

# PA Vaccine Conversations and Misinformation on Twitter

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Vaccine Hesitancy Project Update based on November 5 – November 11, 2021

The CMU centers for:

Informed DEMocracy And Social cyber-security

Computational Analysis of Social and Organizational Systems



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## PA Vaccine Conversation 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.
- ❑ The material contained in this report is a summary of social media content and does not represent a judgment or characterization of any individual.

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## Report Overview October 29 – November 4

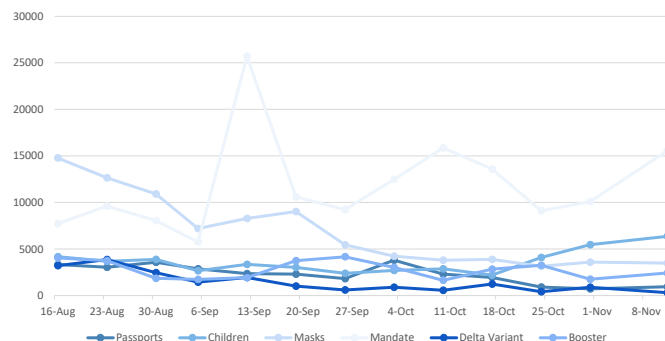
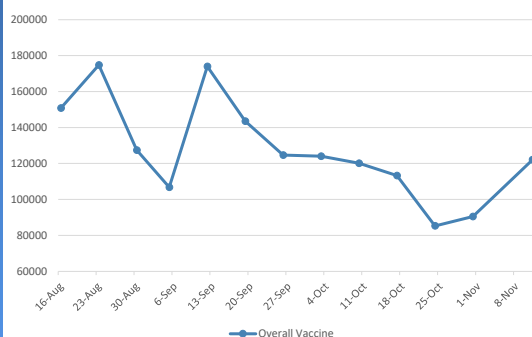
- ❑ This week's trending stories cover trends similar to the previous week, such as vaccination for children, vaccination mandates, sports figures commenting on vaccines, and others;
- ❑ On "The Pat McAfee Show," Aaron Rodgers, an unvaccinated NFL player, spread COVID-19 misinformation and was promoting "alternative" treatments, like ivermectin and homeopathic remedies, which are completely ineffective at preventing or treating COVID-19. Trending hashtags related to the topic #patmcafeeshowlive and #aaronrodgerslied
- ❑ Disinformation story about Pfizer CEO Albert Bourla being arrested by the FBI for fraud
- ❑ <https://www.conservativebeaver.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/> CEO of Pfizer arrested by the FBI, charged with fraud – media blackout as #PfizerGate trends
- ❑ Hashtags #LetsGoBrandon went viral, and the polite clap-back #ThankYouBrandon started trending. Unlike #LetsGoBrandon — the seemingly innocent statement that mocks President Joe Biden and is code for "[expletive] Joe Biden" — "Thank you, Brandon," "Thanks, Brandon" and "Thank You, Biden" mean thanks. More about these trending hashtags here <https://www.floridatoday.com/story/news/2021/11/11/lets-go-brandon-meaning-president-biden-memes-photos-thanksbrandon/6393357001/>
- ❑ Other trending stories: <https://cnb.cx/3o98t58> White House tells businesses to proceed with vaccine mandate despite court-ordered pause; <http://hill.cm/mdaHgPw> McConaughey comes out against vaccine mandates for kids; <https://wapo.st/3wtihyB> Big Bird got his Pfizer shot, and conservatives are calling it vaccine 'propaganda'; <https://cnb.cx/3kj322c> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals'
- ❑ Trending low-credibility disinformation stories: <https://www.conservativebeaver.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/> CEO of Pfizer arrested by the FBI, charged with fraud – media blackout as #PfizerGate trends; <https://rumble.com/vop2z7-commercial-airline-pilot-develops-brain-swelling-and-can-longer-fly-followi.html> Commercial Airline Pilot Develops Brain Swelling and Can No Longer Fly Following Pfizer Vaccine; <https://technofog.substack.com/p/cdc-emails-our-definition-of-vaccine?justPublished=true> CDC Emails: Our Definition of Vaccine is "Problematic"; <https://humansarefree.com/2021/09/govt-data-50k-deaths-within-14-days-of-covid-19-vax.html> Whistleblower Provides Govt Data Showing 48,465 DIED Within 14 Days Of COVID-19 Vaccination Among Medicare Patients Alone (Nuremberg Trials!)

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## Trends (tweets per week) November 5 – November 11



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## High Level View by City November 5 – November 11

	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	100626	51314	51.0%	27459	27.3%	999	1.0%	16720	16.6%	4134	4.1%
Vaccine Passports	915	453	0.9%	255	0.9%	4	0.4%	180	1.1%	23	0.6%
FDA Approval	241	123	0.2%	57	0.2%	4	0.4%	48	0.3%	9	0.2%
Boosters	2405	1150	2.2%	618	2.3%	26	2.6%	433	2.6%	178	4.3%
Employees	3315	1147	2.2%	1510	5.5%	29	2.9%	536	3.2%	93	2.2%
"Experimental"	608	334	0.7%	136	0.5%	8	0.8%	108	0.6%	22	0.5%
Children	4675	2284	4.5%	1114	4.1%	50	5.0%	1033	6.2%	194	4.7%
Myocarditis	573	241	0.5%	165	0.6%	7	0.7%	146	0.9%	14	0.3%
Heart	971	494	1.0%	255	0.9%	11	1.1%	187	1.1%	24	0.6%
Masks	3431	1726	3.4%	854	3.1%	34	3.4%	533	3.2%	284	6.9%
Thrombosis/VITT	99	50	0.1%	24	0.1%			23	0.1%	2	0.0%
Mandates	15423	7652	14.9%	3192	11.6%	150	15.0%	3833	22.9%	596	14.4%
Natural Immunity	1510	1053	2.1%	249	0.9%	4	0.4%	185	1.1%	19	0.5%
Efficacy	546	349	0.7%	87	0.3%	3	0.3%	95	0.6%	12	0.3%
Spike Proteins	81	36	0.1%	21	0.1%	2	0.2%	20	0.1%	2	0.0%
Delta Variant	436	229	0.4%	93	0.3%	3	0.3%	69	0.4%	42	1.0%
Race	2258	813	1.6%	1066	3.9%	31	3.1%	293	1.8%	55	1.3%
Ivermectin	750	354	0.7%	213	0.8%	9	0.9%	153	0.9%	21	0.5%
Military	216	84	0.2%	55	0.2%	1	0.1%	68	0.4%	8	0.2%
Breakthrough	316	195	0.4%	61	0.2%	2	0.2%	45	0.3%	13	0.3%

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- Trending conversations:
  - Boosters
  - Mandates
  - Race
- Dropped "fetal" as it no longer trends
- Added "employees" in the context of mandates



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## High Level View by County November 5 – November 11

County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	28070	44	119	30	56	26	15	89
Vaccine Passports	262	1						
FDA	60							
Boosters	649		2	3		3		6
Employees	1530	1	2		1			2
"Experimental"	140	1						
Children	1138	2	3	1	3	2	3	3
Myocarditis	167							
Heart	257							
Masks	913	1	7	3	1	2	1	7
Thrombosis/VITT	25							
Mandates	3279	7	10	2	10	2	3	14
Natural Immunity	252		1					
Efficacy	87							1
Spike Proteins	21		1					
Delta Variant	96	1	2		1		1	
Race	1074		1			1	1	3
Ivermectin	214	1			1			1
Military	57							
Breakthrough	63		1					

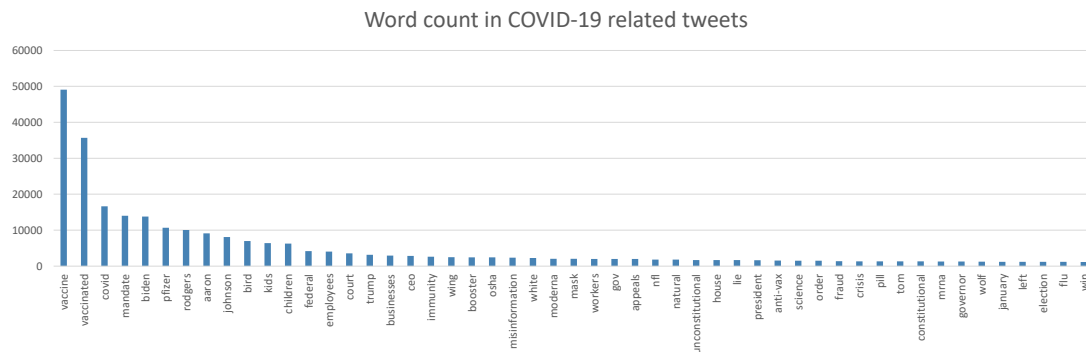
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- Tweets counted here if there is a county location attached
- Race: pulled by one of the vaccine keywords plus at least one other term in ("Black", "African American", "of color", "Latin", "Hispanic", "brown", "eugenic")



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## Top Words Used per Week November 5 – November 11



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## Top Hashtags by County November 5 – November 11

- ❑ 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	West Moreland
covid19 (578)	covid19 (2)	maskup (1)	donotcomply (1)	covidvaccine (4)
pfizergate (363)	donotcomply (2)	patmcafeeshowlive (1)	freedom (1)	bigpharma (1)
patmcafeeshowlive (295)	sciencewillwin (2)	vikings (1)	patmcafeeshowlive (1)	booster (1)
sciencewillwin (282)	bigpharmakills (1)	wearamask (1)	thankyoubrandon (1)	getvaccinated (1)
vaccine (138)	patmcafeeshowlive (1)		vaccine (1)	notsofreevaccines (1)

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## Top Hashtags by City November 5 – November 11

- ❑ 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 (928)	covid19 (144)	covid19 (186)	covid19 (568)	covid19 (17)	covid19 (378)	covid19 (90)
thankyoubrandon (452)	sciencewillwin (32)	sciencewillwin (54)	pfizergate (362)	patmcafeeshowlive (14)	sciencewillwin (141)	vaccine (56)
sciencewillwin (393)	covid (28)	vaccine (48)	sciencewillwin (281)	demvoice1 (8)	letsgobrandon (77)	patmcafeeshowlive (30)
vaxupphilly (345)	letsgobrandon (23)	letsgobrandon (43)	patmcafeeshowlive (280)	aaronrogerslied (7)	vaccine (71)	sciencewillwin (28)
donotcomply (169)	donotcomply (22)	fjb (42)	thankyoubrandon (117)	electiledysfunction (5)	thankyoubrandon (68)	covidvaccine (16)

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## Top URLs by County November 5 – November 11

Allegheny	Butler + Beaver	Cambria	Indiana	Fayette	West Moreland
<a href="https://www.conservativeheaven.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/">https://www.conservativeheaven.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/</a> CEO of Pfizer arrested by the FBI, charged with fraud – media blackout as #PfizerGate trends (532)	<a href="https://pittsburghsportsnow.com/2021/11/10/solid-opening-nights-for-former-pitt-panthers-johnson-toney-and-coulbaly/">https://pittsburghsportsnow.com/2021/11/10/solid-opening-nights-for-former-pitt-panthers-johnson-toney-and-coulbaly/</a> Solid Opening Night For Former Pitt Panthers Johnson, Toney and Coulbaly (2)	<a href="https://wjactv.com/news/local/officials-wolf-to-let-pa-schools-set-mask-rules-in-january">https://wjactv.com/news/local/officials-wolf-to-let-pa-schools-set-mask-rules-in-january</a> Wolf to let Pa. schools set mask rules in January (2)	<a href="http://reuters/3BQHr7n">http://reuters/3BQHr7n</a> With fourth wave raging, Germany agrees booster shots for all (1)	<a href="https://twitter.com/ABC/status/1457679064991424514">https://twitter.com/ABC/status/1457679064991424514</a> LATEST: Biden administration sends letters to superintendents and principals across the U.S., urging them to set up COVID-19 vaccination clinics inside their elementary schools (2)	<a href="http://hill.cm/mdaHgPw">http://hill.cm/mdaHgPw</a> McConaughy comes out against vaccine mandates for kids (1)
<a href="https://dailycaller.com/2021/11/08/state-farm-aaron-rodgers-vaccine-response/">https://dailycaller.com/2021/11/08/state-farm-aaron-rodgers-vaccine-response/</a> State Farm Isn't Abandoning Aaron Rodgers, Company Doesn't 'Support Some Of The Statements He Has Made' (223)	<a href="https://twitter.com/muppetwiki/status/1457121825746526211">https://twitter.com/muppetwiki/status/1457121825746526211</a> Big Bird gets vaccinated, 1972 (2)	<a href="http://apne.ws/nefrocl">http://apne.ws/nefrocl</a> Appeals court stays vaccine mandate on larger businesses (1)	<a href="http://www.vaccines.gov">http://www.vaccines.gov</a> (1)	<a href="http://dlvr.it/SBvg6R">http://dlvr.it/SBvg6R</a> #DoNotComply Trends On Twitter As Daily Wire Files Suit Challenging Biden Vax Mandate (1)	<a href="http://vaccines.gov">http://vaccines.gov</a> (1)
<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (166)	<a href="https://trib.al/5W1Dfno">https://trib.al/5W1Dfno</a> Anti-mandate teacher in Illinois reveals she had been vaccinated for months (2)	<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (1)	<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (1)	<a href="http://ow.ly/yCnV30rZlop">http://ow.ly/yCnV30rZlop</a> Federal court of appeals issues temporary halt to Biden vaccine mandate (1)	<a href="https://bbc.in/3GPxCKr">https://bbc.in/3GPxCKr</a> HPV vaccine cutting cervical cancer by nearly 90% (1)
<a href="http://hill.cm/mdaHgPw">http://hill.cm/mdaHgPw</a> McConaughy comes out against vaccine mandates for kids (93)	<a href="https://rumble.com/vop2z7-commercial-airline-pilot-develops-brain-swelling-and-can-longer-fly-follow.html">https://rumble.com/vop2z7-commercial-airline-pilot-develops-brain-swelling-and-can-longer-fly-follow.html</a> Commercial Airline Pilot Develops Brain Swelling and Can No Longer Fly Following Pfizer Vaccine (1)	<a href="https://wapo.st/3wtihyB">https://wapo.st/3wtihyB</a> Big Bird got his Pfizer shot, and conservatives are calling it vaccine 'propaganda' (1)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (1)	<a href="https://babylonbee.com/news/oscar-the-grouch-refuses-the-vaccine-stocks-up-on-ivermectin">https://babylonbee.com/news/oscar-the-grouch-refuses-the-vaccine-stocks-up-on-ivermectin</a> Oscar The Grouch Refuses The Vaccine, Stocks Up On Ivermectin (1)	<a href="https://bit.ly/3bU4i7t">https://bit.ly/3bU4i7t</a> Should schools ditch masks now that kids can be vaccinated? (1)
<a href="https://pittsburgh.cbslocal.com/2021/11/05/allegheny-county-city-of-pittsburgh-employee-vaccine-mandate-protests/">https://pittsburgh.cbslocal.com/2021/11/05/allegheny-county-city-of-pittsburgh-employee-vaccine-mandate-protests/</a> City, County Employees Protest COVID-19 Vaccine Rules (86)	<a href="https://reuters/3n1A2xl">https://reuters/3n1A2xl</a> Fact Check-Kamala Harris clip saying every person in hospital with COVID-19 is vaccinated has been edited (1)	<a href="https://wjactv.com/news/local/students-react-to-pitt-johnstowns-vaccine-mandate-what-it-means-for-the-unvaccinated">https://wjactv.com/news/local/students-react-to-pitt-johnstowns-vaccine-mandate-what-it-means-for-the-unvaccinated</a> Big Bird got his Pfizer shot, and conservatives are calling it vaccine 'propaganda' (1)	<a href="https://podcasts.apple.com/us/podcast/bidens-vaxx-mandates-coming-for-all/id1208232103?i=100054077178&amp;itsct=podcast_box_link&amp;itscg=30200&amp;ls=1">https://podcasts.apple.com/us/podcast/bidens-vaxx-mandates-coming-for-all/id1208232103?i=100054077178&amp;itsct=podcast_box_link&amp;itscg=30200&amp;ls=1</a> Biden's Vaxx Mandates Coming for All The Buck Sexton Show (1)	<a href="https://cnn.it/3EL7MFL">https://cnn.it/3EL7MFL</a> Vaccine rule for larger employers, federal contractors and certain health care workers to take effect January 4 (1)	<a href="https://cnn.it/3CNmZp4">https://cnn.it/3CNmZp4</a> Biden must first beat the pandemic to keep Republicans out of power (1)

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## Top URLs by City November 5 – November 11

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
<a href="https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00676-9/fulltext">https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00676-9/fulltext</a> Protective immunity after recovery from SARS-CoV-2 infection (446)	<a href="https://beckernews.com/new-as-biden-mandates-vaccines-cdc-director-walensky-stumbles-when-asked-how-many-cdc-employees-are-vaccinated-42915/">https://beckernews.com/new-as-biden-mandates-vaccines-cdc-director-walensky-stumbles-when-asked-how-many-cdc-employees-are-vaccinated-42915/</a> As Biden Mandates Vaccines, CDC Director Walensky Stumbles When Asked How Many CDC Employees Are Vaccinated (30)	<a href="http://ow.ly/9RXI50GEIoT">http://ow.ly/9RXI50GEIoT</a> Covid-19: Researcher blows the whistle on data integrity issues in Pfizer's vaccine trial (131)	<a href="https://www.conservativeheaven.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/">https://www.conservativeheaven.com/2021/11/05/ceo-of-pfizer-arrested-charged-with-fraud-media-blackout/</a> CEO of Pfizer arrested by the FBI, charged with fraud – media blackout as #PfizerGate trends (531)	<a href="https://www.lifefunder.com/pfizer/victim?utm_source=twitter&amp;utm_medium=social&amp;utm_campaign=pfizer/victim">https://www.lifefunder.com/pfizer/victim?utm_source=twitter&amp;utm_medium=social&amp;utm_campaign=pfizer/victim</a> My son died after Pfizer jab - help me warn others (6)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (98)	<a href="http://vaccines.gov/search">http://vaccines.gov/search</a> (18)
<a href="https://www.reuters.com/world/us/us-federal-appeals-court-issues-stay-bidens-vaccine-rule-us-companies-2021-11-06/">https://www.reuters.com/world/us/us-federal-appeals-court-issues-stay-bidens-vaccine-rule-us-companies-2021-11-06/</a> U.S. federal appeals court freezes Biden's vaccine rule for companies (258)	<a href="https://technofog.substack.com/p/cdc-emails-our-definition-of-vaccine-just-published-true">https://technofog.substack.com/p/cdc-emails-our-definition-of-vaccine-just-published-true</a> CDC Emails: Our Definition of Vaccine is "Problematic" (21)	<a href="https://www.washingtonpost.com/health/2021/11/05/pfizer-covid-pill/">https://www.washingtonpost.com/health/2021/11/05/pfizer-covid-pill/</a> Antiviral pills from Pfizer, Merck, show promise against worst covid-19 outcomes (57)	<a href="https://dailycaller.com/2021/11/08/state-farm-aaron-rogers-vaccine-response/">https://dailycaller.com/2021/11/08/state-farm-aaron-rogers-vaccine-response/</a> State Farm Isn't Abandoning Aaron Rodgers, Company Doesn't 'Support Some Of The Statements He Has Made' (223)	<a href="http://electiledysfunction.us">http://electiledysfunction.us</a> 330 Million Americans suffer from electile dysfunction (5)	<a href="http://www.vaccines.gov">http://www.vaccines.gov</a> (65)	<a href="http://hill.cm/mdaHgPw">http://hill.cm/mdaHgPw</a> McConaughy comes out against vaccine mandates for kids (12)
<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (225)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (18)	<a href="https://humansarefree.com/2021/09/govt-data-50k-deaths-within-14-days-of-covid-19-vax.html">https://humansarefree.com/2021/09/govt-data-50k-deaths-within-14-days-of-covid-19-vax.html</a> Whistleblower Provides Govt Data Showing 48,465 DIED Within 14 Days Of COVID-19 Vaccination Among Medicare Patients Alone (Nuremberg Trials!) (34)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (165)	<a href="https://www.wuhanupdate.com/health/fact-check-6-of-aaron-rogers-false-and-misleading-claims-about-covid-19-vaccine-56862448">https://www.wuhanupdate.com/health/fact-check-6-of-aaron-rogers-false-and-misleading-claims-about-covid-19-vaccine-56862448</a> Fact check: 6 of Aaron Rodgers' false and misleading claims about COVID-19 vaccine (5)	<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (56)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (11)
<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (148)	<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (14)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (29)	<a href="http://hill.cm/mdaHgPw">http://hill.cm/mdaHgPw</a> McConaughy comes out against vaccine mandates for kids (91)	<a href="https://bit.ly/3FLU7mI">https://bit.ly/3FLU7mI</a> 'Red Notice' With Dwayne Johnson, Ryan Reynolds and Gal Gadot to Premiere on Netflix in November (4)	<a href="http://electiledysfunction.us">http://electiledysfunction.us</a> 330 Million Americans suffer from electile dysfunction (53)	<a href="https://sharylatkisson.com/2021/11/06/update-women-most-at-risk-of-brain-vein-clots-after-j-vaccine/">https://sharylatkisson.com/2021/11/06/update-women-most-at-risk-of-brain-vein-clots-after-j-vaccine/</a> Women most at risk of brain vein clots after J&J vaccine (9)
<a href="http://electiledysfunction.us">http://electiledysfunction.us</a> 330 Million Americans suffer from electile dysfunction (123)	<a href="http://www.vaccines.gov">http://www.vaccines.gov</a> (13)	<a href="https://cnb.cx/3ki322c">https://cnb.cx/3ki322c</a> Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' (28)	<a href="https://pittsburgh.chslocal.com/2021/11/05/allegheeny-county-city-of-pittsburgh-employee-vaccine-mandate-protests/">https://pittsburgh.chslocal.com/2021/11/05/allegheeny-county-city-of-pittsburgh-employee-vaccine-mandate-protests/</a> City, County Employees Protest COVID-19 Vaccine Rules (86)	<a href="https://cnb.cx/3o98t58">https://cnb.cx/3o98t58</a> White House tells businesses to proceed with vaccine mandate despite court-ordered pause (4)	<a href="https://www.reuters.com/world/us/us-federal-appeals-court-issues-stay-bidens-vaccine-rule-us-companies-2021-11-06/">https://www.reuters.com/world/us/us-federal-appeals-court-issues-stay-bidens-vaccine-rule-us-companies-2021-11-06/</a> U.S. federal appeals court freezes Biden's vaccine rule for companies (44)	<a href="https://twitter.com/ABC/status/1457629064991424514">https://twitter.com/ABC/status/1457629064991424514</a> LATEST: Biden administration sends letters to superintendents and principals across the U.S., urging them to set up COVID-19 vaccination clinics inside their elementary schools. (9)

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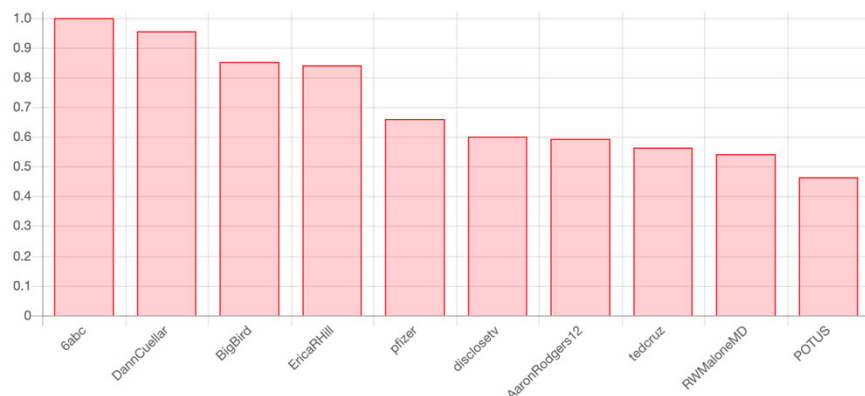
11



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## Analysis of Tweeters - Super Spreaders

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



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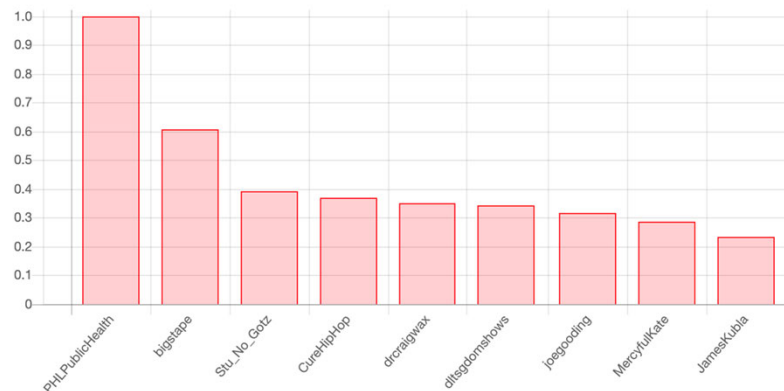
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## Analysis of Tweeters - Super Friends

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



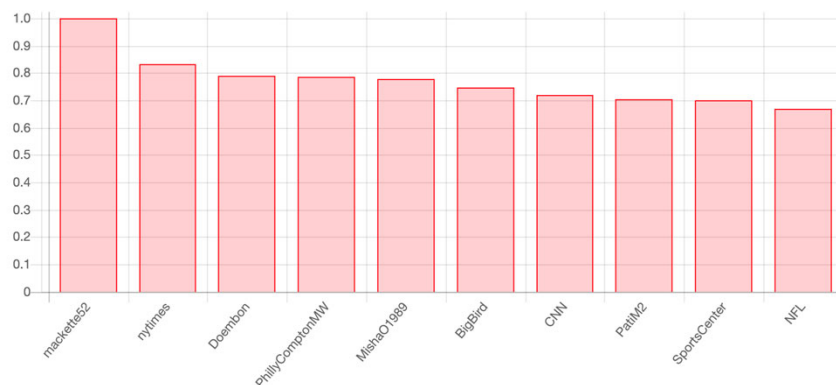
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## Analysis of Tweeters - Other Influencers

- 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.



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## 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
<a href="#">EricaRHill</a>	2,748
<a href="#">AaronRodgers12</a>	1,602
<a href="#">pfizer</a>	1,332
<a href="#">BigBird</a>	1,022
<a href="#">PatMcAfeeShow</a>	965
<a href="#">catturd2</a>	800
<a href="#">RexChapman</a>	686
<a href="#">tedcruz</a>	676
<a href="#">StateFarm</a>	636
<a href="#">POTUS</a>	617

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## Trending Tweets November 5 – November 11

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

- ❑ I got the COVID-19 vaccine today! My wing is feeling a little sore, but it'll give my body an extra protective boost that keeps me and others healthy. Ms. @EricaRHill even said I've been getting vaccines since I was a little bird. I had no idea!
- ❑ Big Bird gets vaccinated, 1972 <https://t.co/M2mdmmjZ0N>
- ❑ Pennsylvania Gov. Tom Wolf has announced that vaccinated state employees will receive five additional days of paid time off.
- ❑ It's easy to get distracted by misinformation these days, but don't worry...Science has got your back. #ScienceWillWin <https://t.co/aXVzAsfa6Z>
- ❑ Dennis Prager: "During the AIDS crisis, can you imagine if gay men and intravenous drug users...had they been pariahs the way the non-vaccinated are? But it would've been inconceivable" <https://t.co/GQsOq4X63u>
- ❑ @BigBird @EricaRHill Good on ya, @BigBird. Getting vaccinated is the best way to keep your whole neighborhood safe.
- ❑ White House tells businesses to proceed with vaccine mandate despite court-ordered pause <https://t.co/3pXnAS6LYV>
- ❑ Natural immunity is broad, protective, and durable. Unlike vaccine-induced immunity. I am so tired of USG lies. "studies show that protection from reinfection is strong and persists for more than 10 months of follow-up" <https://t.co/2hs6midMrY>
- ❑ Man, wait until antivax politicians find out about how R2-D2 and C-3PO tried to encourage vaccination... in 1978. Almost like this isn't a new thing and programs that cater to kids want to keep them safe and healthy. <https://t.co/Q5nfH5TVsj>
- ❑ Pfizer CEO says people who spread misinformation on Covid vaccines are 'criminals' <https://t.co/vsxL7oXUFv>

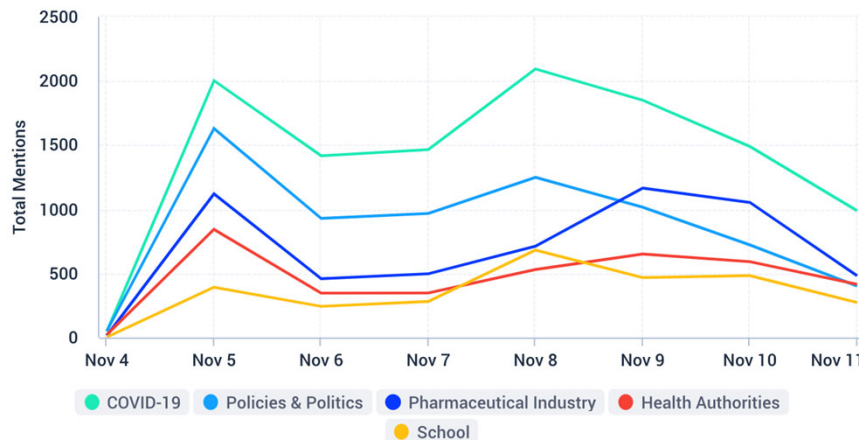
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## General PA Conversation November 5 – November 11

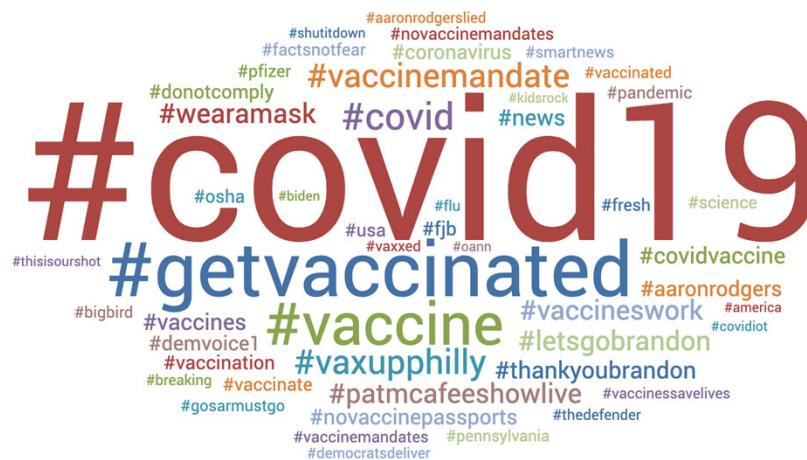


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## PA Hashtag Cloud November 5 – November 11

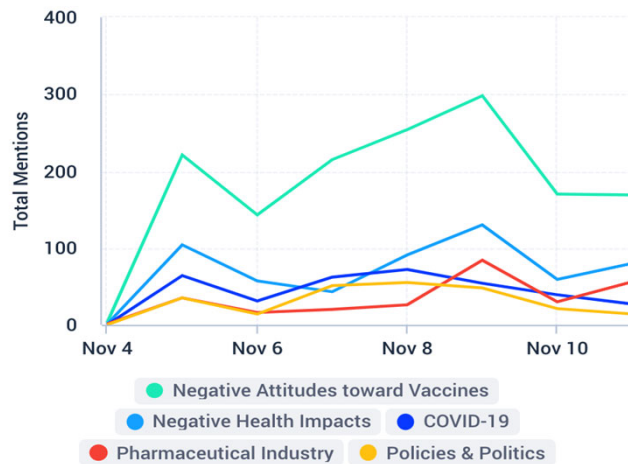


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## Negative Attitudes November 5 – November 11



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## Negative Hashtag Cloud November 5 – November 11

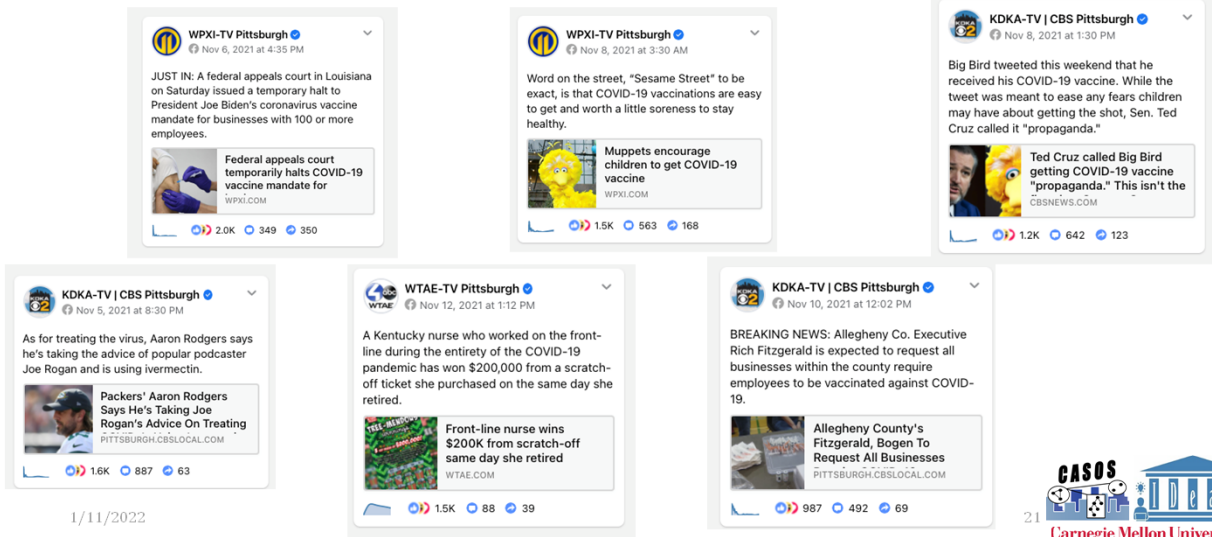


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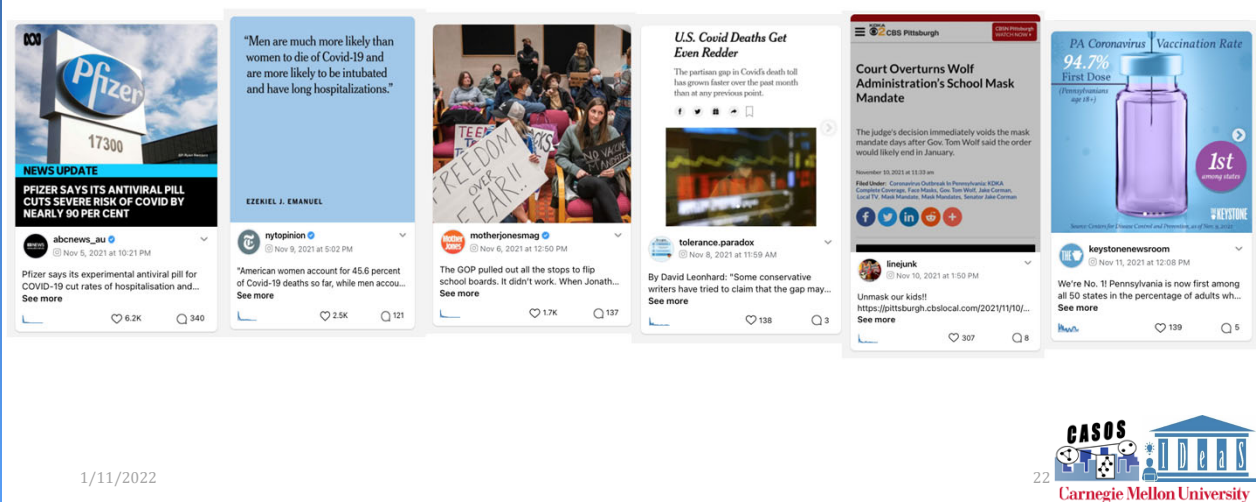
20

## Trending Posts on Facebook November 5 – November 11



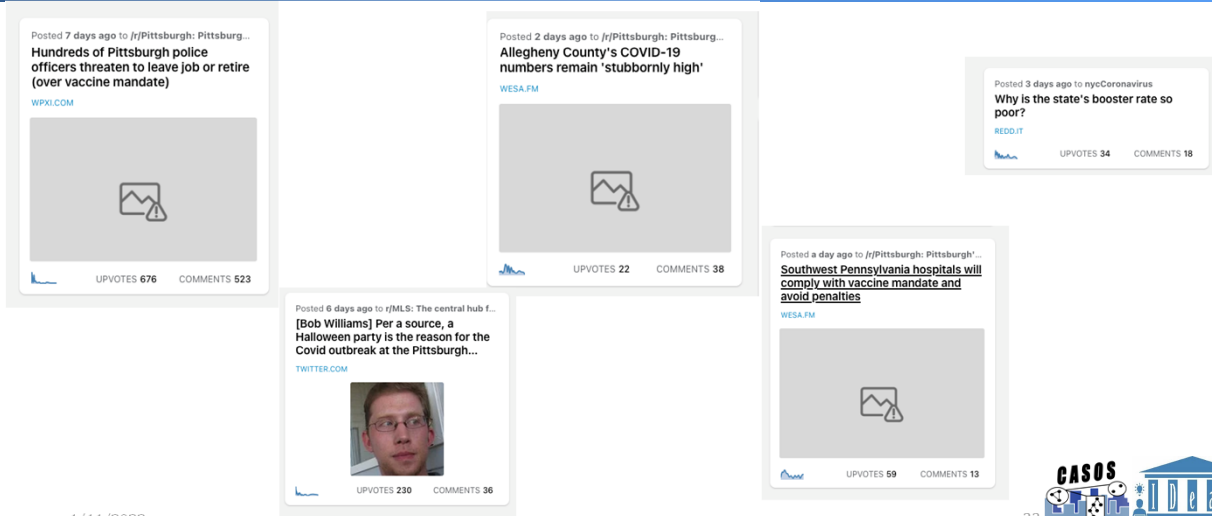
21

## Trending Posts on Instagram November 5 – November 11



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## Trending Posts on Reddit November 5 – November 11



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## For More Information

- ❑ Director Kathleen M. Carley - [kathleen.carley@cs.cmu.edu](mailto: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](https://www.facebook.com/IDEasCMU)
- ❑ Twitter: [@IDeaSCMU](https://twitter.com/IDeaSCMU)
- ❑ YouTube: [IDeaS Center](https://www.youtube.com/IDeaS_Center)
- ❑ Ask to be on our Email-Distro Lists

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