. For example, effects seen in the lab using very high doses of a substance might not be the same at much lower doses, or the effects of a substance when it's inhaled may not be the same as when it's applied to the skin. Also, the bodies of lab animals and humans don't always process substances in the same way.
- **Studies in people (epidemiology studies):** These studies look at large groups of people to try to figure out which factors might be linked to cancer. These types of studies can often provide useful information, but they also have their limits. It's often hard to separate out a single factor as a possible cause of cancer. People are exposed to all kinds of substances at any given time, including those they encounter at work, school, or home; in the food they eat; and in the air they breathe. What's more, these can change over time. This can make it very hard to determine which of these factors might be linked to cancer.

Has this been found before?

A single study of any type is rarely enough to prove something causes cancer. Scientists often have to combine data from several studies of both types to make this assessment (see below).

Where was the research reported or published?

Usually, researchers make their findings known by publishing them in a medical journal or presenting them at a conference. Some types of research, such as government summaries of studies on a particular subject, may be published as stand-alone documents.

Generally, **scientists give more weight to research published in major medical journals**, as it's been reviewed by other experts before publishing. Likewise, summary reports from government agencies or other respected groups are usually created by large committees of experts. Research reported at a medical conference is often important but has not undergone the same level of review.

What were the actual study results?

Intentionally or unintentionally, **news often ends up sounding more important and definitive than the study findings actually are.** It's not always easy to accurately convey a new research finding in a short news summary. Some people who report the news might not have a scientific or medical background, so they might sometimes have trouble putting the findings into the proper context.

As an example, suppose a study finds that chemical X affects certain hormone levels in lab animals. Some hormones are known to play a role in increasing the risk of certain cancers. Therefore it's tempting to report that chemical X can raise cancer risk, even though this isn't what the study found. It raises the *possibility* of a link, but further research would be needed to confirm this.

What about other evidence?

"More research is needed to understand these findings." This statement, or something like it, can be found at the end of just about every cancer research paper. There's a reason for this.

Scientists understand that **the results of a single study are rarely enough to say for sure if something raises cancer risk**. There's always a chance that the findings might have been a fluke, or that somehow they don't really represent what's going on. Results from other studies might help confirm or refute the new findings. Whenever possible, scientists rely on the total body of evidence from *many* studies when determine if something might cause cancer.

Unfortunately, this can be a slow process that can last years, sometimes even decades.

This is understandably frustrating, as it can leave us without the answers we want for long periods of time. But research needs to be done this way so that we have a better understanding of what's truly important.

Here's an example. Let's say a new study finds some kind of link between substance X and cancer, which is widely reported in the news. But many previous studies of this substance did not find such a link. This has to be taken into account when considering whether the new findings are reliable, and if they need to be acted on. It may be that the researchers doing the new study did something slightly different that opens up a new avenue of research. Or it could be that, based on the total body of evidence, the new research won't change what most experts think about the topic.

What do the experts say?

Experts at several national and international agencies review the available evidence to try to determine the cancer-causing potential of different things we are exposed to. If you see something in the news or on social media, especially if you're unsure of the source, check the claims against what these experts say.

These agencies include:

- **International Agency for Research on Cancer (IARC):** The IARC is part of the World Health Organization (WHO). One of its major goals is to identify causes of cancer. The IARC publishes its findings, including the detailed evidence to support them, in volumes known as *monographs*.
- **National Toxicology Program (NTP):** The NTP is formed from parts of several US government agencies, including the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA). The NTP updates its *Report on Carcinogens* (RoC) every few years.
- **Environmental Protection Agency (EPA):** The US EPA maintains the Integrated Risk Information System (IRIS), an electronic database on human health effects from exposure to certain substances in the environment. The EPA uses a rating system similar to that of the IARC when describing the cancer-causing potential of a substance.
- **Other federal agencies**, such as the CDC's National Institute for Occupational Safety and Health (NIOSH) and the Food and Drug Administration (FDA), may comment on whether a substance or exposure might cause cancer and/or what levels of exposure to the substance might be considered acceptable.
- **Some state agencies** also keep lists of known or probable carcinogens. For

example, the California Environmental Protection Agency (CalEPA) maintains a list of “chemicals known to the state to cause cancer or reproductive toxicity.” (Much of this list is based on the IARC and NTP lists.)

Some organizations, such as the American Cancer Society and the US National Cancer Institute (NCI), also conduct or fund research in this area, but they don’t maintain their own lists of substances or exposures that cause cancer. Instead, they look to expert organizations such as the NTP and IARC. The ACS and NCI often offer information and guidance to the public on possible causes of cancer, especially when new findings generate a great deal of interest.

Keep in mind that even information from expert groups has limitations. Their information is usually written for scientists and might be hard to interpret. Often, substances have multiple names, and the name you see in the news might be different from what’s used by one or more agencies. In addition, these agencies cannot review every claim, and it might take several months for a new substance or exposure to be evaluated.

If you’re having trouble finding information on whether something might cause cancer, contact a trusted group such as the American Cancer Society or the National Cancer Institute. They can tell you whether a particular exposure is on one of these expert agency’s lists, and may also be able to give you some context about what the research findings might mean for you.

To learn more about these agencies and how carcinogens are studied and classified, see Determining if Something Is a Carcinogen[1] .

For current lists of carcinogens from IARC and NTP, see Known and Probable Human Carcinogens[2].

What should I do if I find out something causes cancer?

What if most or all experts agree that an exposure is linked to cancer in some way? Most often, people are going to want to avoid the exposure whenever possible. But there are some important questions to ask.

What exactly does it raise the risk of?

Some exposures clearly raise a person’s risk of one or more types of cancer. But **even the strongest carcinogens don’t raise the risk of all types of cancer.**

This could affect how important it is to you. For example, something that raises the risk of breast cancer is more likely to be a concern for women than for men, as they're much more likely to get breast cancer in the first place.

Is the risk tied to a certain type or amount of exposure?

Carcinogens don't cause cancer at all times, under all circumstances. **Some may only be carcinogenic if a person is exposed in a certain way** (for example, swallowing it as opposed to touching it).

In the same way, **the amount of exposure is usually important.** Some carcinogens may raise cancer risk after only a very small exposure. Others might require intense exposure, and/or exposure over many years before there's any noticeable increase in risk. For example, heavy alcohol use is linked with an increased risk of several types of cancer, but an occasional beer or glass of wine will have much less impact on cancer risk.

How much does it raise my risk? What's my risk to begin with?

Whenever possible, it's important to **try to get an idea of how much an exposure might increase your risk.** As an example, tobacco smoke is a well-known carcinogen. People who smoke are many times more likely to develop lung cancer (and some other cancers) than people who don't smoke. Most other known carcinogens don't raise cancer risk by nearly this much. That's not to say they shouldn't be avoided, but it might be something to keep in mind when weighing the risks. Remember that the type and amount of exposure can also play a role.

It's also important to consider that **your baseline risk is normally higher for some types of cancers than for others.** For example, for most people, the lifetime risk[3] of colorectal cancer is many times higher than lifetime risk of bile duct cancer. So something that doubles your risk of colorectal cancer is more likely to affect you than something that doubles your risk of bile duct cancer. When possible, you should **consider the actual amount of increased risk when deciding if you need to limit or avoid an exposure.**

Can I limit or avoid exposure? If so, should I?

Even if a substance or exposure is known or suspected to cause cancer, this doesn't necessarily mean that it should be avoided at all costs. In fact, this might not even be possible. Sunlight is a good example. It's the major source of ultraviolet (UV) rays[4], which are a known cause of skin cancer. But sunlight also has benefits,

such as helping the body make vitamin D. Completely avoiding sunlight isn't recommended, and it would be nearly impossible to do.

Many medicines, including some hormones and drugs used to treat cancer, can also increase cancer risk. For example, tamoxifen, which is very useful in treating some breast cancers, increases the risk of certain kinds of uterine cancer. **Sometimes the benefits of taking medicines clearly outweigh the possible risks, even if they include cancer.**

What's important to me?

We are all at risk to some degree of developing cancer. Our risks for different kinds of cancer vary based on a number of factors. Some of these, like age, gender, and genetic makeup, are beyond our control.

For other factors, there may be things we can do that could change our risk. For example, smoking[5] is linked to about 3 out of 10 cancer deaths in the United States. And about 2 out of 10 cancers are linked toexcess body weigh[6]t, physical inactivity[7], an unhealthy diet, and alcohol use[8]. These risk factors are all within our control.

We might have less choice as individuals when it comes to some other environmental factors, such as pollution and workplace exposures to cancer-causing chemicals. These are thought to be responsible for a smaller portion of cancers, but they are still very important.

Sometimes it's hard to know what to be worried about. People are often more likely to be concerned about factors over which they feel they have less control, such as pollution, even if these things may not pose as much of a risk to us as some other things over which we do have some control. But both of these types of things can contribute to our risk of cancer. Having an idea of how much they affect our risk can help us make informed choices when it comes to changing them, avoiding them, or limiting our exposure.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/general-info/determining-if-something-is-a-carcinogen.html
2. www.cancer.org/cancer/cancer-causes/general-info/known-and-probable-human-carcinogens.html
3. www.cancer.org/cancer/cancer-basics/lifetime-probability-of-developing-or-dying-from-cancer.html

4. www.cancer.org/cancer/cancer-causes/radiation-exposure/uv-radiation.html
5. www.cancer.org/healthy/stay-away-from-tobacco.html
6. www.cancer.org/cancer/cancer-causes/diet-physical-activity/body-weight-and-cancer-risk.html
7. www.cancer.org/healthy/eat-healthy-get-active/get-active.html
8. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
9. http://www.cancer.gov/
10. http://www.iarc.fr/
11. http://ntp.niehs.nih.gov/
12. http://www.epa.gov/
13. http://www.fda.gov/
14. http://www.cdc.gov/niosh/
15. http://www.cancer.gov/
16. http://www.iarc.fr/
17. http://ntp.niehs.nih.gov/
18. http://www.epa.gov/
19. http://www.fda.gov/
20. http://www.cdc.gov/niosh/

Additional resources

Along with the American Cancer Society, other sources of information and support include:

National Cancer Institute (NCI) Toll-free number: 1-800-422-6237 (1-800-4-CANCER) TTY: 1-800-332-8615 Website: www.cancer.gov (http://www.cancer.gov/)[9]

International Agency for Research on Cancer (IARC) Website: www.iarc.fr (http://www.iarc.fr/)[10]

National Toxicology Program (NTP) Website: http://ntp.niehs.nih.gov (http://ntp.niehs.nih.gov/)[11]

Environmental Protection Agency (EPA) Website: www.epa.gov (http://www.epa.gov/)[12]

Food and Drug Administration (FDA) Toll-free number: 1-888-463-6332

Website: www.fda.gov (http://www.fda.gov/)[13]

National Institute for Occupational Safety and Health (NIOSH) Toll-free number: 1-800-232-4636 Website: www.cdc.gov/niosh (http://www.cdc.gov/niosh/)[14]

**Inclusion on this list does not imply endorsement by the American Cancer Society.*

References

American Cancer Society. *Cancer Facts & Figures 2019*. Atlanta, Ga: American Cancer Society; 2019.

International Agency for Research on Cancer (IARC). *Agents Classified by the IARC Monographs, Volumes 1–123. 2019*. Accessed at https://monographs.iarc.fr/agents-classified-by-the-iarc/ on March 12, 2019.

International Agency for Research on Cancer (IARC). *Preamble to the IARC Monographs*. 2019. Accessed at https://monographs.iarc.fr/preamble-to-the-iarc-monographs/ on March 12, 2019.

US Department of Health and Human Services. Public Health Service, National Toxicology Program. *Report on Carcinogens, Fourteenth Edition*. 2016. Accessed at http://ntp.niehs.nih.gov/pubhealth/roc/index-1.html on March 12, 2019.

Last Revised: May 17, 2019

Written by

The American Cancer Society medical and editorial content team (www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

cancer.org | 1.800.227.2345