



# CDC's State of Vaccine Confidence Insights Report

2nd COVID-19 Vaccine Summary Report: 6 months through 5 years

**December 16, 2022**

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**Centers for Disease Control & Prevention,  
COVID-19 Response, Vaccine Task Force**  
Vaccine Confidence & Demand Team, Insights Unit

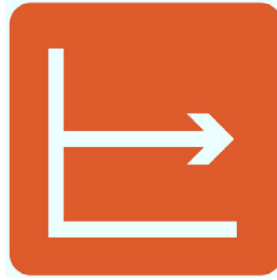
The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).





### [Summary of the 2nd COVID-19 Vaccine Summary Report: 6 months through 5 years](#)

This report consolidates findings and ways public health partners can act on the findings related to COVID-19 vaccines for children 6 months through 5 years of age from CDC's COVID-19 State of Vaccine Confidence Report (SoVC) #26, SoVC #27, and SoVC #28, reflecting data collected from March 14, 2022, through May 31, 2022.



In February 2022, the Insights Unit published the COVID-19 SoVC Vaccines for Children Summary Report. The data collection period for that report was from November 9, 2021, to January 10, 2022. That report [can be found here](#). All past reports [are online here](#). CDC also publishes a quarterly report on themes impacting vaccine confidence in the United States.

This report is meant to give CDC partners a better understanding of the perceptions, concerns, frustrations, and circulating misinformation about the COVID-19 vaccines for children 6 months through 5 years of age that were expressed. Examples and data pertaining to other age ranges are included to show patterns or to provide additional context.

During these data collection periods, the Insights Unit has seen an average of 9,138 online mentions of COVID-19 vaccines for children per day, with a spike on April 28, 2022, to 37,737 when Moderna submitted their COVID-19 vaccine pediatric trial data to the Food and Drug Administration (FDA). In addition, parental concerns related to the effectiveness and safety of COVID-19 vaccines for children through 5 years of age appeared through all of our data sources, including social media, news stories, third-party reports, and Google search trends. The Insights Unit has classified "concerns about the effectiveness and safety of COVID-19 vaccines for children" as having a high risk of impacting vaccine confidence.

**Resources: The following link contains social media resources such as graphics, language, and social media calendars that our partners can use these resources to help educate their constituents and build vaccine confidence by addressing the themes in this report:**

<https://centersfordiseasecontrol.sharefile.com/d-se1bf5c187f6a4eb5a72e1490de2506a8>

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## Consumers continued to have concerns about the effectiveness and safety of COVID-19 pediatric vaccines<sup>a</sup>

### Background<sup>b</sup>

This report was created to give CDC partners a better understanding of the perceptions, concerns, frustrations, and circulating misinformation that emerged or intensified after CDC's endorsement of the Advisory Committee on Immunization Practices (ACIP) recommendation for use of the Pfizer-BioNTech COVID-19 vaccine and the Moderna COVID-19 vaccine for children ages 6 months–4 years and 6 months–5 years.

Since the U.S. Food and Drug Administration (FDA) authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use in children ages 5 through 11 years on October 29, 2021,<sup>1</sup> parents on social media and other social media users have been expressing their concern about adverse events and unknown long-term side effects of the vaccine, citing incomplete and rushed trials as the cause of their apprehension.<sup>2,3,4</sup> Reports that some vaccine clinics accidentally administered the adult dosage, rather than the pediatric dosage, to children ages 5–11 years<sup>5,6</sup> continued to circulate since then and may also have negatively impacted public confidence.

On April 28, 2022, Moderna formally submitted its clinical trial data to the FDA for authorization of its COVID-19 vaccine in children 6 months through 5 years of age.<sup>7</sup> Likely in response to this announcement, searches for “moderna vaccine for kids under 5” rose by 250% compared to the previous two weeks.<sup>c</sup> After the submission of the clinical trial data, many parents also called on the FDA to rapidly approve vaccines for children younger than 6 years of age.<sup>8,9</sup> Additionally, Pfizer submitted data to the FDA for authorization of a booster dose for children 5–11 years of age.<sup>10</sup> Some parents were relieved and hopeful at the notion of potentially being one step closer to getting their child vaccinated against COVID-19.<sup>11,12</sup> However, others were still frustrated with the process, and that emergency use authorization had not been granted for children through 5 years.<sup>13,14,15</sup> Some individuals advocated for CDC to recommend off-label use of the COVID-19 vaccine to get kids through 5 years of age vaccinated, while others advocated for off-label without CDC's recommendation.<sup>16,17</sup> Consumers continued to raise concerns over side effects,<sup>18,19</sup> to believe vaccination is unnecessary in this age group,<sup>20,21</sup> and to cite a lack of data to support COVID-19 vaccination of children.<sup>22,23</sup>

On June 1, 2022, news outlets reported that Pfizer also submitted data to the FDA for emergency use authorization of its 3-dose COVID-19 vaccine in children ages 6 months through 4 years.<sup>24</sup> The Vaccines and Related Biological Products Advisory Committee (VRBPAC)

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<sup>a</sup>Citations in this report are illustrative examples and are not the total number of instances of the corresponding themes.

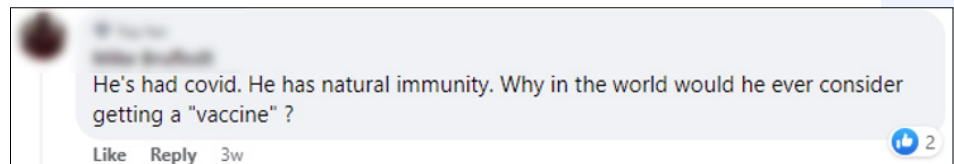
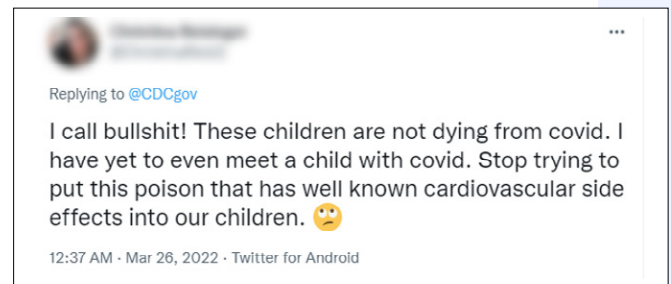
<sup>b</sup>Social media citations can be found in [this linked document](#).

<sup>c</sup>Google Trends

meeting to discuss the emergency use authorization of COVID-19 vaccines in this age group took place on June 14-15, 2022.<sup>25</sup> On June 18, 2022, CDC endorsed the Advisory Committee on Immunization Practices (ACIP) recommendation for use of the Pfizer-BioNTech COVID-19 vaccine and the Moderna COVID-19 vaccine for children aged 6 months–4 years.<sup>29</sup>

## Perceptions, Concerns, and Threat to Vaccine Confidence

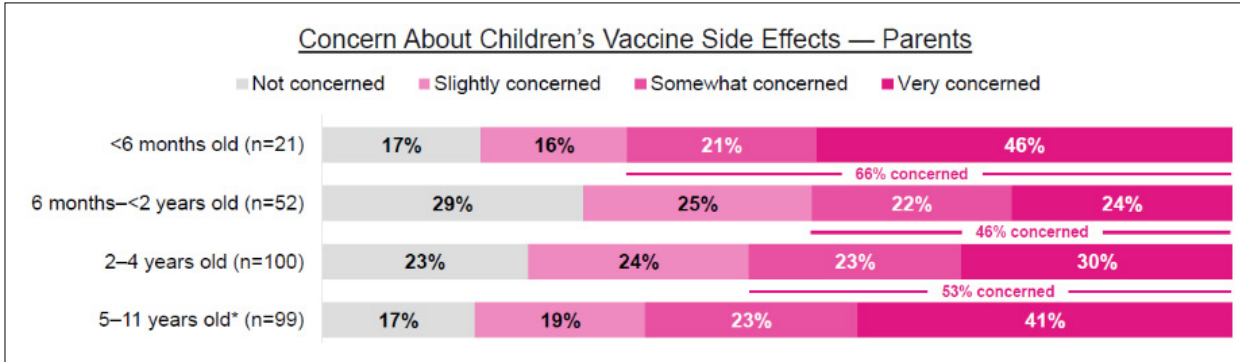
- While some parents are against it, others remain advocates for COVID-19 vaccinations in children less than 6 years of age.<sup>30,31</sup>
- Some social media users believe that COVID-19 vaccines are ineffective at stopping COVID-19 or the spread of the virus in children.<sup>32,33</sup>
- Some consumers believe that the COVID-19 vaccine is not warranted in children because they are considered a low-risk population with minimal health effects from the virus and have a low death rate.<sup>34,35,36,37,38</sup>
- Parents are hesitant to vaccinate their children because they fear serious side effects, adverse events, and unknown long-term side effects.<sup>39,40,41,42,43</sup>
- Some government officials made public statements against COVID-19 vaccines for healthy children.<sup>44</sup>
- Consumers believe the FDA is not moving as fast as it should to authorize use of COVID-19 vaccines in children.<sup>45,46</sup>
- Some health experts believe that low vaccine confidence has led to low COVID-19 vaccination levels in children.<sup>47,48</sup>
- Some believe infection-induced immunity provides more protection to children than vaccines do.<sup>49,50,51,52,53</sup>
- Some social media users do not think there is enough data to support vaccination against COVID-19 in children.<sup>54,55,56</sup>
- WHO issued a global alert after recent reports of severe hepatitis in children rising globally. Some believe they are caused by COVID-19 vaccines.<sup>57,58,59</sup>
- Some are concerned that since vaccine-induced immunity decreased rapidly in adolescents after the COVID-19 vaccine primary series, the same decrease occur among children through 5 years of age.<sup>60,61</sup>
- A Meltwater sentiment analysis of social media, websites, and news stories' mentions of vaccine and child, children, or kid (n = 1.06 million) between March 19, 2022 and June 16, 2022 found that 8% were positive mentions, 29% were negative, and 61% were neutral.
- A Kaiser Family Foundation poll found that 17% of parents with children younger than 5 years old will get their child vaccinated right away, while 38% say they plan to wait and see how the vaccine is working for others, 27% say they will definitely not get their child vaccinated, and 11% say they will only do so if they are required.<sup>62,63</sup>



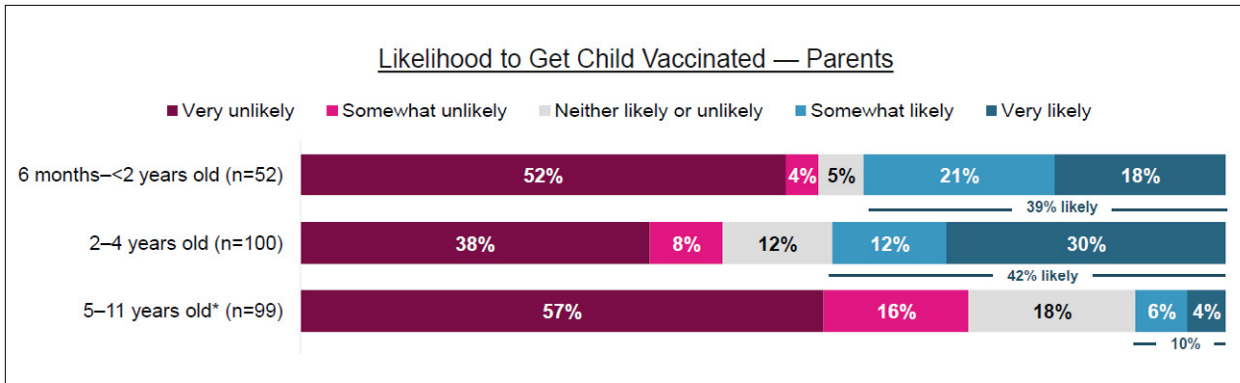




- The HHS Current Events Tracker shared the following polling results:<sup>d</sup>
  - More than two-fifths of parents with unvaccinated children ages 0–4 said they were concerned about their child getting a COVID-19 infection.
  - A majority of parents with unvaccinated children ages 2–15 said they were concerned about their children having side effects from the COVID-19 vaccine.



- Roughly 40% of parents with children ages 6 months through 4 years old said they were likely to get their child vaccinated if a COVID-19 vaccine was authorized.
- Parents with unvaccinated children ages 5–11 remain unlikely to get their children vaccinated.
- 46% of adults have heard or read about developments in vaccines for children through the age of 5.



<sup>d</sup>Pope, M., DelGreco, M., Greenberg, D., Mannan, S., & Brunson, T. (2022). Current Events Tracker Wave 60. Department of Health and Human Services (HHS), Office of the Assistant Secretary for Public Affairs (ASPA).



## Information voids and commonly asked questions from the public<sup>e</sup>

- Should children be vaccinated before international travel?<sup>f</sup>
  - CDC recommends that everyone eligible for COVID-19 vaccination be up to date with COVID-19 vaccines before travel, which includes a complete primary series and the most recent booster dose recommended for a person by CDC.<sup>64</sup>
- Why should a child through the age of six be vaccinated if they are less likely to experience negative health outcomes from COVID-19?
  - Like adults, children and teens can get very sick from COVID-19, have both short- and long-term health problems, and spread COVID-19 to others, including at home and school. There is no way to tell in advance how children or teens will be affected by COVID-19. Those with underlying medical conditions or a weakened immune system are more likely to get severely ill from COVID-19, so the need for vaccination is greater for these people.<sup>65</sup>
- Do COVID-19 vaccines cause myocarditis?
  - There is no evidence of an increased risk for myocarditis following mRNA COVID-19 vaccination in children ages 6 months–5 years<sup>66</sup>
  - Although rare, cases of myocarditis reported to the Vaccine Adverse Event Reporting System (VAERS) have occurred after mRNA COVID-19 vaccination (Pfizer-BioNTech or Moderna), especially in males 12 to 39 years old, more often after the second dose and usually within a week of vaccination. Most patients with myocarditis or pericarditis who received care responded well to medicine and rest and felt better quickly.<sup>67</sup>
  - Cases of myocarditis and pericarditis were identified in clinical trials of Novavax COVID-19 Vaccine and have also been reported during post-authorization use outside the United States. These findings suggest that an increased risk for these conditions may be present after receiving Novavax COVID-19 vaccine.<sup>68</sup>
- What are the COVID-19 vaccines authorized for use in children?
  - As of June 18, 2022, everyone 6 months through 5 years is recommended to get a Moderna or Pfizer-BioNTech COVID-19 vaccine for primary vaccination.<sup>69</sup>
- What are common COVID-19 vaccine side effects in children?
  - Common side effects for children 6 months through 3 years include: <sup>70</sup>
    - Pain on the leg or arm where the shot was given
    - Swollen lymph nodes
    - Irritability or crying
    - Sleepiness
    - Loss of appetite
  - Common side effects for children ages 3 through 17 years were more common after the second dose and include:
    - Pain, swelling, and redness on the arm where the shot was given

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<sup>e</sup>These questions come from online data sources such as social media, news stories, Google Trends, and CDC-INFO

<sup>f</sup>CDC-INFO



- Tiredness
  - Headache
  - Muscle or joint pain
  - Chills
  - Swollen lymph nodes
- Should children through the age of 5 still wear masks?
    - Wearing a well-fitting mask consistently and correctly reduces the risk of spreading the virus that causes COVID-19. Universal indoor mask use is recommended at a high COVID-19 Community Level. Mask use is not recommended for those younger than 2 years old and may be difficult for very young children or for some [children with disabilities who cannot safely wear a mask](#).<sup>71</sup>
  - Can the COVID-19 vaccines cause the cases of hepatitis of unknown cause recently seen in children?
    - There is no evidence that COVID-19 vaccines cause hepatitis. CDC continues to research possible causes for new cases of hepatitis among children, including testing for and ruling out some of the viruses that commonly cause hepatitis (hepatitis A, B, C, D, and E). Adenovirus has been detected in nearly half of the children and continues to be a strong lead. Further laboratory tests are being conducted to look more closely at the virus genome and other potential pathogens, such as SARS-CoV-2. In addition, CDC is communicating with key medical groups and continues to provide updated reporting and laboratory guidance for clinicians who may identify hepatitis of unknown cause in children.<sup>72</sup>
  - When will vaccines be available for children through 5 years of age?
    - As of June 18, 2022, everyone 6 months through 5 years is recommended to get a Moderna or Pfizer-BioNTech COVID-19 vaccine for primary vaccination.<sup>73</sup>

## Identified misinformation themes that may impact vaccine confidence

- Healthy children do not need to receive the COVID-19 vaccine.<sup>74</sup>
- COVID-19 vaccines are ineffective for children.<sup>75</sup>
- The COVID-19 vaccine is an experiment on children and is not needed because children can build “natural immunity” through virus exposure.<sup>76</sup>
- Children vaccinated against COVID-19 are up to 52 times more likely to die following COVID-19 vaccination than unvaccinated children.<sup>77,78,79</sup>
- Children have a high risk of death from receiving the COVID-19 vaccines.<sup>80,81</sup>
- COVID-19 poses no risk to children.<sup>82,83</sup>
- Children are getting hepatitis from the COVID-19 vaccines.<sup>84</sup>
- The virus that causes COVID-19 does not infect children.<sup>85,86,87</sup>
- Authorizing vaccines in children is only a ploy for pharmaceutical companies to make money.<sup>88,89,90</sup>



## Ways public health and partners can take action to improve vaccine confidence

Work with community partners and trusted messengers, including pediatricians, teachers, coaches, parents, and trusted local community messengers, to create and disseminate messages related to the following topics:

1. Messages that clearly explain the differences in rates of symptomatic infection for unvaccinated and vaccinated children through 5 years of age that contracted SARS-CoV-2.<sup>91</sup>
2. Messages that clearly convey that evidence supports extended vaccine administration intervals might decrease the risk of myocarditis after vaccination.<sup>92,93,94</sup>
3. Messages that note the higher risk of myocarditis from SARS-CoV-2 infection when compared to the risk of myocarditis from COVID-19 vaccination such as “COVID-19 is more likely than vaccines to cause myocarditis, and symptoms and outcomes are often worse.”<sup>95</sup>
4. Messages for parents of children less than 5 years of age that note cases of myocarditis occurred most frequently in adolescent and young adult males, ages 16 years and older, within 7 days after receiving the second dose of an mRNA COVID-19 vaccine (Pfizer-BioNTech and Moderna).<sup>96</sup>
5. Materials detailing the benefits of vaccination over infection-induced immunity, especially emphasizing the risk of negative health outcomes of COVID-19 in children through 5 years of age.
6. Messages that reassure parents that the safety monitoring for COVID-19 vaccination in children through 5 is ongoing post authorization.
7. Messages that accurately describe the side effects and risk of side effects of COVID-19 vaccination in children.
8. Information regarding safety precautions that would help reduce exposure risk for children who are not yet eligible for the vaccine, whose parents decline to vaccinate their children, and for parents of children who are not able to vaccinate due to possible medical contraindications.
9. Messages and talking points for pediatric healthcare providers to assist them in their conversations with parents and caregivers that include motivational interviewing and empathic communication techniques, and evidence-based ways to counter misinformation.
10. [Plain language](#) messages using findings from these two MMWR reports to educate people on the safety of the vaccine for children and the risk of severe COVID-19 illness in children:
  - [COVID-19 mRNA Vaccine Safety Among Children Aged 6 Months–5 Years — United States, June 18, 2022–August 21, 2022](#)
  - [Trends in COVID-19 Cases, Emergency Department Visits, and Hospital Admissions Among Children and Adolescents Aged 0–17 Years — United States, August 2020–August 2021](#)
11. Continue to provide up-to-date data regarding adverse events, side effects, and benefits of COVID-19 vaccination among children through 5 years of age.





12. [Recent evidence suggests](#) that individuals who hear information about a new technology in an audio format are more likely to perceive less risk and higher benefit to using the new technology than when presented in a written format. Therefore, consider creating and disseminating audio messages related to the safety and efficacy of COVID-19 vaccines for children through 5 years of age through radio and social media platforms.
13. Use evidence-based strategies when mitigating misinformation about COVID-19 vaccines, such as:
  - Prioritize countering misinformation that has a significant risk to vaccine confidence when disseminating messages.
  - Consider presenting the misinformation as a question instead of a myth, as [some evidence](#) suggests presenting misinformation as a myth may decrease comprehension.
  - Respond to misinformation by sharing messages that address the underlining concern without mentioning the misinformation narrative. For example, if the misinformation concerns a supposed vaccine side effect, share messaging detailing COVID-19 vaccine safety data and/or messaging that conveys an emotive story that reinforces the belief that vaccines are safe.
  - If the misinformation persists and it has a high potential for impact, craft messages that use these [evidence-based messaging strategies](#):
    - “For XYZ to occur, these are the plausible biological mechanisms that would be required, and this is why that is not likely.”
    - “It is not possible for the vaccines to cause XYZ because of this reason.”
    - “We looked into XYZ by reviewing DATA SOURCE A and DATA SOURCE B, and we didn’t find it.”
    - “We know what could cause XYZ and it is CAUSE, not the vaccine.”
    - “There is no evidence that XYZ is true.”



# Appendix: Inputs and Sources

## Social Media Listening & Media Monitoring Data Sources

Input	Cadence	Sources	Tactics for Utilization
Communication Surveillance Report	Daily on weekdays	<ul style="list-style-type: none"> <li>• Google news</li> <li>• Meltwater</li> <li>• CrowdTangle</li> <li>• Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>• Share of voice topic analysis to identify themes</li> <li>• Emerging topics</li> </ul>
Meltwater	Daily	<ul style="list-style-type: none"> <li>• Facebook, Twitter, Instagram</li> <li>• Blogs</li> <li>• News media</li> <li>• Online forums</li> </ul>	<ul style="list-style-type: none"> <li>• Share of voice topic analysis</li> <li>• Emerging theme topics</li> <li>• Identify high reach/velocity topics</li> </ul>
OADC (Office of the Associate Director of Communication) Channel COVID-19 Post metrics	Weekly	<ul style="list-style-type: none"> <li>• Sprout Social</li> <li>• Native OADC (Office of the Associate Director of Communication) account analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze # of posts, topics</li> <li>• Success of messages, # of impressions, reach, # engagements</li> </ul>
OADC Channel Comment Analysis	Daily on weekdays	<ul style="list-style-type: none"> <li>• Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>• Sentiment analysis</li> <li>• Identify message gaps/voids</li> </ul>

## Direct Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
CDC-INFO Metrics	Weekly	<ul style="list-style-type: none"> <li>• CDC-INFO inquiry line list</li> <li>• Prepared response (PR) usage report</li> </ul>	<ul style="list-style-type: none"> <li>• Cross-compare PR usage with inquiry theme analysis</li> <li>• Sentiment analysis</li> <li>• Identify information gaps/voids</li> </ul>
VTF Media Requests	Weekly	<ul style="list-style-type: none"> <li>• Media request line list</li> </ul>	<ul style="list-style-type: none"> <li>• Leading indicator for news coverage</li> <li>• Identify information gaps/voids</li> </ul>
Web Metrics	Weekly	<ul style="list-style-type: none"> <li>• Top pages</li> <li>• Google search queries</li> <li>• Top FAQs</li> <li>• Referring domains</li> </ul>	<ul style="list-style-type: none"> <li>• Identify information gaps/voids,</li> <li>• Identify keywords/search terms, changes in web traffic</li> </ul>



### Research and Literature Data Sources

Input	Cadence	Sources	Tactics for Utilization
Poll Review	Weekly	<ul style="list-style-type: none"> <li>• Harris Poll, PEW research, Gallup Poll, KFF, Annenberg Public Policy Center</li> <li>• New data related to vaccine hesitancy</li> </ul>	<ul style="list-style-type: none"> <li>• Identify socio-behavior indicators related to motivation and intention to vaccinate</li> </ul>
Literature Review	Weekly	<ul style="list-style-type: none"> <li>• PubMed, LitCovid, ProQuest Central, Altmetric</li> <li>• New data related to vaccine hesitancy</li> </ul>	<ul style="list-style-type: none"> <li>• Identify current vaccination intention</li> <li>• Identify barriers to vaccination</li> </ul>

### Third Party Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
Tanaq Social Listening +Media Monitoring Report	Weekly	<ul style="list-style-type: none"> <li>• Meltwater</li> <li>• Sprout Social</li> <li>• First Draft</li> <li>• Native platform searches</li> </ul>	<ul style="list-style-type: none"> <li>• Trending topics</li> <li>• Demographic and geographic conversation monitoring</li> </ul>
CrowdTangle content insights report	Biweekly	<ul style="list-style-type: none"> <li>• Facebook</li> </ul>	<ul style="list-style-type: none"> <li>• Top pages (voices), groups</li> <li>• General trends/sentiment analysis</li> <li>• News analysis through posts</li> </ul>
Washington St. Louis iHeard	Weekly	<ul style="list-style-type: none"> <li>• Proprietary methods</li> </ul>	<ul style="list-style-type: none"> <li>• Survey results</li> <li>• Emerging threats and data deficits</li> <li>• Vaccine narratives</li> </ul>
Project VCTR	Weekly	<ul style="list-style-type: none"> <li>• <a href="#">Proprietary methods</a></li> </ul>	<ul style="list-style-type: none"> <li>• National and regional trends in negative attitudes toward vaccination</li> <li>• Conversations around Legislation</li> </ul>