



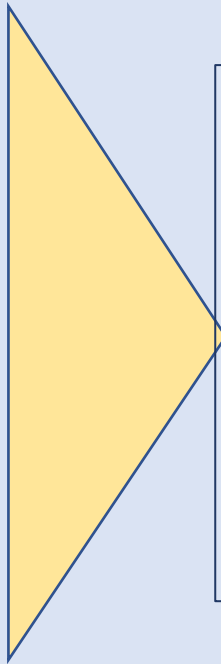
Fears



Facts



Feelings



How public health
can understand and
address COVID-19
misinformation

Meghan Bridgid Moran, PhD
Department of Health, Behavior & Society
Johns Hopkins Bloomberg School of Public Health

(It goes without saying, but)

COVID-19 misinformation is
widespread

Survival rates for COVID-19 misrepresented in posts

By ARIJETA LAJKA and JUDE JOFFE-BLOCK July 23, 2021



 Click to copy

CLAIM: If you are unvaccinated, you can get COVID and have over 99% chance of survival. If you get vaccinated, you can STILL get COVID and will still have over 99% chance of survival.

n is



Survival rat

By ARIJETA LAJKA and JUDE



By [Monique Curet](#)

g February 14, 2022

COVID and will still have over 99% chance of survival.

COVID-19 vaccines do not contain HIV



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Survival rat

By ARIJETA LAJKA and JUDE



By [Monique Curet](#)

Discover Thomson Reuters



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COVID-19 vaccines do not contain HIV



World Business Markets Breakingviews Video More

REUTERS FACT CHECK OCTOBER 21, 2021 / 1:29 PM / UPDATED 6 MONTHS AGO

Fact Check-No evidence COVID-19 vaccines have a "174 times higher" mortality rate in children than the virus

Survival rat

By ARIJETA LAJKA and JUDE



TSHEET POLITICS CRIME ENTERTAINMENT MEDIA INNOVATION COVID-19 WORLD U.S.

COVID Conspiracy Theorists Are at War Over 'Snake Venom'

| MUDDY WATERS |

Zachary Petrizzo Media Reporter

Published Apr. 16, 2022 8:43PM ET



The Steel Truth Dr. Bryan Ardis - Ardis Labs WE GIVE PEOPLE A VOICE

COVID-19 vaccines do not contain HIV

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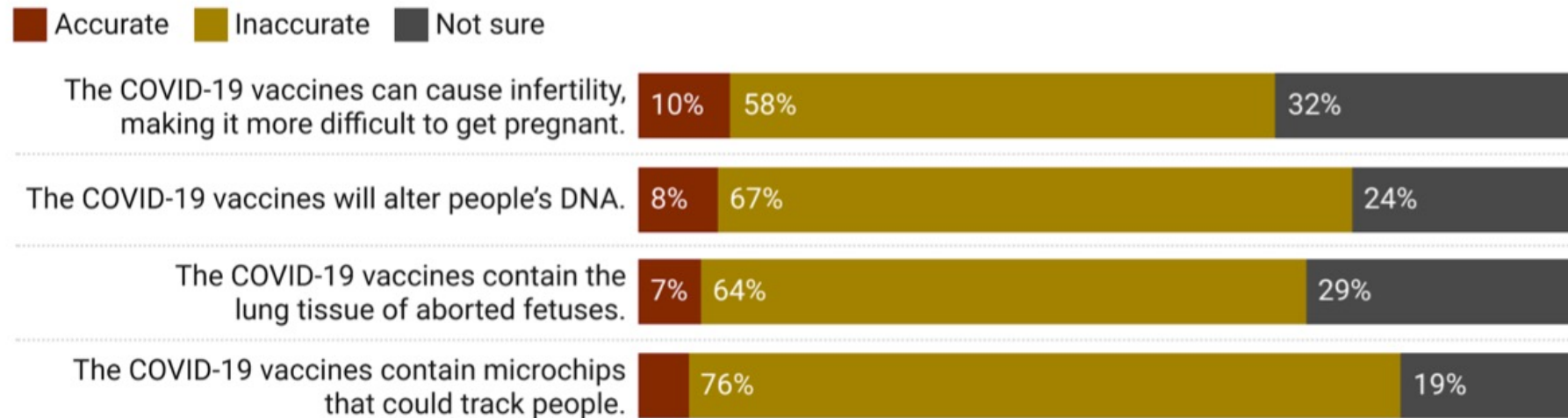
OCTOBER 21, 2021 / 1:29 PM / UPDATED 6 MONTHS AGO

«No evidence COVID-19 vaccines 4 times higher" mortality rate in than the virus

Much of this misinformation centers on COVID-19 vaccines

COVID-19 misinformation beliefs among Americans

[Percent respondents who believe each false statement is accurate, inaccurate, or say they are not sure]



National sample, N = 18,782, Time period: 12/22/2021-01/24/2022

Source: Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org • Created with Datawrapper

Just under 1 in 5 Americans holds vaccine misperceptions

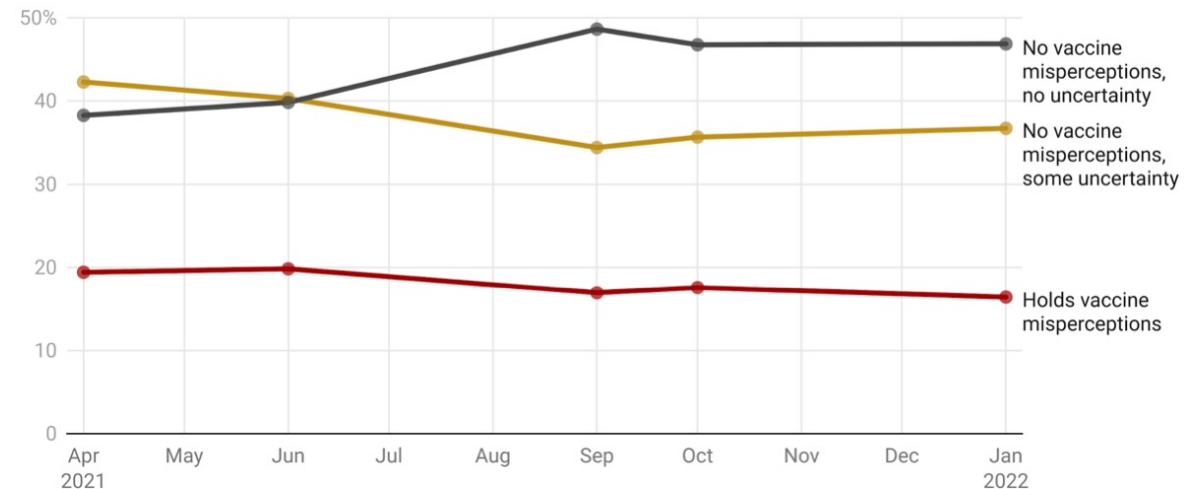
Shifts in misperceptions were least likely to occur among

- People who did not go to college
- People with income <\$25,000
- Hispanic Americans
- Republicans

COVID-19 vaccine misperceptions and uncertainty over time

Survey respondents were asked to identify the following four vaccine misinformation items as either true or false. When uncertain, they also had the option of saying "Not sure".

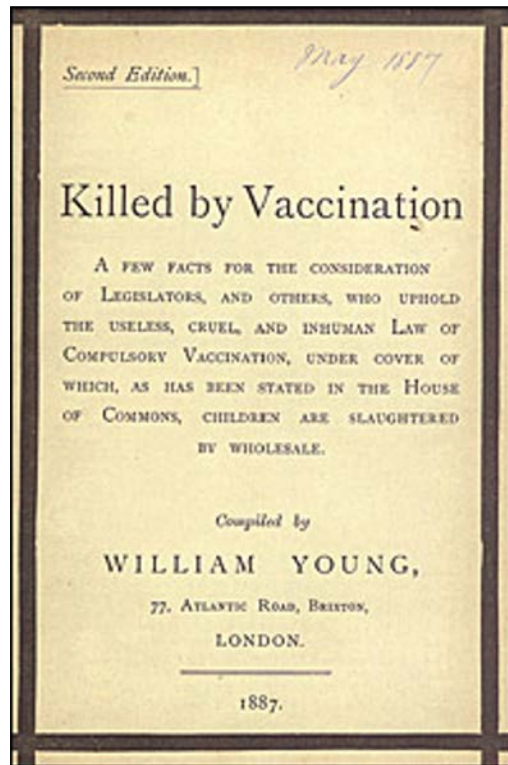
1. The COVID-19 vaccines will alter people's DNA.
2. The COVID-19 vaccines contain microchips that could track people.
3. The COVID-19 vaccines contain the lung tissue of aborted fetuses.
4. The COVID-19 vaccines can cause infertility, making it more difficult to get pregnant.



National sample, average N per wave = 17,702, Time period: 04/2021-01/2022

Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org • Created with Datawrapper

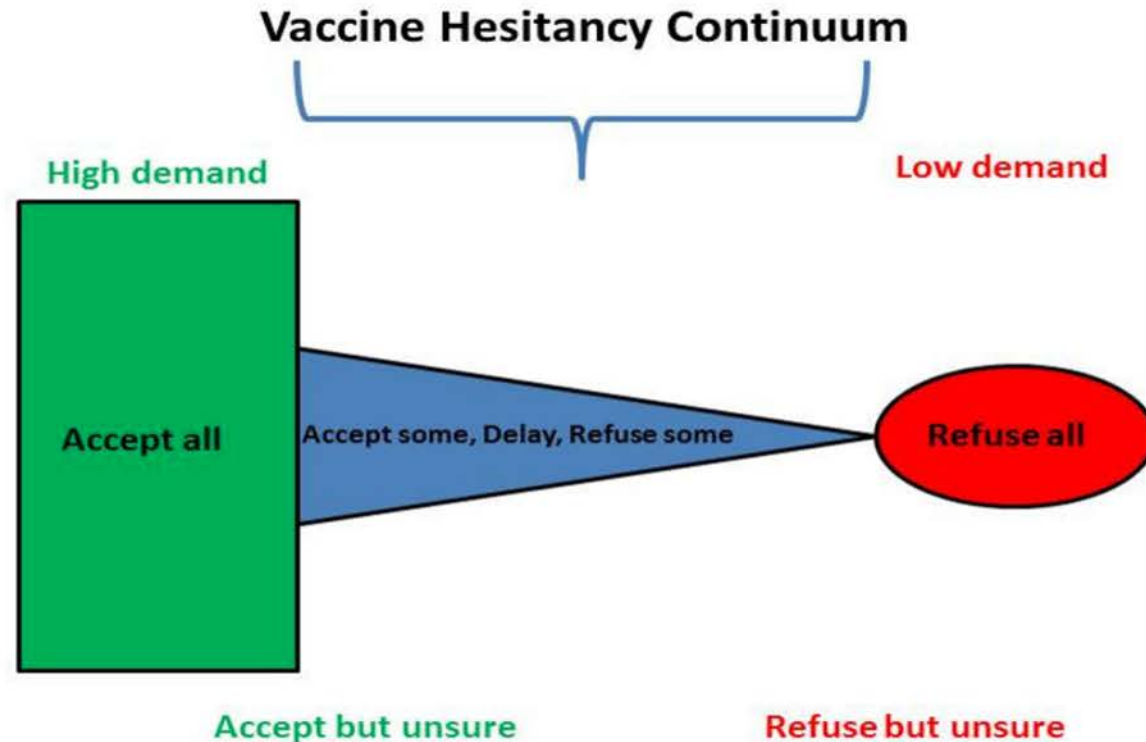
Vaccine misinformation is nothing new!



Information on slide from: Dube, E., Vivion, M., & MacDonald, N. E. (2015). Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. *Expert review of vaccines*, 14(1), 99-117.; Killed by Vaccination image from: https://www.nlm.nih.gov/exhibition/smallpox/sp_resistance.html; Screenshot of Wakefield, A. J., Murch, S. H., Anthony, A., Linnell, J., Casson, D. M., Malik, M., ... & Valentine, A. (1998). RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children.; DPT image from WRC-TV documentary, DPT: Vaccine Roulette: https://www.youtube.com/watch?v=0w3P7_H_ods

Misinformation contributes to vaccine hesitancy

Figure 1: The Continuum of Vaccine Hesitancy between Full Acceptance and Outright Refusal of all Vaccines



Reasons for vaccine hesitancy: Confidence

- **Perceived safety** of the vaccine
 - Fears that the vaccine will cause disease or death (40% of COVID-19 vaccine hesitant)
 - Fears of side effects (45% of COVID-19 vaccine hesitant)
- **Perceived effectiveness** of the vaccine
 - Beliefs that the vaccine will do little to protect one from the disease
- In the case of a COVID-19 vaccine, individuals may have concerns about the **vaccine development timeline, politicization of the vaccine**
 - 33% of Republicans vs. 10% of Democrats would not get the shot
- Lack of confidence may also be rooted in **structural racism and systemic exploitation** by the medical system
 - 40.8% Hispanic/Latino, 43.6% Black, and 46% American Indian/Alaska Native adults boosted vs. 54.6% non-Hispanic white adults

Reasons for vaccine hesitancy: Complacency

- Perceptions that risk of vaccine-preventable disease is low
 - Likelihood of getting the disease is low
 - Severity of the disease is low
- In the case of Covid-19, individuals may not perceive themselves to be at risk for the disease, or may think that if they do get it, they will have a mild case
 - 21% of those hesitant about Covid-19 vaccine think they don't need it

Reasons for vaccine hesitancy: Convenience

- Availability
- Accessibility
- Affordability
 - 6% of Covid-19 vaccine hesitant are worried about the cost
- Ability to understand
- Appeal of immunization services
 - 11% of Covid-19 vaccine hesitant “don’t like vaccines”

Other reasons for vaccine hesitancy

- Mistrust of doctors, science, government and the pharmaceutical industry
 - 27% of Covid-19 vaccine hesitant don't trust the government
- Beliefs about personal freedom and liberty
- Concerns related to cultural, religious or spiritual beliefs and practices
 - 4% of Covid-19 vaccine hesitant say it is against their religious beliefs
- Beliefs about natural or holistic treatments
- Beliefs that natural immunity to a disease is superior to immunity offered by a vaccine

So there's
misinformation...
let's correct it!



Valley of vaccination

SLOW
DOWN

You're wrong
Facts are wrong
You're wrong
Facts are wrong
Facts are wrong
Facts are wrong
Facts are wrong
Facts are wrong
Facts are wrong



Straightforward corrections aren't always so straightforward

- May be rejected outright
- Belief echoes: May correct a fact, but fail to update attitudes or behavioral intentions

Tools for Understanding Vaccine Hesitancy and WHY People Believe Misinformation

Risk as analysis vs. Risk as feelings

The science of attitudes

Biased processing



Risk as analysis vs. Risk as feelings

To assess risk, we use both our analytic capacities as well as our feelings



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Risk as analysis

What are the chances of this happening? How serious is it if this happens?

Example: What are my chances of getting Covid-19 if I go to this party? How bad will Covid-19 be if I get it?

- “Unlikely I will get Covid-19” & “I am young and healthy, it will be mild” = low perceived risk
- “Very likely I will get Covid-19” & “I am 75 and have multiple co-morbidities, it will be severe” = high perceived risk

Risk as analysis

- People don't always use numbers accurately to make these assessments.
 - We over-estimate the likelihood of a vivid but rare event occurring.
- More importantly, scientists and public health officials aren't always that great at communicating numeric information clearly!
 - Relative risk without communicating baseline likelihood
 - Conditional probabilities like "5% positivity rate" are difficult for people to interpret

Risk as analysis

Description-experience gap

- On-the-ground experience may not align with population-level statistics (“I don’t know anyone who has Covid-19...”)
- Rare events that are experienced are weighed more heavily than more common events that are not experienced
 - “I felt sick after getting a flu shot” vs. statistics showing severe adverse effects are rare

Risk as feelings

Feelings play an important role and can serve as information in our risk assessments



Risk as feelings

When people feel **good** about something, it is perceived as **less risky**.

When people feel **bad** about something, it is perceived as **more risky**.

Things feel riskier when...

- They are perceived as novel, exotic, unfamiliar
- They involve children
- We don't trust those responsible
- They are man-made (as opposed to naturally occurring)
- They are not voluntary
- They involve action (commission vs. omission)

The Science of Attitudes

Negative attitudes about vaccines can be hard to change!



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Hard to change attitudes tend to be...

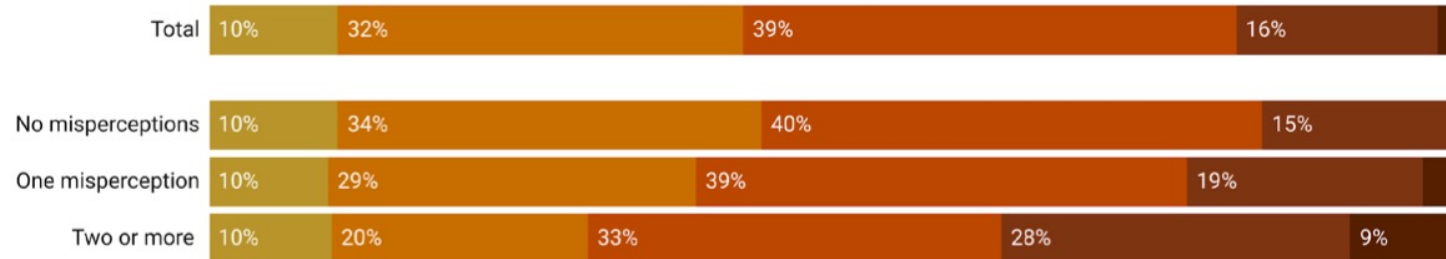
- Extreme
- Embedded in complex systems of identity, lifestyle and ideology
- People know a lot about the topic (or think they do!)

Perceived vaccine knowledge among those with different misperception levels

How much do you know about the COVID-19 vaccines?

[Perceived vaccine knowledge among respondents who believe zero, one, or more than one vaccine misinformation items]

■ I know almost nothing ■ I know a little ■ I know a fair amount ■ I know a lot ■ I have expert knowledge



National sample, N = 18,782, Time period: 12/22/2021-01/24/2022

Source: Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org • Created with Datawrapper



Attitudes become stronger when...

- They are activated frequently
 - Frequency of misinformation
 - Recency of misinformation
 - Vividness of misinformation
- The Illusory Truth Effect
 - Prior exposure to information increases its perceived accuracy

Attitudes become stronger when...



- They are reinforced by supporting information and perspectives
- Biased processing: People are more likely to be exposed to, pay attention to, and agree with information that supports their existing attitudes

Scientists Confirm Anti-Vaccine Sites Contain No Facts

| 11/06/15 9:32AM



A new study found that despite the prevalence of websites encouraging parents not to vaccinate their children, two-thirds of the sites presented false or disproven information as scientific evidence, while others misinterpreted the findings of peer-reviewed medical papers on the subject. What do *you* think?



“How can something be incorrect if there’s a lot of it?”

DEAN RETZER • GRANT WRITER



“I’m not concerned one way or the other. The field of pediatrics has always been cyclical in nature.”

PENNE LEGGE • FEEDBACK SOLICITOR



“Oh man, all those die-hard anti-vaxxers are going to be so embarrassed once they take a closer look at the facts.”

ROY FAULK • RUBBER HARVESTER

What makes misinformation compelling?

Anti-vaccine rhetoric uses stories!

After 41 weeks of pregnancy, on July 27th, 1986, a perfect and healthy little baby, Laura Marie, made her entrance into the world. We were welcomed home by family and friends anxiously waiting to meet the new family member. They showered her with so many beautiful, little tiny, pink dresses, we joked that she would never be able to wear them all in one lifetime.

I took Laura for several baby check-ups at the pediatrician. She was a kind and gentle older woman. On October 23, 1986, at 3 months old, the pediatrician was very pleased with Laura's development and weight gain and vaccinated her with DPT OPV. I didn't even question her, I knew that all my friend's babies had this same vaccine and "all good mothers" vaccinated their children to protect them. I left the pediatrician's office and walked home.

I watched as he performed CPR, my body was frozen and I couldn't move. He tried to revive our child to no avail. He was shouting for me to open the door for the paramedics, I was temporarily jolted back to reality and I went and opened the door. I could now move but couldn't speak. I just stood there numbly shaking my head, feeling completely helpless as dozens of paramedics, police and firemen rushed past me into our home. I didn't cry, and I wanted to scream at them to leave her alone but I couldn't speak. She was on the floor and they were shocking her tiny body, in the little bedroom with the yellow painted walls and clown wallpaper. I stood there praying in my head that they would just leave her alone, that they would get out of her bedroom and that I would wake up from this horrible dream.

Anti-vaccine rhetoric uses vivid imagery!



Anti-vaccine rhetoric uses fuzzy “science”!

AWARENESS

Study Finds DTP Vaccine Increases Mortality In Young Infants 5 To 10 Fold Compared To Unvaccinated Infants



Published 4 years ago on April 24, 2017
By Robert F. Kennedy Jr.

Vaccinations Linked to Autism in Two New Studies



A direct link between certain vaccinations and autism was shown and discussed in two published studies. The first of these studies is a scientific article published on August 27, 2014, in the journal Translational Neurodegeneration, that exposed a link between Measles-mumps-rubella vaccination and autism in African American boys. The study is titled; "Measles-mumps-rubella vaccination timing and autism among young African American boys: a reanalysis of CDC data."

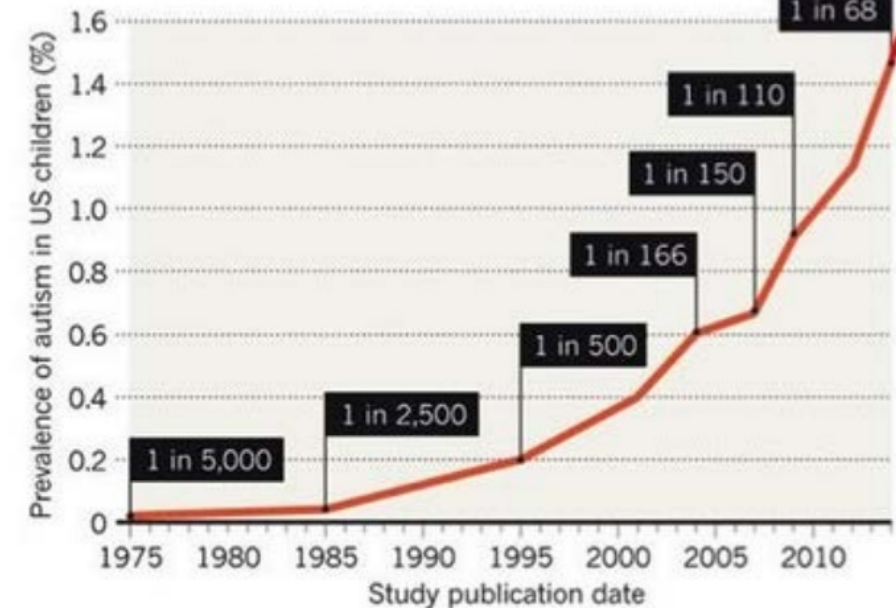
This study suggests that the data showing the link between MMR and autism was available for a number of years but was evidently covered up by the CDC and influences in the vaccine community. The results of this study state, "When comparing cases and controls receiving their first MMR vaccine before and after 36 months of age, there was a statistically significant increase in autism cases specifically among African American males who received the first MMR prior to 36 months of age."

<https://www.hechtchiro.com/page/ArticleoftheMonth.html>

A Frightening Trend*

AUTISM DIAGNOSES RISING

Almost 1.5% of US children are now diagnosed with autism, according to data from 11 regions in the United States.



*K. Weintraub, Nature 479, Nov. 3 2011, 22-24.

Anti-vaccine rhetoric uses “credible experts”!

Viera Scheibner now a retired principal research scientist with a doctorate in Natural Sciences is the author of the book 'Vaccination -The Medical Assault on the Immune System'. Her research shows

UK Scientist Speaks Out About the Dangers of Aluminum Adjuvants in Vaccinations

Lead author and scientist for the Sound Choice Pharmaceutical Institute, Dr. Theresa Deisher, pointed out that many of these vaccines are made using cells from aborted babies. This type of vaccine creates additional health issues. She stated, "Not only are the human fetal contaminated vaccines associated with autistic disorder throughout the world, but also with epidemic childhood leukemia and lymphomas."

“OH MY GOD. I CANNOT BELIEVE WE DID WHAT WE DID. BUT WE DID.”




– DR. WILLIAM THOMPSON, CDC SENIOR SCIENTIST & WHISTLEBLOWER

Anti-vaccine rhetoric denigrates vaccine scientists!

How Scientists Use Statistical Deception to Fake Influenza Vaccine Effectiveness

INFLUENCE & PSYCHOLOGY

By Tom Stavola / August 10, 2018

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BOOKS WE RECOMMEND



Anti-vaccine rhetoric connects to identity and values!

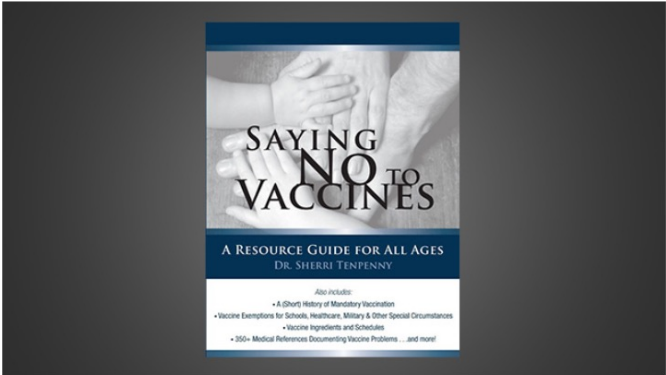


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Saying NO to vaccines

Wednesday, November 11, 2015 by: Natural News Editors
Tags: vaccines, Sherri Tenpenny, adverse events

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(NaturalNews) Basic Facts to Know About Vaccinations (Story by Dr. Sherri Tenpenny, republished from [TropicalTraditions.com](#))

- 1. Vaccines are toxic.**
• Vaccines contain substances

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OPTIMIZE YOUR ORAL HEALTH WITH OUR

A photograph of a male doctor with grey hair and a beard, wearing a white lab coat and a blue stethoscope. He is looking towards an elderly patient with white hair, whose back is to the camera. The scene is set in a clinical or hospital environment with a blurred background.

Some best practices for
dispelling misinformation

Address inaccurate beliefs

- Clearly indicate the misinformation is false **before** you introduce it
- Focus on key points (not correcting every little detail)
- Provide an alternate explanation



Address inaccurate beliefs

- Fill in the gap left by ‘removal’ of the myth by providing a new causal explanation!
- Corrective must:
 - Be plausible
 - Fill in the causal gap
 - Explain why the misinformation was incorrect
- Explaining the motive for the misinformation can be especially helpful
- Simple correction/explanation may be more effective
 - If too complex, people may continue to rely on incorrect yet simple misinformation

Inoculate against misinformation

- Forewarn the audience about the misinformation they are likely to encounter
- Refute the misinformation
- Audience is now prepared with resources to refute the misinformation themselves, when they encounter it
- A 'booster shot' may be needed



McGuire WJ, Papageorgis D. The relative efficacy of various types of prior belief-defense in producing immunity against persuasion. *Public Opinion Quarterly*. 1961; 26, 24–34.; Maertens et al., Long-Term Effectiveness of Inoculation Against Misinformation: Three Longitudinal Experiments; Cook, J., Lewandowsky, S., & Ecker, U. K. (2017). Neutralizing misinformation through inoculation: Exposing misleading argumentation techniques reduces their influence. *PloS one*, 12(5), e0175799.; Image via Self x American Academy of Pediatrics Immunization Image Gallery (<https://www.aap.org/en-us/Pages/immunizations-image-gallery.aspx>)

Focus on the disease!

- Severity of the disease
 - Likelihood of hospitalization
 - Mortality rates
 - Long-term effects
- Susceptibility to the disease
 - Likelihood of contracting Covid-19

Don't be afraid of feelings!



- Feelings are important sources of information
- Use stories and vivid imagery

Use positive imagery!



Affirm people's sense of self!

General connection to or reminder of personal values, personal strengths can increase acceptance of corrective information

Listen!

- What is concerning about the vaccine?
- What other factors – cultural, religious, political – are at play?
- Address questions with an open-mind
- Don't invalidate people's
- worries



*“People do dumb
things for good
reasons”*