

PA Vaccine Conversations on Twitter

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Vaccine Hesitancy Project Update based on April 22, 2022 – April 28, 2022

The CMU centers for:

Informed DEMocracy And Social cyber-security

Computational Analysis of Social and Organizational Systems



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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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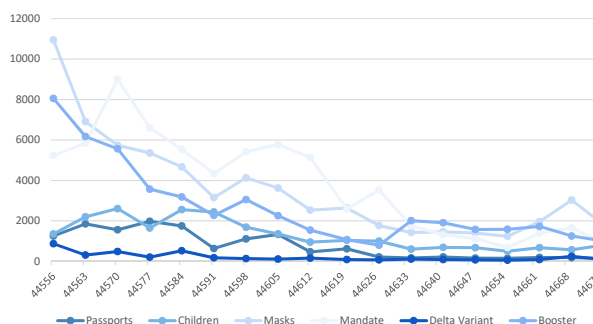
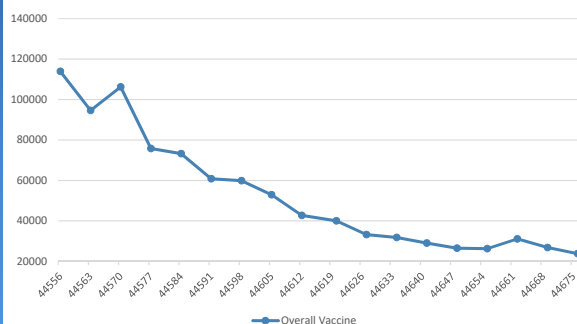
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Report Overview April 22 – April 28

- ❑ Masks, Mandates, Boosters, Race, and Children issues are trending this week;
- ❑ Trending stories: [thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiots-get-vaccinated-dies-of-covid](https://www.thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiots-get-vaccinated-dies-of-covid) QAnon Star Who Said Only 'Idiots' Get Vax Dies of COVID; [politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798](https://www.politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798) Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer; [nytimes.com/live/2022/04/22/world/covid-19-mandates-cases-vaccine](https://www.nytimes.com/live/2022/04/22/world/covid-19-mandates-cases-vaccine) Philadelphia is ending a short-lived indoor mask mandate; [msn.com/en-us/news/us/state-trooper-who-told-off-washington-gov-jay-inslee-over-vaccine-mandate-dies-from-covid/ar-AATnxLZ](https://www.msn.com/en-us/news/us/state-trooper-who-told-off-washington-gov-jay-inslee-over-vaccine-mandate-dies-from-covid/ar-AATnxLZ) State trooper who told off Washington Gov. Jay Inslee over vaccine mandate dies from COVID; [independent.co.uk/independentpremium/uk-news/brexit-import-checks-boris-johnson-b2063477.html](https://www.independent.co.uk/independentpremium/uk-news/brexit-import-checks-boris-johnson-b2063477.html) Brexit: Boris Johnson suggests fourth delay to import checks after warning over trade 'collapse';
- ❑ Anti-vax, misinformation, and vaccine hesitancy stories: Telegram channel where fake vaccination cards are sold t.me/GbK5BWavwVBmMzYk "Unvaccinated Legends - We produce and offer covid 19 vaccine cards to those who need results but are not willing to take the vaccines;" [trialsitenews.com/p/sonia-elijah/the-damning-first-dose-vaccine-data-known-as-early-as-may-2021-47542b38](https://www.trialsitenews.com/p/sonia-elijah/the-damning-first-dose-vaccine-data-known-as-early-as-may-2021-47542b38) The damning first dose vaccine data known as early as May 2021; [theblaze.com/op-ed/horowitz-walgreens-recorded-who-tested-positive-for-covid-and-the-results-might-surprise-you](https://www.theblaze.com/op-ed/horowitz-walgreens-recorded-who-tested-positive-for-covid-and-the-results-might-surprise-you) Horowitz: Walgreens recorded who tested positive for COVID, and the results might surprise you; [dailyexpose.uk/2022/03/31/gov-canada-fully-vaccinated-account-4-in-5-covid-deaths](https://www.dailyexpose.uk/2022/03/31/gov-canada-fully-vaccinated-account-4-in-5-covid-deaths) Government of Canada reveals Fully Vaccinated account for 4 in every 5 Covid-19 Deaths over the past month; the majority Triple Jabbed; [dailyexpose.uk/2022/04/15/fda-pfizer-knew-covid-jab-causes-immunosuppression](https://www.dailyexpose.uk/2022/04/15/fda-pfizer-knew-covid-jab-causes-immunosuppression) Pfizer & FDA knew Covid Vaccine caused Immunosuppression & VAED/ADE in Feb 2021; and they knew it was killing people; [jamajucier.wordpress.com/2021/11/01/why-those-getting-the-covid-vaccine-should-be-locked-down-and-wear-a-mask](https://www.jamajucier.wordpress.com/2021/11/01/why-those-getting-the-covid-vaccine-should-be-locked-down-and-wear-a-mask) Why those getting the Covid vaccine should be locked down and wear a mask [jamanetwork.com/journals/jamacardiology/fullarticle/2791253](https://www.jamanetwork.com/journals/jamacardiology/fullarticle/2791253) SARS-CoV-2 Vaccination and Myocarditis in a Nordic Cohort Study of 23 Million Residents; [brownstone.org/articles/have-people-been-given-the-wrong-vaccine](https://www.brownstone.org/articles/have-people-been-given-the-wrong-vaccine) Have People Been Given the Wrong Vaccine?; [pharmacistssteve.com/pfizer-recalls-some-batches-of-blood-pressure-drug-over-carcinogen-presence](https://www.pharmacistssteve.com/pfizer-recalls-some-batches-of-blood-pressure-drug-over-carcinogen-presence) Pfizer recalls some batches of blood pressure drug over carcinogen presence



Trends (tweets per week) April 22 – April 28



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High Level View by City April 22 – April 28

	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	20464	10684	52.2%	6319	30.9%	191	0.9%	2290	11.2%	980	4.8%
Vaccine Passports	146	73	0.7%	45	0.7%			26	1.1%	2	0.2%
FDA Approval	89	35	0.3%	32	0.5%	2	1.0%	20	0.9%		
Boosters	580	343	3.2%	119	1.9%	5	2.6%	76	3.3%	37	3.8%
Employees	171	81	0.8%	27	0.4%	6	3.1%	43	1.9%	14	1.4%
"Experimental"	64	30	0.3%	14	0.2%	2	1.0%	15	0.7%	3	0.3%
Children	614	309	2.9%	175	2.8%	7	3.7%	103	4.5%	20	2.0%
Myocarditis	73	43	0.4%	11	0.2%			17	0.7%	2	0.2%
Heart	450	318	3.0%	69	1.1%	2	1.0%	56	2.4%	5	0.5%
Masks	1766	1019	9.5%	328	5.2%	18	9.4%	176	7.7%	225	23.0%
Thrombosis/VITT	25	20	0.2%	3	0.0%			2	0.1%		
Mandates	773	467	4.4%	142	2.2%	3	1.6%	111	4.8%	50	5.1%
Natural Immunity	129	79	0.7%	36	0.6%			11	0.5%	3	0.3%
Efficacy	110	58	0.5%	30	0.5%			19	0.8%	3	0.3%
Omicron	93	46	0.4%	28	0.4%	3	1.6%	13	0.6%	3	0.3%
Delta Variant	84	33	0.3%	11	0.2%	3	1.6%	11	0.5%	26	2.7%
Race	474	239	2.2%	172	2.7%	5	2.6%	40	1.7%	18	1.8%
Ivermectin	176	94	0.9%	40	0.6%	2	1.0%	36	1.6%	4	0.4%
Military	62	32	0.3%	17	0.3%	2	1.0%	9	0.4%	2	0.2%
Breakthrough	76	34	0.3%	23	0.4%	2	1.0%	15	0.7%	2	0.2%

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- Conversation topics trending this week over last

- Ivermectin
- FDA Approval
- Efficacy
- Employee mandates



High Level View by County April 22 – April 28

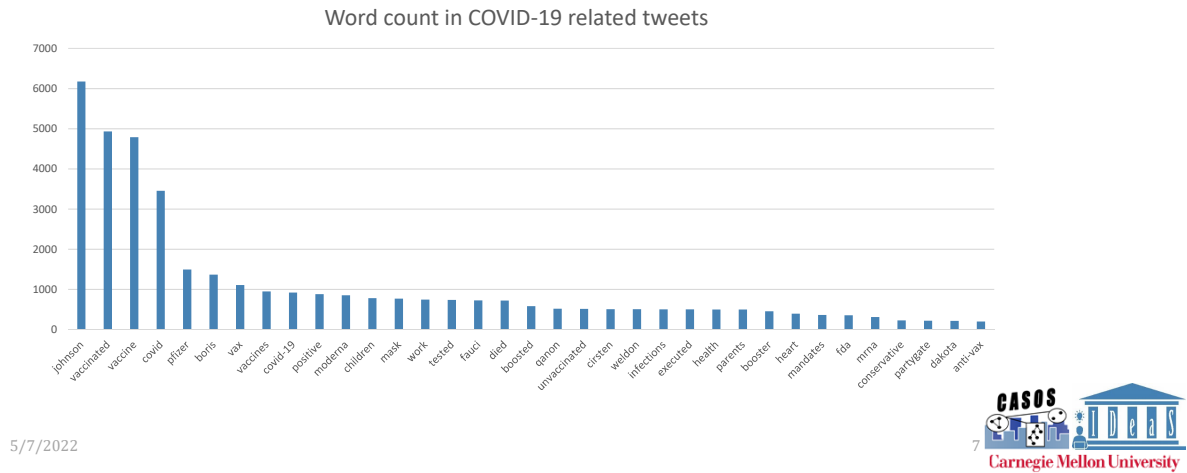
County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	6477	18	18	7	15	5	2	22
Vaccine Passports	45							
FDA	32							
Boosters	122		2		2			2
Employees	30		2					
"Experimental"	14	2						
Children	179							3
Myocarditis	11							
Heart	71							2
Masks	347	2	3	5	3	3		7
Thrombosis/VITT	3							
Mandates	143				2	2		3
Natural Immunity	36							2
Efficacy	30		2					
Omicron	28							
Delta Variant	11							
Race	173				2			2
Ivermectin	42							
Military	17							
Breakthrough	23							

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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 April 22 – April 28



Top Hashtags by County April 22 – April 28

- ❑ 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	Fayette	West Moreland
pfizer (188)	wimbledon (2)	nfl (1)
covid19 (138)		steelers (1)
nfl (64)		
vaccinesideeffects (55)		
vaccinedeaths (50)		

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Top Hashtags by City April 22 – April 28

- ❑ 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
covid19 (95)	covid19 (8)	covid19 (43)	pfizer (188)	pfizer (5)	covid19 (31)	steelers (19)
pfizer (46)	pfizer (7)	pfizer (13)	covid19 (138)	bluevoices (3)	immunizeunder5s (21)	vaccine (11)
covid (43)	borisjohnson (3)	longcovid (10)	nfl (64)	wtpblue (2)	covidisnotover (11)	pfizer (9)
protectionoverp olitics (27)	pmqs (3)	covidisnotover (9)	vaccinesideeffects (55)	bidenadministrati on (1)	pfizer (9)	nfl (7)
immunizeunder5 s (26)	vaccinesideeffects (2)	vaccinated (8)	vaccinedeaths (50)	biopharma (1)	covidvaccine (7)	covid19 (6)

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Top URLs by County April 22 – April 28

Allegheny	Butler + Beaver	Fayette	Indiana	West Moreland
independent.co.uk/independentpremium/uk-news/brexit-import-checks-boris-johnson-b2063477.html Brexit: Boris Johnson suggests fourth delay to import checks after warning over trade 'collapse' (47)	who.int/news/item/21-04-2022-over-1-million-african-children-protected-by-first-malaria-vaccine Over 1 million African children protected by first malaria vaccine (1)	espn.com/tennis/story/_/id/33808738/novak-djokovic-set-defend-wimbledon-title-covid-19-vaccines-not-mandatory Novak Djokovic set to defend Wimbledon title; COVID-19 vaccination not mandatory (2)	foxbusiness.com/politics/white-house-facebook-vaccine-misinformation Psaki says administration is working with Facebook to limit misinformation (1)	sfchronicle.com/health/article/covid-immunity-17085243.php Why do some people never get COVID while others get it several times, even if vaccinated? (1)
politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798 Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer. (47)		healthsystemtracker.org/brief/covid19-and-other-leading-causes-of-death-in-the-us COVID-19 mortality preventable by vaccines (1)	pharmaciststeve.com/pfizer-recalls-some-batches-of-blood-pressure-drug-over-carcinogen-presence Pfizer recalls some batches of blood pressure drug over carcinogen presence (1)	
thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-get-vaccinated-dies-of-covid QAnon Star Who Said Only 'Idiot' Get Vax Dies of COVID (45)		thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-get-vaccinated-dies-of-covid QAnon Star Who Said Only 'Idiot' Get Vax Dies of COVID (1)	video.foxnews.com/v/6304386817001 Philadelphia businesses sue to end mask mandate (1)	
dailyexpose.uk/2022/04/22/4-in-every-5-covid-deaths-canada-fully-vaccinated Covid-19 Deaths are rising across Canada and the Fully Vaccinated account for 4 in every 5 of them (25)				
coronavirus.house.gov/sites/democrats.coronavirus.house.gov/files/2022.04.25%20Clyburn%20to%20Dr.%20Robert%20Califf%20re%20pediatric%20vaccines.pdf Request for a staff briefing on the status of coronavirus vaccine candidates for young children (21)				

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Top URLs by City April 22 – April 28

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-98	calgary.ctvnews.ca/vaccine-backlash-calgary-oil-giant-facing-dozens-of-lawsuits-from-former-employees-over-covid-19-shot-1.5872574 Vaccine backlash: Calgary oil giant facing dozens of lawsuits from former employees over COVID-19 shot (39)	t.me/GbK5BWayvBmMzvk "Unvaccinated Legends - We produce and offer covid 19 vaccine cards to those who need results but are not willing to take the vaccines" (14)	independent.co.uk/independentpremiu/uk-news/brexit-import-checks-boris-johnson-b2063477.html Brexit: Boris Johnson suggests fourth delay to import checks after warning over trade 'collapse' (47)	msn.com/en-us/news/us/state-trooper-who-told-off-washington-gov-jay-inslee-over-vaccine-mandate-dies-from-covid-ar-AAATnxL2 State trooper who told off Washington Gov. Jay Inslee over vaccine mandate dies from COVID (2)	politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798 Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer (31)	thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-10
politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798 Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer (73)	thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-9	politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798 Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer (13)	politico.com/news/2022/04/21/biden-kids-vaccine-covid-00026798 Waiting for a Covid vaccine for your under-5 kid? It may take a bit longer (47)	bioprocessonline.com/doc/car-t-cell-therapy-vaccines-to-address-breast-ovarian-cancers-0001 CAR T-cell Therapy, Vaccines To Address Breast Ovarian Cancers (1)	thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-19	sarahburwick.substack.com/p/who-is-risa-hoshino Who Is Risa Hoshino? (4)
millennialsarekillingcapitalism.libsyn.com/how-we-stay-free-philadelphia-housing-action-featuring-christopher-rogers-fair-muhammad-sterling-johnson-and-wiley-cunningham Millennials Are Killing Capitalism (36)	latimes.com/science/story/2022-04-22/california-lives-saved-by-covid-19-vaccines How many California lives were saved by COVID-19 vaccines? Scientists have an answer (6)	thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-11	thedailybeast.com/qanon-star-cirsten-weldon-who-said-only-idiot-gets-vaccinated-dies-of-covid-qanon-star-who-said-only-idiot-gets-vax-dies-of-covid-45	cbc.ca/news/politics/tam-federal-vaccine-mandates-under-review-1.6389844 Tam says the federal government is 'examining' all vaccine mandates (1)	iamajulicer.wordpress.com/2021/11/01/why-those-getting-the-covid-vaccine-should-be-locked-down-and-wear-a-mask Why those getting the Covid vaccine should be locked down and wear a mask (14)	evanhospital.com/virus COVID-19 Vaccine Info(3)
amazon.com/dp/B09YXS2MW "I'm vaccinated but still wearing my mask cause i got trust issues and y'all nasty" T-shirt (34)	jamanetwork.com/journals/jamacardiology/fullarticle/2791253 SARS-CoV-2 Vaccination and Myocarditis in a Nordic Cohort Study of 23 Million Residents (5)	theblaze.com/gp-ed/horowitz-walgreens-recorded-who-tested-positive-for-covid-and-the-results-might-surprise-you Horowitz: Walgreens recorded who tested positive for COVID, and the results might surprise you (9)	dailyexpose.uk/2022/04/22/4-in-every-5-covid-deaths-canada-fully-vaccinated Covid-19 Deaths are rising across Canada and the Fully Vaccinated account for 4 in every 5 of them (25)	dailyexpose.uk/2022/03/31/gov-canada-fully-vaccinated-account-4-in-every-5-covid-deaths Government of Canada reveals Fully Vaccinated account for 4 in every 5 Covid-19 Deaths over the past month; the majority Triple Jabbed (1)	jamanetwork.com/journals/jamacardiology/fullarticle/2791253 SARS-CoV-2 Vaccination and Myocarditis in a Nordic Cohort Study of 23 Million Residents (14)	msn.com/en-us/news/us/state-trooper-who-told-off-washington-gov-jay-inslee-over-vaccine-mandate-dies-from-covid-ar-AAATnxL2 State trooper who told off Washington Gov. Jay Inslee over vaccine mandate dies from COVID (3)
nytimes.com/live/2022/04/22/worl/covid-19-mandates-cases-vaccine/philadelphia-is-ending-a-short-lived-indoor-mask-mandate Philadelphia is ending a short-lived indoor mask mandate (32)	bloom.bg/30tVneY Boris Johnson to Face Probe on Whether He Lied on Partygate (4)	trialsitenews.com/p/sonia_eljah/t-he-damning-first-dose-vaccine-data-known-as-early-as-may-2021-47542b38 The damning first dose vaccine data known as early as May 2021 (8)	coronavirus.house.gov/sites/democrats/coronavirus.house.gov/files/2022-04-25_Chyburn%20to%20Dr.%20Robert%20Califf%20re%20pediatric%20vaccines.pdf Request for a staff briefing on the status of coronavirus vaccine candidates for young children (21)	dailyexpose.uk/2022/04/15/fda-pfizer-knew-covid-jab-causes-immunosuppression Pfizer & FDA knew Covid Vaccine caused Immunosuppression & VAED/ADE in Feb 2021; and they knew it was killing people (1)	msn.com/en-us/news/us/state-trooper-who-told-off-washington-gov-jay-inslee-over-vaccine-mandate-dies-from-covid-ar-AAATnxL2 State trooper who told off Washington Gov. Jay Inslee over vaccine mandate dies from COVID (12)	brownstone.org/articles/have-people-been-given-the-wrong-vaccine Have People Been Given the Wrong Vaccine? (2)

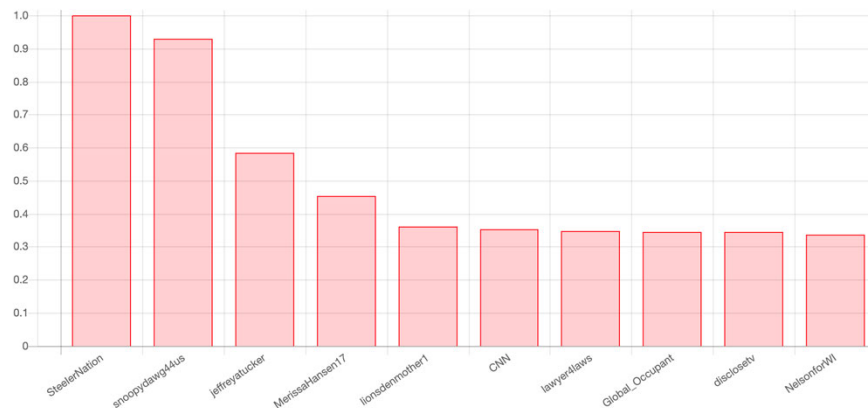
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Analysis of Tweepers - Super Spreaders

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

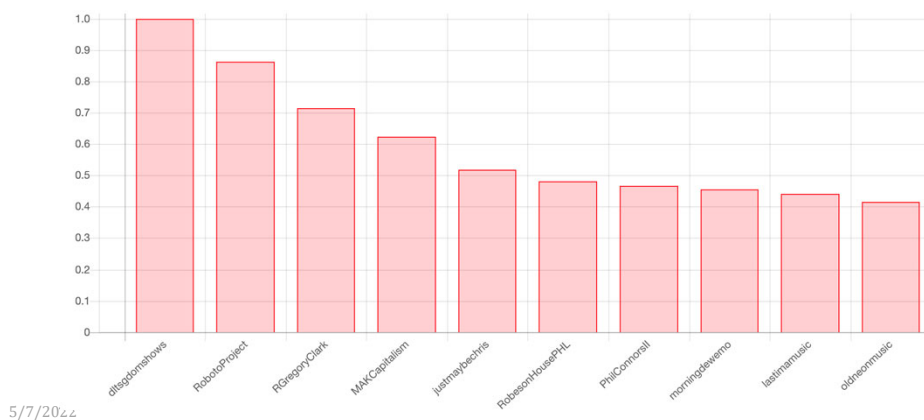


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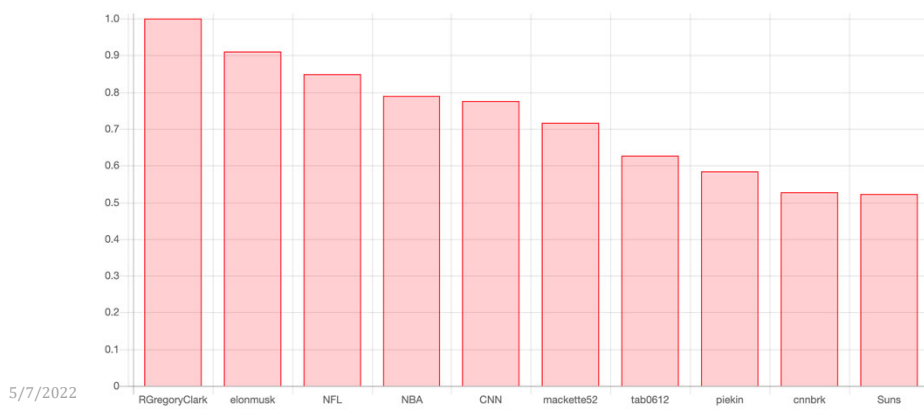
Analysis of Tweeters - Super Friends

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



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.



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
CNN[+][*]	186
pfizer[+]	175
US_FDA[+]	166
DrCaliff_FDA	142
POTUS[+]	130
elonmusk[+]	119
ImmunizeUnder5s	115
moderna_tx[+]	103
CDCgov[+]	101
TyJohnsonNews	78

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Trending Tweets April 22 – April 28

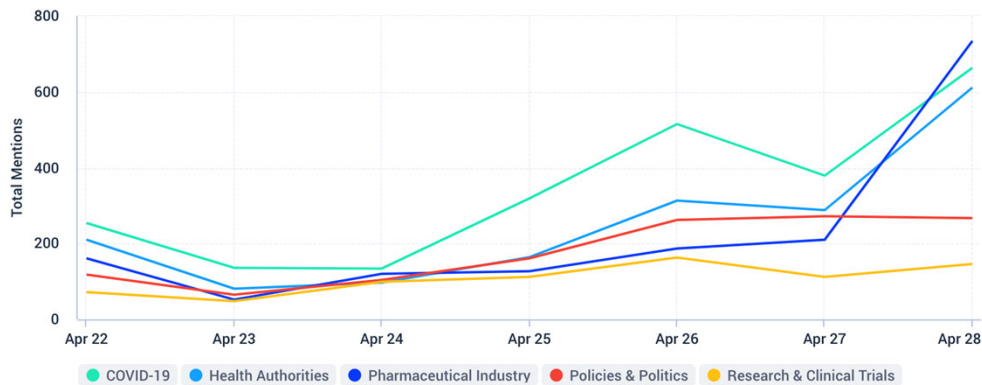
Tweets that are the most forwarded, either by retweet, reply, or quote:

- ❑ Not vaccinated have the least positive infections...and you have to admit that this is rather interesting. <https://t.co/0t6unOvins>
- ❑ QAnon star Cirsten Weldon, who said only idiots get vaccinated, and who called for Tony Fauci to be executed, has died of Covid. What do you think? Thoughts and Prayers?
- ❑ The CFOs of Pfizer and Moderna have both resigned over the past 72 hours.
- ❑ Johnson & Sunak chose to cut universal credit by £1040 pa; to cut pensions by £400 pa; to cut £5bl from the NHS budget; to load debt onto students; to raise workers taxes & to leave the most vulnerable freezing. They should be investigated for having no heart.
- ❑ My parents are triple vaccinated, wear double masks and gloves and they have Covid
- ❑ A plea to every French voter. Do not cast your ballot for Marine Le Pen. Do not abstain. Boris Johnson, another crusader for so-called sovereignty, has brought disgrace upon himself and this nation. Le Pen would be worse by far. Learn from us, and seize your chance
- ❑ Michigan teacher shows off his classroom full of political propaganda including pride flags, BLM content, and covid vaccine signs. <https://t.co/vXcBF5f2CP>
- ❑ NOW - Obama: "Despite the fact that we have now essentially clinically tested the vaccine on billions of people worldwide. Around 1 in 5 Americans is still going to put themselves at risk... rather than get vaccinated." <https://t.co/w6KCFhAsXf>
- ❑ My name is Tom Nelson, and I am a Democrat running to defeat Ron Johnson. Unlike Ron, I will never go to Russia on the 4th of July. Instead, I will bring civility back to Wisconsin to build a better world for our children. Can you retweet, follow, and help get me to 35k?
- ❑ Today I tested positive for COVID-19. I have no symptoms, and I will continue to isolate and follow CDC guidelines. I'm grateful to be both vaccinated and boosted.

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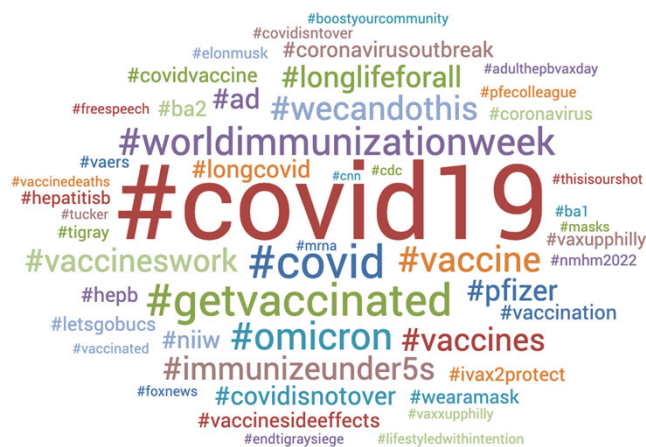
General PA Conversation April 22 – April 28



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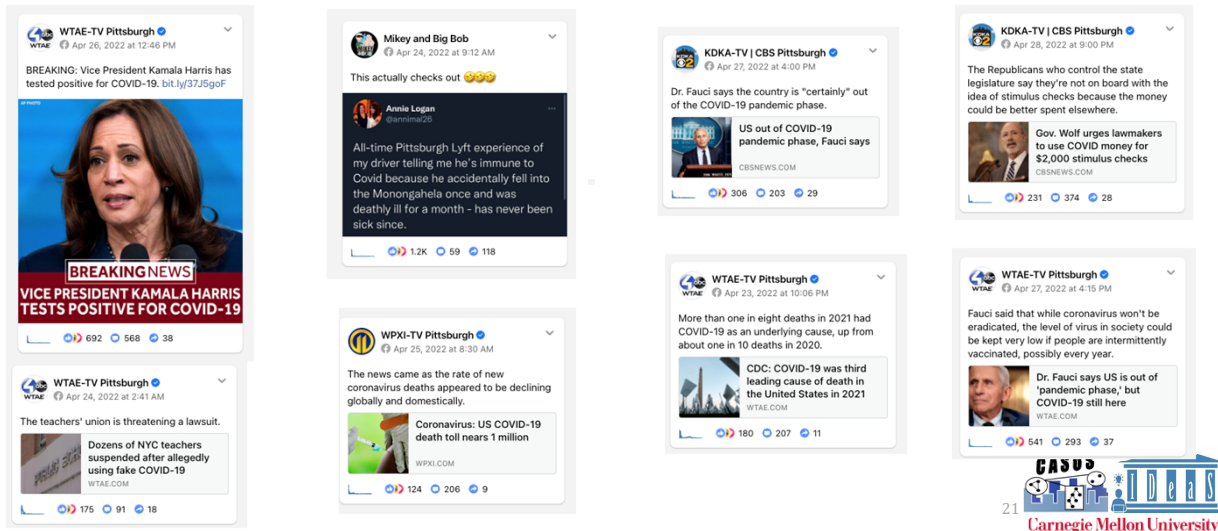
PA Hashtag Cloud April 22 – April 28



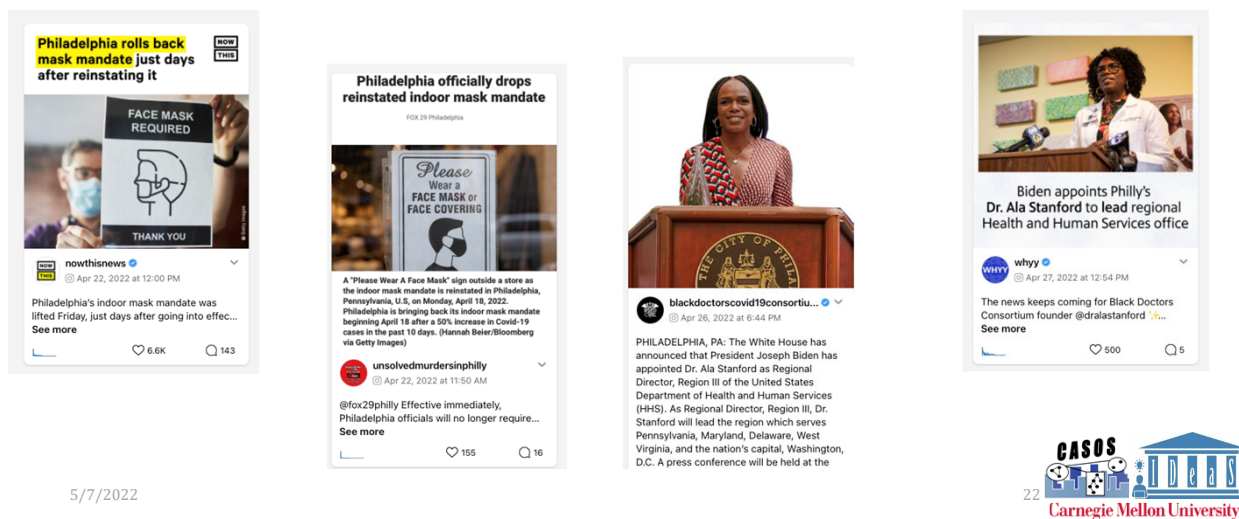
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Trending Posts on Facebook April 22 – April 28

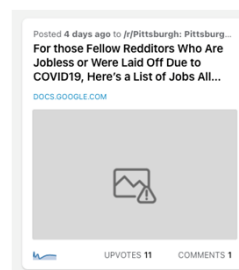
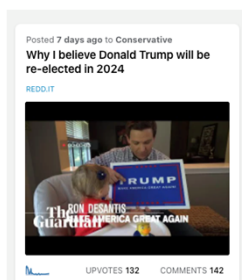
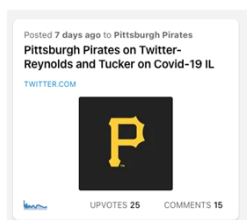


Trending Posts on Instagram April 22 – April 28



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Trending Posts on Reddit April 22 – April 28



5/7/2022



For More Information

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- ❑ Social Cybersecurity Working Group - <http://social-cybersecurity.org>
- ❑ Facebook: [@IDEasCMU](#)
- ❑ Twitter: [@IDeaSCMU](#)
- ❑ YouTube: [IDeaS Center](#)
- ❑ Ask to be on our Email-Distro Lists

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