

# PA Vaccine Conversations on Twitter

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Vaccine Hesitancy Project Update based on February 25, 2022 – March 3, 2022

The CMU centers for:

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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.

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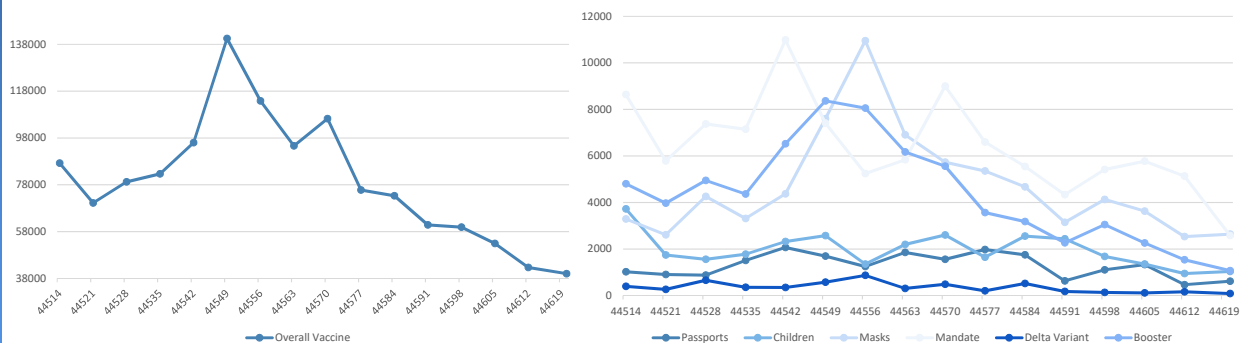
## Report Overview February 25 – March 3

- ❑ This week's trending stories cover Passports, Mandates, Masks, Boosters, Children, Military;
- ❑ Trending stories: Pfizer report was widely shared in relation to the long list of side effects they mentioned ("Pfizer releases its list of vaccine side effects, and it's nearly as long as a CVS receipt <https://t.co/WaTSVRZXDf>"); <https://www.forbes.com/sites/suzannerowankelleher/2022/02/24/national-vaccine-quietly-rolled-out/> A National Vaccine Pass Has Quietly Rolled Out – And Red States Are Getting On Board; <https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/> Manafort's Reward: Sen. Ron Johnson and the Ukraine Conspiracy Investigation: Part II; [https://gregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm\\_source=url](https://gregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=url) Sleeper Cell: The Fourth of July Traitors; overall there are many stories related to Ukraine and Russia;
- ❑ Anti-vax, disinformation, and vaccine hesitancy stories: <https://www.dailymail.co.uk/news/article-10542309/Fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began;' [https://link.theepochtimes.com/mkt\\_app/pfizers-covid-19-vaccine-goes-into-liver-cells-and-is-converted-to-dna-study\\_4307594.html?utm\\_source=appan2029030](https://link.theepochtimes.com/mkt_app/pfizers-covid-19-vaccine-goes-into-liver-cells-and-is-converted-to-dna-study_4307594.html?utm_source=appan2029030) Pfizer's COVID-19 Vaccine Goes Into Liver Cells and Is Converted to DNA: Study; <http://bit.ly/3vx0Dal> 'This is ridiculous': DeSantis scolds students for wearing face masks during USF visit; <https://cnb.cx/3tj4fuk> Pfizer Covid vaccine was just 12% effective against omicron in kids 5 to 11, study finds; [https://youtu.be/lSc26EHGN\\_Q](https://youtu.be/lSc26EHGN_Q) #Pfizer #BigPharma #PandemicThis Looks Bad

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## Trends (tweets per week) February 25 – March 3



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## High Level View by City February 25 – March 3

	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	34063	16304	47.9%	11683	34.3%	366	1.1%	4284	12.6%	1426	4.2%
Vaccine Passports	609	371	2.3%	162	1.4%	10	2.7%	59	1.4%	7	0.5%
FDA Approval	88	35	0.2%	30	0.3%			22	0.5%	1	0.1%
Boosters	658	388	2.4%	157	1.3%	12	3.3%	68	1.6%	33	2.3%
Employees	200	145	0.9%	21	0.2%	2	0.5%	21	0.5%	11	0.8%
"Experimental"	93	45	0.3%	26	0.2%	2	0.5%	16	0.4%	4	0.3%
Children	789	404	2.5%	217	1.9%	10	2.7%	123	2.9%	35	2.5%
Myocarditis	69	38	0.2%	13	0.1%			14	0.3%	4	0.3%
Heart	246	117	0.7%	72	0.6%	3	0.8%	46	1.1%	8	0.6%
Masks	2605	1448	8.9%	579	5.0%	31	8.5%	311	7.3%	236	16.5%
Thrombosis/VITT	55	34	0.2%	9	0.1%			8	0.2%	4	0.3%
Mandates	2435	1465	9.0%	480	4.1%	37	10.1%	346	8.1%	107	7.5%
Natural Immunity	133	75	0.5%	41	0.4%	2	0.5%	14	0.3%	1	0.1%
Efficacy	90	47	0.3%	19	0.2%	1	0.3%	16	0.4%	7	0.5%
Omicron	255	121	0.7%	60	0.5%	2	0.5%	47	1.1%	25	1.8%
Delta Variant	75	31	0.2%	21	0.2%			8	0.2%	15	1.1%
Race	664	372	2.3%	164	1.4%	10	2.7%	78	1.8%	40	2.8%
Ivermectin	25	9	0.1%	8	0.1%			8	0.2%		
Military	421	225	1.4%	109	0.9%	5	1.4%	66	1.5%	16	1.1%
Breakthrough	16	10	0.1%	4	0.0%	1	0.3%			1	0.1%

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- Conversation topics trending this week
  - Military
  - Passports



## High Level View by County February 25 – March 3

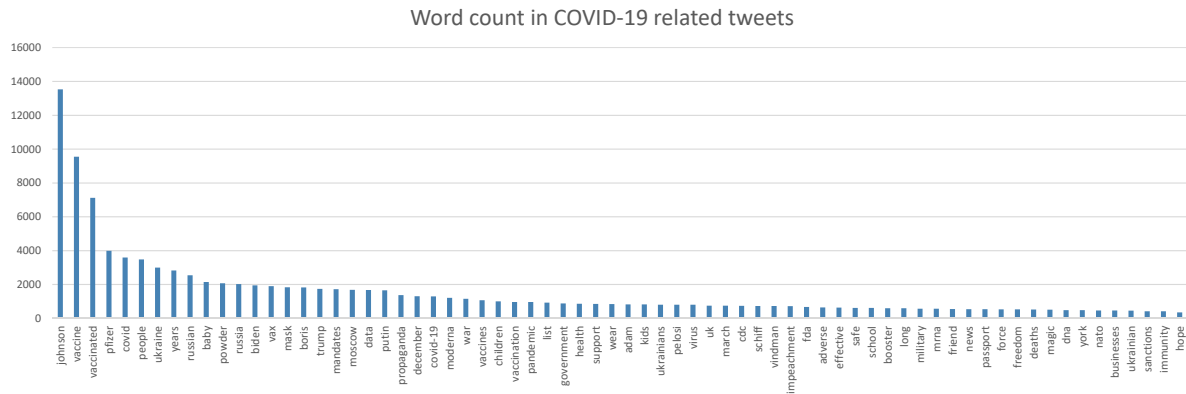
County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	11879	22	19	7	20	6	4	32
Vaccine Passports	162	1						
FDA	167	1					1	
Boosters	26							
Employees	26							1
"Experimental"	219		1	1				1
Children	13						1	
Myocarditis	75							
Heart	623	2	2	5	1	4		4
Masks	9							
Thrombosis/VITT	497	5	1	2		3		1
Mandates	41							
Natural Immunity	20							1
Efficacy	62		1					1
Omicron	27				1			
Delta Variant	174	2			1			
Race	8							
Ivermectin	112		1					
Military	4							
Breakthrough	11879	22	19	7	20	6	4	32

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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 February 25 – March 3



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## Top Hashtags by County February 25 – March 3

- ❑ 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 (125)	biden (1)	historyteacher (1)	blackhistorymonth (1)	sotu (1)	grandpasnarky (1)
pfizer (57)	booster (1)	maskup (1)	covid19 (1)	covid19 (1)	nato (1)
vaccine (56)	dystopian (1)	ukraine (1)	sotu (1)	vaxupphilly (1)	nhlstats (1)
covid (51)	masks (1)		weshouldcancel (1)		putinswar (1)
vaccinesideeffects (46)	pfizer (1)				grandpasnarky (1)

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## Top Hashtags by City February 25 – March 3

- ❑ 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 (140)	covid19 (24)	covid19 (37)	fourthofjulytraitors (1119)	covid19 (7)	covid19 (62)	weare (24)
sotu (115)	fourthofjulytraitors (14)	sotu (32)	sotu (142)	sotu (5)	sotu (57)	vaccine (23)
vaxupphilly (111)	sotu (12)	fourthofjulytraitors (17)	covid19 (125)	goptherussianparty (4)	vaccine (22)	covid19 (21)
pfizer (76)	cdnpoli (11)	phled (12)	bullettrain (81)	vaccine (3)	fourthofjulytraitors (19)	pfizer (16)
fourthofjulytraitors (62)	emergenciesact (10)	covid (10)	woozi (58)	biopharma (2)	pfizer (18)	sotu (10)

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## Top URLs by County February 25 – March 3

Allegheny	Butler + Beaver	Cambria	Somerset	Fayette	West Moreland
<a href="https://gregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=url">https://gregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=url</a> Sleeper Cell: The Fourth of July Traitors (1119)	<a href="https://nyti.ms/3ti74do">https://nyti.ms/3ti74do</a> The White House lifts its mask mandate for fully vaccinated people (1)	<a href="https://bit.ly/3yx0DaI">https://bit.ly/3yx0DaI</a> This is ridiculous: DeSantis scolds students for wearing face masks during USF visit (1)	<a href="https://bit.ly/3vgVDHh">https://bit.ly/3vgVDHh</a> United States COVID-19 Cases, Deaths, and Laboratory Testing (NAATs) by State, Territory, and Jurisdiction (1)	<a href="https://www.blackpast.org/african-american-history/johnson-roundtree-dovey-1914/">https://www.blackpast.org/african-american-history/johnson-roundtree-dovey-1914/</a> DOVEY JOHNSON ROUNDTREE (1914–2018) (1)	<a href="https://cnb.cx/3ti4fuk">https://cnb.cx/3ti4fuk</a> Pfizer Covid vaccine was just 12% effective against omicron in kids 5 to 11, study finds (1)
<a href="https://www.dailymail.co.uk/news/article-10542309/Fresh-lab-leak-fears-study-finds-genetic-code-Covids-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/Fresh-lab-leak-fears-study-finds-genetic-code-Covids-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (191)	<a href="https://www.nature.com/articles/s41591-022-01753-y">https://www.nature.com/articles/s41591-022-01753-y</a> Effectiveness of mRNA-1273 against SARS-CoV-2 Omicron and Delta variants (1)	<a href="https://reut.rs/3seoD0e">https://reut.rs/3seoD0e</a> Inspired by Canadian truck protests, 'People's Convoy' heads to Washington (1)		<a href="https://www.kansascity.com/news/politics-government/article258817348.html">https://www.kansascity.com/news/politics-government/article258817348.html</a> Truck convoy protesting vaccine mandates pulls plug before reaching Kansas, Missouri (1)	<a href="https://media.nhl.com/public/live-updates?date=2022-03-01">https://media.nhl.com/public/live-updates?date=2022-03-01</a> #NHLStats: Live Updates (1)
<a href="https://phmpt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (129)	<a href="https://summit.news/2022/02/23/4-million-french-discover-their-vaccine-passport-has-expired-because-they-didnt-get-the-latest-boosters/">https://summit.news/2022/02/23/4-million-french-discover-their-vaccine-passport-has-expired-because-they-didnt-get-the-latest-boosters/</a> 4 Million French Discover Their Vaccine Passport Has Expired Because They Didn't Get the Latest Booster (1)	<a href="https://www.pbs.org/newshour/classroom/2022/02/feb-24-2022-choose-from-these-9-news-stories-including-russias-invasion-of-ukraine-and-new-covid-vaccine/">https://www.pbs.org/newshour/classroom/2022/02/feb-24-2022-choose-from-these-9-news-stories-including-russias-invasion-of-ukraine-and-new-covid-vaccine/</a> Feb. 24, 2022: Choose from these 9 news stories including Russia's invasion of Ukraine and new COVID vaccine (1)		<a href="https://www.opendemocracy.net/en/dark-money-investigations/revealed-the-lobbyist-who-helps-russian-elites-get-access-to-boris-johnson/?utm_source=tw">https://www.opendemocracy.net/en/dark-money-investigations/revealed-the-lobbyist-who-helps-russian-elites-get-access-to-boris-johnson/?utm_source=tw</a> Revealed: The lobbyist who helps Russian elites get access to Boris Johnson (1)	<a href="https://twitter.com/VigilantFox/status/1497713225701507075?tx=4vgZaBIIQ0i70sNAi8FHA&amp;s=19">https://twitter.com/VigilantFox/status/1497713225701507075?tx=4vgZaBIIQ0i70sNAi8FHA&amp;s=19</a> tweet from suspended account (not saved by Internet Archive) (1)
<a href="https://www.forbes.com/sites/suzannerowankelleher/2022/02/24/national-vaccine-quietly-rolled-out/">https://www.forbes.com/sites/suzannerowankelleher/2022/02/24/national-vaccine-quietly-rolled-out/</a> A National Vaccine Pass Has Quietly Rolled Out – And Red States Are Getting On Board (41)	<a href="https://trib.al/Rxo3XI">https://trib.al/Rxo3XI</a> Discord's new policy will ban harmful medical advice, taking aim at anti-vaxx groups (1)			<a href="https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/">https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/</a> Manafort's Reward: Sen. Ron Johnson and the Ukraine Conspiracy Investigation: Part II (2)	
<a href="https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/">https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/</a> Manafort's Reward: Sen. Ron Johnson and the Ukraine Conspiracy Investigation: Part II (36)	<a href="https://www.youtube.com/watch?v=06ALWQ1Ycs">https://www.youtube.com/watch?v=06ALWQ1Ycs</a> Steeler Nation: Donta' Johnson's historic start (1)				

## Top URLs by City February 25 – March 3

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (210)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (37)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (70)	<a href="https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur">https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur</a> Sleeper Cell: The Fourth of July Traitors (1118)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (6)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (101)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (18)
<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (176)	<a href="https://www.usatoday.com/story/news/politics/2020/02/05/senate-impeachment-trial-mitt-romney-votes-remove-president-trump/4669734002/">https://www.usatoday.com/story/news/politics/2020/02/05/senate-impeachment-trial-mitt-romney-votes-remove-president-trump/4669734002/</a> 'Appalling abuse': Sen. Mitt Romney votes to convict President Trump on abuse of power charge (15)	<a href="https://www.politico.eu/article/vladimir-putin-european-pals-eat-their-words-marine-le-pen-eric-zemmour-matteo-salvini-milos-zeman-alex-salmond-gerhard-schoder-boris-johnson-jean-luc-melenchon-francois-fillon-viktor-orban/">https://www.politico.eu/article/vladimir-putin-european-pals-eat-their-words-marine-le-pen-eric-zemmour-matteo-salvini-milos-zeman-alex-salmond-gerhard-schoder-boris-johnson-jean-luc-melenchon-francois-fillon-viktor-orban/</a> Putin's European pals have to eat their words (51)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (188)	<a href="http://www.erie.gov/vax">http://www.erie.gov/vax</a> (4)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (62)	<a href="https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/">https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/</a> Manafort's Reward: Sen. Ron Johnson and the Ukraine Conspiracy Investigation: Part II (11)
<a href="http://bit.ly/3ve00aj">http://bit.ly/3ve00aj</a> 'This is ridiculous': DeSantis scolds students for wearing face masks during USF visit (76)	<a href="https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur">https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur</a> Sleeper Cell: The Fourth of July Traitors (14)	<a href="https://www.telegraph.co.uk/politics/2022/02/24/boris-johnsons-10-point-barrage-sanctions-against-russia/">https://www.telegraph.co.uk/politics/2022/02/24/boris-johnsons-10-point-barrage-sanctions-against-russia/</a> Boris Johnson's 10-point barrage of sanctions against Russia (35)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (128)	<a href="https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf">https://phmpmt.org/wp-content/uploads/2021/11/5.3.6-postmarketing-experience.pdf</a> Pfizer report (4)	<a href="https://www.nytimes.com/2022/02/28/health/pfizer-vaccine-kids.html">https://www.nytimes.com/2022/02/28/health/pfizer-vaccine-kids.html</a> Pfizer Shot is Far Less Effective in 5- to 11-Year-Olds Than in Older Kids, New Data Show (24)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (7)
<a href="https://link.thepochochimes.com/mkt_app/pfizers-covid-19-vaccine-joes-into-liver-cells-and-is-converted-to-dna-study-4307594.html?utm_source=app&amp;utm_medium=share&amp;utm_campaign=202030">https://link.thepochochimes.com/mkt_app/pfizers-covid-19-vaccine-joes-into-liver-cells-and-is-converted-to-dna-study-4307594.html?utm_source=app&amp;utm_medium=share&amp;utm_campaign=202030</a> Pfizer's COVID-19 Vaccine Goes Into Liver Cells and Is Converted to DNA: Study (66)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (12)	<a href="http://news.sky.com">http://news.sky.com</a> (30)	<a href="https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-pass-has-quietly-rolled-out--and-red-states-are-getting-on-board/">https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-pass-has-quietly-rolled-out--and-red-states-are-getting-on-board/</a> A National Vaccine Pass Has Quietly Rolled Out – And Red States Are Getting On Board (41)	<a href="https://eriecountypa.gov/covid-19/covid-19-vaccine/">https://eriecountypa.gov/covid-19/covid-19-vaccine/</a> (3)	<a href="https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur">https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur</a> Sleeper Cell: The Fourth of July Traitors (19)	<a href="https://www.timesonline.com/story/sports/college/2022/03/01/puff-johnson-our-lady-of-the-sacred-heart-ohh-moon-area-unc-star-heals-injuries-return/6926493001/">https://www.timesonline.com/story/sports/college/2022/03/01/puff-johnson-our-lady-of-the-sacred-heart-ohh-moon-area-unc-star-heals-injuries-return/6926493001/</a> On-Campus Return: After several injuries, former OLSH and Moon star Puff Johnson finding rhythm at UNC (6)
<a href="https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur">https://pregolear.substack.com/p/sleeper-cell-the-fourth-of-july-traitors?utm_source=ur</a> Sleeper Cell: The Fourth of July Traitors (62)	<a href="https://www.nature.com/articles/41577-022-00695-3">https://www.nature.com/articles/41577-022-00695-3</a> Vaccine safety In an era of novel vaccines: a proposed research agenda (12)	<a href="https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html">https://www.dailymail.co.uk/news/article-10542309/fresh-lab-leak-fears-study-finds-genetic-code-Covid-spike-protein-linked-Moderna-patent.html</a> Scientists claim Covid virus contains tiny chunk of DNA that 'matches sequence patented by Moderna THREE YEARS before pandemic began' (27)	<a href="https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/">https://www.justsecurity.org/72148/manafort-reward-sen-ron-johnson-and-the-ukraine-conspiracy-investigation-part-ii/</a> Manafort's Reward: Sen. Ron Johnson and the Ukraine Conspiracy Investigation: Part II (32)	<a href="https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-quietly-rolled-out--and-red-states-are-getting-on-board/">https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-quietly-rolled-out--and-red-states-are-getting-on-board/</a> Has Quietly Rolled Out – And Red States Are Getting On Board (3)	<a href="https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-quietly-rolled-out--and-red-states-are-getting-on-board/">https://www.forbes.com/sites/suzanne-rowankelleher/2022/02/24/national-vaccine-quietly-rolled-out--and-red-states-are-getting-on-board/</a> Has Quietly Rolled Out – And Red States Are Getting On Board (16)	<a href="https://youtu.be/ISc36EHGN_Q">https://youtu.be/ISc36EHGN_Q</a> #Pfizer #BigPharma #PandemicThis Looks Bad (6)

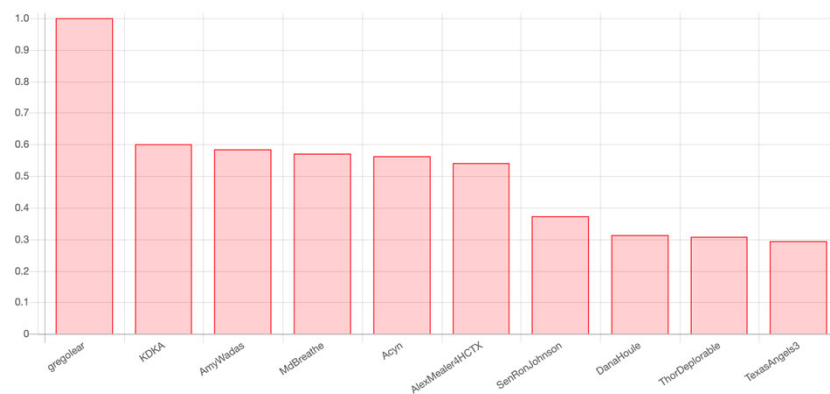
4/5/2022

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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.



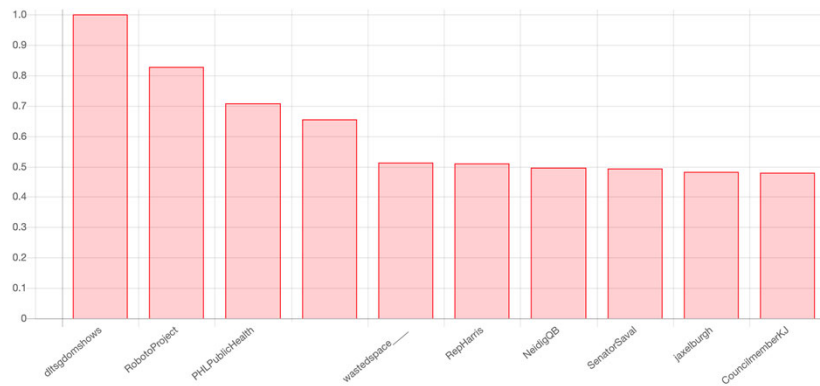
4/5/2022

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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.

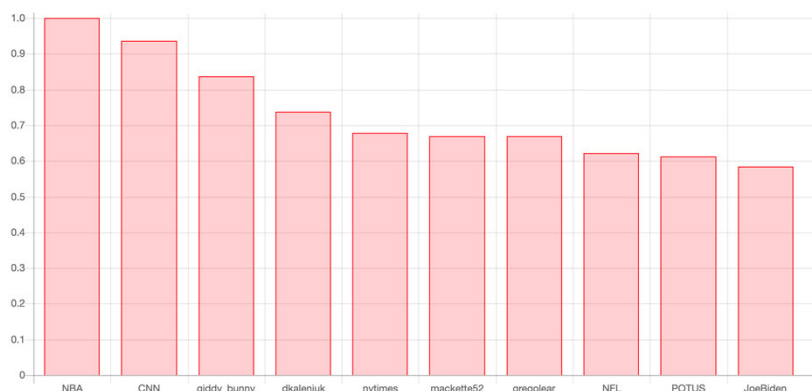


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## Analysis of Tweeters - Other Influencers

- 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
SenRonJohnson[+]	354
pfizer[+]	350
KendrickPerkins	319
POTUS[+]	283
CDCgov[+]	195
DanRather[+]	192
BorisJohnson[+]	179
GovRonDeSantis[+]	131
US_FDA[+]	129
ClayTravis[+]	122

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## Trending Tweets February 25 – March 3

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

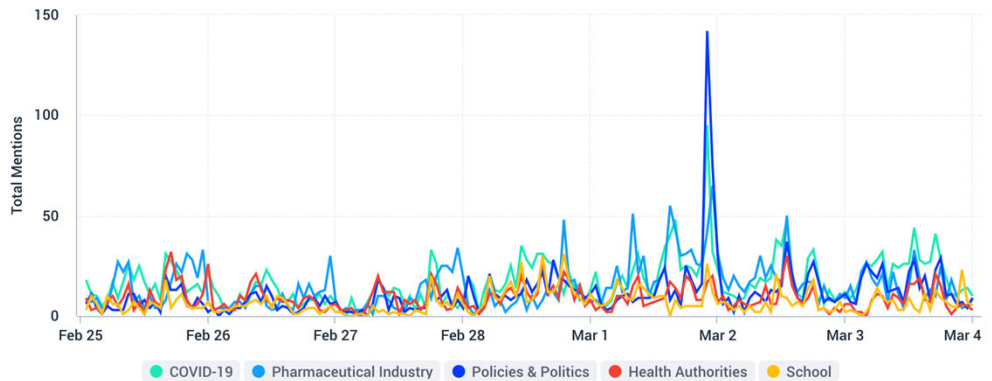
- ❑ I wrote this in December of 2019, about the #FourthOfJulyTraitors who went to Moscow on 7/4/18. In the 3+ years since, Ron Johnson in particular has not stopped spewing Russian propaganda. <https://t.co/ObGT4UhrD8>
- ❑ Ron Johnson blames Vindman, Pelosi, and Adam Schiff for weakening Ukraine with Trump's impeachment <https://t.co/61KmZIFy7W>
- ❑ Lot of people in Ukraine crowding together inside. Only 35% of Ukrainians have been vaccinated. Less than 2% have been boosted.
- ❑ .@KendrickPerkins thinks the combo of Harden & Embiid has a legendary ceiling "I'm looking at Magic Johnson and Kareem-Abdul Jabbar right now! ... I see the 76ers winning it all." <https://t.co/8uBY5eBX6t>
- ❑ Discrimination based on vaccination status is awful because it creates a two-tiered society. However, when the vaccine passport mandate ends, businesses that voluntarily choose to continue discriminating are not worthy of my support. We shall soon see who these businesses are.
- ❑ Folks want us to regret being vaccinated so bad. We don't, and we feel fine.
- ❑ One would probably think the movie was called Dwayne Johnson given how big those words are <https://t.co/XIcMhyCZ5a>
- ❑ Trump dismantled the Pandemic task force, had no vaccination plan & tried to dismantle NATO & our alliances. Over the past year Biden vaccinated us, restored our alliances, committed to a stronger NATO & has spent the last few mos working to assist Ukraine. A tremendous 1st year.
- ❑ Pfizer releases its list of vaccine side effects, and it's nearly as long as a CVS receipt <https://t.co/WaTSVRZXDf>

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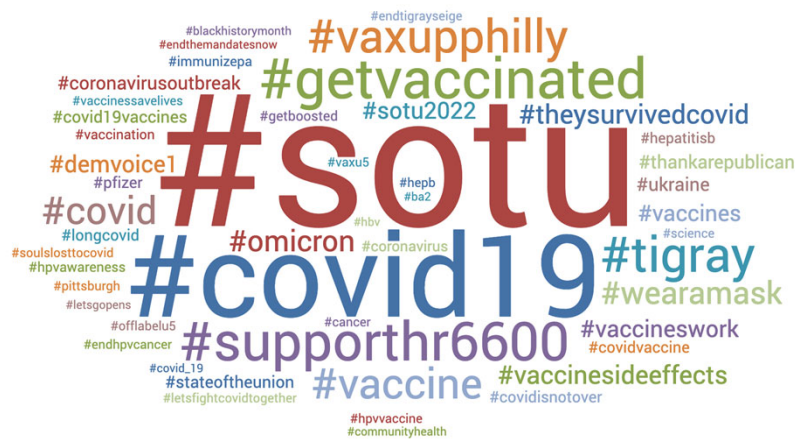
## General PA Conversation February 25 – March 3



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## PA Hashtag Cloud February 25 – March 3



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## Trending Posts on Facebook February 25 – March 3

**Pittsburgh Steelers on C...**  
Mar 3, 2022 at 12:52 PM

The #NFL is making a return to normalcy in 2022.

**NFL reaches agreement with NFLPA to suspend all COVID-19 testing, protocols**  
CBS SPORTS.COM

1.1K 101 93

**WTAE-TV Pittsburgh**  
Mar 1, 2022 at 10:30 PM

During his first State of the Union address, President Joe Biden calls on the country to "start seeing each other for who we are: Fellow Americans."

**"Let's stop seeing each other as enemies and start seeing each other for who we are: Fellow Americans. We can't change how divided we've been. But we can change how we move forward, on COVID-19 and other issues we must face together."**  
President Joe Biden

568 369 20

**KDKA-TV | CBS Pittsburgh**  
Feb 25, 2022 at 4:30 PM

Citing the vaccination rate, the acting health secretary said the state is prepared to transition out of the pandemic phase.

**Pennsylvania Moving Toward Endemic Stage Of COVID-19, Acting Health**  
PITTSBURGH.CBSLOCAL.COM

628 249 58

**Sean Parnell**  
Feb 28, 2022 at 6:57 PM

**POOF SCIENCE!** Right before the State of the Union! It really is a midterms miracle! They defeated COVID with the stroke of a pen!

**On Friday, the CDC revised its covid risk formula. With this single change, the pandemic abruptly eased going from 90% of the United States in High-Risk Red to less than 30%.**

BEFORE AFTER

1:17 PM · 2/28/22 · Twitter Web App  
1,117 Retweets · 328 Quote Tweets · 2,362 Likes

655 115 302

**WPXI-TV Pittsburgh**  
Feb 25, 2022 at 8:15 PM

The CDC said Friday more than 70% of people in the U.S. will be able to ditch their masks. Here's a look at the COVID-19 transmission rates in our area. Green - Low. Yellow - Medium. Orange - High. More...

**See more**

551 328 76

**WPXI-TV Pittsburgh**  
Mar 1, 2022 at 11:30 AM

Pfizer's COVID-19 vaccine for children may offer little protection against infection.

**Study: Pfizer COVID-19 vaccine was 12% effective against omicron in children**  
WPXI.COM

419 195 215

**WTAE-TV Pittsburgh**  
Feb 27, 2022 at 10:01 PM

This comes as virus cases plummet and people feel less urgency to test.

**Nearly half of Biden's 500M free COVID tests still unclaimed**  
WTAE.COM

186 117 19

**WPXI-TV Pittsburgh**  
Feb 25, 2022 at 1:00 PM

Do you still wear a mask most of the time?

**CDC to address COVID-19 mask guidance Friday**  
WPXI.COM

292 323 10

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**CASOS**  
21  
Carnegie Mellon University

## Trending Posts on Instagram February 25 – March 3

**NEXTSHARK**

**'CHINA GAVE US COVID':**  
Tweet from Pennsylvania Senate candidate Dr. Oz draws criticism

**nextshark**  
Mar 3, 2022 at 8:45 PM

[SWIPE] Dr. Mehmet Oz, a TV personality and heart surgeon who is now running in the...

See more

12.1K 698

**STATE OF THE UNION**

**B I N G O**

Russia or Ukraine Build Back Better "Common sense regulation" COVID Putin  
Vaccines "Save lives" Inflation Climate Change A virus about as big as Pennsylvania  
"Bridges and roads" Sacrifices Minimum Wage Weapons in the microwave  
Small Business "Crime man" Middle Class Choice Freedom  
Blames Trump "Here's the deal" Constitution "Glad to see you" "The fact of the matter"

**reasonmagazine**  
Mar 1, 2022 at 6:31 PM

What will President @JoeBiden discuss in tonight's State of the Union Address?

See more

1.9K 45

**globalphiladelphia**  
Feb 26, 2022 at 8:00 AM

With the #COVID19 vaccine now readily available, you have various ways to register within Philadelphia, or any other part of Pennsylvania! See where you can register in our bio. #Covidvaccine #covid #vaccine #getboosted #getvaxxed

See less

2 0

**unsolvedmurdersinphilly**  
Mar 1, 2022 at 9:34 AM

**#update** Apparently the science says suburban philly schools have different air than Philadelphia schools so Philly kid's must wear a mask. @nbcphiladelphia More Suburban Philly Schools Make Face Masks Optional The North Penn and Colonial schools districts in Montgomery County and the Bethlehem School District in the Lehigh Valley are the latest to drop the COVID-related masking requirements. NBC10's Katy Zachry reports on changes to masking policies Tuesday as COVID cases decline. #masks #covid\_19 #schools #politics #philadelphia #pennsylvania

See less

2.1K 37 5

**Penn College to Remove Masking Requirement**

**Office of the President**  
12:12 PM

In light of updated guidance from the Centers for Disease Control and Prevention – and in recognition of dramatically improved metrics on campus and in the local community – Pennsylvania College of Technology is updating its COVID-19 mitigation protocols, including removing the indoor-masking requirement, effective **Friday, March 4**.

**pctbarstool**  
Mar 3, 2022 at 12:14 PM

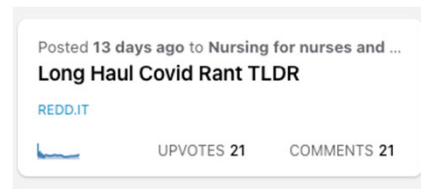
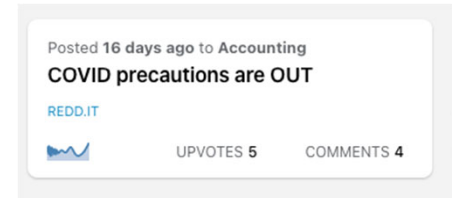
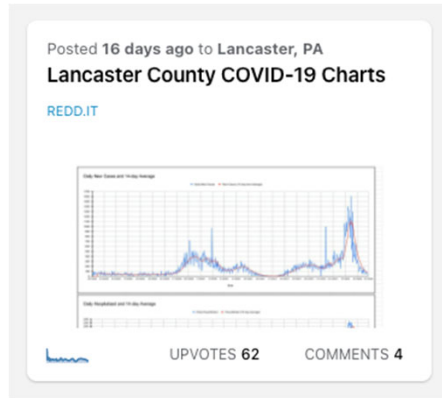
Penn College will be removing the mask mandate on Friday, March 4th!

615 12

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**CASOS**  
22  
Carnegie Mellon University

## Trending Posts on Reddit February 25 – March 3



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## For More Information

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  - ❑ <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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