

Master of Public Health

Applied Practice Experience

IMPACT OF THE COVID-19 PANDEMIC ON VACCINE HESITANCY TOWARDS ROUTINE
CHILDHOOD IMMUNIZATIONS IN KANSAS

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Chapter 1 - APE Portfolio Products

During my APE/ILE experience, I worked with Connie Satzler, President of EnVisage Consulting, Inc., to better understand the impact of the COVID-19 pandemic on immunizers throughout the state of Kansas. EnVisage Consulting, Inc. is located in Manhattan, KS, and through this agency, Connie has worked for over thirty years in public health. She supports programs and initiatives such as Healthy Kansans 2020, the Maternal Child Health Council, the Riley County Community Health Improvement Plan, and the Immunize Kansas Coalition. Connie is passionate about public health and has served many of these organizations to help promote the health of their constituents. Connie is a member of the K-State Industrial and Manufacturing Systems Engineering (IMSE) Professional Academy, the IMSE Advisory Council, and she was recognized as the 2025 Outstanding IMSE Alumnus. Connie enjoys mentoring undergraduate and graduate students in fields including engineering and public health.

I have promoted vaccines and helped provide education to health care providers for the last eleven years across the state of Kansas. My interest in increasing vaccine adherence influenced my decision to research what impact the COVID-19 pandemic has had on routine childhood immunization rates from the perspective of Kansas immunizers. In consultation with Connie, I created a seventeen-question survey which would be used during in-person interviews with immunizers in the state of Kansas (Appendix A). We determined that health departments and private pediatric clinics would be the primary targets for interview participation. During the summer of 2025, I conducted twenty-two interviews at Kansas health departments, and eight interviews at private pediatric clinics. These interviews were recorded on an Apple iPad and later transcribed to a Word document. The study protocol was approved by the institutional review board (IRB#12927) of Kansas State University, and informed consent was obtained by all participants.

I analyzed the data collected from the interviews using both quantitative and qualitative analysis and compiled the results into fifteen tables and figures.

Immunize Kansas Coalition (IKC) is a non-profit organization working to improve vaccination rates. IKC is made up of groups and individuals from across the state of Kansas who work to ensure that there is equitable vaccine access across the population of the state. Public

health workers in Kansas trust this organization to provide evidence-based information to support decision-making when it comes to immunizations.

On November 7, 2025, I presented a summary of my findings to IKC during the virtual quarterly meeting. I created a one-page summary of my findings (Appendix B), and I made several PowerPoint slides to present the highlights of my project (Appendix C). The presentation lasted approximately fifteen minutes, including time for questions at the end. The one-page summary was offered as a resource for anyone who was interested.

Table 1.1 Summary of Portfolio Products

Portfolio Product		Description
1	Survey	The seventeen-question survey was created in consultation with Connie Satzler, President of EnVisage Consulting, Inc. Interviews were conducted in person using this survey, and responses were recorded and later transcribed. Quantitative and qualitative analyses were used to organize the data.
2	One-page summary of results	This one-page summary was created to show the major themes and take-home messages which resulted from interviews conducted with the survey questions. This summary was made available to the Immunize Kansas Coalition and any other organization interested in Kansas.
3	Presentation to Immunize Kansas Coalition	I presented a summary of my findings from APE project to Immunize Kansas Coalition on Friday, November 2025 at their virtual quarterly meeting. This was a fifteen-minute presentation with time for questions at the end.

Table 1.2 Portfolio Products and Competency Addressed

Portfolio Product		Number and Competency Addressed	
1	Survey	2	Select quantitative and qualitative data collection methods appropriate for a given public health context.
		16	Apply leadership and/or management principles to address a relevant issue
2	One-page summary of results	4	Interpret results of data analysis for public health research, policy or practice
		19	Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy
3	Presentation to Immunize Kansas Coalition	4	Interpret results of data analysis for public health research, policy or practice
		13	Propose strategies to identify relevant communities and individuals and build coalitions and partnerships for influencing public health outcomes
		16	Apply leadership and/or management principles to address a relevant issue
		19	Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy

Chapter 2 - APE Competencies

The competencies described in Table 2.1 below were demonstrated throughout my APE experience as I applied the knowledge I gained from my MPH courses. Communication skills, biostatistics analysis, epidemiological research and the study of vaccines were valuable tools that I used to research the impact of the current issue of childhood vaccine hesitancy in Kansas.

Table 2.1 Demonstration of APE Competencies

Number and Competency		Description
2	Select quantitative and qualitative data collection methods appropriate for a given public health context	I conducted surveys with thirty immunizers from across the state of Kansas in order to evaluate themes of vaccine hesitancy challenges. Quantitative data was organized to determine common use of standing orders, location and type of clinics, use of public-pay versus private-pay vaccines, and time spent giving immunizations. I used inductive thematic analysis to categorize emerging themes found in qualitative data. These themes allowed me to integrate both data collection methods to evaluate challenges that immunizers experience as a result of the COVID-19 pandemic.
4	Interpret results of data analysis for public health research, policy, or practice	I compiled survey data and presented information to Immunize Kansas Coalition. This data was organized in a manner to evaluate recent challenges that immunizers encounter with their patients in Kansas regarding childhood vaccine hesitancy and possible solutions to overcoming barriers they experience. This information will help create updated resources for healthcare workers in combating vaccine hesitancy.
13	Propose strategies to identify relevant communities and individuals and build coalitions and partnerships for influencing public health outcomes	Strategies for increasing routine childhood immunization rates were identified through analyzing the data collected from interviews during my APE. These strategies

		include additional training for immunizers in tracking adherence rates and communicating with patients on the importance of vaccines, use of social media to address vaccine hesitancy, and useful resources for immunizers in Kansas. These strategies were presented to the Immunize Kansas Coalition.
16	Apply leadership and/or management principles to address a relevant issue	Working with both physicians and nurses who immunize children in Kansas allowed me to categorize current vaccine hesitancy challenges they are facing. After organizing emerging themes, I discussed possible solutions and increased collaboration with Immunize Kansas Coalition.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation to a non-academic, non-peer audience with attention to factors such as literacy and health literacy	I organized the data gathered from my APE research and compiled the findings in a one-page document. This document was created to assist public health workers manage resistance to routine vaccines for children in Kansas. Current objections and recent successes are described in the document. I also had the opportunity to present these findings to the Immunize Kansas Coalition at their quarterly meeting virtually. A summary of my research and the one-page document were both presented at this meeting with an opportunity to address any questions from this organization.

Below is a list of the 22 Public Health Foundational Competencies, the competency number, and the courses in which they are taught.

Table 2.2 MPH Foundational Competencies Course Mapping

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and systemic levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	x
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply leadership and/or management principles to address a relevant issue		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815				
19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation	DMP 815				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Integrate perspectives from other sectors and/or professions to promote and advance population health		x			x
Systems Thinking					
22. Apply a systems thinking tool to visually represent a public health issue in a format other than a standard narrative			x	x	

Appendix

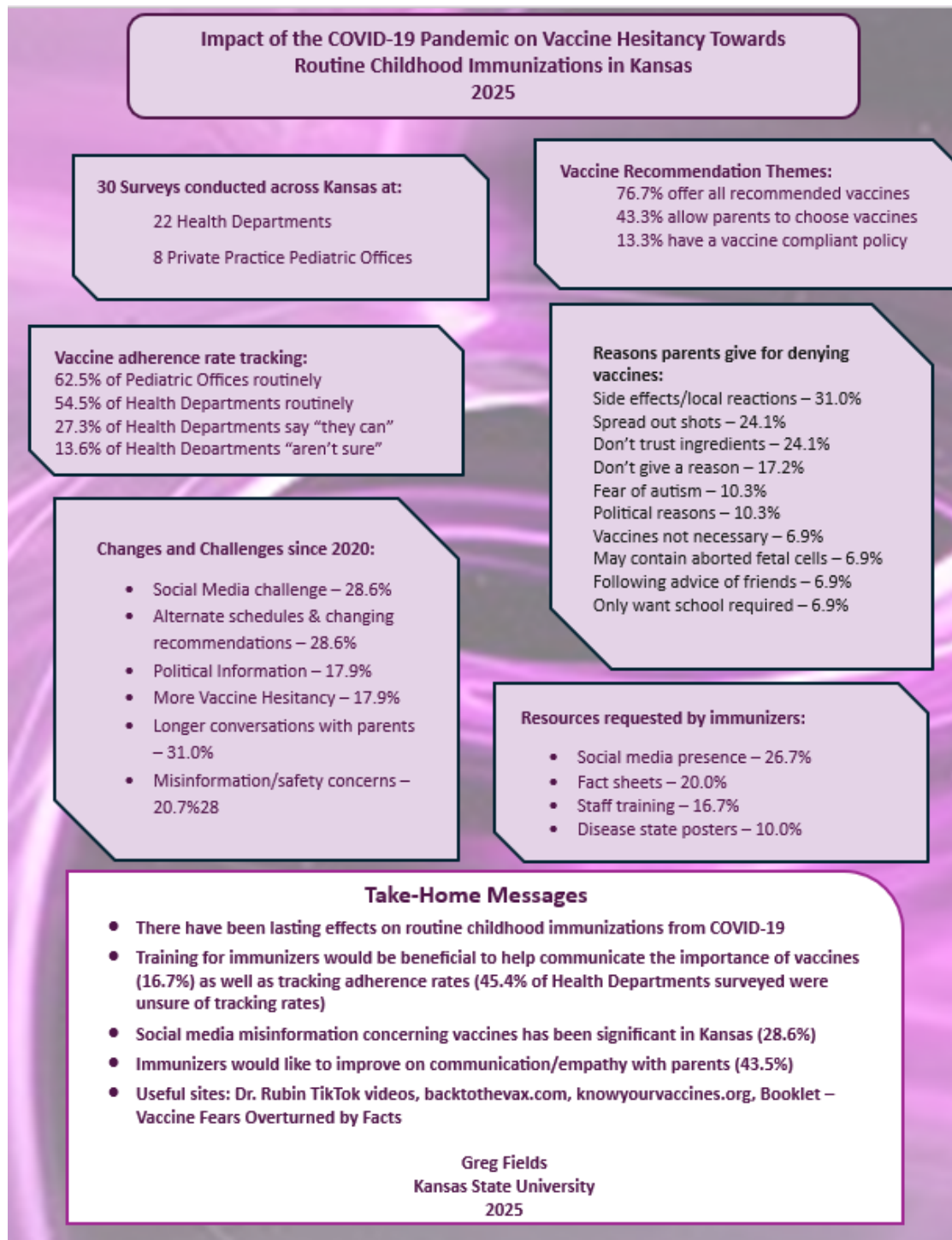
Appendix A:

Survey Questions

1. Health department, FQHC, private practice (pediatric, family practice), other?
2. Type of provider – physician, nurse, MA, supervisor, etc.?
3. Do you offer all CDC recommended childhood vaccines? If not, which ones are not offered?
4. Could you describe your process for recommending available vaccines for children, from the time a family walks in the door through vaccination?
5. Approximate racial/ethnic population that is served?
6. What percentage of your vaccines are VFC? What percentage is private pay? Other?
7. Approximately how much time is spent for each child immunization visit?
8. Are standing orders utilized in your practice? For which vaccines? How?
9. Do you track adherence rates for recommended immunizations for children?
10. Have you seen a difference in adherence rates in children from 2019 to 2024? If so, which vaccine adherence rates have changed? Can you share specific data?
11. Describe changes in the conversations with parents when it comes to routine childhood immunizations over the past five years.
12. What new challenges have you experienced since 2019 when it comes to following standard immunization schedules for children?
13. What reasons are given by parents when not accepting all recommended childhood immunizations for their children?
14. Are patients experiencing any barriers to receiving routine childhood immunizations in the last five years? And if so, what are they?
15. Other than Covid, what routine immunizations are parents either denying for their children or delaying?
16. What resources do you need to help combat vaccine hesitancy?
17. What else would you like to share? Is there anything else you think would be important for me to know?

Thank you for your time! These will be the next steps...

Appendix B:



Appendix C:

Impact of the COVID-19 Pandemic on Vaccine Hesitancy Towards Routine Childhood Immunizations in Kansas

Greg Fields

Master of Public Health Candidate, December 2025

Infectious Diseases/Zoonoses Candidate

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About Me:

- From McPherson, KS
- B.S. in Biology
- Microbiologist/Pharmacologist
- Health and Science Specialist
- Family
- Sports/Coaching



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Outline:

- **Methods/Results**
- **Key Takeaways**
- **Products**
- **Acknowledgements/Questions**

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Methods:

- **17 Question Survey**
- **In-person interviews/Recorded/Transcribed**
- **Inductive thematic analysis**
- **No predetermined themes**
- **IRB #12927 approved by Kansas State University Institutional Review Board**

Category	Facility Type/Location/Provider	Count	Percentage
Facility Type			
	Health Department	22	73.3%
	Private Practice Pediatric	8	26.7%
Location			
	Urban	10	33.3%
	Semi-Urban	11	36.7%
	Densely-settled Rural	5	16.7%
	Rural	4	13.3%
Type of Provider			
	Pediatrician	3	9.1%
	Nurse Practitioner	1	3.0%
	MA	1	3.0%
	LPN	1	3.0%
	Immunization Nurse	11	33.3%
	Nurse Manager (Director, Supervisor, Manager, Coordinator, etc.)	16	48.8%

Table 1.1: Participation in surveys

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Results:

Question #4: Could you describe your process for recommending available vaccines for children, from the time a family walks in the door through vaccination?

Code	Theme	Examples
1	All recommended vaccines offered (23/30 – 76.7%)	<i>"We recommend everything that is on the routine schedule."</i> <i>"We go through all recommended vaccines that they are due for."</i> <i>"...we still recommend they get all of them – everything recommended from the CDC, not just what is required for school."</i>
3	Let parents choose options of vaccines or delayed schedule (13/30 – 43.3%)	<i>"...we give them the options of what they need. We let them decide which vaccines they will get."</i> <i>"You can usually tell if a parent is hesitant. Then we adjust how we say it, like 'the school is going to require these'. If they want to split them up we can do whatever they are comfortable with."</i> <i>"Some will want to do a slow schedule. It's frustrating, but I try to work with them so they get something."</i>
2	Vaccine compliant policy (4/30 – 13.3%) (all 4 locations were private pediatric offices)	<i>"We have a policy that patients have to be up to date on vaccines to be patients here...We tell them that this is what they are due for today. It is not optional."</i> <i>"We are a vaccine compliant facility, so all patients must follow the CDC required vaccines for school entry, and we follow their guidelines for administration windows."</i>

Table 1.2: Themes in recommending available vaccines for children

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Results (cont...):

Question #9: Do you track adherence rates for recommended immunizations for children?

Code	Private Pediatric Office	Health Department	Theme	Examples
1	5 (62.5%)	12 (54.5%)	Yes/We do	<i>"Yes. We get reports of missed opportunities."</i> <i>"Yes. Very closely."</i>
2	1 (12.5%)	6 (27.3%)	We can	<i>"We can, but we don't typically track rates."</i> <i>"We could pull data from the state registry. Our EHR has the ability as well."</i>
4	2 (25.0%)	1 (4.5%)	No	<i>"No."</i>
3	0	3 (13.6%)	I'm not sure	<i>"I'm not sure. We are working on that"</i> <i>"I don't know. We probably do."</i>

Table 1.3: Routine childhood immunization adherence rate tracking

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Results (cont...):

Question #10: Have you seen a difference in adherence rates in children from 2019 to 2024? If so, which vaccine adherence rates have changed?

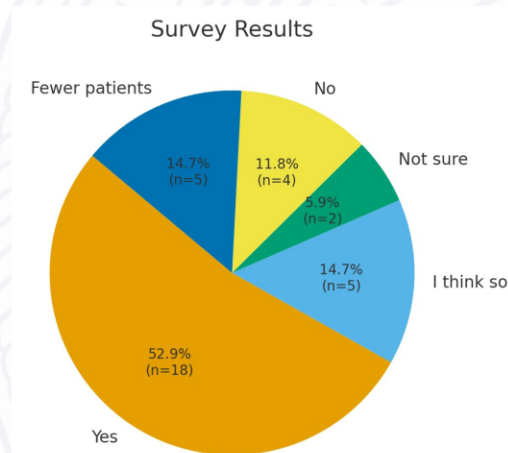


Figure 1.3: Observation of difference in adherence rates in children from 2019 to 2024.

Mentioned vaccine adherence rates declining	Frequency
All Vaccines	9
HPV	5
MMR	5
Influenza	5
COVID	4
Hepatitis B	2
Combination Vaccine	2
Any New Vaccine	1
Meningitis B	1

Table 1.4: Vaccines with declining rates

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Results (cont...):

Question #11: Describe changes in conversations with parents when it comes to routine childhood immunizations over the past five years.

Code	Theme	Examples
1	More information/longer conversations (9/29 – 31.0%)	"We do spend more time answering some of the questions (parents) bring in from YouTube videos. That shifts to where we have to give more information on the ingredients and finding out where all of this comes from. We deep dive more with some families." "We give a lot more information than we used to because they ask for it, and we know that information is the best way to get them to change their mind."
2	Ask for delayed or alternate schedules (7/29 – 24.1%)	"More parents are coming in splitting or delaying the vaccines more than they were before COVID." "There are a number of parents who are spreading them out farther than before."
6	Misinformation/safety concerns (6/29 – 20.7%)	"Parents are seeing a lot on social media, so they are asking more than they were before the pandemic. Asking if they will get 'antigen overload'." "All the misinformation and disinformation about the COVID vaccine has spilled over and has affected all vaccines."
8	More fatigued/weaker recommendations (5/29 – 17.2%)	"I feel like I'm inquiring rather than presenting information." "At two months when we start, I feel like I'm gun shy about getting into vaccination. I'm supposed to sell it more, but I have felt a little more fatigued. I am more reserved now about getting into vaccination schedule."
3	Afraid COVID-19 shot will be slipped in (4/29 – 13.8%)	"...we heard people asking if we were slipping the COVID vaccine in with others." "A lot of people think that we sneak the COVID vaccine in with other vaccines."
7	More urgent/stronger conversations (4/29 – 13.8%)	"I know we make it more urgent to them now when we recommend vaccines." "Stronger encouragements. I changed how I present it. I now say that this is what is recommended at this age instead of just what is required by schools."

Table 1.5: Predominant themes: Changes in conversations over the past five years

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Results (cont...):

Question #12: What new challenges have you experienced since 2019 when it comes to following standard immunization schedules for children?

Code	Theme	Examples
1	Social media information (8/28 – 28.6%)	<i>"There are more 'wellness influencers' and misinformation that we need to address now."</i> <i>"With the internet giving so much information, people have more questions, so it is time consuming to answer all of these questions."</i>
5	Complications with alternate schedules and changing recommendations (8/28 – 28.6%)	<i>"I'm seeing so many more people who want to proceed forth with an alternate schedule..."</i> <i>"More people want to do a delayed schedule or on their own schedule. A lot of people only want one shot given each visit. Prioritizing vaccines and figuring out what the parents are ok with is a newer challenge."</i>
2	Political information (5/28 – 17.9%)	<i>"Currently with the political forefront, there are more challenges. I am very worried and very concerned about what is happening. I'm worried about ACIP being reorganized."</i> <i>"Trying to keep political issues out of it and focusing on the medical side of vaccines."</i>
4	More vaccine hesitancy (5/28 – 17.9%)	<i>"It feels like people are more wary of all vaccines, not just the COVID vaccine or the flu vaccine."</i> <i>"They are hesitant because there is so much information on both sides of it that it can be overwhelming, so they just say they want to do something in the middle and slow it down a little."</i>

Table 1.6: Predominant new challenges following immunization schedules for children since 2019

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Results (cont...):

Question #13: What reasons are given by parents when not accepting all recommended childhood immunizations for their children?

Code	Theme	Examples
1	Side effects/Local reactions (9/29 – 31.0%)	<i>"They are fearful of side effects."</i> <i>"They are afraid of the child being sore or have fevers."</i>
4	Spread out shots/antigen overload (7/29 – 24.1%)	<i>"They don't want the antigen overload – don't want so many vaccines at once."</i> <i>"Too many at one time. It will overload their system."</i>
6	Don't trust ingredients (7/29 – 24.1%)	<i>"Ingredients/preservatives are concerns."</i> <i>"We've heard a lot about metal toxins in vaccines. Parents bring in information about how much aluminum is in a vaccine."</i>
9	Don't give a reason (5/29 – 17.2%)	<i>"A lot of times there is no reason given."</i> <i>"They have decided that they don't want to vaccinate. They don't necessarily give a reason."</i>
2	Autism (3/29 – 10.3%)	<i>"Some long-term parents who have a new child don't want vaccines of a sudden because they know someone who was diagnosed with autism after receiving a vaccine."</i> <i>"Or it's the autism concern."</i>
3	Political reasons (3/29 – 10.3%)	<i>"If they are very political, they don't trust the government."</i> <i>"The person in charge of HHS says that it's not safe."</i>

Table 1.7: Predominant reasons given by parents when not accepting recommended childhood vaccines

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Results (cont...):

Question #16: What resources do you need to help combat vaccine hesitancy?

Code	Theme	Examples
2	Social media presence (8/30 – 26.7%)	<i>"I think what we could benefit from is a voice, or several voices, in the spaces where these people go to find information. If TikTok or YouTube is where they are going to go, we can't think they are going to go read a journal. We need to have a presence where they are."</i> <i>"Maybe a social media site that combats the social media information that they are seeing."</i> <i>"Things we can link to our own social media to help combat the misinformation that people get from social media."</i>
3	Fact sheet (6/30 – 20.0%)	<i>"Numbers, like rates of cases in the US that are up to date. Information sticks out. If it's accessible and easy to find and give to patients so they can understand the risks of the disease."</i> <i>"A fact sheet. A big paragraph about the importance of vaccines and how it actually helps other people."</i>
6	Staff training (5/30 – 16.7%)	<i>"More training or education about what false information is out there. It's easier to shut down false information when we know what people are hearing. Little training sessions that talk about new concerns that we are hearing and then here is evidence to refute that."</i> <i>"We are doing more training on how to approach certain vaccines with families. Specific messaging on how to share information without trying to scare parents. More training in this area would be helpful."</i>
1	Disease-state posters (3/30 – 10.0%)	<i>"We love posters that show pictures of vaccine preventable diseases."</i> <i>"Infographic posters – here are symptoms, this is what the disease can look like. Things that show how devastating these diseases can be."</i>

Table 1.8: Predominant resources needed to help combat vaccine hesitancy

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Key Takeaways:

- There have been lasting effects on routine childhood immunizations from COVID-19
- Training for immunizers would be beneficial to help communicate the importance of vaccines (16.7%) as well as adherence tracking (45.4% of Health departments surveyed were not sure or don't track adherence rates)
- Social media misinformation concerning vaccines has been significant in Kansas (28.6%)
- Immunizers would like to use social media to spread accurate vaccine information (26.7%)
- Useful sites: Dr. Rubin TikTok videos, backtothevax.com, knowyourvaccines.org, Booklet – Vaccine Fears Overturned by Facts

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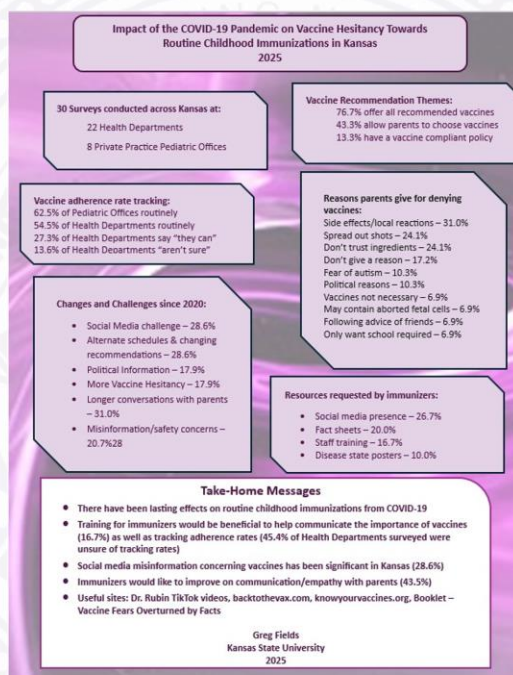
Key Takeaways (cont...):

A large percentage of participants mentioned the need for better communication/empathy towards parents (43.5%)



"I think one of the biggest things that we sometimes forget about or we miss, is that these are well-intentioned people who are doing what they think is the right thing by their child...All these things are fed into their social media feeds. It caters to what you've already been watching and what you are interested in, so it feeds into their fears. They are just a product of fear mongering. They are not bad humans, and I think they get very defensive. That's the space we need to approach them in...But this form of vaccine hesitancy feels different, and the amount of misinformation available to these people is different...and we have to find a space where we can move forward and help people with empathy for them, giving them grace, and not making them feel bad."

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