PA Vaccine Conversations and Misinformation on Twitter

Iuliia Alieva, Dawn Robertson, Dr. Kathleen M. Carley
Vaccine Hesitancy Project Update based on August 6 – August 12, 2021

The CMU centers for:
Informed DEMocracy And Social cyber-security
Computational Analysis of Social and Organizational Systems
Trends (tweets per week) August 6 – August 12

High Level View by City August 6 – August 12

- Tweets here counted only if there is a city location attached
- Graphene and “Strike Force” operation conversations tapering off
- Trending disinformation narratives:
  - Ivermectin treatment for COVID
  - Vaccine mandate for US military
  - “Breakthrough” infection tweets trending
High Level View by County August 6 – August 12

- 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")

<table>
<thead>
<tr>
<th>County</th>
<th>Overall Vaccine</th>
<th>Vaccine Passports</th>
<th>Not FDA Approved</th>
<th>Boosters</th>
<th>Misinfo: Sheding</th>
<th>&quot;Experimental&quot;</th>
<th>Children</th>
<th>Myocarditis</th>
<th>Heart</th>
<th>Masks</th>
<th>Infertility</th>
<th>Mandatos</th>
<th>Natural Immunity</th>
<th>Efficacy</th>
<th>Spike Proteins</th>
<th>Delta Variant</th>
<th>Race</th>
<th>Ivermectin</th>
<th>Military</th>
<th>Breakthrough</th>
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<tr>
<td>Allegheny</td>
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<td>Fayette</td>
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<tr>
<td>Westmoreland</td>
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</tr>
</tbody>
</table>

Top Words Used per Week August 6 – August 12
### Top Hashtags by County August 6 – August 12

- We’ve checked hashtags in several counties such as Allegheny, Butler, Cambria, Fayette, Lackawanna, Luzerne, Monroe, 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:

<table>
<thead>
<tr>
<th>County</th>
<th>Hashtags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegheny</td>
<td>covid19 (1054) desantisvariant (7) Covid19 (2) Covid19 (1) Trumpvirus (5)</td>
</tr>
<tr>
<td>Butler</td>
<td>covid19 (4) maskup (5) spacedevaccinated (2) gotmyshotpa (1) covidvaccine (1)</td>
</tr>
<tr>
<td>Cambria</td>
<td>Covidvaccine (2) antivax (1) kickcovid19communitytocorps (1) dontcomply (1)</td>
</tr>
<tr>
<td>Fayette</td>
<td>Vaccinassavelives (1) Vaccinepassport (1) delta (1) stopthespread (1)</td>
</tr>
<tr>
<td>Lackawanna</td>
<td>covid19 (4) maskup (5) spacedevaccinated (2) gotmyshotpa (1) covidvaccine (1)</td>
</tr>
<tr>
<td>Luzerne</td>
<td>delta (1) stopthespread (1)</td>
</tr>
<tr>
<td>Monroe</td>
<td>covid19 (9)</td>
</tr>
<tr>
<td>West Moreland</td>
<td>covid19 (9)</td>
</tr>
</tbody>
</table>

### Top Hashtags by City August 6 – August 12

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

<table>
<thead>
<tr>
<th>City</th>
<th>Hashtags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philadelphia</td>
<td>covid19 (1644) + covid (458) covid19 (357) + covid (107) covid19 (343) + covid (121) covid19 (1044) + covid (213) covid19 (34) + covid (7)</td>
</tr>
<tr>
<td>Chester</td>
<td>Getvaccinated (485) Getvaccinated (100) Deltavariant (72) Healthcarefreedom (363) + chooseseeredom (340) getvaccinated (17) getvaccinated (118) Getvaccinated (35)</td>
</tr>
<tr>
<td>Norristown</td>
<td>Deltavariant (59) Deltavariant (85) getvaccinated (71) + vaccinated (47) Getvaccinated (358) Deltavariant (7) Deltavariant (115) Deltavariant (31)</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>Healthcarenfreedom (146) Vaccinepassport (52) Pfizer (46) Deltauvariant (134) Covidiots (4) Vaccinappassport (56) Desantisvariant (12)</td>
</tr>
<tr>
<td>Erie</td>
<td>Pfizer (123) Pfizer (43) Mylitterorepublicans (40) psakibomb (89) vaccinassavelives (4) pfizer (49) healthcaresfreedom (10)</td>
</tr>
<tr>
<td>Allentown/</td>
<td></td>
</tr>
<tr>
<td>Bethlehem</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
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</table>
Top URLs by County August 6 – August 12

<table>
<thead>
<tr>
<th>Allegany</th>
<th>Butler</th>
<th>Cambria</th>
<th>Fayette</th>
<th>Lawrence</th>
<th>Luzerne</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
</tr>
</tbody>
</table>

Top URLs by City August 6 – August 12

<table>
<thead>
<tr>
<th>Philadelphia</th>
<th>Chester</th>
<th>New Jersey</th>
<th>Pittsburgh</th>
<th>Erie</th>
<th>Allegheny/Butler/Raw</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td><a href="http://vaccines.gov">Link</a></td>
<td></td>
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</tbody>
</table>

8/18/2021
The top 5 influencers* for each region related to COVID19/vaccines are as follows:

### Top Influencers by County August 6 – August 12

<table>
<thead>
<tr>
<th>County</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegheny</td>
<td>QasimRashid</td>
<td>TheDanKingerski</td>
<td>onepatriotchi</td>
<td>VincentMTiberi</td>
<td>AFTUnion</td>
</tr>
<tr>
<td>Butler</td>
<td>z_mccoy06</td>
<td>DWBerkley</td>
<td>Zeskaroo</td>
<td>KodyRinehart</td>
<td>ryancoyle35</td>
</tr>
<tr>
<td>Cambria</td>
<td>KDKA</td>
<td>terrellidsmith</td>
<td>rumbunter</td>
<td>BroncoBaby10</td>
<td>jameseshelman</td>
</tr>
<tr>
<td>Fayette</td>
<td>SamiAm1985CA</td>
<td>MikeSchnelle</td>
<td>NicoleFuschino</td>
<td>BishyBooBoo</td>
<td>FTPA</td>
</tr>
<tr>
<td>Lackawanna</td>
<td>mattfreedpghp</td>
<td>MelindaDKKA</td>
<td>realjasonstru</td>
<td>mommydog67</td>
<td>cathyde</td>
</tr>
<tr>
<td>Luzerne</td>
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<tr>
<td>Monroe</td>
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<tr>
<td>West Moreland</td>
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</tbody>
</table>

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

### Top Influencers by City August 6 – August 12

<table>
<thead>
<tr>
<th>City</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
<th>Influencers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philadelphia</td>
<td>CNN</td>
<td>JakeLobin</td>
<td>Cleavon_MD</td>
<td>QasimRashid</td>
<td>DBChirpy</td>
</tr>
<tr>
<td>Chester</td>
<td>6abc</td>
<td>drCraigwax</td>
<td>ElectionWiz</td>
<td>z_mccoy06</td>
<td>ETNreisenweber</td>
</tr>
<tr>
<td>Norristown</td>
<td>PHLPublicHealth</td>
<td>sclagmen</td>
<td>Matthew_4_Trump</td>
<td>KDKA</td>
<td>ErieNewsNow</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>FOX29Philly</td>
<td>RayArmat</td>
<td>Flattielover</td>
<td>SamiAm1985CA</td>
<td>ECDOH</td>
</tr>
<tr>
<td>Erie</td>
<td>PhilyInquirer</td>
<td>SicarioScott</td>
<td>goodblackdude</td>
<td>ezrelevant</td>
<td>ParisSaid_</td>
</tr>
<tr>
<td>Allentown/Bethlehem</td>
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<td></td>
<td></td>
<td></td>
<td>Kimberly19156775</td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>catturd2</td>
</tr>
</tbody>
</table>

*influencers are defined as accounts with tweets often spread by others (ordered by out-degree centrality)
Analysis of Tweeters - Super Spreaders

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

Analysis of Tweeters - Super Friends

- Super Friends are users that exhibit frequent two-way communication, facilitating large or strong communication networks.
Analysis of Tweeters - Other Influencers

- Other Influencers are users which have an active network presence, by tweeting often or mentioning users often, and operate in central parts of the conversation, such as by using important hashtags, or mentioning important users.

Accounts Referenced by the Most Tweets

- This shows the tweeters that are most often referenced (e.g. mentioned) in PA tweets. Value is the number of tweets that reference the agent.

<table>
<thead>
<tr>
<th>Agent Label</th>
<th>Value</th>
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<tbody>
<tr>
<td>catturd2</td>
<td>1,183</td>
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<td>CDCgov</td>
<td>1,034</td>
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<tr>
<td>POTUS</td>
<td>873</td>
</tr>
<tr>
<td>GovernorTomWolf</td>
<td>810</td>
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<tr>
<td>CNN</td>
<td>692</td>
</tr>
<tr>
<td>GovRonDeSantis</td>
<td>671</td>
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<tr>
<td>JackPosobiec</td>
<td>631</td>
</tr>
<tr>
<td>Mavumavu91</td>
<td>569</td>
</tr>
<tr>
<td>FoxNews</td>
<td>565</td>
</tr>
<tr>
<td>RealCandaceO</td>
<td>558</td>
</tr>
</tbody>
</table>
General PA Conversation August 6 – August 12

PA Hashtag Cloud August 6 – August 12
Trending PA stories August 6 – August 12

- [Vaccines.gov](https://www.vaccines.gov) - Find COVID-19 vaccine locations near you (376 Mentions)
- [thedailybeast.com](https://www.thedailybeast.com) - Anti-Vaxxer Florida Radio Host and Former Newsmax Anchor Dies of COVID (155 Mentions)
- [phila.gov](https://www.phila.gov) - Protect yourself and others from Delta: masks required indoors and at large outdoor gatherings in Philadelphia | Department of Public Health (134 Mentions)
- [theatlantic.com](https://www.theatlantic.com) - 90,000 Students, Vaccines Optional (73 Mentions)
- [nypost.com](https://www.nypost.com) - Anti-vax nurse injects 8,600 with saline instead of COVID vaccine (95 Mentions)
- [realrawnews.com](https://www.realrawnews.com) - Marines Rebuke Def. Sec.: “No Mandatory Vaccinations for My Marines.” (59 Mentions)

Trending PA tweets August 6 – August 12

1. **Ashish K. Jha, MD, MPH**
   - @ashishkjha
   - Today, the 5 most vaccinated states (14M people) had 580 people in hospital, 12 deaths in the 5 least vaccinated states (16M people)? 6,600 hospitalized, 104 deaths Per capita, least vaccinated states have 10X hospitalizations and 7X deaths So yeah, vaccines are working
   - 555 Retweets

2. **Tunde Olaniyan**
   - @tundeolaniyan
   - this scientist debunking vaccine misinformation is giving https://t.co/m9E6wnMCx
   - 502 Retweets

3. **T @taratesoro**
   - CDC disclosed that it’s still a possibility for the vaccinated to get covid, however the vaccine would make the symptoms WAY LESS SEVERE, like what abt that don’t y’all understand... IT WAS NEVER A SECRET THAT THE VACCINATED COULD STILL CONTRACT COVID
   - 404 Retweets

4. **Poppa Cinco**
   - @jaredj5
   - No lie if somebody I knew told me they bought a fake vaccination card I wouldn’t talk to them for the rest of my life
   - 370 Retweets

5. **Jake Lobin**
   - @jake_lobin
   - Average COVID hospital stay: $73,300 Average vaccine: $0.00
   - 346 Retweets
**Trending PA tweets August 6 – August 12**

6. Imani @youdoingtoomuch
   That lawsuit gon be nasty

7. aquama @aquama
   Being sober is now required for driving a car — here's how alcoholics feel about that

Dr. Catherine Weaver @kateweaverut
I want the world to see the blatant hypocrisy we see in Texas everyday. Schools aren't allowed to require testing, vaccinations or masks by mandate of our Governor, but you can't go see your elected officials unless your test negative first. Help this go viral. @dandrezner
https://t.co/HCmnHimmux

8. Britni Danielle @britnidwrites
   Baltimore’s vaccine campaign is HILARIOUS 😂 Get the vax, Debra! https://t.co/yWb Haley2Vn5

9. Allison Carter @allisonlcarter
   “I trust my immune system” is such a weird reason not to get the vaccine. Yeah, I trust mine to protect me too, which is why I gave it a detailed dossier on what the virus looks like so it can handle it.

**Top PA Twitter Authors August 6 – August 12**

<table>
<thead>
<tr>
<th>By mentions</th>
<th>By influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>@erin_vmd</td>
<td>@questlove</td>
</tr>
<tr>
<td>@iridescentashes</td>
<td>@6abc</td>
</tr>
<tr>
<td>@prpeep</td>
<td>@malcolmnance</td>
</tr>
<tr>
<td>@blyntJames</td>
<td>@fox29philly</td>
</tr>
<tr>
<td>@louisbridgema3</td>
<td>@accuwether</td>
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<tr>
<td>@cdekeane</td>
<td>@nbcbphiladelphia</td>
</tr>
<tr>
<td>@dhlydalyaw</td>
<td>@ericfisher</td>
</tr>
<tr>
<td>@btlima</td>
<td>@brithume</td>
</tr>
<tr>
<td>@bob_levitt</td>
<td>@phillyinquirer</td>
</tr>
<tr>
<td>@chris_1791</td>
<td>@danielgillies</td>
</tr>
</tbody>
</table>
Negative Attitudes August 6 – August 12

- Negative Attitudes toward Vaccines
- COVID-19
- Negative Health Impacts
- Health Authorities
- Policies & Politics

Total Mentions:

- Aug 6
- Aug 8
- Aug 10
- Aug 12

Negative Hashtag Cloud August 6 – August 12

- #walkoutoutwednesday
- #novaccinemandates
- #mybodymychoice
- #deathsantis
- #thedefender
- #choosefreedom
- #smartnews
- #covid19
- #scienceupfirst

- #informedconsent
- #myvaccine
- #vaccine
- #vaccines
- #covidvaccine
- #covid19
- #vaccines
- #covid
- #vaccinepassports
Trending Negative PA stories August 6 – August 12

- rawstory.com - Right-wing shock jock dies from COVID-19 weeks after he called vaccines 'poison' (43 Mentions)
- childrenshealthdefense.org - Sign Up for our Free News and Updates! (41 Mentions)
- rumble.com - VAXX POISON (26 Mentions)
- childrenshealthdefense.org - Exclusive Interview: Mom Whose 14-Year-Old Son Developed Myocarditis After Pfizer Vaccine No Longer Trusts CDC, Public Health Officials (21 Mentions)
- thehill.com - Texas Republican leader dies of COVID-19 five days after (19 Mentions)

Trending Negative PA tweets August 6 – August 12

1. Lindy Li @lindyli
   Suspicious that Ron DeSantis is suddenly pushing Regeneron so hard: Costs $1500 per dose while vaccines are FREE. Company has a history of kickbacks. Is this another case of insider trading? He had a call with Regeneron's CEO last week. Any campaign donations involved?
   104 Retweets

2. Jake Flores @feraljokes
   Joe Rogan really went on his show that 11 million people listen to and said that vaccines are causing covid mutations and the reason scientists aren't talking about it is because they're afraid of getting canceled. We are all going to die.
   96 Retweets

3. Marjorie Taylor Greene @mtparadise
   A distant family member, who is vaccinated, got Covid. Her symptoms were worse than her unvaccinated husband & brother in law, who both got covid as well. The covid vaccine did not stop her from catching it & did not make her case more mild. Stop Vaccine Mandates!
   56 Retweets

4. Ted Lieu @tedlieu
   I simply note that Texas mandates vaccines such as the polio vaccine if a child wants to go to childcare or school. Because we all want freedom from polio. #ChooseFreedom
   47 Retweets

5. Forrest Maredy @forrestmaredy
   Thinking of opening a mask-free, vaccine-free restaurant. Also a movie theater, an airline, and a football league. Possibly a small nation. Anyone care to join me?
   34 Retweets

*support for vaccines may appear in this section if the comments on that post were expressing criticism of that post.
Trending Negative PA tweets August 6 – August 12

6
Thomas Massie
@repthomasmassie

Pfizer’s trial data showed no efficacy of the vaccine for those with evidence of prior infection. FDA published this 8 months ago. The political scientists at CDC are trying to show otherwise by contriving studies that FDA would laugh out of the room if presented for approval!

33 Retweets

8
Emerald Robinson
@emeraldrobinson

You’re not "anti-vaccine." You’re "anti-human gene therapy with no long term genetic studies done."

27 Retweets

7
Charlie Kirk
@charliekirk11

Mandating every member of our military to take an experimental vaccine is a national security threat.

29 Retweets

10
Charlie Kirk
@charliekirk11

The left spent four years saying conservatives weren’t advocating for "basic human rights" but now they say no one is entitled to the basic human rights of traveling, eating, free association, or speech unless you take an experimental vaccine. Anyone else find that odd? 😏

24 Retweets

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

Top PA Negative Twitterers August 6 – August 12

<table>
<thead>
<tr>
<th>By mentions</th>
<th>By influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>@deplorablewill3</td>
<td>@malcolmnnance</td>
</tr>
<tr>
<td>@dc_demented</td>
<td>@fox29philly</td>
</tr>
<tr>
<td>@kevskewl</td>
<td>@chuckwendig</td>
</tr>
<tr>
<td>@jwetzel70</td>
<td>@factcheckdotorg</td>
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<tr>
<td>@tackingcaleuche</td>
<td>@burtonbrown</td>
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<tr>
<td>@christi06249366</td>
<td>@leadershipfreak</td>
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<td>@tdbgolfer</td>
<td>@scottemovienerd</td>
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<tr>
<td>@kevincloskey</td>
<td>@mattglantz</td>
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*support for vaccines may appear in this section if the comments on that post were expressing criticism of that post.
Trending Posts on Facebook August 6 – August 12

**Hey journalists. Look what I did. Journalism! You should try it.**

Just communicated with a senior children’s hospital employee who said throwing around the term "overrun with COVID" is total nonsense. They are busy. But not primarily with COVID positive kids. It’s kids who’ve been isolated for a year now contracting other respiratory illness.

**The union that represents about 10,000 guards in Pennsylvania’s state prisons told Gov. Tom Wolf Thursday it plans legal action to stop his effort to force them to get COVID-19 vaccines over the next month.**

**Prison guards union warns Wolf of legal action over WFMZ.COM**

**After a trip out west, Claudia Gallego and Rick Rein returned home feeling sick. Turns out, four months after being fully vaccinated both Rick Rein and Claudia Gallego tested positive for COVID.**

**Fully vaccinated couple tests positive for COVID-FOX29.COM**

**Onward State**

Students who haven’t told Penn State they’re vaccinated against COVID-19 will need to test negative before moving into the dorms next week.

Penn State Details On-Arrival COVID-19 Testing Plans ONWARDSTATE.COM

**CBS Philly**

“Think we’re at a dangerous time.” Most of the Philadelphia region has turned red on the CDC’s COVID-19 transmission map, which means it’s at the highest level of community spread.

Most Of The Philadelphia Region Turns Red On CDC PHILLY.COM PHILLYLOCAL.COM

**Chet Hanks, son of celebrity couple Tom Hanks and Rita Wilson, shared his candid thoughts on the COVID vaccine.**

Chet Hanks on vaccines: I have the right to not get that **** 9WSY1.COM

**TribLive**

In the past week, Pennsylvania has recorded 11,747 cases of covid-19 — the most in nearly three months.

Pennsylvania’s weekly covid cases at highest point in nearly 3 months TRIBLIVE.COM

**Pfizer, Moderna seen reaping billions from COVID-19 vaccine REUTERS.COM**

**FOX29.COM**

Students unvaccinated against COVID-19 will have to pay more than their vaccinated classmates to attend West Virginia Wesleyan College or Birmingham Southern College this fall.

‘COVID fee’: 2 colleges in West Virginia, Alabama

**FOX29.COM**
Trending Posts on Instagram August 6 – August 12

- 40% of U.S. white-tailed deer have COVID-19 antibodies: new study finds.
- Goleta says he will not require football players to get vaccinated for COVID-19. "I would never tell another human being what to do with their body. If you want to get vaccinated, that's up to you."
- 100% boss man @danawahten neither does it. Unmaskacademy have... See more
- OOM WOULD REQUIRE MANDATORY VACCINATION FOR A COVID-19 VACCINE OR TEST.
- PHILLY REQUIRING MAXS AT BUSINESS, INDOOR, LARGE OUTDOOR GATHERINGS
- Delaware's masks at indoor gatherings will not be required.
- Bloomberg: Prison
- Art Krieg's father lived in a retirement home in central... See more

Trending Posts on Reddit August 6 – August 12

- Posted 4 days ago to author: Fake COVID-19 vaccination cards worry college officials
- Posted 4 days ago to Rooting the ... COVID-19 antibodies found in white-tail deer in Pennsylvania, indicating...
- Posted 4 days ago to Pittsburgh Po... [Local] - Pennsylvania coronavirus update: 4,000 cases added over 3 days,
- COVID-19 hospitalizations at UPMC Children's Alarmed doubles In Days
- Coronavirus: 1 in 4 Americans report struggling
- COVID-19 litigation observations
General Trends August 6 – August 12

- This week's data shows the overall population concern with mask mandates as well as other regulations such as required vaccination;
- Vaccine passports narrative is back to the main list of vaccine hesitancy discourse issues on Twitter that illustrates the overall concern with vaccination requirements;
- Fake vaccination cards raise concern on other social media platforms like Reddit and Facebook;
- A lot of issues related to the upcoming school year and COVID-19 regulations illustrate population concerns with requirements for vaccination and masks for children and students;
- Discussion of infected cases among vaccinated vs unvaccinated people, also the 'Big Pharma' conspiracy forms the basis for disinformation raising doubts about vaccine effectiveness;
- More efforts to politicize vaccination are identified. This week's hashtags illustrate the trend (with hashtags like #healthcarefreedom, #choosefreedom demonstrate political divide in addition to #abbottvariant, #desantisvariant, #obamavariant, #psakibomb #MyLetterToRepublicans);
- This week's disinfo story (rumble.com - DEADLY SHOTS! Former Pfizer Employee Confirms Poison in COVID 'Vaccine') again illustrates a disinformation campaign about Pfizer vaccine that the health workers could address in communication with their patients.

For More Information

- Director Kathleen M. Carley - kathleen.carley@cs.cmu.edu
  - [http://www.casos.cs.cmu.edu/bios/carley/carley.html](http://www.casos.cs.cmu.edu/bios/carley/carley.html)
- IDeaS website - [https://www.cmu.edu/ideas-social-cybersecurity/](https://www.cmu.edu/ideas-social-cybersecurity/)
- CASOS website - [http://www.casos.cs.cmu.edu/](http://www.casos.cs.cmu.edu/)
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- YouTube: IDeaS Center
- Ask to be on our Email-Distro Lists