Science: How Do I Know What to Believe?

(This information is designed to help you understand how studies work and how to spot serious flaws. While it will not make you an expert, this skill will put you far ahead of the average reporter!)

Points to remember!

- Many studies have limitations. This is important because it means no matter what the media or your friends claim, the results may not be 100% conclusive. You will learn how to easily spot the limitations.

- While most researchers do great work, many studies are politicized or designed to meet an agenda. For example, it is possible to design a study in which the subject analyzed is guaranteed to fail. Again, you will be able to spot these.

It is impossible to be an expert on all topics, so before you begin select a topic and read about both sides of the issue. Don't only read the position you agree with. If your topic is vaccines look at the pros and cons.

Once you have some background knowledge, here are three steps you can follow to find out which studies are most accurate.

Step One: Find the study.

Reporters often pull quotes from research, but the full study often says something entirely different. When someone says, "Studies prove the COVID-19 vaccines save lives," it is best to take the statement with a grain of salt and check for yourself. Scan the reporter's article for the study name, then find it through Duck Duck Go or another search engine.

Step Two: Read these 3 sections of the study.

When you have found the referenced study, read the **Conclusions.** These are the researcher's top impressions from their work. Next look at the **Limitations.** These describe events that could compromise or even negate the entire study. Finally, the **Discussion** includes observations about the study. Generally, these sections are in less technical language and easier to understand.

Step Three: Look for limitations that seriously undermine the study's conclusions.

Now compare the Discussion comments and the Limitations with the author's Conclusions. Are the Conclusions consistent with the other statements? Does the study contain enough information for the author to draw his conclusion? Many studies you hear quoted in the media include flaws that are a good indication the study is inconclusive, or the reporter's comments are misleading. As you will see in the following example, even flawed studies do not stop reporters from repeating misinformation. Now you will know how to spot it.

Here is an example.

Shortly after President Trump suggested trying hydroxychloroquine as a possible COVID treatment, the New Yok Times ran a headline, “Malaria Drug Taken by Trump Tied to Increased Risk of Heart Problems and Death in New Study”

The study they referenced was called, Outcomes of Hydroxychloroquine Usage in US Veteran’s Hospitalized with COVID. You can find it here: https://www.medrxiv.org/content/10.1101/2020.04.16.20065920v2

A quick look under Limitations reveals the “study outcomes cannot be considered equivalent to medical chart review or prospective data collection.” In other words, the researchers failed to study the patients charts or even their personal data. Further reading showed the patients that received HCQ were already near terminal. Many suffered from severe heart and diabetic conditions. Despite the press headlines, HCQ could not have saved their lives and had nothing to do with the patients’ deaths. That false accusation persisted for months and many still believe it today.