**Detecting Fake News Assignment
*Vaccines***

**What is Fake News?**

Fake news sites are designed to look like real news, but do not follow the same journalistic standards that you would expect from a real news source. The information in the article may be misleading or completely false. Fake news has become a big problem with the growth of social media, with stories about political candidates, vaccines, and other hot topics being passed as real. The motive for each of these sites is to attract as many visitors as possible to maximize revenue from selling ad space.

**News Articles**

*Open or print each of these news articles (both are linked on archive.org in case they are taken down):*

“Vaccines Kill More People Than Sharks, Alligators, Bears, Snakes And Spiders Combined” by D. Samuelson. Accessed from: http://vaccines.news. Sept 7 2016.

Article can be accessed here: [**http://bit.ly/2fOcL0h**](http://bit.ly/2fOcL0h)

“CDC officials worry that new flu vaccine recommendations could reduce use” by Lena H. Sun. Accessed from: http://washingtonpost.com. Sept 29 2016.

Article can be accessed here: [**http://wapo.st/2dh25ol**](http://wapo.st/2dh25ol)

**Clickbait Headlines**

Fake news sites often rely on **clickbait** headlines that are sensational, provocative, and grab your attention. This XKCD.com graphic gives good examples of what headlines may have looked like through the 20th century using clickbait terminology.



Do either of the articles have a clickbait headline? Explain your answer.

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**Author Credibility**

Fake news sites often have anonymous authors, authors with false names, or authors who have no journalistic background at all. Enter the name of each author and their news site into Google, and see if you can find a biography for each. Briefly describe the credentials (degrees, awards, experience) for each author.

Lena H. Sun

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D. Samuelson

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Which author do you believe has more credibility? Explain your answer.

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**Fact-Checking Claims**

Real scientific news will provide citations for any facts or figures. Fake news sites often provide falsified or misleading statistics that do not have any citation at all. Let’s consider a couple of claims from the vaccines.news article:

*Claim 1: “poison-filled injection are associated with at least 5,000 deaths annually, according to data from the Vaccine Adverse Events Reporting System (VAERS)”*

This statement does have a citation. Let’s check it. Go to the VAERS database here: <https://wonder.cdc.gov/vaers.html>.

* Click on the “VAERS Data Search” button.
* Scroll down to “2. Select symptoms” and choose **10011906 (Death)**.
* Scroll down to “7. Select report completed dates” and set the date range from Jan 2015 to Dec 2015.
* Click on the “send” button on the right side of the page.

How accurate was this statement?

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The VAERS website lists this caveat to their database: “A report to VAERS does not mean that the vaccine caused the adverse event, only that the adverse event occurred sometime after vaccination.” What does this mean?

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Infants are considered to have the highest potential risk for vaccine-related side effects. The U.S. Dept. of Health and Human Services estimates that at least 10 million vaccines are delivered per year to infants. Assuming all of the VAERS reported deaths were actually caused by vaccines, and all occurred to infants, what is the mortality rate?

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This is a list of mortality rates of illnesses that we vaccinate against. (Source: CDC.gov) Convert each to a percent.

**Disease Mortality Rate (Fraction) Mortality Rate (Percent)**

Measles 1/1000

Mumps 1/10,000

Tetanus 132/1000

Whooping Cough 4/10,000

Based on this data from deaths alone, explain whether you believe vaccines or contracting these diseases is a greater health risk.

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Claim 2: *“Recognizing that VAERS data constitutes as little as 10% of actual injury and death cases, the annual death rate from vaccines swells to about 39,000.”*

Does this claim have a citation?

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Let’s take a look at another disclaimer from the VAERS website, this one on **underreporting**, or the possibility that some deaths and injuries from vaccines are not being reported at all.

*"Underreporting" is one of the main limitations of passive surveillance systems, including VAERS. The term, underreporting refers to the fact that VAERS receives reports for only a small fraction of actual adverse events. The degree of underreporting varies widely. As an example, a great many of the millions of vaccinations administered each year by injection cause soreness, but relatively few of these episodes lead to a VAERS report. Physicians and patients understand that minor side effects of vaccinations often include this kind of discomfort, as well as low fevers. On the other hand, more serious and unexpected medical events are probably more likely to be reported than minor ones, especially when they occur soon after vaccination, even if they may be coincidental and related to other causes.*

Summarize the passage; is underreporting a problem with VAERS? Given this disclaimer, what is your opinion on the second claim made by the vaccines.news site?

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*Claim 3: “You are more than 200 times more likely to suffer mortality following a government-recommended shot, in other words, than you are dying from a bear, shark, alligator or any of the other aforementioned animals.”*

This one isn’t cited either, so let’s find our own source. Try here: http://wpo.st/tb3G2

List the annual fatalities from bears, sharks, and alligators. Let’s add in venomous snakes/lizards and spiders too.

**Animal Annual Fatalities**

Sharks

Alligators

Bears

Venomous snakes/lizards

Spiders

Based on this data, what is your opinion on the validity of this claim?

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Is this claim misleading in any way? Scroll all the way down to the end of the <http://wpo.st/tb3G2> article. How many motor vehicle traffic deaths occur per year?

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**Echo Chamber**

Another danger sign of fake news websites is that their advertisements all tend to focus on a very specific group of people. This reflects an “echo chamber” or “preaching to the choir” situation, where they only write articles that will affirm the beliefs of their core audience.

What kind of topics or products are advertised on the vaccines.news site? What does this tell you about their target audience?

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Another good way to check this is to go to the main website and see if all their articles fit within a narrow mindset or worldview. Look at the Natural News article and look over their “most viewed articles” on the left side. Are there any common ideas, philosophies, or views throughout these articles?

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**Consequences**

Publishing and sharing fake news has real consequences. Take a look at the CDC’s data on vaccination rates here: <http://www.cdc.gov/nchs/fastats/immunize.htm>

The CDC’s goal for vaccination rates for children is at least 90%. What vaccines are not meeting this goal? Given what you’ve read and researched in this activity, what are some possible reasons why the vaccination rates are below this threshold?

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If one of your friends shared the vaccines.news article on social media, how would you respond? Write a respectful reply below, pointing out some of the issues in this article that we discovered today.

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