

The Medical Detective 🕵️ - Guidelines

Annotation Task

- Given the claim of a tweet, we want to find out whether evidence sentences of PubMed articles/abstracts support or refute a claim.
- Consider the following tweet:

Vaccines cause autism. Change my mind.

Basically, in the bold-faced section, the tweet claims that:

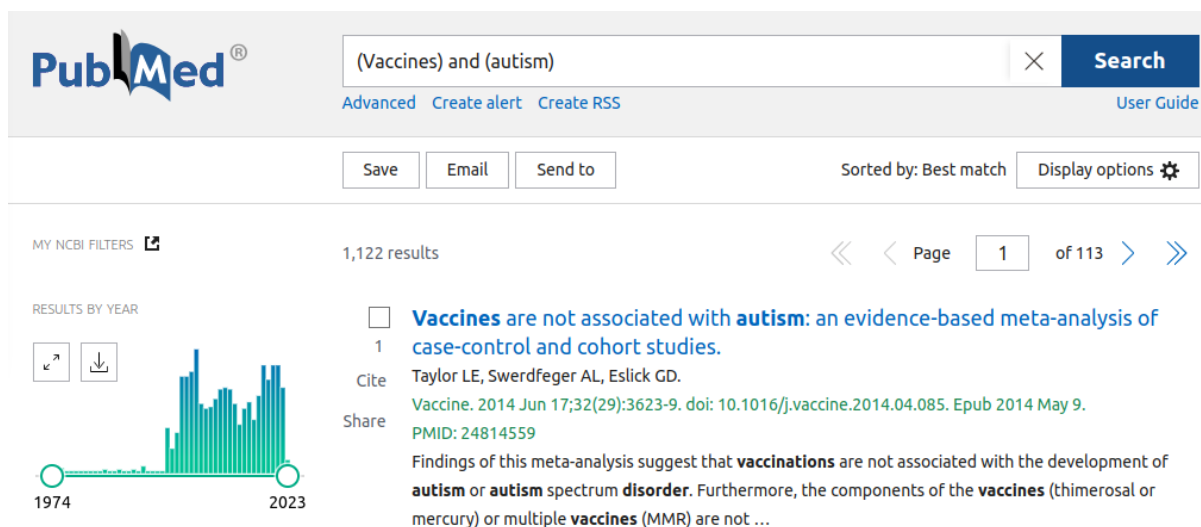
Vaccines cause autism.

Time limit

- You'll work on each claim for a maximum of about 5-7 Minutes.

Annotation Guidelines

- Read the tweet and the claim carefully.
- Click on the provided link to **PubMed**, a search engine for biomedical articles.
- Your task is to **find an article** with **supporting or refuting evidence for the claim** you just read. The **search bar will already have a search query, so you can start exploring the results immediately**.




PubMed®

(Vaccines) and (autism) × **Search**

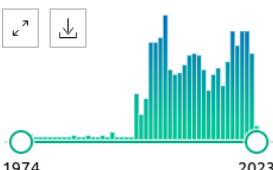
[Advanced](#) [Create alert](#) [Create RSS](#) [User Guide](#)

[Save](#) [Email](#) [Send to](#) Sorted by: Best match [Display options](#) ⚙️

MY NCBI FILTERS 

1,122 results ⏪ < Page **1** of 113 > ⏩

RESULTS BY YEAR



1974 2023

☐ **Vaccines are not associated with autism: an evidence-based meta-analysis of case-control and cohort studies.**

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Cite Taylor LE, Swerdfeger AL, Eslick GD.

Share [Vaccine. 2014 Jun 17;32\(29\):3623-9. doi: 10.1016/j.vaccine.2014.04.085. Epub 2014 May 9. PMID: 24814559](#)

Findings of this meta-analysis suggest that **vaccinations** are not associated with the development of **autism** or **autism spectrum disorder**. Furthermore, the components of the **vaccines** (thimerosal or mercury) or multiple **vaccines** (MMR) are not ...

- Go over the **search results** listed on that page. **Only read their titles and abstracts**. If an article does not come with an abstract, skim the first paragraph of the introduction and judge the evidence based on that.
- Remember to also consider the **context** of the tweet.

For example, if the claim is *vaccine causes severe headaches* and the tweet states “The Covid-19 vaccine is the reason I had severe headaches”, then look for abstracts/articles that are about the Covid-19 vaccine.

- Find an article that **covers the claim that you are researching**. Keep an eye out for a **text passage** that you could provide as evidence:

Abstract

There has been enormous debate regarding the possibility of a link between childhood vaccinations and the subsequent development of autism. This has in recent times become a major public health issue with vaccine preventable diseases increasing in the community due to the fear of a 'link' between vaccinations and autism. We performed a meta-analysis to summarise available evidence from case-control and cohort studies on this topic (MEDLINE, PubMed, EMBASE, Google Scholar up to April, 2014). Eligible studies assessed the relationship between vaccine administration and the subsequent development of autism or autism spectrum disorders (ASD). Two reviewers extracted data on study characteristics, methods, and outcomes. Disagreement was resolved by consensus with another author. Five cohort studies involving 1,256,407 children, and five case-control studies involving 9,920 children were included in this analysis. The cohort data revealed no relationship between vaccination and autism (OR: 0.99; 95% CI: 0.92 to 1.06) or ASD (OR: 0.91; 95% CI: 0.68 to 1.20), nor was there a relationship between autism and MMR (OR: 0.84; 95% CI: 0.70 to 1.01), or thimerosal (OR: 1.00; 95% CI: 0.77 to 1.31), or mercury (Hg) (OR: 1.00; 95% CI: 0.93 to 1.07). Similarly the case-control data found no evidence for increased risk of developing autism or ASD following MMR, Hg, or thimerosal exposure when grouped by condition (OR: 0.90, 95% CI: 0.83 to 0.98; $p=0.02$) or grouped by exposure type (OR: 0.85, 95% CI: 0.76 to 0.95; $p=0.01$). Findings of this meta-analysis suggest that vaccinations are not associated with the development of autism or autism spectrum disorder. Furthermore, the components of the vaccines (thimerosal or mercury) or multiple vaccines (MMR) are not associated with the development of autism or autism spectrum disorder.

✓ Option 1: You find such an article:

- If you find such an article, come back to your Google forms but **do not close the browser window with the PubMed search**.
- Fill out the form.
- If more sentences (partially) support or refute the claim, copy all sentences into the respective form field.
- Sometimes you might need **more than one** PubMed article/abstract to support or refute a claim., e.g, articles that build upon or relate to one another.

In this case, enter **both PubMed IDs** into the respective form field separated by a **semicolon**. Afterward, copy **both sentences** into the respective form field.

Consider the following claim:

indomethacin is/are prescribed for emergency flare-ups

Evidence sentence from the first abstract:

“Although timing and duration of treatment for a persistent clinically significant PDA differ among institutions, standard pharmacologic interventions are the nonsteroidal anti-inflammatory drugs indomethacin and ibuprofen”.

Evidence sentence from the second abstract:

“Nonsteroidal anti-inflammatory drugs are used extensively for the management of acute and chronic pain, with ketorolac tromethamine being one of the most frequently used parenteral analgesics in the emergency department (ED)”.

→ Without the sentence from the first abstract, we would not know that *indomethacin* is a nonsteroidal anti-inflammatory drug.

Enter both PubMed IDs like this:
12345678; 12345678

Enter both sentences into the respective field like this:
Sentence1; Sentence2

- **Partially supports/refutes:** There might be claims for which there is no perfect evidence document.

Consider the following claim:

harassment increases the risk of depression.

Let's say the most fitting evidence document you discovered during your search states that “Our meta-analysis showed some evidence of an association between sexual harassment and depressive symptoms”.

Here, the evidence is more specific than the claim in describing the type of harassment they studied. In cases like that, assign one of the ‘partial’ labels. Here, it would be **partially supports**.

Option 2: You can not find such an article:

- If you can not find an article with supporting or refuting evidence, come back to your Google forms and tick the option “No, based on the evidence, the claim is UNVERIFIABLE”. Go to the next section.
- Click again on the provided link to PubMed and **refine your search query**.
- **Refine** either the **query itself** or **use PubMed's filtering options** to search for relevant results. You can also look at the **"Similar Articles"** section that PubMed provides.
- Only read the **titles and abstracts**. Find an article that **covers the claim** that you are researching. Keep an eye out for a **text passage** that you could provide as evidence.
- If you find an article, come back to your Google forms but **do not close the browser window with the PubMed search**.
- Fill out the form.
- Consider the following example:

Let's assume you do **not** receive any results with the following search query:

(Exercise) AND (Fatigue)

Then you can replace “Fatigue” with “Feeling tired” and check if any abstracts/articles are returned.

How to handle...?

- If there is no evidence available in a given PubMed article/abstract, look for a **new** abstract/article.
- Use **Google** if you're having trouble understanding the claim and/or the evidence sentences.

Consider the following claim:

urine output may diagnose AKI

Here, AKI is short for **Acute Kidney Injury**.

- PubMed articles should be your first choice. If none are available, **preprints** can be used.