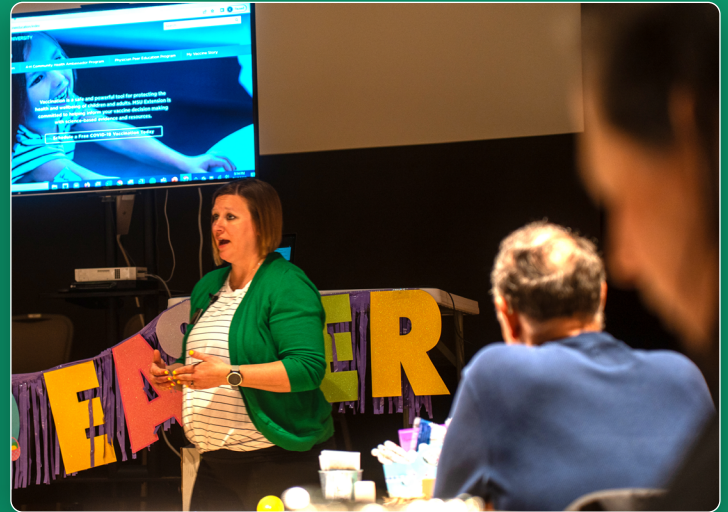


# The Public Health Value of Cooperative Extension Promoting Vaccine Education for 30 Years



**AUTHORS:**

**Maggie Magoon,**  
Health Immunization Extension Specialist

**Alyssa Picone,**  
Youth Healthy Living Extension Educator

**James Monahan,**  
Health Communications Manager

**Cheryl Eschbach,**  
Health & Nutrition Institute Director

**Erin Moore,**  
Health & Nutrition Institute Associate Director

**Dawn Contreras,**  
Senior Extension Specialist Emeritus

## Introduction

Vaccination is an effective public health intervention preventing disease and death (Zhang et al., 2023). Vaccinations are a critical public health tool to protect populations from life-threatening diseases (Hussain, 2019). Yet vaccine hesitancy and refusal to vaccinate persist among individuals who reject or distrust science, which can influence outbreaks (Bedford et al., 2018). During the COVID-19 pandemic, lower and plateaued vaccination rates were attributable to fewer routine visits to primary care and other disruptions in healthcare (Cunniff et al., 2023). However, the spread of vaccination disinformation and misinformation during the pandemic also increased American's vaccine hesitancy and decreased intention to vaccinate (Lee et al., 2022).

Amid rising vaccine hesitancy, an urgent need emerged for health educators to take action to increase vaccination uptake through education and support public health efforts (Lin et al., 2021; World Health Organization [WHO], 2019). Hesitancy refers to a psychological state of indecision and vacillation, as well as behaviors that may delay action or result in inaction (Bedford et al., 2018). Hesitancy differs from vaccination refusal or access barriers (Bedford et al., 2018). Vaccine education designed to reach vaccine-hesitant people is one solution to assist public health goals (Lip et al., 2023). Education emphasizing the importance of routine vaccination is needed across the lifespan (Cunniff et al., 2023). Increasing vaccine literacy is a specific kind of health literacy that can eliminate hesitancy and ultimately increase vaccine uptake (Zhang et al., 2023). On a systems level, Lee et al. (2022) suggest all public health campaigns and strategies find ways to intervene in vaccine disinformation and misinformation.

## Theoretical/Conceptual Framework

Pervasive spread of health misinformation combined with a measurable decline in public trust in U.S. federal public health agencies, such as the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), has hindered efforts to increase vaccination rates and respond effectively to recent and potential public health epidemics (Montero et al., 2025). These challenges are not unique to the U.S.; global trends show waning trust in governmental institutions and



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### MVP Youth Health Ambassadors tabling at the Daniel Tiger Day outreach event.

rising vaccine hesitancy across many countries, with only a few exceptions (Valgarðsson, et al. 2025; WHO, 2024b). Public health agencies have predominantly used top-down communication strategies which may create this gap between trust and behavior. While most Americans still express trust in their healthcare provider (Montero et al., 2025), vaccination rates have not reached the level needed to curb widespread illness from vaccine-preventable diseases. This suggests the need for long-term strategies to explore and implement public outreach models that use existing trusted messengers, messages, and channels to help vaccine hesitant populations work with their healthcare provider to make wise vaccination decisions and rebuild institutional trust.

One such public outreach model is Michigan State University (MSU) Extension's 30-year record of vaccine education projects, which builds upon a localized, interpersonal approach to public health communication grounded in public trust research (Goldberg, 2023; Krastev, et al., 2023; SteelFisher, et al., 2023). Land grant universities like MSU are institutions of higher education that include the Cooperative Extension System (CES), a national network of professionals working in communities to provide research-based information and practical knowledge to help people improve their

lives and make informed decisions (Eschbach et al., 2024). MSU Extension’s outreach model leverages trusted messengers embedded in communities served; utilizes credible communication channels; and delivers personalized, emotionally resonant messages tailored to the experiences of diverse audiences.

Trusted messengers in the MSU Extension model have included physicians, youth health ambassadors, community leaders, and Extension educators—individuals who are embedded within their communities. These messengers engage through local outreach, while broader vaccine education messaging is delivered through localized media platforms including newspapers, radio, and targeted social and digital media advertising. Messaging is personalized through compelling personal stories and tailored educational content designed to resonate with specific audiences such as new parents, teenagers, older adults, veterans, and historically underserved communities including African American, American Indian/Alaska Native (AI/AN), Latino, and LGBTQIA+ populations.

By meeting people where they are, this trust-based, interpersonal approach offers a complementary strategy for vaccine education efforts, especially in environments where trust in federal institutions continues to decline. MSU’s model aligns with the WHO Communication-Based Trust Framework which emphasizes that



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**An MVP Youth Health Ambassador records a public service announcement at the Detroit Public Television studio.**

trust is built through communication strategies including listening to concerns, transparent risk communication, and tailoring messages to specific communities (WHO, 2017).

### **Need for Vaccine Education**

The outbreak of the COVID-19 pandemic underscored the need for strategic health education. Since the beginning of the outbreak, immunization rates declined due to vaccine hesitancy, misinformation, and disinformation, decreasing trust in vaccines and the scientific community (de Albuquerque Veloso Machado et al., 2021; Kricorian et al., 2021; Pierri et al., 2022).

WHO (2024a) differentiates misinformation, which is “the spread of false information without the intent to mislead,” from disinformation, which is “designed or spread with full knowledge of it being false” (para. 2). Misinformation and disinformation can circulate in society’s communications, media, and culture. These influences are part of a system and policy level of influence. On an individual level, understanding people’s underlying motivation and behavior of anti-vaccination arguments can inform awareness and education campaigns to combat misinformation and disinformation, decreasing vaccine hesitancy, and ultimately increasing trust.

Part of building public trust in vaccination involves the healthcare community, including health educators and physicians, but can also include training schoolteachers and family members about the importance of routine childhood vaccinations as part of preventive healthcare (García-Toledano et al., 2022). Strategic health education can help increase acceptance of scientific information among people who are vaccine reluctant or have refused vaccines, and motivate behavioral changes (García-Toledano et al., 2022).

Few other medical interventions compare to the impact that the development of vaccines and increased immunization rates have had on public health for individuals, communities, and entire populations (Schuchat, 2011). Vaccine awareness, outreach, and educational interventions are at the cornerstone of combatting misinformation, disinformation, and hesitancy and increasing knowledge, favorable attitudes, and behaviors towards immunizations (Takagi et al., 2023).

## The Cooperative Extension System as a Community-Based Partner to Promote Vaccine Education

With its extensive national outreach infrastructure, CES is an educational partner in collaboration with the U.S. Department of Agriculture's National Institute of Food and Agriculture. CES can reach diverse audiences and quickly respond to time-sensitive awareness and educational needs given its statewide community networks (Burton et al., 2021; Eschbach et al., 2024). When the COVID-19 pandemic unfolded in 2020, a need for educational partners to help promote vaccine literacy surfaced as a top public health priority from the U.S. Surgeon General (Murthy, 2021). As the pandemic continued, it became clear that healthcare providers needed additional support from trusted community members and educators to provide outreach and education about vaccine safety and availability. Additionally, the spread of information online and through social media quickly became sources of vaccine misinformation and disinformation, while also presenting opportunities for generating public awareness and promoting education.



Charlee Brissette, former MSU Extension Educator

**Two participants displaying their completed projects as a result from attending the 2022 Intertribal Ribbon Skirt Workshop. These tribal members opted to include the “Vaccinated Native” patch on their skirts.**

In Michigan, rural communities were below state and national averages for both COVID-19 and routine childhood vaccinations during the pandemic. Statewide childhood immunization rates declined in all age milestones, except vaccinations given at birth (Bramer et al., 2020; Hill et al., 2023). According to the Michigan Department of Health and Human Services (MDHHS, 2021), 55.7% of the states' residents aged 16+ in May 2021 were 1+ dose vaccinated with pockets of the state having lower rates. In April 2021, youth aged 10-19 represented the state's highest rate of new COVID-19 cases. Up to that time, youth had not been actively engaged in vaccine education outreach. An opportunity emerged to reach rural youth, adults, and families with science-based public health educational messages designed by community members.

This article describes the experiences of one state's land grant university and Extension system addressing vaccine hesitancy and promoting health literacy, trust, and access through education. The lessons learned from three projects in this case study are based on 30 years of experience in providing immunization education through CES staff and public outreach strategies.

## MSU Extension History in Vaccination Education

MSU Extension has a 30-year history with vaccine education throughout communities in Michigan. This case study describes three publicly-funded efforts so conclusions and lessons learned can be shared with professionals engaged in similar efforts. With CES available in every state as a community-based health partner, efforts of these projects may be replicated and generalized.

### The Physician Peer Education Project on Immunization (1995-Present)

Long before the COVID-19 pandemic, Michigan had the lowest immunization rates in the nation in 1995, leaving children especially vulnerable. This prompted substantial funding to Michigan from the CDC, recognizing that healthcare providers are trusted sources, and their recommendations are a strong predictor of adult, parent, and child vaccination rates (Lin et al., 2021). For over 30 years, the Physician Peer Education Project on



### PPEPI Exhibiting Event at the Michigan Association of Osteopathic Family Physicians Conference

Maggie Magoon (right) and Dawn Contreras (left)

Immunization (PPEPI) has been funded by MDHHS and provides vital peer-to-peer education for healthcare professionals by offering immunization updates on various topics by physicians throughout the state. MSU Extension was originally awarded PPEPI funding to increase vaccination rates in Michigan. Between 1995 and 2025, PPEPI has been awarded an average of \$197,000 per year, totaling approximately \$5,700,151 in funds to MSU Extension. Several of the physicians in the network have been with PPEPI since 1995, with new physician peer educators added after vetting by MSU Extension and MDHHS. The physicians are contracted through MSU Extension to offer one-hour vaccine updates providing free continuing medical education to healthcare providers and their staff at hospitals, clinics, private practices, or virtually. Additionally, MSU Extension staff provide vaccine resources at healthcare provider conferences throughout the state. As one of Michigan's land grant institutions, MSU Extension has a statewide network within communities, leveraging partnerships that can recruit and coordinate peer educators and reach healthcare providers with varying credentials (Eschbach et al., 2024).

### Extension Collaborative on Immunization Teaching Engagement with Tribal College Partners (2021-2022)

In 2021, MSU Extension received subaward funding from the Extension Foundation, called Extension Collaborative on Immunization Teaching Engagement (EXCITE), which had primary CDC funding (Rodgers et al., 2023). EXCITE Activity One funded 72 CES short-term projects to promote confidence in community-based vaccine education. In Michigan, MSU Extension's EXCITE funds (\$24,178) created a joint project with the Michigan Inter-Tribal Land-Grant Extension System, which included partnering with two Tribal land-grant institutions in Michigan (Bay Mills Community College and Keweenaw Bay Ojibwa Community College) that had also received EXCITE funding. By leveraging university and Tribal resources and partnerships, the collaborative project aimed to increase vaccine awareness and education in Tribal communities. Equally important, the EXCITE project strengthened relationships between MSU Extension and Michigan's 1994 land grant Tribal colleges, resulting in several shared products and outcomes. The project established a new website, produced video public service announcements,

distributed indirect education through postcards, and hosted culturally-informed workshops focused on vaccine safety awareness and accessibility. One such example was a ribbon skirt workshop where participants learned to sew traditional Tribal ribbon skirts while discussing vaccine recommendations. Additional efforts included mailing wellness care baskets to homes with educational content and a postcard writing campaign to encourage conversations among friends and family members about the importance of vaccination (MSU, 2022; Rodgers et al., 2023). The project worked with an AI/AN graphic designer to create a logo reflecting Tribal floral art and a tagline – “For the Health of It.” This sustainable infrastructure (e.g., websites, PSAs, slogan) was an outcome of this successful project implementation.

### **The Michigan Vaccine Project (2021-2024)**

With the onset of the COVID-19 pandemic, states received federal resources to reach diverse populations with vaccine awareness, education, and access. Due to MSU Extension’s years of experience providing immunization education with PPEPI, MDHHS approached MSU Extension with a new effort, the Michigan Vaccine Project (MVP). MDHHS received CDC funding through the Coronavirus Response and Relief Supplemental Appropriations Act of 2021 for COVID-19 Vaccination for Underserved Populations (Supplement 4). MDHHS partnered with MSU Extension to start the project in July 2021 and contracted \$7 million to MSU Extension to provide an awareness and education campaign to Michigan’s rural adults and youth so they could make informed decisions about receiving vaccinations, including COVID-19.

**Michigan 4-H Community Youth Health Ambassador Activities.** One of the successful MVP strategies included youth health ambassadors (YHAs), established through MSU Extension’s 4-H statewide youth development program. The program was created to educate and train 30 diverse youth ages 12-19 from Michigan about vaccine-preventable diseases so they could provide educational content to their peers and communities. Peer-to-peer youth programs and communication are recognized as trusted sources of health information among these ages (Dodd, et al., 2022; Edelman Trust Institute, 2025). YHAs



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### **MVP Program Instructor Katie Parr presents vaccine education to residents of Beaver Island.**

were active for two years (2023-2024), partnering with medical and media experts to improve their expertise and skills in communication, science, social media, leadership, public speaking, and video production. Evidence-based vaccine, health, and zoonotic disease education was delivered to YHAs through several virtual meetings and in-person workshops. Additionally, based on Montagni et al.’s (2020) findings that, “digital gamification has strong potential for increasing vaccination knowledge and, eventually, vaccination coverage” (p.1), MVP youth and staff utilized the

game-based learning platform Kahoot, CDC’s education game Go Viral!, and WHO resources. These strategies were used to create quizzes to meet vaccine education objectives, reinforce key concepts, assess understanding in real-time, and foster a collaborative learning environment.

YHAs partnered with media experts at the PBS-affiliated Detroit Public Television and The Michigan Learning Channel. YHAs wrote scripts, directed filming, and edited media with evidenced-based vaccine PSAs in the studio specifically designed to resonate with their peers and younger youth. Additionally, WTVB (1590 AM), a Michigan radio station, interviewed and showcased three YHAs as they shared evidence-based information on COVID-19, influenza, and tetanus, reaching approximately 27,000 individuals.

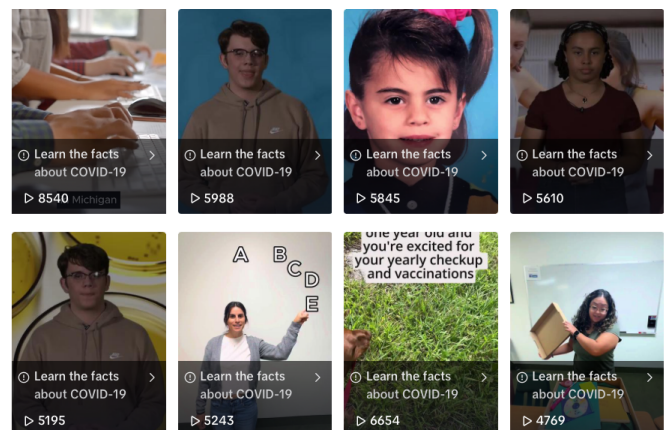
YHAs provided awareness and education to youth about vaccines and built a trusted relationship with staff, youth team members, and partners, while upholding the 4-H mission: helping youth build confidence, creativity, curiosity, leadership, and resilience through meaningful, hands-on learning experiences that equip them to excel in the future. The 4-H youth development program is a part of the national CES and available in every county of the United States.

**Media Activities.** MVP aimed to combat vaccine disinformation and vaccine hesitancy by disseminating evidence-based information across multiple social media platforms including Facebook, Instagram, TikTok, YouTube, and MSU Extension websites and platforms, with a particular focus on rural Michigan residents. MVP used Canva Teams to develop evidence-based social media content, which enabled staff to create visually engaging graphics and innovative videos for diverse audiences. To effectively engage with a multi-generational audience, the team prioritized using inclusive and diverse images, added closed captioning, provided Spanish translations for videos and graphics, used multiple platforms, and incorporated humor (Suka & Shimazaki, 2023). To further strengthen efforts, MVP organized in-person social media creation days each month to collaboratively film and refine social media content. See Table 1 for seven steps MVP recommends for creating effective video content.

**Table 1. Seven Steps for Creating Effective Media Content**

1. Structure content to include a clear introduction, body, and conclusion with a call to action.
2. Understand the audience and tailor the tone and content to the viewers.
3. Start with a strong hook that will grab viewers’ attention in the first few seconds.
4. Be concise, use clear and direct conversational language.
5. Use visual cues to ensure that visuals match your script.
6. End with a call to action that reinforces the intended message.
7. Edit content and have others review it to ensure accuracy and engagement.

To increase efficiency for social media initiatives, MVP purchased a subscription to Metricool, a comprehensive social media management and analytics platform, which offered analytics, content planning, management, and reporting. Metricool enabled the project team to analyze user data to identify the optimal times for posting on each social media platform. Current social media trends, graphics, and interactive videos were used to ensure information was engaging. To broaden reach and inclusivity, five social media graphics and two videos were translated into Spanish.



**Thumbnails for videos featured on the MVP TikTok Channel.**

## Data Collection and Analysis

Results of this case study of three projects across 30 years are detailed in six themes identified in the Learning Outcomes section. Data and analysis include demographic information, participation rates, partner feedback, increase in knowledge, vaccine confidence, and intent to vaccinate.

PPEPI activities reach an average of nearly 2,100 healthcare providers per year, with a total estimated reach of 60,239 healthcare providers between 1995-2024. Program evaluation results show PPEPI provides education to a variety of healthcare providers including physicians (35%); physician assistants (28%); nurse practitioners/nurses (17%); medical assistants (9%); and other (11%), such as pharmacists, students, and interns. PPEPI participants are from private practice (20%); hospital-based settings (25%); university medical programs (34%); Federally Qualified Health Clinics (6%); ER/urgent care (4%); and other settings (11%), including public health and pharmacies. Demographics show that participants have a mean age of 36 years (range: 21-95 years). Paired samples t-tests found participants improve their immunization knowledge from pre-to-post program. Recent evaluation surveys show a significant difference in knowledge that strong provider recommendations are a predictor of vaccination acceptance from pre-program ( $M=1.13$ ,  $SD=.16$ ) and post-program ( $M = 1.06$ ,  $SD = .01$ ;  $t(5.3) = [183]$ ,  $p < .001$ ). Results of the PPEPI program evaluation confirm other studies that showed positive improvements in healthcare provider knowledge and behaviors through peer-based education (Lin et al., 2021; MacCarthy et al., 2012).

Innovative programming during the EXCITE project was a success, as evidenced by the ribbon skirt workshop reaching 77 individuals via a hybrid in-person event with virtual and small group options. Representatives from 9 of Michigan's 12 federally recognized Tribal nations participated, and unexpectedly, attendance from Tribal members out of state. Members from Michigan tribes live in other states, and it was a success to see them attend online events hosted by the Michigan EXCITE grants. The EXCITE project's slogan, "For the Health of It," was developed as a graphic identity to use for future projects, which boosts

the long-term sustainability of messaging achieved by the project. Through the video PSAs created, there were over 12,000 impressions. The videos were shared on local television stations in paid advertisements, websites, and via social media postings. Feedback from partners was positive, and the videos remain online through a variety of platforms. Through dissemination of our video and audio PSAs to the Intertribal Council of Michigan, metrics provided by our partners include: Twitter/X Impressions (17), video views on Instagram (85), video views on Facebook (70), post reach on Facebook (110), and post reach on Instagram (204). Lastly, the creation of the website can continue to grow with additional resources. This sustainable infrastructure (e.g., websites, PSAs, slogan) was an outcome of this successful project implementation.

Over 14 million people were reached through all MVP outreach efforts (See Table 2). Increases in knowledge and intention to vaccinate for MVP were measured by surveying YHAs and webinar participants. YHAs completed surveys during monthly meetings and pre-post program involvement, reporting a 90% increase in knowledge of vaccination science. MVP monthly webinar participants reported: 96% were more/much more likely to get themselves and their children vaccinated and boosted after viewing the webinars; 100% increased their knowledge after viewing the webinars; and 96% felt confident that vaccines will protect them after viewing the webinars. Forty-nine videos are published on the MSU Extension website focused on immunization education and outreach.

Active MVP social media efforts ran from August 2022 to September 2024, resulting in a total of 626,920 impressions (TikTok 421.81k, YouTube 104.87k, Facebook 52.74k, and Instagram 47.5k).

**Table 2. MVP Awareness and Education Strategies**

MVP Awareness and Education Strategies	Number of Creatives Produced	Number Reached with Strategy
<b>Traditional Media</b>		
Video stories, written articles, radio interviews, podcasts, online resources		
My Vaccine Stories	12 videos	N/A
Newspaper ads and articles	12 articles	853,372 readers
Radio ads and interviews	32 PSAs	4,672,161 listeners
Podcasts	7 episodes	184 listeners
Extension articles	43 articles	N/A
MVP Website	1 project website	18,363 views and 15,904 interactions
<b>Social Media</b>		
Facebook, Instagram, TikTok, YouTube, LinkedIn, Spotify, MacDonald Garber Broadcasting		
Posts	1,600 posts	626,920 impressions and 65,000 engagements across all platforms
Digital display advertising	5 campaigns	6,342,750 impressions
<b>Webinars</b>		
Live and recorded with medical professionals and community partners	22 webinars	15,100 viewers
<b>Direct and Indirect Services</b>		
New community partnerships	100 Partnerships	
Rural youth and adult programming	122 programs	3,708 participants
Rural youth and adult community events	229 events	60,000 educational materials disseminated
YHA content creation and delivery	52 public broadcasting messages	67,461 views
Youth-led programs and speaking engagements	9 public speaking programs	18,497 engagements

## Learning Outcomes of the Case Study

Collectively, these three projects offer a case study of 30 years that resulted in six themes:

1. Peer-based education is valued and effective.
2. Projects created because of emergent health issues at key moments in time are most impactful.
3. Projects need relevant partners invested in meeting project goals.
4. Appropriate amounts and duration of funding matter, with preference for multi-year funding and support for staff time and infrastructure costs.
5. Innovative, non-traditional educational methods help meet needs.
6. Organizational and programming credibility influences results. These themes are intended to be practice strategies that are transferable to other projects.

The projects presented in this case study were not meant to be global in nature but rather were developed based on public health needs in the state of Michigan and focused on the collection of participant knowledge changes, vaccine confidence, and intent to vaccinate. Approaches demonstrated in this case study are in alignment with WHO communication and enhancement strategies.



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**Employees of Disability Network West Michigan are interviewed for the “An Ounce of Prevention” podcast.**

## Discussion

The three vaccine education projects showcased in this case study provide six lessons learned that serve as themes for practical implications for future programming. First, peer-based education was a key to success in each of the projects. Through PPEPI, healthcare providers facilitated sessions to other healthcare providers. With the EXCITE project, Indigenous individuals gave leadership to the immunization project, developed the educational products adapted to Tribal audiences, and delivered resources to peers. MVP engaged 4-H YHAs to plan, create, and disseminate educational messaging to their peers and communities. By using peer-based education, the deliverables and messaging were kept appropriate for the intended audience and provided a bridge that allowed trust to develop quickly between the messenger and the receiver.

Second, timing was another theme that emerged in this case study. Each project was created because of a pivotal moment in time when a public health topic became relevant and important, even urgent. PPEPI was developed when the state

became nationally known for having the lowest childhood immunization rates in the country. In response to this crisis, MSU Extension and trusted partners came together to develop the PPEPI peer-based model, resources were provided to fund it, and success was realized over the years. For EXCITE and MVP, the COVID-19 pandemic provided another crisis that needed to be addressed quickly. At that time, many partners once again came together to determine who could best meet the needs of various populations vulnerable to vaccine-preventable illness and death. While the timing was critical for generating support for each of the case study projects, not everyone was supportive. The politicization of vaccination during the COVID-19 pandemic led to safety and receptivity challenges for the team. Staff needed to be strategically placed in county offices that were in proximity to locations with low vaccination rates as well as offices deemed safe and receptive to publicly-funded educational messaging and outreach about vaccines.

A third overarching theme and lesson learned among the projects in this case study was the importance of appropriate partners. To reach the intended recipients, each project needed to

secure partners that assisted with meeting project goals. For example, partners for PPEPI included groups with a reputation for providing continuing medical education-based classes to healthcare providers. Working with two Tribal colleges gave credibility and reach for the EXCITE project, and immunization and media experts were key partners for the MVP project.

An appropriate amount and duration of funding was a fourth theme that impacted the infrastructure and stability of each project. With consistent external funding provided to PPEPI over the past 30 years, the project has served as a long-standing and reliable program for healthcare providers. The program ensures providers can keep up to date with rapid innovation and changes that occur regularly with vaccines and vaccine-related recommendations. For EXCITE, funding was limited to just one year and approximately \$25,000. The EXCITE project could have benefitted from the involvement of students, volunteers, or interns, but adequate staffing and project activities were limited given the amount and duration of funding. Without additional resources and more time, EXCITE was found to be insufficient to sustain. For MVP, which ran from July 2021-September 2024, the funding amount and timing were both a benefit and a challenge. The grant's success relied on the ability to onboard a team totaling 18 new positions that would solely focus on awareness, outreach and education for MVP. Although there was enough timing built in to do this, this hiring surge happened almost concurrently with the university's hiring reopening after a year-long pause due to the pandemic, which put stress on the internal human resources system. As a result, hiring the MVP team took nine months, which significantly delayed programming time. MSU Extension began programming in May 2022 and then faced challenges in replacing staff who exited the project prior to its completion in 2024. If the university's hiring had not been co-occurring during this period, it would have been beneficial to hire more staff upfront or plan for staff attrition.

The use of innovative, non-traditional educational methods within the various projects of this case study was a fifth theme that strengthened MSU Extension's ability to be engaging and relevant to target audiences. At the onset of the EXCITE



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**Farmer Randy Rice sits for an interview for the “My Vaccine Story” documentary video series.**

project, a Tribal MSU Extension Educator was designated as lead to serve as a moderator and connector to culturally-appropriate images and messaging. One example of the importance of this position was the project lead's decision to use ribbon skirt making workshops and wellness care baskets, that included products made by AI/AN vendors, to educate about vaccines through the EXCITE project. Other examples of innovative methods included gamifying vaccine education for youth, pairing MVP YHAs with PPEPI medical experts to present vaccine education, and using social media to distribute evidence-based, vaccine-focused messages. The unique educational strategies used in these projects were so successful that other units within the organization plan to incorporate them into their programming and outreach.

The final theme found through this case study was the need for credibility. For each project, MSU Extension had unique strengths that resulted in partners, funders, and target audiences viewing them as credible leaders. With its origin starting

with the Smith Lever Act of 1914, CES has a long history and reputation of providing high quality community-based education to underserved populations, particularly in rural areas. This reputation motivated MDHHS to reach out to MSU Extension to collaborate with them on PPEPI in 1995. For the EXCITE project, a shared mission of CES outreach connected MSU Extension and Tribal colleges. Finally, with MVP, it was the reputation and experience of working long-term with MDHHS to conduct PPEPI, as well as MSU Extension's reputation for serving rural populations and its extensive 4-H youth development program, that paved the way for successful outcomes.

## Acknowledgement of Constraints

Each project in this case study had conceptual or methodological constraints addressed during the project or to be considered for future projects. Although CES is in every state and encourages partnerships, not all organizations have such longstanding infrastructures. For PPEPI, research continues to demonstrate that a strong provider recommendation is a robust predictor of vaccine acceptance (Lin et al., 2021). However, recent years have revealed that vaccine acceptance is a complex issue, and other key elements can influence a person's feelings about vaccination, such as family and peer opinions, cultural and social-demographic characteristics, and social media (Ghosh et al., 2024; Sasse et al., 2024; Wilson and Wiysonge, 2020). With these other key predictors of vaccine acceptance in mind, additional immunization projects, partners, and funding were developed to augment the work of PPEPI, such as MVP and EXCITE.

Several challenges limited the scope of the EXCITE project. This short-term, one-year project was awarded less than \$25,000. Most of the funds covered a portion of time for a Tribal health educator to provide leadership for daily activities, but several in-kind contributions made accomplishing project goals possible. Additionally, the overall experience of the COVID-19 pandemic also created stressors on MSU Extension as an organization. For example, community members and organizational staff were out sick, taking care of ill family members, or otherwise had difficulty scheduling or making plans due to the pandemic. Although MSU Extension subsidized efforts with

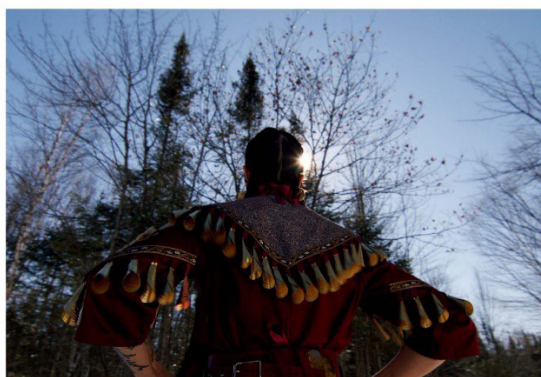


Maggie Magoon

### Maggie Magoon at the Michigan Academy of Family Physicians Conference.

additional staff time and operating budget support, time and funding limitations did not support or create project sustainability. With short-term funding, there is little time for a planning phase or partnership development, and small amounts of project funding can create challenges, especially working with Tribal communities where a steady and continuous presence is preferred (Proctor & Eschbach, 2021). There was also a high burden of reporting required by the Extension Foundation for the project funding that took time away from direct education and other community outreach.

As mentioned previously, after hiring a team of individuals for MVP, community needs warranted new outreach methods. In addition to traditional communication strategies, social media campaigns, webinars, and the YHA team became a prominent focus. MVP faced significant challenges in the dissemination of content on social media, particularly with paid promotions on TikTok,



**Postcard sent with care packages to over 1,000 people as part of the EXCITE project.**



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as the platform didn't consistently allow paid promotion and was inconsistent with its approval process. Government interventions further restricted the ability to promote educational messages consistently. In 2022, MVP established Facebook and Instagram accounts; however, Meta and Google would not verify the information as originating from an educational institution and would often block MVP posts because of the COVID-19 content. The lack of verification hindered the ability to utilize paid promotions effectively on Meta platforms, in particular. Despite these barriers, MVP's social platforms achieved over 65,000 engagements (TikTok 56.2k, Instagram 4,317, Facebook 2,358, YouTube 2,202), spending only \$2,241.22 for paid promotion over a two-year period. With a reach of over 14 million people through a multi-pronged approach designed to reach vulnerable populations in Michigan, MVP was a success. However, analytics showed that social media strategies used in the campaign reached a younger demographic, while traditional methods (newspaper and radio) reached older audiences. Finally, although the YHA team was engaged and productive, attrition from the original group occurred for several reasons such as aging out, beginning college/university, schedule conflicts, and lack of participation.

## Implications and Conclusion

With 30 years of vaccine education experience, MSU Extension has made an impact during critical periods requiring immediate and ongoing public health responses, like times of low immunization rates and the COVID-19 pandemic. The strategies used are of broad interest to professionals and significant to the knowledge base, methodology, effective practice, and organization. Strategies from this community case study can be adapted to others in CES, public health, and university outreach. Of great importance was the need to ensure a message that was tailored to target audiences. General messaging was developed at times; however, in alignment with the WHO's Communication-Based Trust Framework (WHO, 2017), communications tended to address the needs of specific groups (i.e., youth, adult, veterans, medical professionals, AI/AN peoples, underrepresented, and rural), and materials were translated into Spanish to support diverse audiences served. Table 3 summarizes key findings for policymakers, funders, or practitioners looking to adapt these models.

**Table 3. Case Study Summary**

	PPEPI	EXCITE	MVP
<b>Key Strategies</b>	Peer-based healthcare provider vaccine education.	Culturally informed tribal vaccine education and messaging.	Rural adult and youth vaccine education using YHAs, diverse communication strategies.
<b>Outcomes</b>	60,239 healthcare providers educated.  Significant increases in immunization knowledge ( $p < .001$ ).  Showed effectiveness of peer-based healthcare provider education.	Participation from 9 of Michigan's 12 federally recognized Tribal nations.  Over 12,000 video and webinar impressions.  Strengthened tribal-university relationship and sustainable vaccine messaging infrastructure.	Over 14 million people reached.  YHAs and webinar participants reported increased knowledge and intent to vaccinate.  Received 626,920 social media impressions.
<b>Constraints</b>	Competing time demands on healthcare providers.  Vaccine acceptance complexity.  No qualitative data collected.	Inadequate funding, staff and project duration.  High reporting burden.  Little quantitative evaluation data collected.	Large influx of staff to be hired and trained.  Some societal vaccine hesitancy and distrust.  Little data collected other than social media and webinar metrics.
<b>Elements of Success</b>	Healthcare providers as messengers.  High need led to funding and partners.  Convenient education offered through one-hour webinars.	Trusted past relationship with Tribal nations.  Perceived need for vaccine education.  Tribal members provided project leadership and tailored messaging.	Pandemic led to need.  Sufficient funding and partners.  Use of YHAs, rural educators, and diverse communication channels.

Given the current vaccine policy environment in the U.S., trust in institutions and governmental bodies has been called into question. Future projects could provide funding directly to non-profit and grass roots organizations so that continued messaging can address misinformation, disinformation, and vaccine hesitancy locally. Efforts to promote increased vaccinations education could continue focusing on other direct, trusted, community-based organizations to increase awareness and provide evidence-based education. Sustainability through local grass-roots efforts may be able to overcome limitations in

the current policy environment. Although funding for these projects differed greatly, many of the successful strategies can be scaled to available budgets. For instance, many professionals were willing to participate in outreach through community events, webinars, vaccine stories, podcasts, etc., without compensation. When the possibility of a consultant fee or honorarium was offered, most accepted, but many declined. Additionally, although MVP utilized paid social media for some communications, it also used free or low-cost options. For instance, posting on social

media using organizational accounts and websites, as well as organic social media reach, word of mouth, and low-cost local communication sources were used in all three projects.

In conclusion, this case study shows evidence of the public health value in CES educational outreach serving as a community partner in vaccine education efforts. As noted, the case study addressed all vaccine-preventable diseases; the results are not limited to COVID-19. These types of information and strategies, gained over 30 years of experience, are important because this model of trust and dissemination will be needed in the future as evident by a global increase in vaccine-preventable diseases (WHO, 2025), an increase in measles in the U.S. (Mathis et al., 2025) and Michigan (MDHHS, 2025), and potential future vaccine-preventable diseases and pandemics. The six lessons learned from MSU Extension's case study position organizations to create actionable frameworks for others and replicable models for community-based vaccine engagement relevant for funders, local government, and global health alliances.



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## References

- Bedford, H., Attwell, K., Danchin, M., Marshall, H., Corben, P., and Leask, J. (2018). Vaccine hesitancy, refusal and access barriers: The need for clarity in terminology. *Vaccine*, 36(44), 6556–6558. <https://doi.org/10.1016/j.vaccine.2017.08.004>.
- Bramer, C. A., Kimmins, L. M., Swanson, R., Kuo, J., Vranesich, P., Jacques-Carroll, L. A., and Shen, A. K. (2020). Decline in child vaccination coverage during the COVID-19 pandemic — Michigan Care Improvement Registry, May 2016–May 2020. *Morbidity and Mortality Weekly Report (MMWR)*, 69(20), 630–631. <http://dx.doi.org/10.15585/mmwr.mm6920e1>
- Burton, D., Canto, A., Coon, T., Eschbach, C., Gutter, M., Jones, M., Kennedy, L., Martin, K., Mitchell, A., O'Neal, L., Rennekamp, R., Rodgers, M., Stluka, S., Trautman, K., Yelland, E., and York, D. (2021) Cooperative Extension's national framework for health equity and well-being. Extension Committee on Organization and Policy: Washington, DC. <https://www.aplu.org/wp-content/uploads/202120EquityHealth20Full.pdf>
- Cunniff, L., Alyanak, E., Fix, A., Novak, M., Peterson, M., Mevis, K., Eiden, A. L., and Bhatti, A. (2023). The impact of the COVID-19 pandemic on vaccination uptake in the United States and strategies to recover and improve vaccination rates: A review. *Human Vaccines and Immunotherapeutics*, 19(2), 2246502. <https://doi.org/10.1080/21645515.2023.2246502>.
- de Albuquerque Veloso Machado, M., Roberts, B., Wong, B. L. H., van Kessel, R., and Mossialos, E. (2021). The relationship between the COVID-19 pandemic and vaccine hesitancy: A scoping review of literature until August 2021. *Frontiers in Public Health*, 9, 1-6. <https://doi.org/10.3389/fpubh.2021.747787>.
- Dodd, S., Widnall, E., Russell, A. E., Curtin, E. L., Simmonds, R., Limmer, M., and Kidger, J. (2022). School-based peer education interventions to improve health: A global systematic review of effectiveness. *BMC Public Health*, 22, 2247. <https://doi.org/10.1186/s12889-022-14688-3>.

- Edelman Trust Institute. (2025, April). 2025 Edelman trust barometer special report: Trust and health. Edelman. Fieldwork conducted March 4–14, 2025. <https://www.edelman.com/sites/g/files/aatuss191/files/2025-04/2025%20Edelman%20Trust%20Barometer%20Trust%20and%20Health%20FINAL.pdf>
- Eschbach, C. L., Weybright, E. H., and Dwyer, J. W. (2024). *Health Extension: Community-Based Healthcare and the Future of Cooperative Extension*. Transformations in Higher Education Series. Michigan State University Press.
- García-Toledano, E., López-Parra, E., Cebrián-Martínez, A., and Palomares-Ruiz, A. (2022). The need for health education and vaccination—importance of teacher training and family involvement. *Healthcare*, 10(1), 110. <https://doi.org/10.3390/healthcare10010110>.
- Goldberg, M. J. (2023). Public trust in science. *Interdisciplinary Science Review*, 48(2), 366–378. <https://doi.org/10.1080/03080188.2022.2152243>
- Ghosh, S., Bhattacharya, S., Mukherjee, S., and Chakravarty, S. (2024). Promote to protect: Data-driven computational model of peer influence for vaccine perception. *Scientific Reports*, 14, 306. <https://doi.org/10.1038/s41598-023-50756-3>
- Hill, H. A., Yankey, D., Singleton, J. A., and Elam-Evans, L. (2023, January). Childhood vaccination coverage before and during the COVID-19 pandemic among children born January 2017–May 2020, National Immunization Survey-Child (NIS-Child), 2018–2021. Immunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention. [cdc.gov/childvaxview/publications-resources/nis-child-pandemic-effects-2018-2021.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fimz-manager%2Fcoverage%2Fchildvaxview%2Fpubs-presentations%2Fnis-child-pandemic-effects-2018-2021.html](https://www.cdc.gov/childvaxview/publications-resources/nis-child-pandemic-effects-2018-2021.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fimz-manager%2Fcoverage%2Fchildvaxview%2Fpubs-presentations%2Fnis-child-pandemic-effects-2018-2021.html)
- Hussain, S. (2019). Immunization and vaccination. Psychiatry of Pandemics: A Mental Health Response to Infection Outbreak. *PMCID*: PMC7124023, 153–177. <https://europepmc.org/article/pmc/pmc7124023#free-full-text>
- Krastev, S., Krajden, O., Vang, Z. M., Juárez, F. P-G., Solomonova, E., Goldenberg, M. J., Weinstock, D., Smith, M.J., Dervis, E., Pilat D., and Gold, I. (2023). Institutional trust is a distinct construct related to vaccine hesitancy and refusal. *BMC Public Health*, 23, 2481. <https://doi.org/10.1186/s12889-023-17345-5>.
- Kricorian, K., Civen, R., and Equils, O. (2021). COVID-19 vaccine hesitancy: Misinformation and perceptions of vaccine safety. *Human Vaccines and Immunotherapeutics*, 18(1), 1–8. <https://doi.org/10.1080/21645515.2021.1950504>
- Lee, S. K., Sun, J., Jang, S., and Connelly, S. (2022). Misinformation of COVID-19 vaccines and vaccine hesitancy. *Scientific Reports*, 12, 13681. <https://doi.org/10.1038/s41598-022-17430-6>
- Lin, C., Mullen, J., Smith, D., Kotarba, M., Kaplan, S. J., and Tu, P. (2021). Healthcare providers' vaccine perceptions, hesitancy, and recommendation to patients: A systematic review. *Vaccines*, 9(7), 713. <https://doi.org/10.3390/vaccines9070713>
- Lip, A., Pateman, M., Fullerton, M. M., Chen, H. M., Bailey, L., Houle, S., Davidson, S., and Constantinescu, C. (2023). Vaccine hesitancy educational tools for healthcare providers and trainees: A scoping review. *Vaccine*, 41(1), 23–35. <https://doi.org/10.1016/j.vaccine.2022.09.093>
- MacCarthy, D., Kallstrom, L., Kadlec, H., and Hollander, M. (2012). Improving primary care in British Columbia, Canada: Evaluation of a peer-to-peer continuing education program for family physicians. *BMC Medical Education*, 12, 110. <https://doi.org/10.1186/1472-6920-12-110>.
- McCain, K. (January 1, 2026). The role of uncertainty in rebuilding trust in science. *American Journal of Public Health*, 116(1), 35–37. <https://doi.org/10.2105/AJPH.2025.308317>
- Mathis, A. D., Raines, K., Filardo, T. D., Wiley, N., Leung, J., Rota, P. A., Martinez, D., Rai, S., Shetty, V., Holzinger, N., Stanislawski, E., Daskalakis, D. C., Chatham-Stephens, K., Patel, M., and Sugerman, D. (2025, April 24). Measles Update — United States, January 1–April 17, 2025. *Morbidity and Mortality Weekly Report (MMWR)*, 74(14), 232–238. <http://dx.doi.org/10.15585/mmwr.mm7414a1>.

- Michigan Department of Health and Human Services. (2021). Immunization Status of School Children in Michigan, 2021. [https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Adult-and-Childrens-Services/Children-and-Families/Immunization-Information/School-Waiver-Information/School-Summary\\_2021](https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/Adult-and-Childrens-Services/Children-and-Families/Immunization-Information/School-Waiver-Information/School-Summary_2021)
- Michigan Department of Health and Human Services. (2025, July 2). Updates of Measles in the State of Michigan. <https://www.michigan.gov/mdhhs/adult-child-serv/childrenfamilies/immunizations/measlesupdates>.
- Michigan State University. (2022). Michigan State University research and extension annual report of accomplishments and results. U.S. Department of Agriculture, National Institute of Food and Agriculture. [2021-Michigan-State-University-Research-and-Extension-Annual-Report-of-Accomplishments-and-Results.pdf](https://www.usda.gov/2021-Michigan-State-University-Research-and-Extension-Annual-Report-of-Accomplishments-and-Results.pdf) ([usda.gov](https://www.usda.gov))
- Montagni, I., Mabchour, I., and Tzourio, C. (2020). Digital gamification to enhance vaccine knowledge and update: Scoping review. *JMIR Serious Games*, 8(2). <https://pmc.ncbi.nlm.nih.gov/articles/PMC7265110/>
- Montero, A., Sparks, G., Montalvo, J., III, Kirzinger, A., and Hamel, L. (2025, May 6). KFF tracking poll on health information and trust: Vaccine safety and trust. <https://www.kff.org/health-information-trust/kff-tracking-poll-on-health-information-and-trust-vaccine-safety-and-trust/#:~:text=Less%20than%20half%20of%20the%20public%20express,to%20carry%20-out%many%20of%20their%20core>
- Murthy, V. (2021). Confronting Health Misinformation: The U.S. surgeon general's advisory on building a healthy information environment. <https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf>
- Pierri, F., Perry, B. L., DeVerna, M. R., Yang, K.-C., Flammini, A., Menczer, F., and Bryden, J. (2022). Online misinformation is linked to early COVID-19 vaccination hesitancy and refusal. *Scientific Reports*, 12, 5966, 1-7. <https://doi.org/10.1038/s41598-022-10070-w>
- Proctor, E., & Eschbach, C. (2021). Michigan's tribal Extension educational programming and outreach, organizational self-assessment, and planning. Michigan State University Extension. [https://www.canr.msu.edu/tribal\\_education/uploads/files/MSU%20Extension%20Tribal%20Report%20November%202021.pdf](https://www.canr.msu.edu/tribal_education/uploads/files/MSU%20Extension%20Tribal%20Report%20November%202021.pdf)
- Rodgers, M., Downey, L., and Osborne, I. (2023). Extension collaborative on immunization teaching and engagement (EXCITE) activity one (A1) final report: June 2021-October 2022. Kansas City: Extension Foundation. [https://8907224.fs1.hubspotusercontent-na1.net/hubfs/8907224/EXCITE%202023/FINAL%20EXCITE%20Activity%20One%20Report%20%20\(1\).pdf](https://8907224.fs1.hubspotusercontent-na1.net/hubfs/8907224/EXCITE%202023/FINAL%20EXCITE%20Activity%20One%20Report%20%20(1).pdf)
- Sasse, K., Mahabir, R., Gkountouna, O., Crooks, A., and Croituru, A. (2024). Understanding the determinants of vaccine hesitancy in the United States: A comparison of social surveys and social media. *PLOS ONE*, 19(6) e0301488. <https://doi.org/10.1371/journal.pone.0301488>.
- Schuchat, A. (2011). Human vaccines and their importance to public health. *Procedia in Vaccinology*, 5, 120-126. <https://doi.org/10.1016/j.provac.2011.10.008>
- SteelFisher, G. K., Findling, M. G., Caporello, H. L., Lubell, K. M., Melville, K. G. V., Lane, L., Boyea, A. A., Schafer, T. J., and Ben-Porath, E. N. (2023). Trust in U.S. federal, state, and local public health agencies during COVID-19: Responses and policy implications. *Health Affairs*, 42(3), 328-337. <https://doi.org/10.1377/hlthaff.2022.01204>.
- Suka, M., and Shimazaki, T. (2023). Effectiveness of using humor appeal in health promotion materials: Evidence from an experimental study in Japan. *Archives of Public Health*, 81, 212. <https://doi.org/10.1186/s13690-023-01226-9>.
- Takagi, M. A., Hess, S., Smith, Z., Gawronski, K., Kumar, A., Horsley, J., Haddad, N., Noveloso, B., Zyzanski, S. and Ragina N. (2023). The impact of educational interventions on COVID-19 and vaccination attitudes among patients in Michigan: A prospective study. *Frontiers in Public Health*, 11, 1-12. <https://doi.org/10.3389/fpubh.2023.1144659>

Valgarðsson, V., Jennings, W., Stoker, G., Bunting, H., Devine, D., McKay, L., and Klassen, A. (2025). A crisis of political trust? Global trends in institutional trust from 1958 to 2019. *British Journal of Political Science*, 55, e15, 1-23. <https://doi.org/10.1017/S0007123424000498>.

Wilson, S. L. and Wiysonge, C. (2020). Social media and vaccine hesitancy. *BMJ Global Health*, 5(10), e004206. <https://doi.org/10.1136/bmjgh-2020-004206>.

World Health Organization. (2017). WHO strategic communications framework for effective communications. <https://www.who.int/docs/default-source/documents/communicating-for-health/communication-framework.pdf>

World Health Organization. (2019, January 10). Ten threats to global health in 2019. <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>

World Health Organization. (2024a, February 6). Disinformation and public health. <https://www.who.int/news-room/questions-and-answers/item/disinformation-and-public-health>

World Health Organization. (2024b, July 15). Global childhood immunization levels stalled in 2023, leaving many without life-saving protection. <https://www.who.int/news/item/15-07-2024-global-childhood-immunization-levels-stalled-in-2023-leaving-many-without-life-saving-protection>

World Health Organization. (2025, April 24). Increases in vaccine-preventable disease outbreaks threaten years of progress, warn WHO, UNICEF, Gavi. <https://www.who.int/news/item/24-04-2025-increases-in-vaccine-preventable-disease-outbreaks-threaten-years-of-progress--warn-who--unicef--gavi>

Zhang, E., Dai, Z., Wang, S., Wang, X., Zhang, X. and Fang, Q. (2023). Vaccine literacy and vaccination: A systematic review. *International Journal of Public Health*, 68. <https://doi.org/10.3389/ijph.2023.1605606>.