PA Vaccine Conversations on Twitter

Dr. Iuliia Alieva, Dawn Robertson, Dr. Kathleen M. Carley Vaccine Hesitancy Project Update based on February 11, 2022 - February 17, 2022

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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.

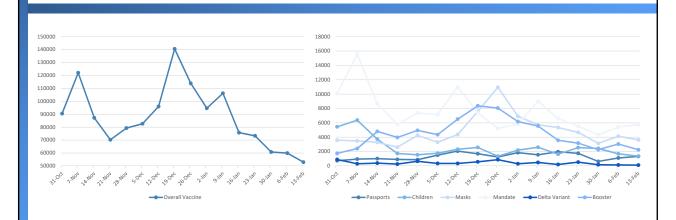


Report Overview February 11 - February 17

- ☐ This week's trending stories cover Passports, Mandates, Masks, Boosters;
- □ Trending stories: https://twitter.com/radiofreetom/status/1492676509093531651 Notice that @mehdirhasan criticizes this position but does not then answer whether he would support taking truly dire emergency steps; https://www.rollingstone.com/culture/culture-news/anti-vax-trucker-convoy-porno-metal-ram-ranch-1297926/ A Porno-Metal Song About Gay Cowboys Is Disrupting the Anti-Vax Trucker Convoy; <a href="https://www.npr.org/sections/health-shots/2022/02/16/1074191656/this-16-year-old-wanted-to-get-the-covid-vaccine-he-had-to-hide-it-from-his-pare This 16-year-old wanted to get the COVID vaccine. He had to hide it from his parents; https://cline.house.gov/media/press-releases/rep-cline-introduces-bill-protect-americans-discrimination-organ-transplant Rep. Cline Introduces Bill to Protect Americans from Discrimination by Organ Transplant Centers;
- Anti-vax, disinformation, and vaccine hesitancy stories: https://dailyexpose.uk/2022/02/11/triple-vax-deaths-increase-by-495-percent-pandemic-fully-vaccinated/ Deaths among Triple Vaccinated increased by 495% in January with the Vaccinated accounting for 4 in every 5 Covid-19 Cases, Hospitalisations & Deaths since December;
 https://www.instagram.com/reel/CZuvXtchS2b/?utm_medium=share_sheet A comedian fainted on stage and fractured my skull in front of a sold out show after vaccine; https://shots-are-killing?r=8kzhp&utm_campaign=post&utm_medium=web The mRNA Covid shots are killing teenagers; https://rumble.com/embed/vhm2z6/?pub=1952] Dr Michael Yeadon: A FINAL WARNING TO HUMANITY; https://nationalfile.com/university-funds-bidens-think-tank-hosts-factcheck-org-contract-biontech-gets-paid-vaccine-sales-fda-approvals/ University That Funds Biden's Think Tank And Hosts FactCheck.Org Has Contract With BioNTech, Gets Paid For Vaccine Sales And FDA Approvals; https://alignact.com/go/defund-bidens-vaccine-mandates Defund Biden's Vaccine Mandates: <a href="https://rairfoundation.com/israels-most-prestigious-hospital-70-to-80-of-serious-covid-cases-are-fully-vaccinated-waccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vaccinated-waccine-sales-fully-vacc

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Trends (tweets per week) February 11 - February 17



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High Level View by City February 11 - February 17

	Total PA	Philade	lphia	Pittsb	urgh	Eri	ie	Allentown/	Bethlehem	0	ther
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	44617	24092	54.0%	11276	25.3%	482	1.1%	6757	15.1%	2010	4.5%
Vaccine Passports	1332	648	2.7%	301	2.7%	23	4.8%	312	4.6%	48	2.4%
FDA Approval	397	226	0.9%	83	0.7%	4	0.8%	77	1.1%	7	0.3%
Boosters	1670	799	3.3%	619	5.5%	13	2.7%	188	2.8%	51	2.5%
Employees	283	124	0.5%	78	0.7%	2	0.4%	59	0.9%	20	1.0%
"Experimental"	166	86	0.4%	41	0.4%	2	0.4%	31	0.5%	6	0.3%
Children	904	485	2.0%	235	2.1%	9	1.9%	139	2.1%	36	1.8%
Myocarditis	303	187	0.8%	46	0.4%			61	0.9%	9	0.4%
Heart	536	300	1.2%	107	0.9%	2	0.4%	107	1.6%	20	1.0%
Masks	3592	1803	7.5%	930	8.2%	51	10.6%	540	8.0%	268	13.3%
Thrombosis/VITT	49	20	0.1%	15	0.1%	1	0.2%	11	0.2%	2	0.1%
Mandates	5454	3137	13.0%	972	8.6%	81	16.8%	996	14.7%	268	13.3%
Natural Immunity	457	270	1.1%	74	0.7%	5	1.0%	92	1.4%	16	0.8%
Efficacy	169	78	0.3%	34	0.3%	2	0.4%	49	0.7%	6	0.3%
Omicron	446	225	0.9%	106	0.9%	9	1.9%	62	0.9%	44	2.2%
Delta Variant	112	52	0.2%	19	0.2%	4	0.8%	12	0.2%	25	1.2%
Race	1167	683	2.8%	266	2.4%	9	1.9%	152	2.2%	57	2.8%
Ivermectin	138	43	0.2%	65	0.6%	3	0.6%	25	0.4%	2	0.1%
Military	140	93	0.4%	30	0.3%	2	0.4%	15	0.2%		
Breakthrough	53	29	0.1%	15	0.1%	1	0.2%	6	0.1%	2	0.1%

- Trending conversations this week:
 - Passports
 - Boosters



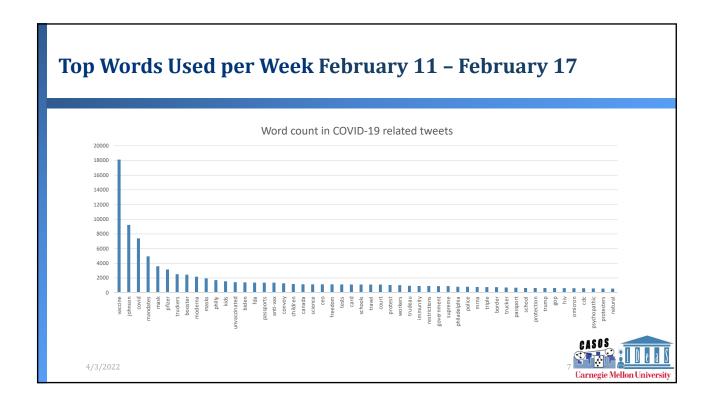
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High Level View by County February 11 - February 17

County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	11567	25	34	8	22	25	6	55
Vaccine Passports	303		3		1	1		1
FDA	83							
Boosters	629			1		2		
Employees	81					1		1
"Experimental"	42							
Children	242		3			1		1
Myocarditis	48							
Heart	108							1
Masks	969	5	1	2	1	5	1	16
Thrombosis/VITT	15							
Mandates	1002	4	4		3	3	1	11
Natural Immunity	76							
Efficacy	35							
Omicron	110							
Delta Variant	31							
Race	276		1		2	1		
Ivermectin	65					1		
Military	30							
Breakthrough	15			1				

 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 Hashtags by County February 11 - February 17

■ 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	Cambria	Fayette	Indiana	West Moreland
covid19 (396)	covid19 (1)	steelers (1)	canadiantruckers (1)	covid (1)	supportthetruckers (1)
steelers (233)	happeningnow (1)	weare (1)	covidiots (1)	hydroxychloroquine (1)	noprotection (1)
blackhistorymonth (75)	steelers (1)		freedomconvoycanada20 22 (1)	ivermectin (1)	pneumonia (1)
nfl (55)	tourismcounts (1)		freshwords (1)	protest (1)	endthemandates (1)
vaccine (52)	wvu (1)		truckersforfreedomconvo y2022 (1)	truckers (1)	exposepfizer (1)



Top Hashtags by City February 11 - February 17

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

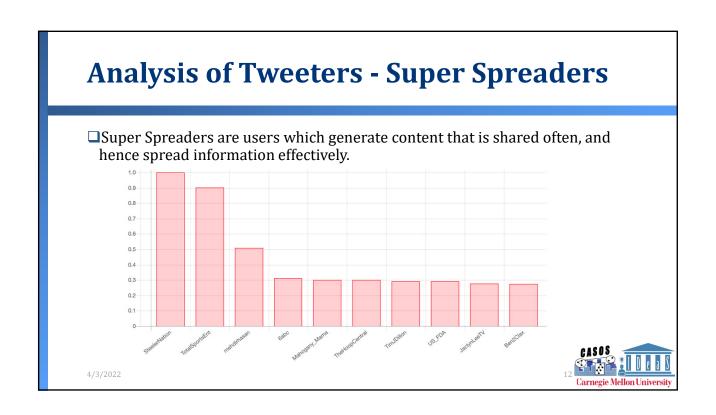
Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
covid19 (306)	covid19 (37)	covid19 (94)	covid19 (389)	covid19 (7)	defundvaxmandates (108)	covid19 (35)
freedomconvoy (112)	jesus (21)	freedomconvoy (33)	steelers (221)	demvoice1 (6)	covid19 (92)	vaccine (28)
nba (109)	msm (21)	vaccine (31)	blackhistorymonth (71)	steelers (4)	covidvaccine (73)	steelers (26)
nfl (108)	vaxxed (21)	covaxin (29)	nfl (53)	covidiots (2)	hiv (61)	pfizer (16)
vaxupphilly (104)	hiv (20)	tyranny (23)	vaccine (52)	freedomconvoycanad a2022 (2)	vaccine (34)	fauci (15)

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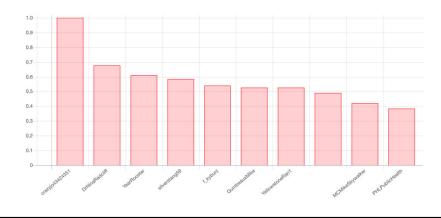
Top URLs by County February 11 - February 17 31651 Notice that covid-cases-are-fully-vaccinated-video/ Israel's Most Prestigious Hospital: '70%' to 80% of Serious Covid Cases are Fully Vaccinated' (3) Vaccinated' (3) Canada Canada-@mehdirhasan help-bats-survive-white-nose-syndrome/ Cool caves help bats survive white-nose syndrome (2) @mehdirhasan criticizes this position but does not then answer whether he would support taking truly dire emergency steps. (597) for kids under 5 (1) https://twitter.com/steventdennis/status/ 14919952002801869935TUNNING charts showing unnecessary hospitalizations imandates/atum.sourcestw&utum.medium liberty-and-health In Liberty and Health (2) https://nypost.com/2022/02/14/over-Shane was a former employee of Allegheny County, Pennsylvania https://wpost.com/20/26/19/19/wet-1400-nyc-workers-fired-for-refusing-covid-vaccine/ Mayor Adams fires 1,430 NYC workers for refusing to get COVID vaccine (1) all COVID-19 Precautions, Won't Require Proof of Vaccine or Masks (1) until the Vaccine mandate was implemented. Shane took a 22.pdf Advancing Digital Agency: The Power of Data Intermediaries (48) Fight Vaccine Passports (1) courageous stance against the mandate and lost his job. (2) http://sangredecristosentinel.com/202 eland/pittvs.com/ucal/westmo 0/11/good-ne GOOD NEWS: WE'VE NOW LEARNED COUD IS BOTH PREVENTABLE & TREATABLE (42) staffers for failing to comply with covid vaccine mandate (1) https://popular.info/p/how-gop-attorneys-general-joined How GOP Attorneys General joined forces with RFK Jr. to spread vaccine misinformation (1) trudeau-new-emergencies-act-powers/ Canada's 'Freedom Convoy' protesters block 2 more bridges to the U.S. in defiance of Trudeau's new Emergencies Act powers (1) http://PEOPLE.com (1) os://local12.com/news/n culture-news/anti-vax-trucker-convoy-porno-metal-ram-ranch-1297926/A Porno-metal-ram-ranch-1297926/ A Porno-Metal Song About Gay Cowboys Is Disrupting the Anti-Vax Trucker Convoy' protesters (1) Ron Johnson complains that he's 'only' doubled his net worth since taking office (1) Convoy (42) 4/3/2022 Carnegie Mellon University

			11 – Febr			
Philadelphia ttps://twitter.com/evboogie/status/ 1491773657538094870 Kanye West dropped The College Dropou eighteen years ago today. (218)	https://www.instagram.com/re el/C2uvktchSzb/?utm_medlum_ share_sheet A comedian fainted on stage and fractured my skull in front of a sold out show after vaccine (19)	2022/feb/04/facebook- posts/spikevax-and-comirnaty-are- brand-names-existing-co/ "Few, If Any, Doses of Spikevax or Comirnaty Available to United States Despite FDA	status/1492676509093531651 Notice that @mehdirhasan criticizes this position but does not then answer whether he would	Erie http://erie.gov/vax (3)	Allentown/ Bethlehem https://alijenact.com/go/defund-bidens-vaccine-mandates Defund Biden's Vaccine Mandates (93)	Other https://pittsburgh.cbslocal.c /2022/02/11/pitt-terminati employees-for-not-compbi/ with-vaccine-mandate/ University Of Pittsburgh Terminating 9 Employees 5 Not Complying With Coronavirus Vaccine Mand: (6)
ttps://www.npr.org/sections/health shots/2022/02/16/1074191656/this- 6-year-old-wanted-to-get-the-covid- vaccine-he-had-to-hide-if-from-his- pare This 16-year-old wanted to get the COVID vaccine. He had to hide it from his parents (197)	tatus/1493241759563980802 Comedian experiences syncope & fractures skull while bragging about being triple-#vaxxed &	http://FactCheck.Org (27)	https://twitter.com/evboogle/stat us/1491/73657538084870 Kanye West dropped The College Dropout eighteen years ago today. (78)	http://hnhu.org/popup Book your COVID-19 vaccination (2)	https://twitter.com/radiofreetom/ status/1492676509093531651 Notice that @mehdirhasan ricticzes this position but does not then answer whether he would support taking truly dire emergency steps. (43)	https://www.houstonchror com/life/article/Peter-Hot COVID-expert-vaccine- questions-answer- 15855452.php COVID exp Peter Hotez worried Tex- down to its 'last arrow' w vaccine (6)
ttps://twitter.com/radiofreetom/sta tus/1492676509093531651 Notice that @mehdirhasan criticizes this position but does not then answer whether he would support taking truly dire emergency steps. (131)	https://www.frontiersin.org/art icles/10.3389/fimmu.2020.0214 2/full What's Sex Got to Do With COVID-19? Gender-Based Differences in the Host immune Response to Coronaviruses (8)		http://sangredecristosentinel.com/ 2020/11/good-ne GOOD NEWS: WE'VE NOW LEARNED COVID IS BOTH PREVENTABLE & TREATABLE (42)	https://ift.tt/jo63KOM Protesters walk onto highway near Peace Bridge in Fort Erie, Ont., decrying vaccine mandates (2)	https://twitter.com/SuperNipsy/st atus/14908509139798261777s=20 &t=WrOngOdrJe8nU2vd=T0OQ BBC admits they use HIV to make the covid vaccine (41)	http://www.evanhospital.c virus/ Coronavirus Update
ttps://cline.house.gov/media/press- releases/rep-cline-introduces-bill- protect-americans-discrimination- organ-transplant Rep. Cline ntroduces Bill to Protect Americans from Discrimination by Organ Transplant Centers (122)	culture/culture-news/anti-vax- trucker-convoy-porno-metal- ram-ranch-1297926/ A Porno-	tunds-bidens-think-tank-hosts- factcheck-org-contract-biontech-gets- paid-vaccine-sales-fda-approvals/	atus/1493765117074292737/video /1 Antivax video from suspended account (41)	https://pastebin.com/0fuPrA1q Smallpox Vaccination post (2)	https://trib.al/UEVEKwc Mayor Adams fires 1,430 NYC workers for refusing to get COVID vaccine (35)	https://hannity.com/med room/jordan-dunks-on-bid will-you-have-to-show-yo vaccine-passport-to-get-yc crack-pipe/ JORDAN DUNKS BIDEN: 'Will You Have to 5' Your Vaccine Passport to 0 Your Crack Pipe?' (5)
https://dailyexpose.uk/2022/02/11/tr ipile-vax-deaths-increase-by-495- trecrent-pandemic-fully-vaccinated/ Deaths among Triple Vaccinated increased by 495% in January with the Vaccinated accounting for 4 every 5 Covid-19 Cases, Hospitalisations & Deaths since December (52)	https://alexberenson.substack.c. om/p/the-mma-covid-shots- are- killing?r=8khp&ur ampaign =post&utm medium=web The mRNA Covid shots are killing teenagers (6)	https://twitter.com/Emiay19841/statu s/1493765117074292737/video/1 Antivax video from suspended account (15)	https://www.rollingstone.com/cult ure/culture-news/anti-vax-trucker- convoy-porno-metal-ram-ranch-	https://sacramento.cbslocal.com/202 2/02/11/ca-bill-menjoyee-vaccine- requirement/?taid=620759f0126b05 0001dbf28d&utm_campaign=trueAnthem+Manual&utm_medium=trueAnthem+Manual&utm_source=twitter All California Workers Would Be Required To Get Vaccinated Under New Bill (2)	https://twitter.com/Emjay19841/st atus/1493765117074292737/video /1 Antivax video from suspended account (19)	https://www1.nyc.gov/site /covid/covid-19- data.page#daily COVID-19: (5)



Analysis of Tweeters - Super Friends

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

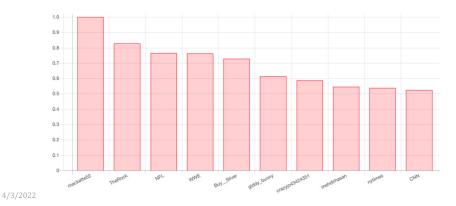


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Analysis of Tweeters - Other Influencers

□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.

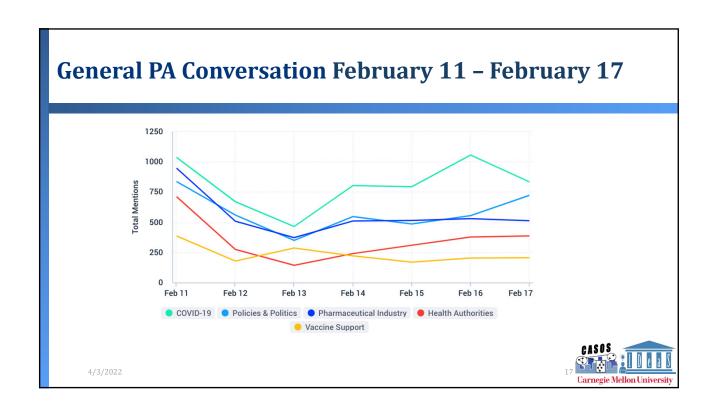
Agent Label	Value
TimJDillon	584
TheHoopCentral	569
Mahogany_Mama	544
VPrasadMDMPH[+]	382
pfizer[+]	364
JustinTrudeau[+]	307
TheGreatIsNate	304
RadioFreeTom[+]	280
WWE[+]	272
DrAseemMalhotra	250

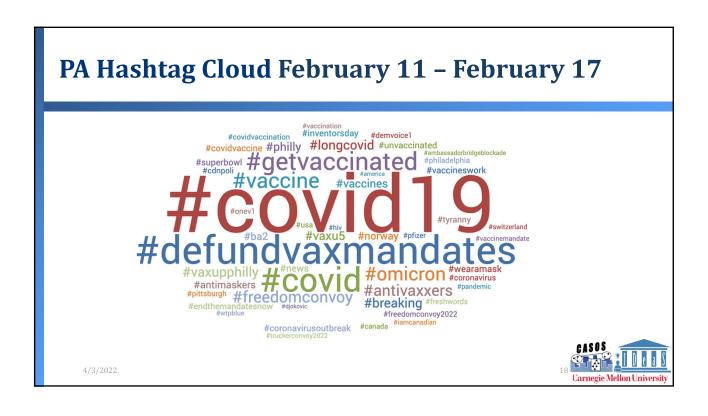
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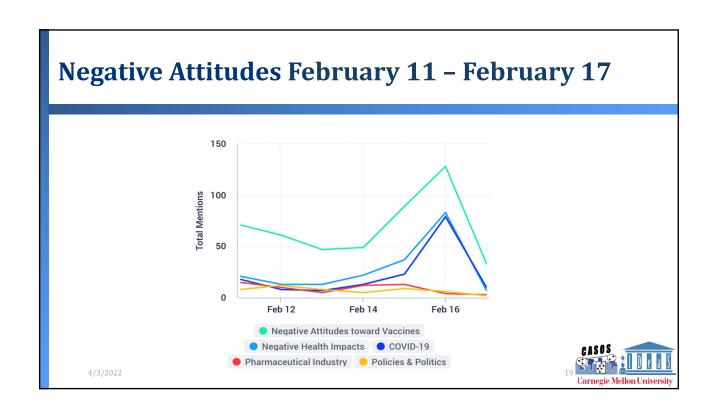
Trending Tweets February 11 - February 17

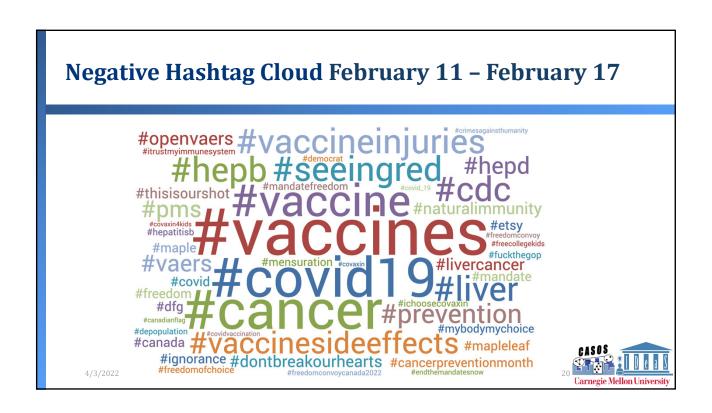
Tweets that are the most forwarded, either by retweet, reply, or quote:

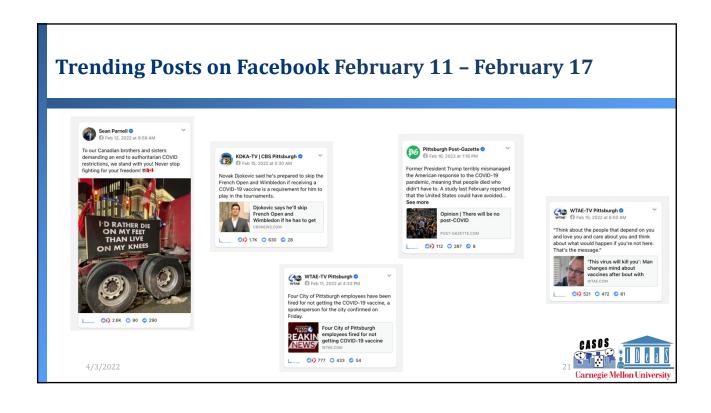
- □ Keep mask mandates especially in schools. Keep vaccine mandates where possible. Bring in a damn vaccine mandate for domestic air travel via EO. Send out more free high-quality masks & rapid tests on a monthly basis. Tie 'opening up' to booster uptake. Expand the Supreme Court
- @TheHoopCentral Tell me who's stopping these 3? https://t.co/pZOZKSZewn
- Breaking... Philly Firefighters file suit over vaccine mandate.. this is what pushback looks like folks
- □ BTW Philly supported Lane Johnson and Brandon Brooks all of the way through mental health issues.
- Bombshell From Malone... "The Top Owner of Spotify Is Also The Top Owner of Moderna" https://t.co/HnoEkdpFNM
- □ Kanye couldn't get Lauryn Hill's vocal sample cleared for "All Falls Down" so Ye & John Monopoly flew down to Miami & went door to door looking for her. She eventually cleared her vocals, then denied. Syleena Johnson came in at the literal last minute & re-sang it saving the song
- ☐ In the latest in his "Just a Minute" series, Dr. Peter Marks discusses the importance of 12- through 17-year-olds to receive a #COVID19 vaccine booster. https://t.co/0dA5Eu1a8i
- I've been noticing more & more the lack of variation in tone, cadence, rhythm, language in ministers' speech. Raab, Truss, Patel, Johnson, Mogg, Gove could be talking about Covid, Ukraine, Adele, daffodils, Afghanistan, taxes, parties, Savile; they always sound exactly the same.
- □ Before there was a vaccine, I was allowed to sit in my college classroom with a cloth mask. Now, when 98% of my campus is triple vaxxed, I will be arrested for stepping foot onto campus without a booster and KN95 mask. What "science" are we following???
- ☐ This one makes me emotional, but man I'm smiling with goosebumps of gratitude, mana and pride. My dad, Rocky "Soulman" Johnson was a trailblazer and became the first black @wwe tag team champions w/Tony Atlas. Thank you dad. I will forever be proud of who and what I am. I love u. https://t.co/0N1SlqtNjJ

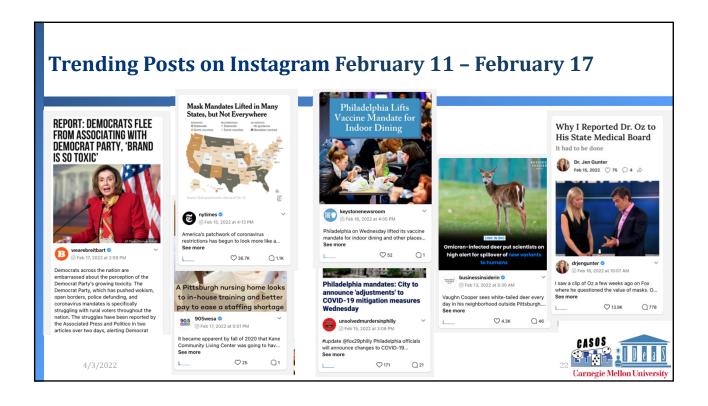


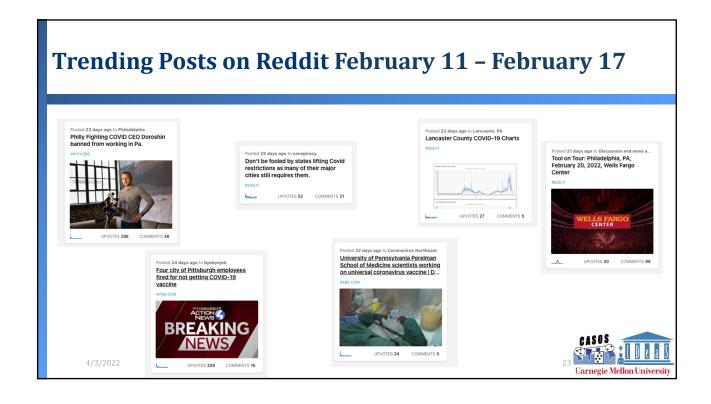












For More Information

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- □ 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: <u>IDeaS Center</u>
- ☐ Ask to be on our Email-Distro Lists

4/3/2022

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