PA Vaccine Conversations and Misinformation on Twitter

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Vaccine Hesitancy Project Update based on June 4, 2021

The CMU centers for:
Informed DEmocracy And Social cyber-security
Computational Analysis of Social and Organizational Systems

This report is an effort to summarize social media conversations around COVID-19 issues in Pennsylvania, focusing on vaccination. It contains an analysis of the general topics about the current pandemic, such as COVID-19 regulations, mandates, masks, pro- and anti-vaccination campaigns, as well as other topics related to COVID-19 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.
Trends (tweets per week)

- Steady or decreasing trends for many conversations

High Level View May 27 – June 2, 2021

- Returning discussions: natural immunity
- New discussions: efficacy, spike proteins
Vaccine Narrative Descriptions (Newer)

- Natural Immunity: return of discussion of vaccines not having benefits if you have already had the virus
- Efficacy: discussions around misinformation reports claiming the efficacy of the vaccines are lower than promoted/that true efficacy is being hidden
- Spike Proteins: conversations around claims that the spike proteins related to vaccines are toxic/dangerous

Misinfo-Sharing Users Networks

- We selected a subset of Twitter users who:
  - Tweeted or retweeted a set of misinformation urls (see slide 10)
  - Tweeted at least once every week about vaccine-related content throughout April and May
- Total of 406 users
  - 12 of which suspended from Twitter in the last week
- We collected the Twitter timelines (last 3,200 tweets) for each of these users (goes back through 2020)
- Created networks of their communications amongst themselves
  - Just between agents we estimate are in the PA region
  - All Communication and Reciprocal (users must have targeted each other at some point)
  - One set of networks up until April 1, 2021 and one set through until June 3, 2021
All Communication (Retweeting, Quoting, and/or Mentioning each other)

Reciprocal Communication (link only exists if each node has targeted the other)
Misinfo-Sharing Users Networks - Observations

- A core of the users had been communicating with each other (with very little reciprocal discussion) prior to our vaccine-related conversation collection started in April.

- Over the past 2 months, the interactions between users led to a denser communication network involving more of our suspect users. The amount of reciprocal communication between these users also increased.
  - They are building an online support community to foster misinformation.

- This increases the possibility that when one of these uses shares a misinformation url, that others in the network will also see it (and may share it).

Misinfo-Sharing Users Networks - Observations

- Only a total of 2 verified accounts exist in the above networks and not in any central position.

- Not shown in the slides above, but the top targets for retweets from the misinfo-sharing users are:
  - Almost entirely made up of right-wing/alt-right politicians, pundits, and news sources
  - And other well known vaccine questioning celebrity advocates such as @Naomirwolf (now suspended) and @RobertKennedyJr.
For More Information

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- [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/)