

PA Vaccine Conversations on Twitter

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Vaccine Hesitancy Project Update based on November 4, 2022 - November 10, 2022

The CMU centers for:

Informed DEMocracy And Social cyber-security

Computational Analysis of Social and Organizational Systems



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1

PA Vaccine Conversations Project

- ❑ This report is an effort to summarize social media conversations around COVID-19 issues in Pennsylvania, with a focus on vaccination. It contains an analysis of the general topics related to COVID-19 vaccination. This includes discussions related to COVID-19 regulations, mandates, masks, pro-and anti-vaccination campaigns, science messages, misinformation, disinformation, conspiracy theories, and vaccine hesitancy messages.
- ❑ Anti-Vax messaging includes vaccine hesitancy messages, opinions, questions, policy health and science related information, misinformation, disinformation, and conspiracy theories.

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2

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Report Overview November 4 – November 10

- ❑ Masks, Mandates, Children, Boosters, Race are trending this week, also Mandates, Experimental, Boosters are trending this week over the last;
- ❑ Trending stories: [Vaccines.gov](https://vaccines.gov); dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html: America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West;
- ❑ Popular anti-vax tweets: BREAKING: Pfizer - which paid the largest health care fraud settlement in history, Oreo - owned by Mondalez, which recently settled a child labor and slavery lawsuit last year, and Volkswagen - founded by the Nazi Party - have all pulled ads from Twitter over ethics concerns; Former Pfizer VP Dr. Mike Yeadon accused his former colleagues saying they are responsible for #CrimesAgainstHumanity. He said this “jab” has been injected in probably Billions of people, killing 1 out of 1000 & injuring 1 in 100. #CovidJabKills #OurGovernmentFailedUsByForcingJab <https://t.co/evvuvwBLtC>; Gretchen Whitmer and Kathy Hochul - two low IQ lunatics who instituted the most authoritarian, vicious Covid policies in the nation, have been re-elected as governors Apparently a majority of residents in those states enjoyed school shutdowns, vaxx mandates, masks Truly insane;

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Popular anti-vax stories November 4 – November 10

Anti-vax, disinformation, and vaccine hesitancy stories sorted by the number of shares:

- ❑ live.childrenshealthdefense.org/shows/tea-time/vsFtuU6U4J Enormous Danger – UN Agenda 2030 With Dr. Michael Yeadon;
- ❑ icandecide.org/press-release/ican-demands-answers-from-the-cdc-about-spike-in-rsv-rates ICAN DEMANDS ANSWERS FROM THE CDC ABOUT SPIKE IN RSV RATES;
- ❑ dailycaller.com/2022/11/04/sweden-novavax-myocarditis-side-effects-covid-19-coronavirus-vaccine Sweden Halts Approved COVID-19 Vaccine Use For People Under 30;
- ❑ igorchudov.substack.com/p/association-between-vaccines-and Association Between Vaccines and EXCESS MORTALITY Getting Stronger -- and is Discussed in UK Parliament;
- ❑ americanlibertyreportnews.com/articles/court-orders-cdc-to-release-data-showing-18-million-vaccine-injuries-in-america Court Orders CDC to Release Data Showing 18 Million Vaccine Injuries in America;
- ❑ lionessofjudah.substack.com/p/the-cdc-falsified-its-surveillance The CDC FALSIFIED Its Surveillance Model Showing Unvaccinated Dying at Higher Rate Than Vaccinated

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Countering disinformation November 4 – November 10

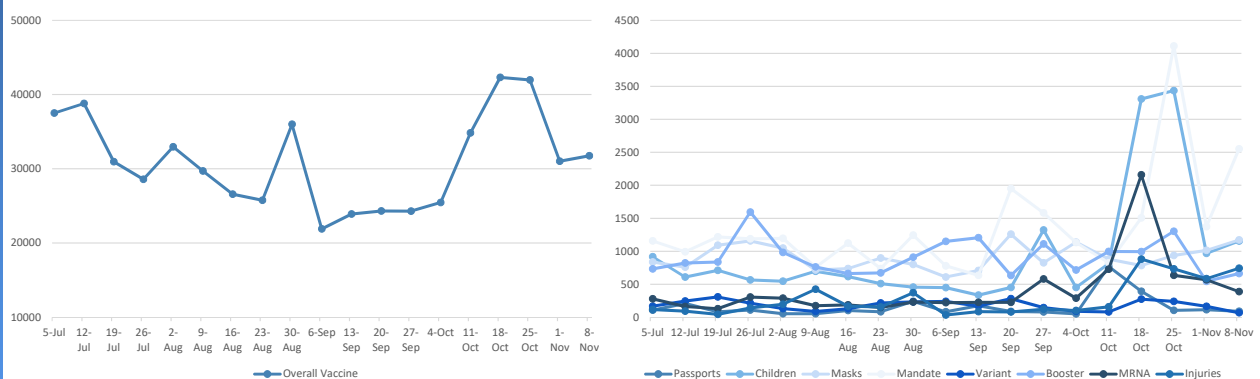
Articles and fact-checking stories debunking disinformation for the last week:

- ❑ Fact Check: Did Study Link More Strokes in Young People to COVID Vaccine?
<https://www.newsweek.com/newsweek-com-fact-check-link-more-strokes-young-people-covid-vaccine-1756397>;
- ❑ Fact check: False claim about mandatory mRNA vaccines, deaths in Australian cattle
<https://www.usatoday.com/story/news/factcheck/2022/11/02/fact-check-false-claim-vaccine-deaths-australian-cattle/10540647002/>;
- ❑ No, COVID vaccines don't cause infertility. Debunking 5 myths about women's health
<https://globalnews.ca/news/9240651/womens-health-covid-misinformation-fact-check/>;
- ❑ Fact-Checking Claims That COVID Vaccines Cause a Brain Disorder <https://thedispatch.com/article/fact-checking-claims-that-covid-vaccines/>;
- ❑ Fact check: No evidence of a link between COVID-19 vaccines, cancer spike in people under 50
<https://www.usatoday.com/story/news/factcheck/2022/10/28/fact-check-no-evidence-link-between-covid-19-vaccines-cancer/10533133002/>

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Trends (tweets per week in PA) November 4 – November 10



12/6/2022



High Level View by City November 4 – November 10

Conversation	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	27526	14233	51.7%	8009	29.1%	186	0.7%	3770	13.7%	1328	4.8%
Vaccine Passports	90	37	0.3%	20	0.2%	3	1.6%	30	0.8%		
FDA Approval	30	12	0.1%	5	0.1%			12	0.3%	1	0.1%
Boosters	561	254	1.8%	190	2.4%	6	3.2%	65	1.7%	46	3.5%
Employees	79	31	0.2%	34	0.4%			9	0.2%	5	0.4%
"Experimental"	273	144	1.0%	64	0.8%	1	0.5%	58	1.5%	6	0.5%
Children	592	236	1.7%	187	2.3%	1	0.5%	152	4.0%	16	1.2%
Myocarditis	103	49	0.3%	28	0.3%			20	0.5%	6	0.5%
Heart	262	103	0.7%	94	1.2%			42	1.1%	23	1.7%
Masks	1156	672	4.7%	191	2.4%	5	2.7%	158	4.2%	130	9.8%
Thrombosis/VITT	2			1	0.0%			1	0.0%		
Mandates	2549	1716	12.1%	380	4.7%	12	6.5%	391	10.4%	50	3.8%
Natural Immunity	45	25	0.2%	13	0.2%			6	0.2%	1	0.1%
Efficacy	50	26	0.2%	3	0.0%	1	0.5%	20	0.5%		
Omicron	70	45	0.3%	11	0.1%			12	0.3%	2	0.2%
Delta Variant	35	9	0.1%	3	0.0%	2	1.1%	2	0.1%	19	1.4%
Race	590	349	2.5%	159	2.0%	2	1.1%	65	1.7%	15	1.1%
Ivermectin	16	4	0.0%	6	0.1%			4	0.1%	2	0.2%
Military	182	88	0.6%	53	0.7%	3	1.6%	28	0.7%	10	0.8%
Breakthrough	9	7	0.0%	2	0.0%						

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Conversation topics trending this week over last:

- Experimental
- Mandates
- Boosters



High Level View by County November 4 – November 10

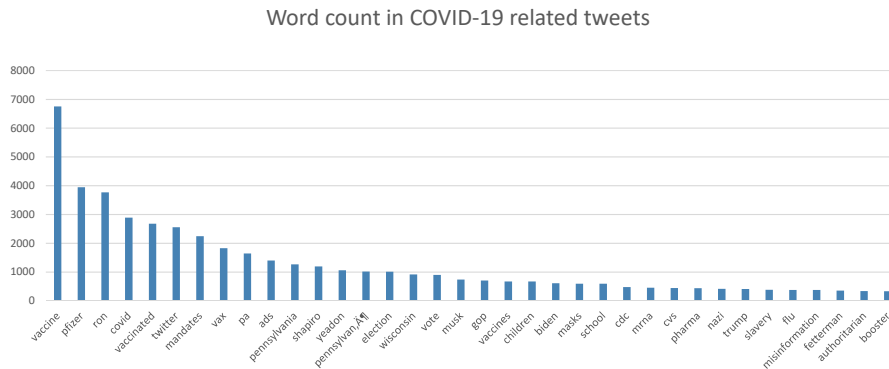
County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	8212	20	29	10	19	7	10	36
Vaccine Passports	20							
FDA	5							
Boosters	196	1	2	2				1
Employees	35							
"Experimental"	66							
Children	189					2		2
Myocarditis	29			1				1
Heart	101							
Masks	215	1		2	1	1	3	7
Thrombosis/VITT	1							
Mandates	387	1					2	2
Natural Immunity	13							
Efficacy	3							
Omicron	11							
Delta Variant	4		1	1				
Race	161		2					1
Ivermectin	7							
Military	56							
Breakthrough	2							

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- Race: pulled by one of the vaccine keywords plus at least one other term in ("Black", "African American", "of color", "Latin", "Hispanic", "brown", "eugenic")



Top Words Used per Week November 4 – November 10



12/6/2022



Top Hashtags by County November 4 – November 10

☐ We've checked hashtags in several counties such as Allegheny, Beaver, Butler, Cambria, Fayette, Indiana, Somerset, and West Moreland. After removing hashtags that were part of our search criteria, the top 5 hashtags for each county related to COVID19/vaccines are as follows*:

Allegheny	Cambria	Beaver + Butler
vaxhack (83)	covidbooster (1)	covid19 (1)
pfizer (57)		covidisairborne (1)
covid19 (48)		covidisnotover (1)
vaccine (43)		
covidvaccine (17)		

12/6/2022



Top Hashtags by City November 4 – November 10

- After removing hashtags that were part of our search criteria, the top 5 hashtags for each region related to COVID19/vaccines are as follows:

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
crimesagainsthumanity (312)	pfizer (6)	vaccine (27)	vaxhack (83)	pfizer (3)	pfizer (21)	pfizer (5)
covidjabkills (300)	vaccine (4)	covid (23)	pfizer (57)	arrestbillgates (1)	vaccine (17)	nomandates (2)
ourgovernmentfailedusbyforcingjab (294)	crimesagainsthumanity (3)	crimesagainsthumanity (20)	covid19 (48)	arrestfauci (1)	vaccineinjured (13)	sciencewillwin (2)
pfizer (60)	donotjab (2)	covidjabkills (17)	vaccine (43)	covidscam (1)	iamnotmisinformation (12)	vaccineinjured (2)
sciencewillwin (60)	longcovid (2)	pfizer (17)	covidvaccine (17)	sciencewillwin (1)	safeandeffective (12)	bringbackmasks (1)

12/6/2022



Top URLs by County November 4 – November 10

Allegheny	Fayette	Indiana	West Moreland
realclearpolitics.com/articles/2022/10/24/cdcs_child_vaccine_move_puts_dem_candidates_on_the_hot_seat_148362.html CDC's Child Vaccine Move Puts Dem Candidates on the Hot Seat (83)	misinformationkills.substack.com/p/big-tech-big-trouble Big Tech, Big Trouble (1)	citizengo.org/en-us/ed/209398-cdcs-adds-deadly-covid-vaccine-childrens-immunization-schedule-sign-protect-medical-freedom CDC adds deadly COVID vaccine to children's immunization schedule! Sign to protect Medical Freedom! (2)	msn.com/en-ca/health/medical/study-mycarditis-risk-2-to-3-times-higher-from-moderna-than-pfizer-covid-19-vaccine/AA13Q5CE Study: Myocarditis risk 2 to 3 times higher from Moderna than Pfizer COVID-19 vaccine (1)
igorchudov.substack.com/p/association-between-vaccines-and-excess-mortality Association Between Vaccines and EXCESS MORTALITY Getting Stronger -- and is Discussed in UK Parliament (23)	scientificamerican.com/article/people-in-republican-counties-have-higher-death-rates-than-those-in-democratic-counties People in Republican Counties Have Higher Death Rates Than Those in Democratic Counties (1)		washingtonpost.com/magazine/2022/11/07/damon-young-i-mask-gym-why-do-i-feel-so-dumb-i-mask-at-the-gym-its-the-smart-thing-to-do-why-do-i-feel-so-dumb-1/ I mask at the gym. It's the smart thing to do. Why do I feel so dumb? (1)
americanlibertyreportnews.com/articles/court-orders-cdc-to-release-data-showing-18-million-vaccine-injuries-in-america Court Orders CDC to Release Data Showing 18 Million Vaccine Injuries in America (16)			
dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (15)			
dailycaller.com/2022/11/04/sweden-novavax-mycarditis-side-effects-covid-19-coronavirus-vaccine Sweden Halts Approved COVID-19 Vaccine Use For People Under 30 (14)			

12/6/2022

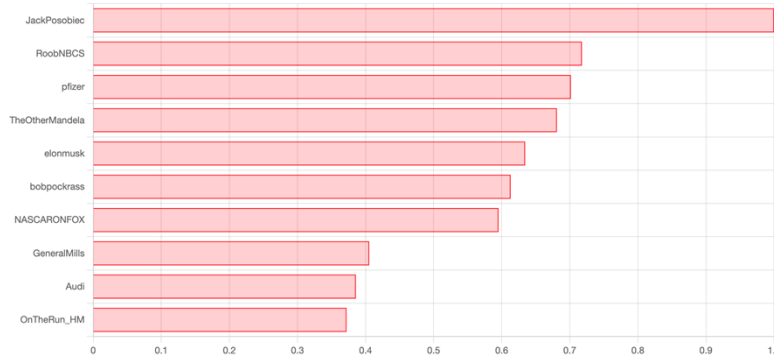


Top URLs by City November 4 – November 10

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
<p>live.childrenshealthdefense.org/shows/tea-time/vsFu16114 Enormous Danger – UN Agenda 2030 With Dr. Michael Yeadon (148)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (51)</p> <p>Vaccines.gov (19)</p> <p>twitter.com/DailyCaller/status/143607527531702144 President Biden on his new vaccine mandate: "This is not about freedom or personal choice. It's about protecting yourself and those around you." (17)</p> <p>icandecide.org/press-release/ican-demands-answers-from-the-cdc-about-spike-in-rsv-rates ICAN DEMANDS ANSWERS FROM THE CDC ABOUT SPIKE IN RSV RATES (15)</p>	<p>msn.com/en-us/news/politics/pa-attorney-general-josh-shapiro-asking-supreme-court-to-reinstate-school-mask-order/at-AA83wtR Pa Attorney General Josh Shapiro asking Supreme court to reinstate school mask order (10)</p> <p>twitter.com/laney_1/status/1588298299315867649 Dr. Mike Yeadon ~ Former Pfizer VP publicly naming his ex-Big Pharma colleagues and calls for accountability. (6)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (4)</p> <p>lionessofjudah.substack.com/p/the-cdc-falsified-its-surveillance The CDC FALSIFIED Its Surveillance Model Showing Unvaccinated Dying at Higher Rate Than Vaccinated (2)</p> <p>realclearpolitics.com/articles/2022/10/24/cdcs_child_vaccine_move_puts_dem_candidates_on_the_hot_seat_148362.html CDC's Child Vaccine Move Puts Dem Candidates on the Hot Seat (2)</p>	<p>drew.com/2022/biomedical-security-state-dr-aaron-kheriaty-on-mandate-lawsuit-with-dr-kelly-victory-ask-dr-drew Biomedical Security State: Dr. Aaron Kheriaty on Mandate Lawsuit with Dr. Kelly Victory – Ask Dr. Drew (15)</p> <p>realclearpolitics.com/articles/2022/10/24/cdcs_child_vaccine_move_puts_dem_candidates_on_the_hot_seat_148362.html CDC's Child Vaccine Move Puts Dem Candidates on the Hot Seat (9)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (8)</p> <p>Vaccines.gov (6)</p> <p>dailycaller.com/2022/11/04/sweden-novavax-myocarditis-side-effects-covid-19-coronavirus-vaccine Sweden Halts Approved COVID-19 Vaccine Use For People Under 30 (4)</p>	<p>realclearpolitics.com/articles/2022/10/24/cdcs_child_vaccine_move_puts_dem_candidates_on_the_hot_seat_148362.html CDC's Child Vaccine Move Puts Dem Candidates on the Hot Seat (83)</p> <p>igorhudson.substack.com/p/association-between-vaccines-and-excess-mortality Association Between Vaccines and EXCESS MORTALITY Getting Stronger -- and is Discussed in UK Parliament (23)</p> <p>americallibertyreportnews.com/articles/court-orders-cdc-to-release-data-showing-18-million-vaccine-injuries-in-america Court Orders CDC to Release Data Showing 18 Million Vaccine Injuries in America (16)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (15)</p> <p>dailycaller.com/2022/11/04/sweden-novavax-myocarditis-side-effects-covid-19-coronavirus-vaccine Sweden Halts Approved COVID-19 Vaccine Use For People Under 30 (14)</p>	<p>dailycaller.com/2022/11/04/sweden-novavax-myocarditis-side-effects-covid-19-coronavirus-vaccine Sweden Halts Approved COVID-19 Vaccine Use For People Under 30 (1)</p> <p>factcheck.org/2021/07/science-covid-19-vaccine-generated-spike-protein-is-contrary-to-viral-claims COVID-19 Vaccine-Generated Spike Protein is Safe, Contrary to Viral Claims (1)</p> <p>justthenews.com/politics-policy/coronavirus/pfizer-profits-covid-reaping-almost-100-billion-selling-covid-19 Pfizer profits from COVID vaccines and treatments, reaping almost \$100 billion in sales (1)</p> <p>link.thepochtimes.com/mktapp/from-wildfire-cancers-to-foot-long-clots-dr-ryan-cole-explains-the-dangers-of-the-spike-protein-4813813.html From 'Wildfire Cancers' to Foot-Long Clots, Dr. Ryan Cole Explains the Dangers of the Spike Protein (1)</p> <p>live.childrenshealthdefense.org/shows/tea-time/vsFu16114 Enormous Danger – UN Agenda 2030 With Dr. Michael Yeadon (1)</p>	<p>icandecide.org/press-release/ican-demands-answers-from-the-cdc-about-spike-in-rsv-rates ICAN DEMANDS ANSWERS FROM THE CDC ABOUT SPIKE IN RSV RATES (38)</p> <p>realclearpolitics.com/articles/2022/10/24/cdcs_child_vaccine_move_puts_dem_candidates_on_the_hot_seat_148362.html CDC's Child Vaccine Move Puts Dem Candidates on the Hot Seat (11)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (10)</p> <p>Vaccines.gov (6)</p> <p>medrxiv.org/content/10.1101/2022.06.28.22276926v1 Increasing SARS-CoV2 cases, hospitalizations, and deaths among the vaccinated populations during the Omicron (B.1.1.529) variant surge in UK (5)</p>	<p>Vaccines.gov (4)</p> <p>dailymail.co.uk/health/article-11390871/Covid-vaccination-proof-required-enter-America-2023.html America WILL still demand proof of Covid vaccination to enter the country in 2023 – making it the only country in the West (3)</p> <p>icandecide.org/press-release/ican-demands-answers-from-the-cdc-about-spike-in-rsv-rates ICAN DEMANDS ANSWERS FROM THE CDC ABOUT SPIKE IN RSV RATES (3)</p> <p>citizengo.org/en-us/ed/209398-cdc-adds-deadly-covid-vaccine-childrens-immunization-schedule-sign-protect-medical-freedom CDC adds deadly COVID vaccine to children's immunization schedule! Sign to protect Medical Freedom! (2)</p> <p>motherjones.com/politics/2022/11/desantis-polio-measles-florida-is-flirting-with-an-anti-vaccine-apocalypse Polio? Measles? Florida is Flirting With an Anti-Vaccine Apocalypse (2)</p>

Analysis of Tweeters - Super Spreaders

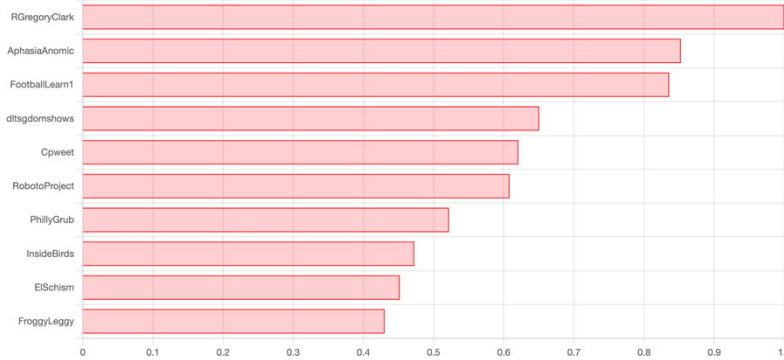
❑ Super Spreaders are users which generate content that is shared often, and hence spread information effectively.



12/6/2022

Analysis of Tweeters - Super Friends

❑ Super Friends are users that exhibit frequent two-way communication, facilitating large or strong communication networks.

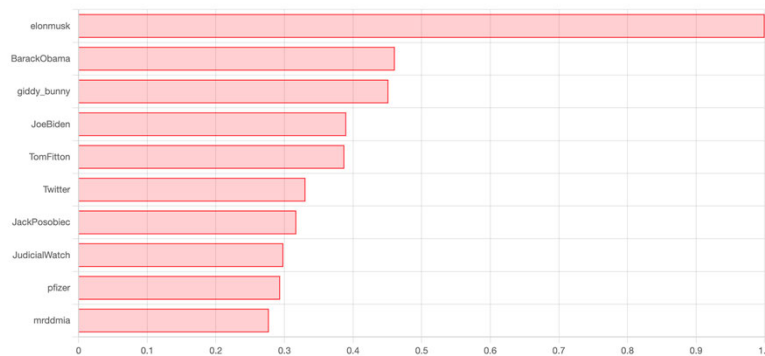


12/6/2022



Analysis of Tweeters - Other Influencers

❑ Other Influencers are users which have an active network presence, by tweeting often or mentioning users often, and operate in central parts of the conversation, such as by using important hashtags, or mentioning important users.



12/6/2022



Accounts Referenced by the Most Tweets

- ❑ This shows the tweeters that are most often referenced (e.g. mentioned) in PA tweets. Value is the number of tweets that reference the agent.

Agent Label	Value
pfizer	1286
elonmusk	1187
GeneralMills	841
Audi	797
VW	459
Oreo	429
Twitter	415
MDLZ	359
Disney	318
GM	299
bennyjohnson	257
TheOtherMandela	233
kystenabecker	191

12/6/2022



Trending Tweets November 4 – November 10

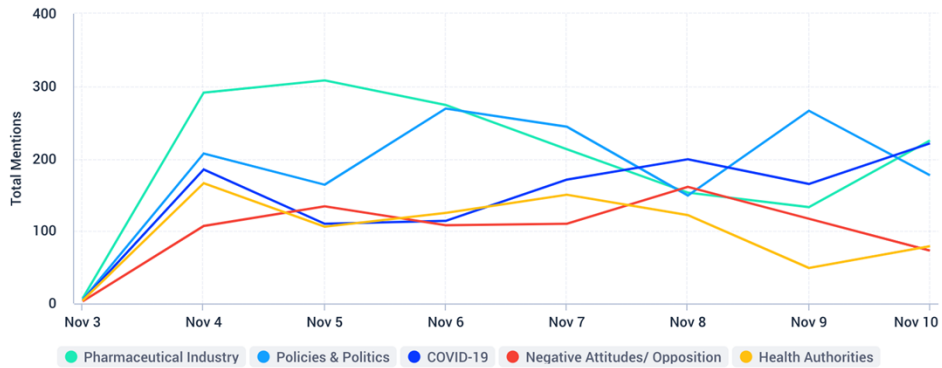
Tweets that are the most forwarded, either by retweet, reply, or quote:

- ❑ BREAKING: New ad just dropped in PA on the vaccine mandates and Josh Shapiro It doesn't have to be this way, Pennsylvania <https://t.co/l3pnLx4REr>;
- ❑ BREAKING: Pfizer - which paid the largest health care fraud settlement in history, Oreo - owned by Mondalez, which recently settled a child labor and slavery lawsuit last year, and Volkswagen - founded by the Nazi Party - have all pulled ads from Twitter over ethics concerns;
- ❑ Former Pfizer VP Dr. Mike Yeadon accused his former colleagues saying they are responsible for #CrimesAgainstHumanity. He said this "jab" has been injected in probably Billions of people, killing 1 out of 1000 & injuring 1 in 100. #CovidJabKills #OurGovernmentFailedUsByForcingJab <https://t.co/evyuvwBLtC>;
- ❑ Make no mistake – our rights and freedoms are on the ballot this Tuesday. I refuse to let Ron Johnson rip them away from anyone. Hudson, thank you for showing UP! <https://t.co/b6D5pnSXib>;
- ❑ Gretchen Whitmer and Kathy Hochul- two low IQ lunatics who instituted the most authoritarian, vicious Covid policies in the nation, have been re-elected as governors Apparently a majority of residents in those states enjoyed school shutdowns, vaxx mandates, masks Truly insane;
- ❑ JUST IN - Pfizer pauses ads on Twitter after Elon Musk takeover — WSJ;
- ❑ Dr. Mike Yeadon ~ Former Pfizer VP publicly naming his ex-Big Pharma colleagues and calls for accountability. <https://t.co/c4NVYDRLxg>;
- ❑ I just got called a "selfish bitch" for not being vaccinated.. I am not vaccinated and I don't give a shit how you feel about it. My LIFE, My CHOICE;
- ❑ 32 yr old single mom stage 1 breast cancer in remission takes 2 Pfizer and 2 boosters per her oncologist and just admitted to hospice today;
- ❑ August 2020 - Bill Gates says "you don't have a choice" and he says everyone in the world has to get the vaccinated <https://t.co/W51B8MpgiC>

12/6/2022



General PA Conversation November 4 – November 10

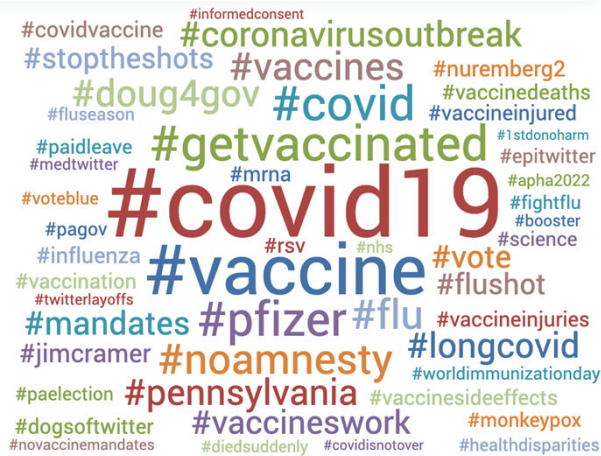


Source: VCTR Project Dashboard

12/6/2022



PA Hashtag Cloud November 4 – November 10

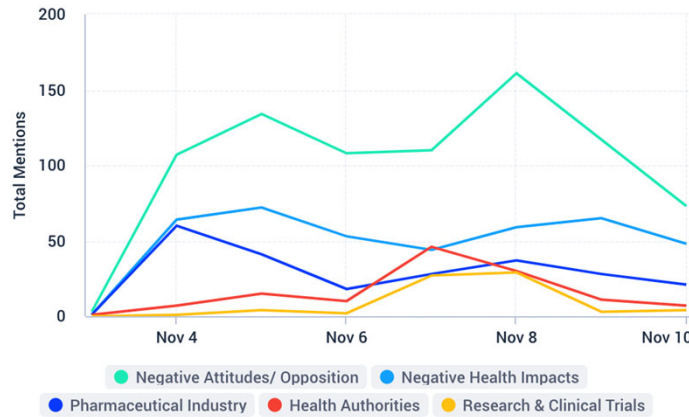


Source: VCTR Project Dashboard

12/6/2022



Negative Attitudes November 4 – November 10



12/6/2022

Source: VCTR Project Dashboard



Negative Hashtag Cloud November 4 – November 10

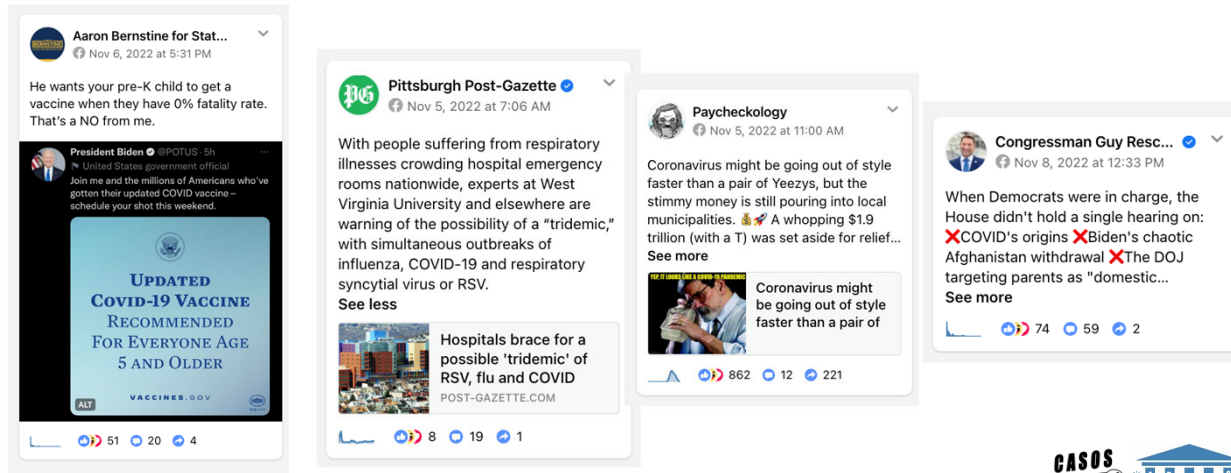


12/6/2022

Source: VCTR Project Dashboard



Trending Posts on Facebook November 4 – November 10



12/6/2022

Source: CrowdTangle Dashboard



Measures for countering health disinformation

- ❑ Anti-vaccine narratives are still pervasive on social media, while there are not that many counter-narratives about the positive effects of vaccines;
- ❑ There is a need for a reframing of social media as a medically and socially valuable resource and platform because of its high impact on society;
- ❑ Healthcare organizations need to implement social media strategies to create and expand conversations countering disinformation on social media;
- ❑ It would be helpful for health communicators to cooperate with local influencers who could spread pro-vaccination messages. Another strategy could be to motivate health practitioners to use social media as a channel for communication with the public;
- ❑ "Strategies focused on meaningfully and safely engaging HCPs on social media, promoting interconnectivity across the medical and public health communities on COVID-19 vaccine truths, and sustaining these messaging efforts across vaccine implementation stages will be our best hope of preventing any more missed doses and promoting "misinformation immunity" for all." (Hernandez et al. 2021. "The COVID-19 vaccine social media infodemic: healthcare providers' missed dose in addressing misinformation and vaccine hesitancy.")

12/6/2022



Measures for countering health disinformation

- ❑ As a trusted source of information on vaccines, family physicians play a crucial role in driving vaccine acceptance;
- ❑ Sharing stories, building trust with patients, addressing pain associated with vaccination, presenting vaccination as the default approach early on, focusing on the benefits of protection, and being honest about side effects could also help to promote pro-vaccination attitudes (Shen & Dubey 2019. “Addressing vaccine hesitancy: Clinical guidance for primary care physicians working with parents”);
- ❑ It is helpful to provide more information for the patients about the possible disinformation strategies they may deal with, such as manipulating emotions to promote misinformation and conspiracy theories to sow confusion and create division. Inoculation strategy may help to prepare the community by presenting counterarguments to misinformation and raising awareness of negative emotional appeals spread by anti-vaccine campaigns;
- ❑ Framing vaccination as a concrete, actionable strategy to reduce COVID-19 risk may help to address negative emotions, increase self-efficacy and ensure the feelings of control over reducing COVID-19 risk.

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