

PA Vaccine Conversations and Misinformation on Twitter

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Vaccine Hesitancy Project Update based on August 27 – September 2, 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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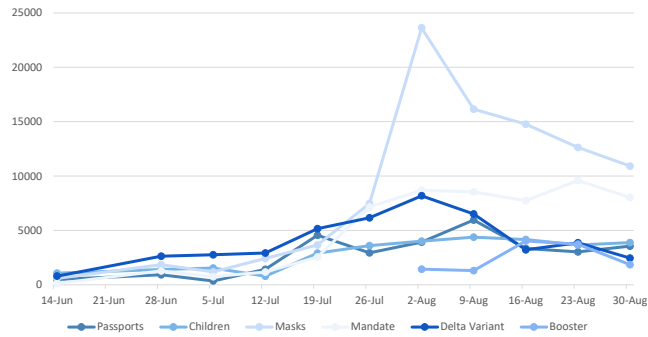
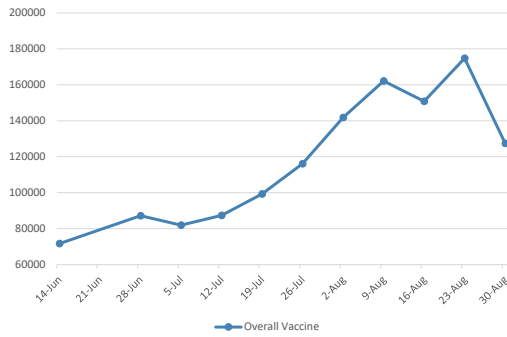


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Trends (tweets per week) August 27 – September 2



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High Level View by City August 27 – September 2

	Total PA	Philadelphia		Pittsburgh		Erie		Allentown/Bethlehem		Other	
Conversation	Tweets	Tweets	%	Tweets	%	Tweets	%	Tweets	%	Tweets	%
Overall Vaccine	108662	61485	56.6%	25846	23.8%	1099	1.0%	16460	15.1%	3772	3.5%
Vaccine Passports	3534	1714	2.8%	1084	4.2%	24	2.2%	652	4.0%	60	1.6%
FDA Approval	1912	908	1.5%	482	1.9%	29	2.6%	418	2.5%	75	2.0%
Boosters	1834	937	1.5%	516	2.0%	10	0.9%	294	1.8%	77	2.0%
Misinfo: Shedding	34	14	0.0%	9	0.0%			11	0.1%		
"Experimental"	667	329	0.5%	237	0.9%			90	0.5%	11	0.3%
Children	2851	1634	2.7%	686	2.7%	34	3.1%	405	2.5%	92	2.4%
Myocarditis	267	140	0.2%	53	0.2%			70	0.4%	4	0.1%
Heart	798	394	0.6%	183	0.7%	12	1.1%	182	1.1%	27	0.7%
Masks	10846	5665	9.2%	2502	9.7%	157	14.3%	1775	10.8%	747	19.8%
Infertility	37	24	0.0%	3	0.0%			5	0.0%	5	0.1%
Mandates	6680	3380	5.5%	1598	6.2%	72	6.6%	1337	8.1%	293	7.8%
Natural Immunity	2672	1574	2.6%	606	2.3%	8	0.7%	444	2.7%	40	1.1%
Efficacy	338	157	0.3%	69	0.3%	3	0.3%	94	0.6%	15	0.4%
Spike Proteins	82	42	0.1%	25	0.1%	1	0.1%	10	0.1%	4	0.1%
Delta Variant	3114	1731	2.8%	623	2.4%	25	2.3%	572	3.5%	163	4.3%
Race	1660	879	1.4%	469	1.8%	16	1.5%	228	1.4%	68	1.8%
Ivermectin	1124	551	0.9%	264	1.0%	27	2.5%	243	1.5%	39	1.0%
Military	672	350	0.6%	150	0.6%	4	0.4%	143	0.9%	25	0.7%
Breakthrough	625	395	0.6%	111	0.4%	2	0.2%	102	0.6%	15	0.4%

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- Tweets here counted only if there is a city location attached
- Trending conversations this week:
 - Passports
 - Children
 - Natural Immunity
 - Ivermectin



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High Level View by County August 27 – September 2

County	Allegheny	Beaver	Butler	Cambria	Fayette	Indiana	Somerset	Westmoreland
Overall Vaccine	26414	54	109	26	65	15	2	83
Vaccine Passports	1095	4	3					2
Not FDA Approved	492		1	1				5
Boosters	532	2	1					
Misinfo: Shedding	9							
"Experimental"	238		1					1
Children	698		1		1			7
Myocarditis	54							
Heart	185		2					
Masks	2599	5	10	9	10	8	1	14
Infertility	3							
Mandates	1648	8	9	2	5	2		9
Natural Immunity	614		6					1
Efficacy	71		4					
Spike Proteins	25							
Delta Variant	647	1	4		2			1
Race	479	1	1					1
Ivermectin	272	1		1	4			
Military	151				1			
Breakthrough	113				1			2

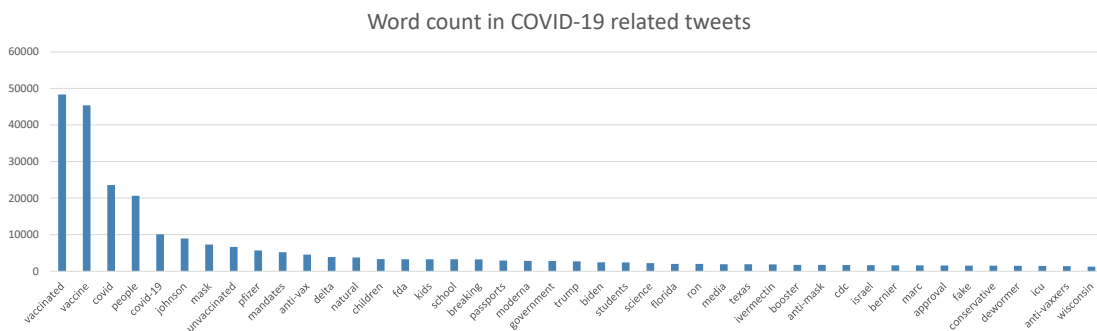
- Tweets counted here if there is a county location attached
- Race: pulled by one of the vaccine keywords plus at least one other term in ("Black", "African American", "of color", "Latin", "Hispanic", "brown", "eugenic")

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Top Words Used per Week August 27 – September 2



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Top Hashtags by County August 27 – September 2

□ 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 (896)	covid19 (4)	Getvaccinatednow (2)	covid19 (4)	Antivaxxers (2)
breaking (240)	breaking (1)	Covidvaccine (1)	getvaccinatednow (2)	Covid19 (2)
pfizer (202)	misinformation (1)	Fdaapproved (1)	Besmartbevaccinated (1)	Breaking (1)
vaccine (191)	getvaccinated (1)	Getvaccinated (1)	democratsheenemywithin (1)	breakthrough (1)
schools (149)	Vaccinemandate (1)	vaccinated (1)	community (1)	unvaccinated (1)

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Top Hashtags by City August 27 – September 2

□ 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 (1225)	Covid19 (215)	covid19 (335)	covid19 (878)	covid19 (42)	covid19 (446)	covid19 (127)
vaxupphilly (403)	Getvaccinated (48)	Leaveourkidsalone (130)	breaking (240)	covidiots (9)	breaking (114)	Getvaccinated (65)
breaking (291)	Deltavariant (34)	nuremberg (116)	pfizer (202)	magamorons (8)	deltavariant (67)	wearmask (32)
Getvaccinated (227)	Novaccinepassports (28)	Deltavariant (49)	schools (149)	Breaking (7)	Getvaccinated (56)	deltavariant (17)
deltavariant (152)	leaveourkidsalone (24)	novaccinepassportsanywhere (34)	nuremberg (144)	deltavariant (7)	pfizer (26)	breaking (15)

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Top URLs by County August 27 – September 2

Allegheny	Butler	Cambria	Fayette	West Moreland
https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (176)	https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital (9)	https://53eig.ht/2UVPv3e Why Some White Evangelical Republicans Are So Opposed To The COVID-19 Vaccine (1)	https://nypost.com/2021/08/25/pba-president-patrick-j-lynch-to-sue-nyc-over-covid-19-vaccine-mandate/ NYPD's largest police union vows to sue over possible COVID vaccine mandate (1)	https://nyti.ms/3s5m1cm What Went Wrong With the Pandemic in Florida (1)
https://www.forbes.com/sites/kimberleespeakman/2021/08/18/california-becomes-first-state-to-require-vaccinations-or-testing-for-all-large-indoor-events?h2h=7ee7605715a6 California Becomes First State To Require Vaccinations Or Testing For All Large Indoor Events (165)	https://trib.al/WvxCRlQ Previous Covid Prevents Delta Infection Better Than Pfizer Shot (3)	https://nyti.ms/3ywDVeV 180 cases are traced to a church camp and conference that didn't require vaccinations or testing, the C.D.C. says (1)	https://omny.fm/shows/pharmacy-podcast-network/covid-19-vaccines-children-the-pediatric-pharmacists Children & COVID 19 Vaccines The Pediatric Pharmacist Review (1)	https://pittsburgh.cbslocal.com/2021/08/31/pennsylvania-mask-mandate-k-12-schools/ Pennsylvania Mandates Masks For K-12 Schools (1)
https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot Previous Covid Prevents Delta Infection Better Than Pfizer Shot (150)	https://ncialegal.org/2021/08/ncia-represents-covid-19-survivors-in-class-action-lawsuit-against-mich-state-u-vaccine-mandate/ NCLA Represents COVID-19 Survivors in Class-Action Lawsuit Against Mich. State U. Vaccine Mandate (2)	https://www.bloomberg.com/news/articles/2021-08-26/what-s-driving-americas-economic-output-vaccinated-blue-counties-biden-won-t-utm_medium=social&utm_campaign=socialflow-organic&utm_content=businessweek&cmpid=Vaccinated-Democratic-Counties-Are-Leading-the-Economic-Recovery (1)	https://religionnews.com/2021/08/27/nrb-spokesman-dan-darling-fired-after-pro-vaccine-statements-on-morning-joe-evangelical-covid-hesitancy/ NRB spokesman Dan Darling fired after pro-vaccine statements on 'Morning Joe' (1)	https://www.cbsnews.com/news/covid-vaccine-mandate-work-poll-americans-favor/ More than half of Americans favor vaccine mandates at work, poll finds (1)
https://www.telegraph.co.uk/news/2021/08/25/nhs-draws-plans-vaccinate-12-year-olds-nhs-draws-up-plans-to-vaccinate-12-year-olds (146)	http://apne.ws/7A3DGp Study on breakthrough delta cases in Vietnam misrepresented online (1)	https://www.post-gazette.com/news/politics-state/2021/08/26/county-legislator-introduce-bill-allow-children-age-14-and-older-immunized-without-parental-consent-pennsylvania-frankel-covid-vaccine-hesitant/stories/202108260161 County legislator to introduce bill that will allow kids 14 and older to be immunized without parental consent (1)	https://thedpatriot.com/new-oxford-study-finds-fully-vaccinated-people-with-breakthrough-covid-delta-infections-carry-as-much-virus-as-the-unvaccinated/ NEW Oxford Study Finds Fully Vaccinated People With "Breakthrough" COVID Delta Infections Carry as Much Virus as the Unvaccinated (1)	https://www.post-gazette.com/news/politics-state/2021/08/26/county-legislator-introduce-bill-allow-children-age-14-and-older-immunized-without-parental-consent-pennsylvania-frankel-covid-vaccine-hesitant/stories/202108260161 County legislator to introduce bill that will allow kids 14 and older to be immunized without parental consent (1)
https://timcast.com/news/exclusive-emergency-response-says-department-of-defense-has-taken-over-vaccine-shipment-crash-that-shut-down-air-space/ EXCLUSIVE: Emergency Response Says Department of Defense Has Taken Over Vaccine Shipment Crash That Shuttered Airspace (134)	https://pittsburgh.cbslocal.com/2021/08/26/canon-mcmillan-school-district-parents-legal-action-face-masks/ Canon-McMillan School District Parents Take Legal Action To Make Masks Mandatory (1)	https://www.wesa.fm/health-science-tech/2021-08-26/what-are-the-most-and-least-vaccinated-neighborhoods-in-allegheny-county-we-have-a-map What Are The Most And Least Vaccinated Neighborhoods in Allegheny County? We Have A Map (1)	https://trib.al/2p1T70 Illinois woman arrested for using fake vaccine card to travel to Hawaii (1)	https://steelerstown.com/nfl-nflpa-agree-to-updated-covid-19-protocols-for-2021-season/ NFL, NFLPA Agree to Updated COVID-19 Protocols for 2021 Season (1)

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Top URLs by City August 27 – September 2

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (223)	https://nyti.ms/3s5m1cm What Went Wrong With the Pandemic in Florida (54)	https://brownstone.org/article/s/the-world-health-organization-oversold-the-vaccine-and-deprecated-natural-immunity/ The World Health Organization Oversold the Vaccine and Deprecated Natural Immunity (181)	https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (175)	https://nyti.ms/3s5m1cm What Went Wrong With the Pandemic in Florida (7)	https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot Previous Covid Prevents Delta Infection Better Than Pfizer Shot (128)	http://vaccines.gov (15)
https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital (217)	https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot Previous Covid Prevents Delta Infection Better Than Pfizer Shot (29)	https://www.foxnews.com/us/illinois-mom-judge-custody-covid-vaccina Illinois mom says judge stripped custody of son until she gets COVID-19 vaccine: report (170)	https://www.forbes.com/sites/kimberleespeakman/2021/08/18/california-becomes-first-state-to-require-vaccinations-or-testing-for-all-large-indoor-events?h2h=7ee7605715a6 California Becomes First State To Require Vaccinations Or Testing For All Large Indoor Events (165)	https://religionnews.com/2021/08/27/nrb-spokesman-dan-darling-fired-after-pro-vaccine-statements-on-morning-joe-evangelical-covid-hesitancy/ NRB spokesman Dan Darling fired after pro-vaccine statements on 'Morning Joe' (6)	https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital (109)	https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital (15)
https://www.indystar.com/story/news/columnists/evse-dovel/2021/08/20/colts-carson-went-among-anti-vaccine-colts-nfl-covid-19-list/565381700/ Carson Went among anti-vaccine Colts on NFL COVID-19 list (216)	https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital (28)	https://www.telegraph.co.uk/news/2021/08/25/nhs-draws-plans-vaccinate-12-year-olds/ NHS draws up plans to vaccinate 12-year-olds (119)	https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot Previous Covid Prevents Delta Infection Better Than Pfizer Shot (149)	https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (4)	https://nyti.ms/3s5m1cm What Went Wrong With the Pandemic in Florida (84)	https://nyti.ms/3s5m1cm What Went Wrong With the Pandemic in Florida (14)
https://www.breitbart.com/preval/2021/08/28/illinois-mom-stripped-of-parental-rights-over-vaccination-status/ Illinois Mom Stripped of Parental Rights Over Vaccination Status (211)	https://lawandcrime.com/high-profile/conservative-lawyer-for-jan-6-defendants-who-formerly-represented-kyle-rittenhouse-is-reportedly-on-a-ventilator-due-to-covid-19/ Conservative Lawyer for Jan. 6 Defendants Who Formerly Represented Kyle Rittenhouse Is Reportedly on a Ventilator Due to COVID-19 (24)	https://frenchpress.thedpatriot.com/p/its-time-to-stop-rationalizing-christian It's Time to Stop Rationalizing and Enabling Evangelical Vaccine Rejection (102)	https://www.telegraph.co.uk/news/2021/08/25/nhs-draws-plans-vaccinate-12-year-olds/ NHS draws up plans to vaccinate 12-year-olds (146)	https://news.yahoo.com/texas-anti-mask-freedom-rally-04522778.html Texas Anti-Mask 'Freedom Rally' Organizer Fighting For His Life With COVID-19 (4)	https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (78)	https://cn.ri/3kO99J What's the risk of indoor dining if you're fully vaccinated? Here's what one expert says (11)
https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot Previous Covid Prevents Delta Infection Better Than Pfizer Shot (183)	https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/ Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (20)	https://www.washingtonpost.com/politics/2021/08/31/slow-steady-decline-vaccine-skeptic/ The slow and steady decline of the vaccine skeptics (88)	https://timcast.com/news/exclusive-emergency-response-says-department-of-defense-has-taken-over-vaccine-shipment-crash-that-shut-down-air-space/ EXCLUSIVE: Emergency Response Says Department of Defense Has Taken Over Vaccine Shipment Crash That Shuttered Airspace (134)	https://twitter.com/AlecMacGillis/status/1433305175516139529 Even with vaccine mandate in place, Amherst is keeping its dining hall closed and is barring students from going into town for anything other than essential business like banking or pharmacy. Am curious, are other colleges taking similarly stringent steps?	https://religionnews.com/2021/08/27/nrb-spokesman-dan-darling-fired-after-pro-vaccine-statements-on-morning-joe-evangelical-covid-hesitancy/ NRB spokesman Dan Darling fired after pro-vaccine statements on 'Morning Joe' (57)	https://nypost.com/2021/08/25/pba-president-patrick-j-lynch-to-sue-nyc-over-covid-19-vaccine-mandate/ NYPD's largest police union vows to sue over possible COVID vaccine mandate (10)

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Top Influencers by County August 27 – September 2

☐ The top 5 influencers* for each region related to COVID19/vaccines are as follows:

Allegheny	Butler	Cambria	Fayette	West Moreland	Beaver	Indiana
Loupreme_ (high bot score)	TaylorHaasePGH (reporter)	CrispinHavener (reporter)	ZanderTenFive	NatePebbs	DashaBurns (reporter)	StevenRConnors1
KDKA (agency)	Llysowski (reporter)	kristenmhudak	LaBelle50	Maddiebirds	TribLiveHSSN (agency)	Davestphns
ProFootballTalk	MegStEsprit	Momandpoppsyop	Gigi419 (antivax) (high bot score)	MartyGriffinKD (reporter)	millssss360	Shugarsljo
TheAntiPCProf (reporter)	TheDanKingerski	brookbowers0319	attackofhubris	PalacePA	__ADAMN__	hiltongnar412
WTAE (agency)	JuliannePelusi (reporter)	DannyPAnderson	Irishpatriot386 (antivax) (high bot score)	missi_matthews	mal42190	holdmyD_fense

*influencers are defined as accounts with tweets often spread by others (ordered by out-degree centrality)

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Top Influencers by City August 27 – September 2

☐ The top 5 influencers* for each region related to COVID19/vaccines are as follows:

Philadelphia	Chester	Norristown	Pittsburgh	Erie	Allentown/ Bethlehem	Other
Dustinpenner25 (antivax)	Zerohedge (agency)	kiss	Loupreme_ (high bot score)	ETNreisenweber	reopenpa	OccupyDemocrats (agency)
PHLPublicHealth (gov)	FOX29philly (agency)	JakeLobin	KDKA (agency)	DBChirpy	jjabbott	GovernorTomWolf (gov)
BryanDawsonUSA	Sclagmen (antivax)	ArielRedMoon1	ProFootballTalk	jq6008	BMFiore2	Joncoopertweets (gov)
kirbykoo		TheInsiderPaper (agency)	TheAntiPCProf (reporter)	PrezLives2022	TheDailyShow (agency)	TizzyEnt
Sparkyenters (antivax)	SicarioScott (high bot score) (antivax)	WTAE (agency)	WTAE (agency)	ECDOH (gov)	PennslytckySue	arneduncan

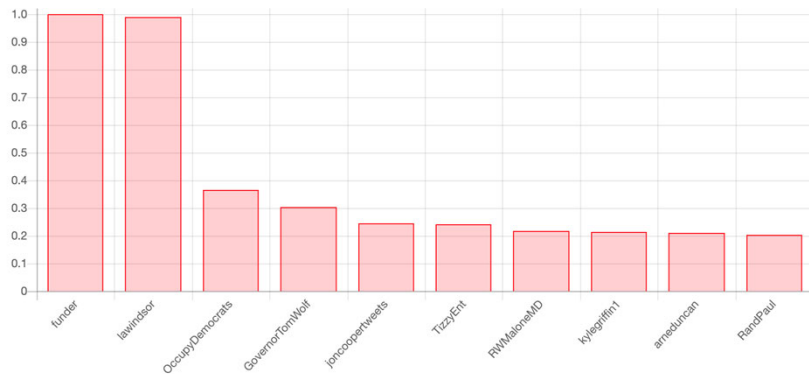
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Analysis of Tweeters - Super Spreaders

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



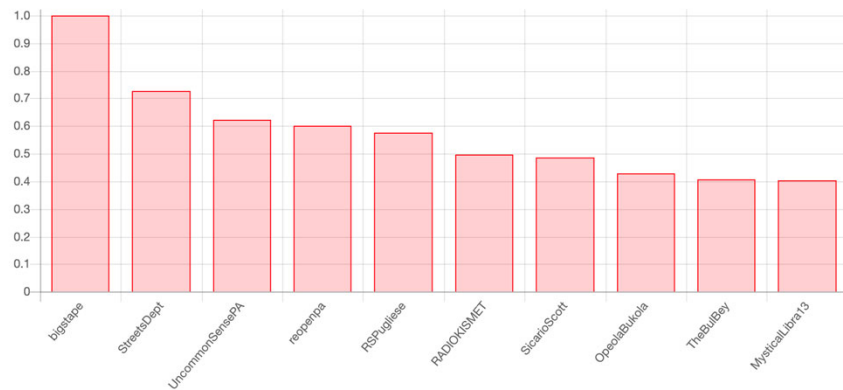
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Analysis of Tweeters - Super Friends

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



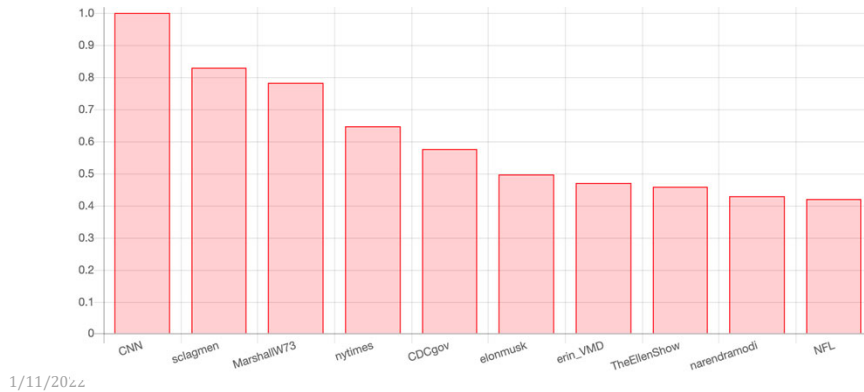
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Analysis of Tweeters - Other Influencers

- 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
GovernorTomWolf	820
KITV4	675
US_FDA	508
CDCgov	472
GavinNewsom	407
Mikedon	372
michaelharriot	372
RWMaloneMD	370
nytimes	369
GovRonDeSantis	350

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Trending PA stories August 27 – September 2


- ❑ fee.org - Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished (308 Mentions)
- ❑ sciencemag.org - Having SARS-CoV-2 once confers much greater immunity (153 Mentions)
- ❑ rawstory.com - Georgia cop who pushed people to take horse dewormer instead of vaccine dies from COVID-19 (152 Mentions)
- ❑ vaccines.gov - Vaccines.gov - Find COVID-19 vaccine locations near you (140 Mentions)
- ❑ vice.com - QAnon Anti-Vaxxer Claimed COVID Was a Hoax Even As It Killed Him (133 Mentions)
- ❑ bloomberg.com - Previous Covid Prevents Delta Infection Better Than Pfizer Shot (120 Mentions)

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Trending PA tweets August 27 – September 2


- | | | | |
|--|--|--|---|
| <p>1</p> <p>If americans cared about the ingredients of literally anything as much as they do the vaccine we'd be the healthiest country in the world</p> <p>2</p> <p>If anyone is worried about the government putting tracking chips in the vaccines, just remember that i (govt employee) am operating on Word 2007</p> <p>3</p> <p>This is a good point. When anti-vaxxers cite their freedoms, constitutional rights, and—the whitest thing of all—the Founding Fathers to rail against vaccine mandates, do they know what they're talking about? What if I told you this happens EXACTLY every 100 years? A thread.</p> | <p>394
Retweets</p> <p>233
Retweets</p> <p>227
Retweets</p> | <p>4</p> <p> Senator Rand Paul
@randpaul</p> <p>To every snot-nosed “journalist” who accosted me in the halls of Congress and spouted Fauci-isms denigrating natural immunity— read the science! Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished - FEE https://t.co/cAFhE608JO</p> <p>5</p> <p>24-year-old Chloe Mrozak from Illinois was arrested after allegedly using this fake #COVID19 vaccine card to enter Hawaii and avoid travel restrictions – it says “Maderna” instead of “Moderna” @KITV4 https://t.co/1EWp3eG3OR</p> | <p>190
Retweets</p> <p>184
Retweets</p> |
|--|--|--|---|

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Trending PA tweets August 27 – September 2

<p>6  Occupy Democrats @occupydemocrats</p> <p>BREAKING: Wisconsin Republican lawmaker Andre Jacque, who sponsored bills banning mask & vaccine mandates, is now intubated and fighting for his life on a ventilator after catching COVID just days after going maskless during a heated committee meeting. RT IF YOU'RE VACCINATED!</p> <p style="text-align: right;">174 Retweets</p>	<p>9</p> <p>So Texas is using "my body, my choice" to get rid of vaccine and mask mandates, but "your body, my choice" when it comes to abortion. Got it.</p> <p style="text-align: right;">164 Retweets</p>
<p>7</p> <p>Great—my horse has worms and the pharmacy is out of everything except COVID vaccines.</p> <p style="text-align: right;">173 Retweets</p>	<p>10</p> <p>people guzzling horse antibiotics to treat a virus when vaccines are available is a failure of many things, of scientific education, media culture and literacy, individualist vs collective attitudes to health, of online content moderation. but also at some point like, c'mon man</p> <p style="text-align: right;">156 Retweets</p>
<p>8</p> <p>BREAKING: An unvaccinated teacher in California went to work unmasked for 2 days while experiencing COVID symptoms (despite a mask policy). Over 50% of the students have now been infected, causing a community outbreak.</p> <p style="text-align: right;">168 Retweets</p> <p>1/11/2022</p>	



21

Top PA Twitter Authors August 27 – September 2

By mentions	By influence
@erin_vmd	@questlove
@tackingcaleuche	@steelers
@jwetzal70	@malcolmnance
@enidlogan	@6abc
@cdekeane	@fox29philly
@bob_levitt	@accuweather
@pennslytckysue	@nbcphiladelphia
@its_a_gop_coup	@brithume
@blyntjames	@phillyinquirer
@erickratz2	@jaysonst

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22

Trending negative PA stories August 27 – September 2


- ❑ news.yahoo.com - A Florida mom lost her 2 sons to COVID-19 in the span of 12 hours after they refused to get the vaccine (44 Mentions)
- ❑ medrxiv.org - Comparing SARS-CoV-2 natural immunity to vaccine-induced immunity: reinfections versus breakthrough infections (43 Mentions)
- ❑ technocracy.news - Shock: European Union Reports 1.5 Million Vaccine Injuries, 15,472 Deaths (32 Mentions)
- ❑ nexusnewsfeed.com - Massive fraud in reporting vaccine injuries; withheld data, pretense of “safe and effective” (12 Mentions)
- ❑ sharylattkisson.com - U.S. official finally acknowledges Covid-19 natural immunity: ‘As good as vaccine’ (12 Mentions)
- ❑ wsj.com - Opinion | The FDA’s Vaccine Sprint (12 Mentions)
- ❑ rumble.com - Shocking Report Out About Covid Vaccine Injuries (10 Mentions)

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25

Trending Negative PA tweets August 27 – September 2

- | | |
|--|---|
| <p>1  Occupify Democrats
@occupydemocrats</p> <p>BREAKING: Wisconsin Republican lawmaker Andre Jacque, who sponsored bills banning mask & vaccine mandates, is now intubated and fighting for his life on a ventilator after catching COVID just days after going maskless during a heated committee meeting. RT IF YOU'RE VACCINATED!</p> <p style="text-align: right;">174
Retweets</p> | <p>4</p> <p>I'll say this once again: @Facebook could end the anti-vax death cult in this nation tomorrow. It's not hard. They know who the sources of this poison are, and could shut them down with a few clicks and save countless lives. But they won't.</p> <p style="text-align: right;">62
Retweets</p> |
| <p>2</p> <p>So Texas is using "my body, my choice" to get rid of vaccine and mask mandates, but "your body, my choice" when it comes to abortion. Got it.</p> <p style="text-align: right;">164
Retweets</p> | <p>5</p> <p>The contemptible @jaketapper interviewing the corrupt Fauci is the perfect symbol of our corporate media's credibility crisis. Tapper has no questions about VAERS data, no questions about Israel data, no questions about the money that Fauci makes off pushing vaccines.</p> <p style="text-align: right;">54
Retweets</p> |
| <p>3</p> <p>I'm told Facebook is full of "ivermectin cures COVID" posts which is leading to a tidal wave of mass idiocy and making poison control centers lose their damn minds. Facebook could end the global antivax movement tomorrow if they chose. Spoiler: they won't.</p> <p style="text-align: right;">78
Retweets</p> | |

1/11/2022 support for vaccines may appear in this section if the comments on that post were expressing criticism of that post. 26



26

Trending Negative PA tweets August 27 – September 2

6

Oh, you support vaccine mandates but oppose late term abortion bans under the guise of "my body, my choice!" Shut the hell up. **53** Retweets



In Texas it's My Body My Choice regarding Vaccinations but that doesn't apply for Women having abortions. Rape so what! Incest so what! Texas is on some Taliban sh*t now. All this is on the new @iamrapaport : <https://t.co/YVEv5rL1Eo> <https://t.co/HJCPLeb0uf> **25** Retweets

8

Primary source. Here you go folks. Mike drop moment. In the land of the blind, Data is king. <https://t.co/IGWfmdMTWn> **21** Retweets

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9

"Two men with no pre-existing illnesses died days after receiving Moderna vaccines from a batch in Japan contaminated with tiny metal flakes." **20** Retweets
<https://t.co/lo6ctE4DM6>

10

Those in favor of vaccine mandates obviously have no regard for the principle #mybodymychoice so it's downright amusing to hear them invoke it to oppose the #TexasAbortionLaw **17** Retweets



27

Top PA Negative Twitter Authors August 27 – September 2

By mentions	By influence
@tackingaleuche	@asburyparkpress
@jesse_kozlowski	@factcheckdotorg
@1sweetsoldier	@fox43
@cdekeane	@burtonbrown
@jax4336	@yoda
@jwetzal70	@jodyfield
@erin_vmd	@paulzeise
@markasp40	@ameshaa
@shadysidedillon	@eric_kavanagh
@cdale1	@kdkaradio

*support for vaccines may appear in this section if the comments on that post were expressing criticism of that post.

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Trending Posts on Facebook August 27 – September 2

WPXI-TV Pittsburgh • Aug 31, 2021 at 12:23 PM
Heads up parents! The surge in COVID-19 cases is impacting kids in schools across the state. THE LATEST >> [wpxi.tv/3Bq4MwU](#)

Masks will be required in all Pennsylvania K-12 schools starting Sept. 7.

WATCH Gov. Wolf's announcement on Channel 11 and [www.wpxi.com](#) at 2 p.m.

3.4K 1.9K 1.7K

WPXI-TV Pittsburgh • Sep 1, 2021 at 1:12 PM
Scientists are also keeping an eye on Mu and how it is circulating with the Delta variant.

WHO alerts to another COVID-19 variant: Mu

1.1K 814 503

WPXI-TV Pittsburgh • Aug 27, 2021 at 7:51 PM
Right now, COVID-19 vaccine is available for kids 12 and above — but minors need their parents' consent to get it.

Pennsylvania lawmaker wants kids as young as 14 to get vaccinated

2.1K 629 132

KDKA-TV | CBS Pittsburgh • Aug 30, 2021 at 3:20 AM
A billboard in South Park Township is garnering a lot of attention.

Electronic Billboard In South Park Twp. Gaining Attention For Messaging

2.1K 1.1K 206

KDKA-TV | CBS Pittsburgh • Sep 1, 2021 at 5:00 PM
The CDC is asking unvaccinated Americans to not travel during Labor Day Weekend.

CDC Asks Unvaccinated Americans To Not Travel Labor Day Weekend

3.1K 1.9K 254

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CASOS
Carnegie Mellon University

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Trending Posts on Facebook August 27 – September 2

Unmask Pennsylvania Stud... • Sep 1, 2021 at 2:14 PM
I lost my junior year because of Covid-19. I was forced to wear a mask my whole senior year of high school. I refuse to let another class lose their high school or elementary experience to political games. Our students aren't political pawns. I am now running for a school board seat in Hermitage, PA. I have received mass hate from multiple entities regarding my views on the mandate. However, my views will remain the same. Individual freedoms still exist even in a pandemic. I will be directly challenging this mandate with presumptive board members and current board members across the state. We need to make our voices heard! Andrew Buccì For Hermitage School Board
See less

LOCAL SCHOOL BOARDS SHOULD DECIDE NO STATEWIDE MANDATE.

1.2K 97 50

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WPXI-TV Pittsburgh • Aug 31, 2021 at 11:00 PM
A number of restaurants, bars, stores, and local governments are requiring people to wear masks or show proof of vaccination as cases of COVID-19 continue to rise. >> [wpxi.tv/3lzzk8O](#)

Places in Pittsburgh area requiring masks, proof of vaccination due to

1.0K 624 97

WPXI-TV Pittsburgh • Aug 31, 2021 at 10:43 AM
VACCINATION PROOF REQUIRED: Mr. Smalls Theatre is the latest Pittsburgh-area venue that will require proof of a COVID-19 vaccination or a negative test. Here's a list of more places >>> [wpxi.tv...](#)
See more

1.7K 1.1K 172

Pittsburgh Post-Gazette • Aug 31, 2021 at 11:33 AM
BREAKING: Gov. Tom Wolf is planning to announce that masks will be required in all Pennsylvania public schools starting September 7, reversing course amid a statewide COVID-19 resurgence that is...
See more

Pennsylvania to mandate masks in K-12 schools, day cares

1.2K 277 128

WTAE-TV Pittsburgh • Aug 28, 2021 at 1:31 PM
An unvaccinated elementary school teacher who took off their mask to read to students ended up infecting more than half of them. In the classroom of 22 students, 12 became infected.

Unvaccinated, unmasked teacher infected more than half of their class

432 414 128

WPXI-TV Pittsburgh • Sep 3, 2021 at 9:58 AM
Cruise lines will be exempt from the fines.

Florida to issue \$5,000 fines for businesses, schools who ask for

1.9K 598 236

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CASOS
Carnegie Mellon University

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Trending Posts on Instagram August 27 – September 2

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Trending Posts on Instagram August 27 – September 2

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Trending Posts on Reddit August 27 – September 2

Posted 4 days ago to Pennsylvania
When COVID Deaths Are Dismissed Or Stigmatized-- A Pennsylvania story
NPR.ORG
UPVOTES 28 COMMENTS 6

Posted 4 days ago to Pennsylvania
Mask & vaccin4 mandates have broad support but some Pennsylvania Republicans are...
REDD.IT
UPVOTES 93 COMMENTS 178

Posted a day ago to Jr/Pittsburgh: Pittsbu...
Pittsburgh Restaurants That Require Vaccination Report Business Is Good
WESA.FM
UPVOTES 548 COMMENTS 270

Posted a day ago to We are all going to die.
"It's ok that Pennsylvania's Governor put COVID positive patients in nursing homes...
I.REDD.IT
UPVOTES 66 COMMENTS 9

Posted 3 days ago to LockdownSkepticism
Pennsylvania Mandates Masks For K-12 Schools
REDD.IT
UPVOTES 46 COMMENTS 31

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General Trends August 27 – September 2

- ❑ This week, overall trending stories covered new study that stated previous COVID-19 infection provided greater immunity than Pfizer vaccine. Examples:
<https://www.bloomberg.com/news/articles/2021-08-27/previous-covid-prevents-delta-infection-better-than-pfizer-shot> Previous Covid Prevents Delta Infection Better Than Pfizer Shot; <https://fee.org/articles/harvard-epidemiologist-says-the-case-for-covid-vaccine-passports-was-just-demolished/> Harvard Epidemiologist Says the Case for COVID Vaccine Passports Was Just Demolished; <https://www.sciencemag.org/news/2021/08/having-sars-cov-2-once-confers-much-greater-immunity-vaccine-no-infection-parties> Having SARS-CoV-2 once confers much greater immunity than a vaccine—but vaccination remains vital
- ❑ Mandates and Masks conversations are the most popular (trending hashtags #novaccinemandates; #leaveourkidsalone; #ProtectYourChild (against masks at schools) were identified in trends;
- ❑ It look like many posts are promoting treatment with ivermectin again;
- ❑ Facebook, Instagram, and Reddit messages also illustrated the overall concern about required vaccination and mask mandates, particularly for schools.

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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](https://www.facebook.com/IDEasCMU)
- ❑ Twitter: [@IDeaSCMU](https://twitter.com/IDeaSCMU)
- ❑ YouTube: [IDEas Center](https://www.youtube.com/IDEasCenter)
- ❑ Ask to be on our Email-Distro Lists

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