

PA Vaccine Conversations on Twitter

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Vaccine Hesitancy Project Update based on April 1, 2022 – April 7, 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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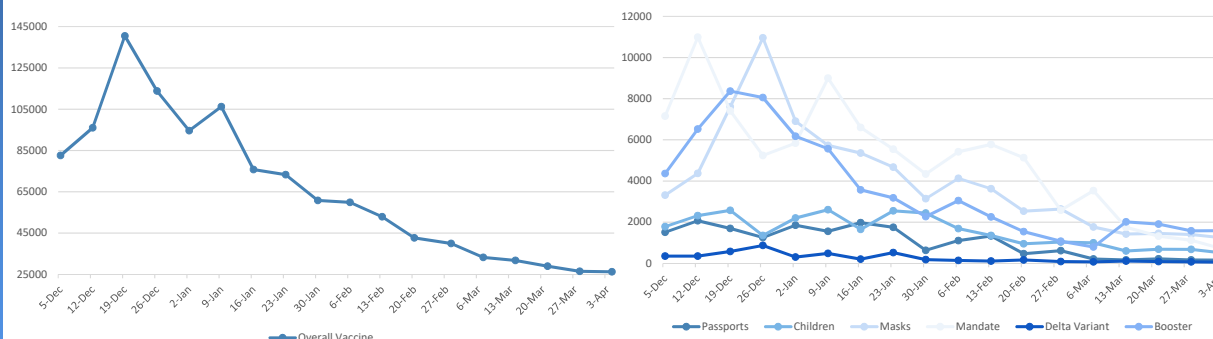
Report Overview April 1 – April 7

- ❑ This week's trending stories cover Boosters, Masks, Mandates, Natural Immunity. Overall, messages mentioning COVID-19 and vaccines are plummeting;
- ❑ Trending stories: [breitbart.com/politics/2022/03/29/federal-judge-blocks-for-entire-navy-bidens-pentagon-vaccine-mandate](https://www.breitbart.com/politics/2022/03/29/federal-judge-blocks-for-entire-navy-bidens-pentagon-vaccine-mandate) Federal Judge Blocks for Entire Navy Biden's Pentagon Vaccine Mandate; [theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson](https://www.theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson) First Downing Street officials receive £50 lockdown party fines; [wp.me/pc8uak-1lASdd](https://www.wp.me/pc8uak-1lASdd) Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries; thelibrarydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open; [wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728](https://www.wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728) FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster;
- ❑ Anti-vax, disinformation, and vaccine hesitancy stories: rumble.com/vzai0n-pfizer-moderna-hidden-data-reveals-that-the-vax-was-human-experimentation.html Pfizer Moderna hidden data reveals that the vax was human experimentation; childrenshealthdefense.org/defender/heart-damage-teens-after-second-pfizer-shot Heart Damage Found in Teens Months After Second Pfizer Shot, Study Shows; infowars.com/posts/internal-documents-prove-pfizer-fda-knew-antibody-dependent-enhancement-occurring-in-vaccinated Breaking: Recently Unredacted Documents Prove Pfizer & FDA Knew Antibody-Dependent Enhancement Occurring in Vaccinated; iamajuicer.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; nationalpost.com/news/who-pfizer-vaccine-potentially-linked-to-hearing-loss WHO: Pfizer vaccine potentially linked to hearing loss

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Trends (tweets per week) April 1 – April 7



5/7/2022



High Level View by City April 1– April 7

	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	21870	10914	49.9%	7266	33.2%	173	0.8%	2487	11.4%	1030	4.7%
Vaccine Passports	155	90	0.8%	34	0.5%	2	1.2%	26	1.0%	3	0.3%
FDA Approval	53	28	0.3%	13	0.2%	1	0.6%	10	0.4%	1	0.1%
Boosters	1077	534	4.9%	266	3.7%	9	5.2%	186	7.5%	82	8.0%
Employees	108	41	0.4%	26	0.4%	1	0.6%	36	1.4%	4	0.4%
"Experimental"	74	45	0.4%	16	0.2%			11	0.4%	2	0.2%
Children	325	176	1.6%	86	1.2%			50	2.0%	13	1.3%
Myocarditis	112	76	0.7%	20	0.3%			9	0.4%	7	0.7%
Heart	251	134	1.2%	79	1.1%	1	0.6%	25	1.0%	12	1.2%
Masks	1206	584	5.4%	327	4.5%	14	8.1%	160	6.4%	121	11.7%
Thrombosis/VITT	51	39	0.4%	9	0.1%			3	0.1%		
Mandates	629	333	3.1%	141	1.9%	7	4.0%	98	3.9%	50	4.9%
Natural Immunity	420	191	1.8%	162	2.2%	2	1.2%	58	2.3%	7	0.7%
Efficacy	68	29	0.3%	20	0.3%			15	0.6%	4	0.4%
Omicron	144	81	0.7%	30	0.4%	2	1.2%	25	1.0%	6	0.6%
Delta Variant	56	31	0.3%	6	0.1%	2	1.2%	1	0.0%	16	1.6%
Race	660	304	2.8%	237	3.3%	3	1.7%	83	3.3%	33	3.2%
Ivermectin	59	27	0.2%	17	0.2%			13	0.5%	2	0.2%
Military	99	38	0.3%	31	0.4%	2	1.2%	21	0.8%	7	0.7%
Breakthrough	36	19	0.2%	8	0.1%			9	0.4%		

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- Conversation topics trending this week over last
 - Natural Immunity
 - Race/racism
 - Boosters



High Level View by County April 1– April 7

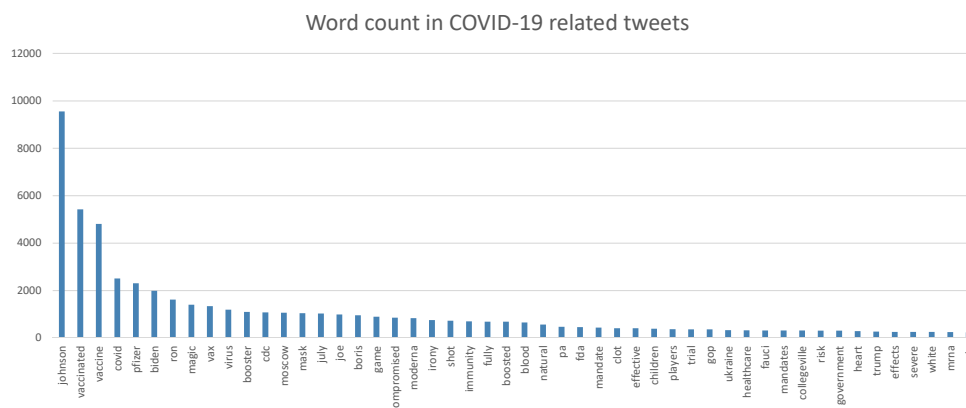
County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	7505	24	29	9	7	7		27
Vaccine Passports	34							
FDA	14							
Boosters	288		2					4
Employees	26							
"Experimental"	16							
Children	87	1	1					
Myocarditis	22			1				
Heart	82							
Masks	344		3	4		3		2
Thrombosis/VITT	9							
Mandates	152		3					1
Natural Immunity	162							
Efficacy	21		1					
Omicron	31	1						
Delta Variant	9		1					
Race	245				1			3
Ivermectin	18	1						
Military	32	1						
Breakthrough	8							

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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 1 – April 7



5/7/2022



Top Hashtags by County April 1 – April 7

- ☐ 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	Beaver + Butler	Indiana	West Moreland
pfizer (311)	covidvaccine (1)	marchmadness (2)	steelers (4)
covid19 (142)	omicron (1)		steelersnation (2)
steelers (110)	pfizer (1)		wtae (2)
johnsonout68 (63)	vaccinated (1)		booster (1)
iwantarevolution (61)	vaccine (1)		pfizer (1)

5/7/2022



Top Hashtags by City April 1 – April 7

- ❑ 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
pfizer (194)	brexit (95)	pfizer (79)	pfizer (309)	vaccineswork (3)	pfizer (56)	steelers (19)
covid19 (119)	toriesout (95)	covid19 (35)	covid19 (140)	mrna (2)	covid19 (24)	vaccine (16)
autismacceptancemonth (45)	rishisunak (94)	followthescience (30)	steelers (98)	coronavirus (1)	immunizeunder5s (14)	pfizer (15)
vaxupphilly (41)	pfizer (24)	parentsarewatching (30)	johnsonout68 (63)	covidisnotover (1)	covidisntover (12)	covid19 (10)
biotech (27)	covid19 (9)	johnsonout68 (28)	iwantarevolution (61)	covidvaccine (1)	donotcomply (8)	publichealth (10)

5/7/2022



Top URLs by County April 1 – April 7

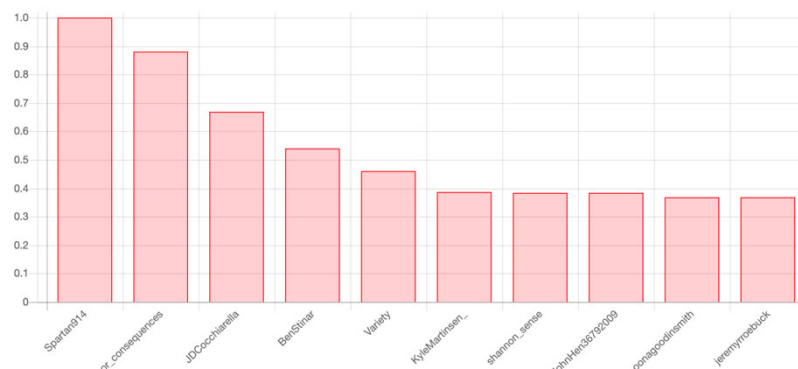
Allegheny	Butler + Beaver	Cambria	Fayette	West Moreland
wp.me/pc8uak-11ASdd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (87)	breitbart.com/politics/2022/03/29/federal-judge-blocks-for-entire-navy-bidens-pentagon-vaccine-mandate Federal Judge Blocks for Entire Navy Biden's Pentagon Vaccine Mandate (1)	wfla.com/community/health/coronavirus/cdc-confirms-risk-of-heart-issues-after-covid-19-infection-2nd-vax-dose CDC confirms risk of heart issues after COVID-19 infection, 2nd vax dose (2)	chicagotribune.com/midwest/ct-aud-milwaukee-mayor-election-20220406-op3y7qs2ifg4lc36fz2e4sszly-story.html Milwaukee elects Cavalier Johnson as city's first Black mayor (1)	theatlantic.com/ideas/archives/2022/04/trump-interview-a-first-historical-assessment/629454 What I Learned When Trump Tried to Correct the Record (1)
theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson Downing Street officials receive £50 lockdown party fines (61)	brownstone.org/articles/how-the-cdc-buries-the-truth-about-natural-immunity How the CDC Buries the Truth about Natural Immunity (1)		news.yahoo.com/protection-against-covid-19-infection-144452476.html Protection against COVID-19 infection improves after fourth vaccine dose but wanes quickly: study (1)	
thelibrarydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open (37)			wp.me/pc8uak-11ASdd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (1)	
wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (22)				
rumble.com/vzai0n-pfizer-moderna-hidden-data-reveals-that-the-vax-was-human-experimentation.html Pfizer Moderna hidden data reveals that the vax was human experimentation (19)				

Top URLs by City April 1 – April 7

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
wp.me/pC8uak-1IA5dd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (423)	infowars.com/posts/internal-documents-prove-pfizer-fda-knew-antibody-dependent-enhancement-occurring-in-vaccinated Breaking: Recently Unredacted Documents Prove Pfizer & FDA Knew Antibody-Dependent Enhancement Occurring in Vaccinated (8)	theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson First Downing Street officials receive £50 lockdown party fines (27)	wp.me/pC8uak-1IA5dd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (87)	trib.al/cfw65u0 "THE MOST CORRUPTION I'VE EVER SEEN": Watch Ron Johnson Unload on the Biden Crime Family (2)	rumble.com/vza0n-pfizer-moderna-hidden-data-reveals-that-the-vax-was-human-experimentation.html Pfizer Moderna hidden data reveals that the vax was human experimentation (22)	wp.me/pC8uak-1IA5dd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (16)
thecountersignal.com/ontario-covid-death-rate-among-vaccinated-surpasses-unvaccinated Ontario COVID death rate among vaccinated and boosted surpasses unvaccinated (119)	wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (8)	t.me/TRUTHSocial_TMTG TRUTH Social is America's "Big Tent" social media platform that encourages an open, free, and honest global conversation without discriminating against political ideology. Trump Media & Technology Group (20)	theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson First Downing Street officials receive £50 lockdown party fines (61)	www2.erie.gov/health/press/second-booster-doses-covid-19-vaccine-available-erie-county-department-health-clinics SECOND BOOSTER DOSES FOR COVID-19 VACCINE AVAILABLE FROM ERIE COUNTY DEPARTMENT OF HEALTH CLINICS (2)	lamaluicer.wordpress.com/2022/11/11/01/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 (17)	evanhospital.com/virus COVID-19 Vaccine Information (6)
thelibertydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open (77)	thelibertydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open (7)	teachersforchoice.org/2022/03/29/democrat-george-diaz-is-against-covid-vaccine-mandates Democrat George Diaz is Against Covid Vaccine Mandates (16)	thelibertydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open (37)	wxyz.com/news/world/man-in-germany-receives-90-covid-19-vaccines-so-he-could-sell-vaccine-cards Man in Germany receives 90 COVID-19 vaccines so he could sell vaccine cards (2)	wp.me/pC8uak-1IA5dd Magic Johnson's Next Shot: The NBA Legend on Changing Lakers History, HIV Activism and His Revealing Apple Docuseries (15)	ht.ly/UxSG30sen IT Sen. Johnson: Media is being 'caught in a cover-up' (6)
apnews.com/article/russia-ukraine-putin-boris-johnson-business-global-trade-1250954274ec20034f166f1d27ce4576 Russia's ruble rebound raises questions of sanctions' impact (48)	theguardian.com/politics/2022/apr/01/first-downing-street-officials-receive-50-lockdown-party-fines-boris-johnson First Downing Street officials receive £50 lockdown party fines (6)	thelibertydaily.com/buried-bombshell-tennis-world-rocked-as-fifteen-fully-vaccinated-players-unable-to-finish-miami-open Buried Bombshell: Tennis World Rocked as FIFTEEN "Fully Vaccinated" Players Unable to Finish Miami Open (13)	wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (22)	apnews.com/article/russia-ukraine-putin-boris-johnson-travel-lifestyle-8266fc649415566554d6e3bc8e42fc9 Secret Intelligence has unusually public role in Ukraine war (1)	wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (14)	wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (5)
childrenshealthdefense.org/defend-er/heart-damage-teens-after-second-pfizer-shot Heart Damage Found in Teens Months After Second Pfizer Shot, Study Shows (30)	phmppt.org/pfizers-documents Pfizer's Documents (5)	wsj.com/articles/fda-shuts-out-its-own-experts-in-authorizing-another-booster-covid-vaccine-pandemic-science-11649016728 FDA Shuts Out Its Own Experts in Authorizing Another Vaccine Booster (12)	rumble.com/vza0n-pfizer-moderna-hidden-data-reveals-that-the-vax-was-human-experimentation.html Pfizer Moderna hidden data reveals that the vax was human experimentation (19)	bc.ctvnews.ca/fortunately-my-symptoms-are-mild-b-c-premier-tests-positive-for-covid-19-1.5847504 Weeks after finishing cancer treatment, B.C. premier tests positive for COVID-19	phmppt.org/pfizers-documents Pfizer's Documents (13)	nationalpost.com/news/who-pfizer-vaccine-potentially-linked-to-hearing-loss WHO: Pfizer vaccine potentially linked to hearing loss (4)

Analysis of Tweeters - Super Spreaders

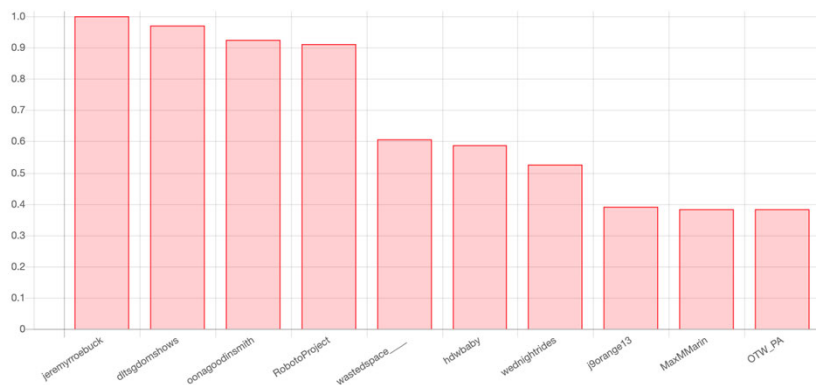
- ❑ Super Spreaders are users which generate content that is shared often, and hence spread information effectively.



5/7/2022

Analysis of Tweeters - Super Friends

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

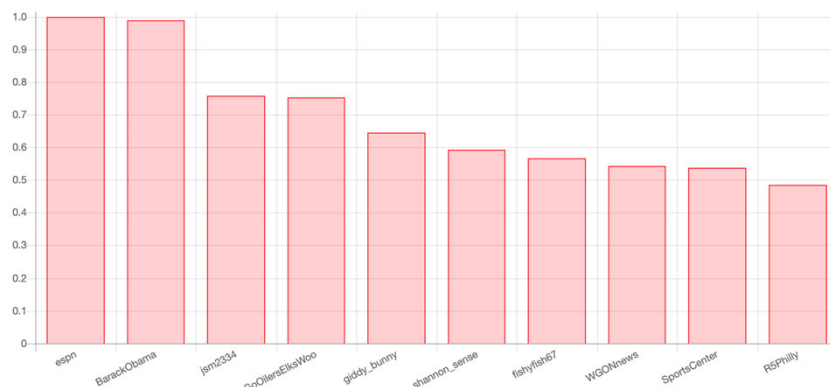


5/7/2022



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.



5/7/2022



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
shannon_sense	470
CDCgov[+]	159
pfizer[+]	156
RepAdamSchiff[+]	150
POTUS[+]	138
RepThomasMassie[+]	115
US_FDA[+]	98
CDCDirector	93
DrAseemMalhotra	91
DrCaliff_FDA	90

5/7/2022



Trending Tweets April 1 – April 7

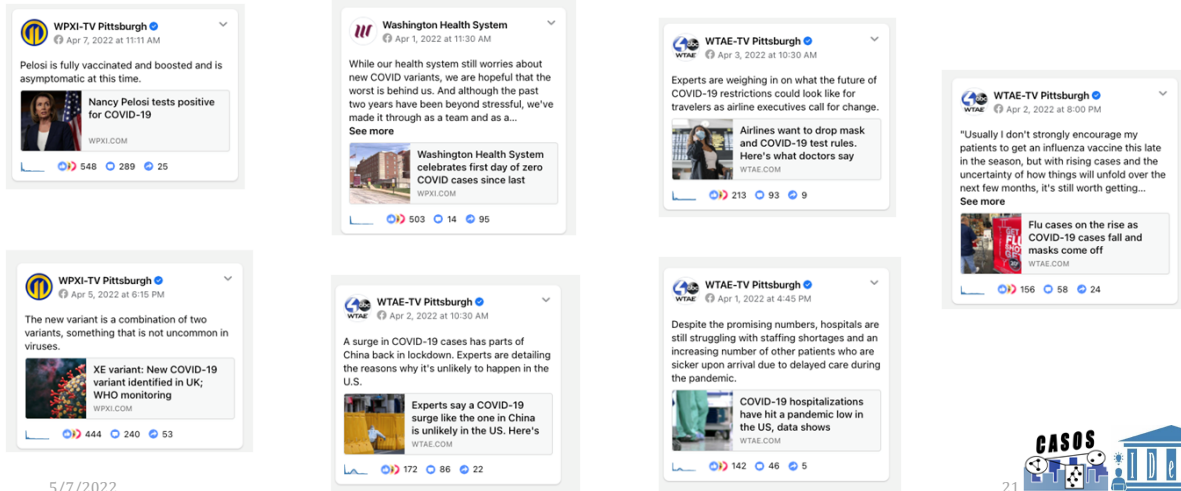
Tweets that are the most forwarded, either by retweet, reply, or quote:

- ❑ Ron Johnson, who spent the 4th of July in Moscow, just said Joe Biden is “compromised.” Irony is dead.
- ❑ Magic Johnson used to go stupid !! <https://t.co/2eeKq6EaWW>
- ❑ Magic Johnson urged Michael Jackson to come to a Lakers game, and he reluctantly agreed even though he didn’t think the fans would let him watch in peace. “He was right. He sat down; people went crazy ... We had to stop the game to get him out.” <https://t.co/IVQYxhc9o4> <https://t.co/puhSur1ly7>
- ❑ 1 YEAR AGO TODAY Biden's CDC Director: "Vaccinated people do not carry the virus" <https://t.co/7s1pyOSiYi>
- ❑ My aunt died today of a blood clot. Yep, she was vaccinated.
- ❑ I just received my 2nd Moderna booster vaccine, and I feel good! I am still going to wear my mask and keep my distance because the virus ain't over, Fool! Grrr
- ❑ This evening, I unfortunately tested positive for COVID-19. I'm feeling fine, and grateful to be vaccinated and boosted. In the coming days, I will quarantine and follow CDC guidelines. And remember, please get vaccinated!
- ❑ Why is no one talking about the burden that the vaccinated are placing on the healthcare system, as they inundate it?
- ❑ 15 fully vaccinated Tennis players have been unable to finish the Miami Open due to chest pains.
- ❑ Why is Pfizer being removed from the NYSE ? And why is their building deserted in Collegeville, PA? You are not supposed to know that? <https://t.co/L0yeLcN4Mn>

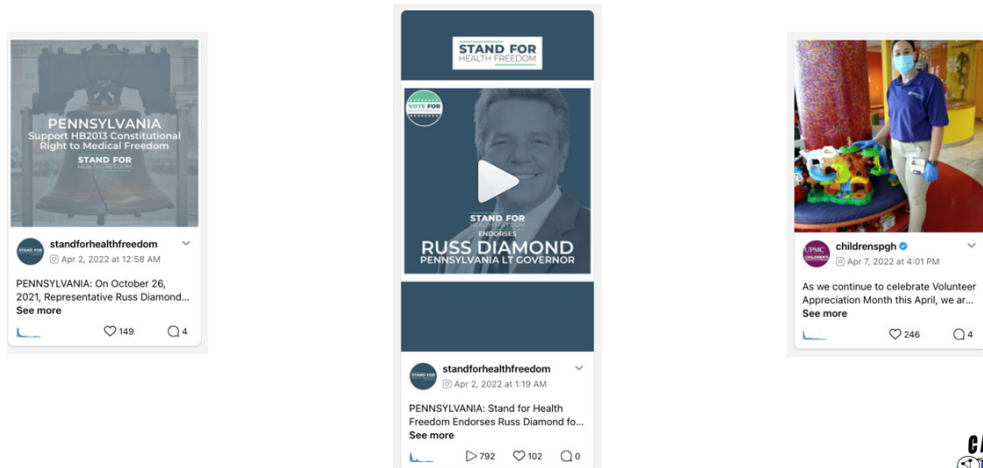
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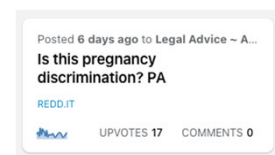
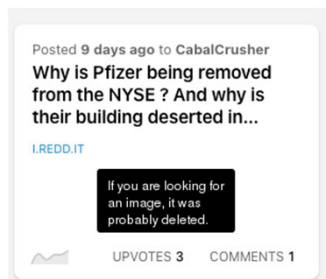
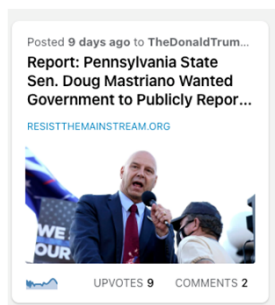
Trending Posts on Facebook April 1 – April 7



Trending Posts on Instagram April 1 – April 7



Trending Posts on Reddit April 1 – April 7



5/7/2022



For More Information

- ❑ Director Kathleen M. Carley - kathleen.carley@cs.cmu.edu
 - ❑ <http://www.casos.cs.cmu.edu/bios/carley/carley.html>
- ❑ IDeaS website - <https://www.cmu.edu/ideas-social-cybersecurity/>
- ❑ CASOS website - <http://www.casos.cs.cmu.edu/>
- ❑ 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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