



Improving Adult Vaccination Rates

Incorporating Lessons Learned
From the COVID-19 Pandemic



[ncqa.org](https://www.ncqa.org)



The [National Committee for Quality Assurance](#) (NCQA) is a private, non-profit organization dedicated to improving health care quality. NCQA accredits and certifies a wide range of health care organizations and recognizes physicians in key clinical areas. NCQA's Healthcare Effectiveness Data and Information Set (HEDIS®*) is the most widely used performance measurement tool in health care. NCQA is committed to providing health care quality information through the Web, media and data licensing agreements in order to help consumers, employers and others make more informed health care choices.

*HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA). <https://www.ncqa.org/hedis/>.

1100 13th Street NW | Third Floor | Washington, DC 20005

For more information, contact NCQA via [My NCQA](#).

NCQA created this guide with sole sponsorship funding from [Pfizer, Inc.](#)

Pfizer, Inc., is a pharmaceutical and biotechnology corporation that aims to apply science and its global resources to bring therapies to people that help extend and improve their lives. Pfizer strives to set the standard for quality, safety, and value in the discovery, development and manufacture of healthcare products, including innovative medicines and vaccines. Pfizer, Inc., also partners with healthcare providers, governments, and local communities to support and expand access to reliable, affordable healthcare around the world.

This document is owned and copyrighted by the National Committee for Quality Assurance (NCQA). It was produced independently by NCQA with financial support from Pfizer, Inc. NCQA does not endorse any Pfizer products or services. Pfizer did not provide input into this document.

© 2023 NCQA. All rights reserved.

Contents

	ACKNOWLEDGMENTS	4
	EXECUTIVE SUMMARY	5
	ADULT IMMUNIZATIONS.	6
	Recommendations and Measurement	6
	Barriers to Vaccination	8
	ROUNDTABLE MISSION	9
	VACCINE HESITANCY.	9
	Factors Contributing to Vaccine Hesitancy.	9
	Failure to Identify a Trusted Source of Vaccine Information	9
	Poor Communication About Vaccines	9
	Recommendations to Build Vaccine Confidence	10
	Improve Dialogue About Vaccination Through Provider Education and Resources	10
	Build and Establish Trust Between Patients and Clinic Staff	10
	VACCINE ACCESS	11
	Factors Contributing to Vaccine Inaccessibility	11
	Insufficient Reimbursement.	11
	Missed Opportunities	11
	Recommendations to Increase Vaccine Access	12
	Increase Medicaid Reimbursement for Adult Vaccines.	12
	Implement Standing Orders to Increase Opportunities for Vaccination	12
	Build on Community-Based Relationships Established During COVID-19	12
	WORKFLOW AND DATA INTEGRATION INTO PRACTICE	12
	Factors Contributing to Workflow and Data Integration Issues	13
	Workflow Constraints	13
	Incomplete Data	13
	Limited Use of Adult Immunization Measures in Quality Reporting	13
	Recommendations to Improve Workflow and Data Integration	14
	Increase the Usability of IIS	14
	Mandate Reporting to IIS for Adult Vaccinations	14
	Encourage Patient Use of IIS Data	14
	Adopt the Adult Immunization Status Measure in Reporting Programs.	15
	CONCLUSION	16
	REFERENCES	17

Acknowledgements

ROUNDTABLE PANELISTS

NCQA appreciates the time, knowledge and perspectives of the roundtable panelists whose thoughtful contributions led to this paper.

Abby Bownas, MA

Partner, NVG LLC
Manager, Adult Vaccine Access Coalition

Carolyn B. Bridges, MD, FACP

Director
Adult Immunization
Immunize.org

Marylou Buyse, MD, MSc

Chief Medical Officer & Senior Vice President
Community Health Choice

Lama El Zein, MD, MHA

Senior Medical Director
Population Health and Clinician Engagement EmblemHealth

Mary Beth Kurilo, MPH, MSW

Senior Director
Health Informatics
American Immunization Registry Association

Clarence Lam, MD, MPH

Program Director & State Senator, District 12, Maryland
Preventive Medicine Residency Program
Johns Hopkins Bloomberg School of Public Health

Megan C. Lindley, MPH*

Health Scientist
Immunization Services
Centers for Disease Control and Prevention

Angela Shen, ScD, MPH

Visiting Research Scientist
Vaccine Education Center
Children's Hospital of Philadelphia

Shilpa Venkatachalam, PhD

Director
Patient-Centered Research Operations and
Ethical Oversight
Global Healthy Living Foundation

Daniel Zlott, PharmD

Senior Vice President
Education and Business Development
American Pharmacy Association

* **Disclaimer:** Ms. Lindley contributed to this article in her personal capacity. The views expressed are her own and do not necessarily represent the views of the Centers for Disease Control and Prevention or the United States government.

TECHNICAL WRITER

NCQA thanks Jeannie Lynch, who helped compose this paper.

PFIZER

NCQA acknowledges support from Pfizer, which sponsored the cost of producing and distributing this paper. Although Pfizer did not participate in the roundtable discussion or have a role in writing this paper, it supported the process and shared with NCQA the belief that the future of health care delivery requires greater collaboration among the diverse health care stakeholders that advocate for improved population health. NCQA thanks Pfizer for sponsoring this project.

NCQA STAFF

Sepheen Byron, DrPH, MHS

Assistant Vice President
Performance Measurement

Karen Onstad, MPH, MPP

Director
Quality Solutions Group

Caroline Blaum, MD, MS

Senior Research Scientist
Performance Measurement

Gabby Kyle Lion, MPH

Senior Health Care Analyst
Performance Measurement

Emma Maclean

Manager
Performance Measurement

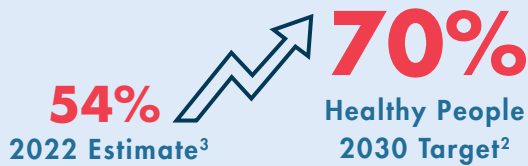
Judy Lacourciere

Editor
Product Design and Support

Executive Summary

Vaccinations are one of the most effective ways to prevent disease. Routine vaccine recommendations for adults represent evidence-based interventions that improve patient outcomes and decrease health care costs by averting serious disease and hospitalization.¹ Despite the evidence, however, many adults do not receive the recommended vaccinations. Healthy People 2030 identifies increasing the proportion of adults who receive recommended vaccines as a high-priority public health issue.^{2,3}

ANNUAL INFLUENZA VACCINATION COVERAGE



The coronavirus disease 2019 (COVID-19) pandemic focused attention on many of the challenges to vaccinating a wide range of urban, rural, racial and ethnic communities and vulnerable populations, including adults in congregate care settings, uninsured, lower income, persons with disabilities and those affected by systemic racism and limited access to health care resources. The public health emergency (PHE) resulted in policy changes, additional funding, data integration, community-level collaborations and unique strategies to improve vaccination uptake. As the nation emerges from the PHE, we have an opportunity to replicate and adapt approaches that succeeded during the pandemic to improve rates for other recommended vaccines.

The National Committee for Quality Assurance (NCQA) is a nonprofit organization dedicated to improving the quality of health care through measurement, transparency and accountability. In June 2023, NCQA convened a multistakeholder roundtable to identify and recommend strategies for improving adult immunization rates. Panelists included federal and state immunization experts, policymakers, physicians, pharmacists, health plan representatives and patient advocates. This report summarizes the roundtable discussion, which focused on identifying challenges to improving adult immunization rates and strategies to enhance collaboration across the health system. Panelists discussed ways to leverage lessons learned during the pandemic in order to increase uptake of recommended immunizations for adults.

Roundtable panelists—many on the front lines of the COVID-19 vaccine rollout—identified the following key recommendations:

- Improve patient and provider dialogue about vaccination by educating, translating guidelines for implementation and building trust.
- Expand access to vaccinations by increasing Medicaid reimbursement, implementing standing orders and building on community-based relationships established during COVID-19.
- Enhance data integration by increasing the usability of immunization information systems (IIS) for providers and patients and mandating reporting to IIS for adult vaccinations.
- Adopt the *Adult Immunization Status* measure in reporting programs to encourage data exchange and greater implementation of vaccine recommendations into clinical practice.



Adult Immunizations

RECOMMENDATIONS AND MEASUREMENT

TABLE 1 outlines several Advisory Committee on Immunization Practices (ACIP) recommended vaccinations for adults based on age and the presence of specific medical conditions. To examine vaccination rates among adults enrolled in Medicaid, commercial and Medicare Advantage health plans, NCQA developed the Adult Immunization Status measure in the Healthcare Effectiveness Data and Information Set (HEDIS®)†. The measure assesses whether adults received ACIP-recommended vaccines for influenza, tetanus, diphtheria and acellular pertussis (Td/Tdap), herpes zoster and pneumococcal pneumonia, and includes the following age-stratified rates:

INFLUENZA VACCINE: 18–64 years, 65 and older.	TD/TDAP VACCINE: 18–64 years, 65 and older.	HERPES ZOSTER VACCINE: 50–64 years, 65 and older.	PNEUMOCOCCAL VACCINE: 65 years and older.
---	---	---	---

The HEDIS measure is designed to assess immunizations recommended for a general population of adults.

TABLE 1. Advisory Committee on Immunization Practices: Selected Recommended Vaccines for Ages 19 Years and Older⁴

Vaccine	19-26 Years	27-49 Years	50-65 Years	≥65 Years
Influenza Inactivated or Recombinant	1 dose annually			
or Influenza Live Attenuated	1 dose annually			
Tetanus, Diphtheria, Pertussis	1 dose Tdap or Td/Tdap			
	1 dose Tdap, followed by a booster every 10 years			
Zoster Recombinant	2 doses		2 doses	
Pneumococcal	1 dose PCV15 followed by PPSV23 or 1 dose PCV20			1 dose PCV15 followed by PPSV23 or 1 dose PCV20

- Recommended vaccine for adults who meet the age requirement, lack documentation of vaccination or lack evidence of past infection.
- Recommended vaccine for adults with additional risk factors or another indication.
- No recommendation/not applicable.

Due to evidence of disparities in rates of vaccination, NCQA incorporated race and ethnicity stratification into the Adult Immunization Status measure in 2023. The 2018 National Health Interview Survey found that White adults were more likely to have received the influenza vaccine than Black and Hispanic adults.⁵ Additionally, Td/Tdap booster, pneumococcal and zoster vaccination coverage was higher for White adults compared to Black, Hispanic and Asian adults.⁵ To provide a tool for health plans to assess the presence of disparities, the measure now includes the following stratifications:

- **Race:** American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, Some Other Race, Two or More Races, Asked but No Answer, Unknown, Total.
- **Ethnicity:** Hispanic or Latino, Not Hispanic or Latino, Asked but No Answer, Unknown, Total.

FIGURES 1–4 display national health plan average results for the *Adult Immunization Status* measure by product line for each vaccine. However, it is important to note that *Adult Immunization Status* is a digital quality measure specified using the HEDIS Electronic Clinical Data Systems (ECDS) reporting standard. HEDIS ECDS measures rely on standardized information from health plan claims and enrollment files, electronic health records (EHR), case management systems and registries, which can include IIS.⁶ Data must reside in structured fields that allow automatic query. Digital measures move beyond the existing methods of immunization quality measurement (e.g., surveys, manual medical record review) and encourage health information exchange.⁷ While measures that use standardized electronic clinical data are a step forward in measurement methods, health plans face challenges in obtaining and sharing data beyond claims.⁸ For this reason, the results in **FIGURES 1–4** must be interpreted with caution, as rates may not yet reflect expected rates of vaccination coverage.⁷ As health plans continue to improve their access to clinical data, and improve data sharing between IIS, EHRs and other systems – and measures are increasingly used in programs – rates are expected to increase.⁷

FIGURE 1. Average Rates of Influenza Documentation Among Adults Age 18 Years+ Across Health Plans Reporting the HEDIS *Adult Immunization Status* Measure

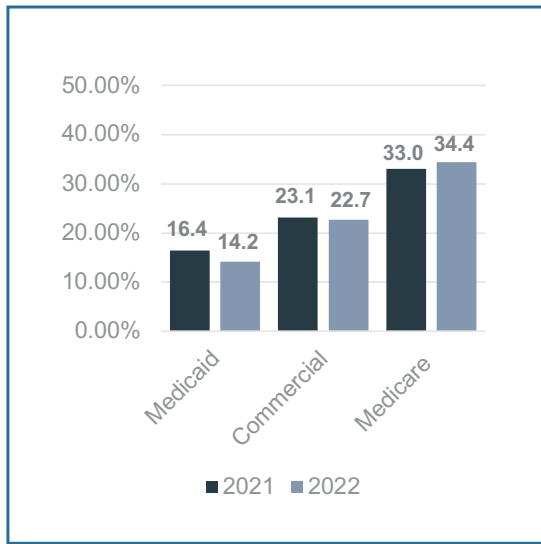


FIGURE 2. Average Rates of Td/Tdap Documentation Among Adults Age 18 Years+ Across Health Plans Reporting the HEDIS *Adult Immunization Status* Measure

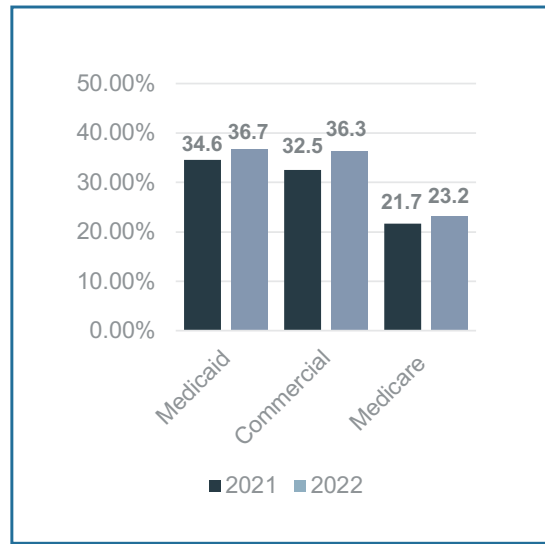


FIGURE 3. Average Rates of Herpes Zoster Documentation Among Adults Age 50 Years+ Across Health Plans Reporting the HEDIS *Adult Immunization Status* Measure

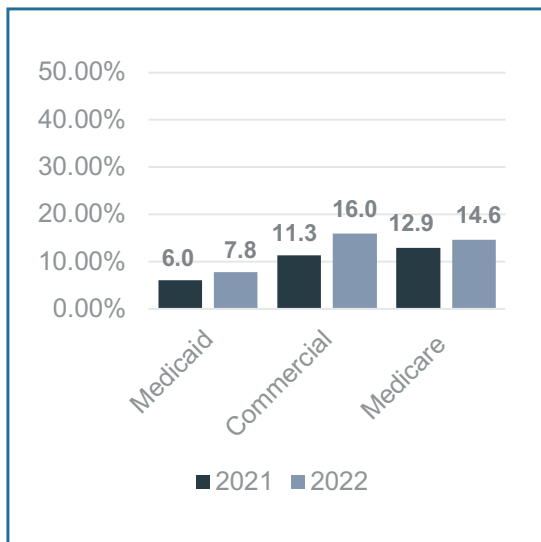
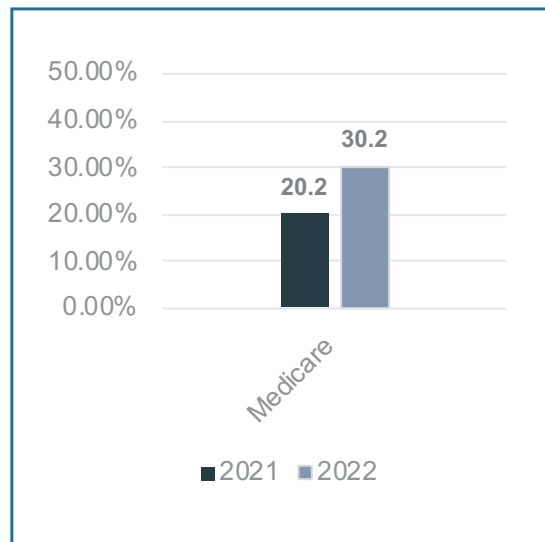


FIGURE 4. Average Rates of Pneumococcal Documentation Among Adults Age 65 Years+ Across Health Plans Reporting the HEDIS *Adult Immunization Status* Measure



BARRIERS TO VACCINATION

Understanding barriers to vaccination is essential to designing effective solutions. **TABLE 2** presents commonly identified barriers to vaccination from the literature, organized by levels of the health care system.⁹

TABLE 2. Common Barriers to Adult Vaccination by Health System Level

Category	Definition	Barriers
Patient Level	Relates to individual characteristics, demographics or patient perceptions.	<ul style="list-style-type: none"> • Patient concerns with vaccine safety or efficacy^{10,11} • Vaccine hesitancy^{9,12,13} • Patient access to vaccines at times and places accessible or convenient to them¹⁴ • Lack of health insurance coverage or high out-of-pocket costs for vaccines^{9,10,14} • Lack of knowledge regarding vaccines, their availability vaccines and vaccine-preventable diseases^{9,11,15,16,17} • Low disease risk perception^{11,17} • Limited or inadequate transportation^{14,18}
Interpersonal Level	Caused by the relationship, or lack thereof, between patient and providers.	<ul style="list-style-type: none"> • Many patients do not have access to primary care or primary care providers¹⁹ • Complex eligibility criteria for some vaccines⁹ • Lack of provider recommendation^{10,16,17,18} • Lack of provider knowledge regarding vaccines^{9,15} • Provider or staff attitudes towards vaccines⁹
Organizational Level	Factors within provider practices.	<ul style="list-style-type: none"> • Competing physician priorities⁹ • Vaccine storage capabilities⁹ • Language barriers¹⁴ • Vaccination recommendations are not routinely incorporated into patient flow • Clinics may not stock vaccines, or patients are less likely to seek vaccinations if they are not offered by primary care providers²⁰
Health System Level	Factors within health care organizations.	<ul style="list-style-type: none"> • Disparate or missing vaccination records¹⁴ • Vaccine availability⁹ • Lack of collaboration between physicians and public health organizations (i.e., physicians and public health organizations not working together to increase vaccination rates)⁹ • Vaccination rates not routinely measured and reported back to providers²¹ • Some systems may not be optimized to alert providers or patients about missing vaccines, to update quickly when vaccine recommendations change and to have bidirectional exchange with IIS²²
Policy Level	Stem from legal and political legislation or influence	<ul style="list-style-type: none"> • Vaccine cost^{10,11,14,15,18} • Lack of safety net for providing vaccines to uninsured adults or adults with high copay for vaccinations²³ • Vaccinations offered may be limited based on patients' insurance coverage²³

Roundtable Mission

To promote dialogue about how to improve adult immunization rates, NCQA convened a multistakeholder roundtable in June 2023. Panelists included federal and state immunization experts, policymakers, physicians, pharmacists, health plan representatives and patient advocates. The discussion was organized into three sessions:

1. Patient-level barriers and facilitators.
2. Provider-level barriers and facilitators.
3. Policy-level barriers and facilitators, and opportunities for collaboration.

The discussion focused on three priority barriers to vaccination: vaccine hesitancy, vaccine access, workflow and data integration. The panel also identified recommendations to address these barriers and improve adult immunization rates.

Vaccine Hesitancy

Vaccine hesitancy—reluctance or refusal to be vaccinated—has been cited as a top 10 global health threat.¹² It has multiple causes, including lack of patient education, vaccine misinformation and limited access to care. The COVID-19 pandemic was accompanied by a vast increase in misinformation and disinformation about the vaccines.²⁴ Roundtable panelists noted that building vaccine confidence is critical to addressing hesitancy, improving vaccine uptake and reducing disparities in vaccine uptake. Building confidence includes identifying trusted sources of health information, empowering providers to have vaccine conversations and engaging patients and communities about vaccines.

FACTORS CONTRIBUTING TO VACCINE HESITANCY

Failure to Identify a Trusted Source of Vaccine Information

Roundtable panelists spoke in detail about the importance of a trusting relationship between patient and provider. Patients arrive at clinics with a broad range of experiences and expectations about their interactions with providers. Panelists noted that, as an example, Black patients may be more inclined to mistrust representatives of the medical profession, based on previous negative experiences and historic mistreatment. Patients with chronic conditions who interact with multiple providers may have trusted relationships with only a subset of them. For example, a patient with multiple chronic conditions may trust vaccine recommendations from the provider they see most often. If that patient receives varying recommendations from different providers, it could be challenging to know which recommendation to follow.

Poor Communication About Vaccines

Panelists stressed the importance of provider communication, defined as providing timely and easily understandable health information, with patients. This means tailoring information to different communities to ensure the information is culturally appropriate and is based on individual health history. For example, a recent review found that providers may communicate recommendations differently, based on a patient's race and ethnicity.²⁵ Additionally, panelists noted the COVID-19 PHE highlighted that younger adults and older adults seek information from different sources and consider clinical information and recommendations differently. For example, a study about vaccine information-seeking found that older adults receive

information more frequently and from more traditional (e.g., newspaper) and interpersonal (e.g., friends and family) sources compared to younger adults.²⁶ Clinicians on the panel expressed that the time constraints of primary care appointments limit the extent of conversations they are able to have regarding vaccination with patients, noting they “have to choose their battles.”

Panelists noted that a lack of clear guidance for vaccine coadministration, and the evolving nature of guidelines—particularly for patients with multiple chronic conditions—make it challenging for providers to know which vaccines to recommend. Provider uncertainty about vaccine guidelines can lead to a lack of vaccine confidence among patients.

RECOMMENDATIONS TO BUILD VACCINE CONFIDENCE

Improve Dialogue About Vaccination Through Provider Education and Clearer Resources

Panelists emphasized the critical need to educate providers on vaccine guidelines and effective ways to communicate with patients about vaccine recommendations. The practice of assessing vaccine status in every clinical encounter, recommending needed vaccines, either offering vaccines on-site and reporting to IIS or referring to providers who vaccinate and report to IIS should be standard for all providers.^{27,28} Panelists emphasized that, as the primary point of contact with a patient, providers are critical to delivering recommended preventive health services, including vaccinations. If more providers adopt these practices, more patients will feel confident and comfortable with their vaccination decisions, and more people will be protected from vaccine preventable disease and disability.

Panelists identified a gap between guideline recommendations and practice implementation, stating that education and practice tools such as those embedded in EHRs and IIS are needed to facilitate better implementation of ACIP recommendations. Panelists suggested a collaboration between health systems, state and local health departments to promote use of tools included in IIS and others like Centers for Disease Control and Prevention apps and job aids for clinical use that simplify recommendations, promote more efficient implementation and provide education to providers.



“...I think one of the issues is genuinely looking at differences in the way that providers communicate to their patients of color about vaccinations, knowing that for every vaccine, for every population, it's that provider-recommendation relationship that's still important.”

Build and Establish Trust Between Patients and Clinic Staff

Clinics with successful vaccination rates have established trust between patients and staff. This means that patients not only trust their provider, but also trust the nursing assistants, medical assistants and other clinical personnel with whom they interact. Panelists emphasized that an important part of building trust is having providers and staff who look like their patients and come from their communities. While building up trust takes time, it is essential for increasing immunization rates.

Panelists also stressed that improving patient and provider dialogue and building trust go hand-in-hand. In order for providers to feel confident in conversations with patients, they must feel they have the knowledge and tools to do so. And once they have those, providers should leverage the trust they built with patients to have ongoing conversations about vaccinations. The provider recommendation is often the most important factor in a patient's decision about vaccination.

Vaccine Access

Improving vaccine access, or the ability to easily obtain vaccinations without undue burden, including time, distance and cost is critical to improving adult immunization rates. Barriers to vaccine access are well documented, and were deliberated at length during the roundtable discussion. Roundtable panelists focused their conversation on two barriers— insufficient reimbursement and missed opportunities—and provided recommendations for addressing them.

FACTORS CONTRIBUTING TO VACCINE INACCESSIBILITY

Insufficient Reimbursement

Reimbursement policies can substantially impact provider strategies regarding immunizations for adults. Roundtable panelists identified the financial risk of purchasing an inventory of costly vaccines that may go unused as a challenge for providers. Panelists noted that even when supply issues are resolved, providers find that reimbursement may be limited to specific provider types or may vary depending on the type of insurance the patient carries. Roundtable panelists identified low Medicaid reimbursement rates as a significant barrier to vaccine access in some states, and noted that some clinics stopped administering vaccinations due to insufficient reimbursement.

This barrier is supported in the literature.^{29,30,31} One study found that the top 5 barriers to providing vaccines in clinics cited by clinicians were all financially related.³¹ A recent assessment of reimbursement policies across the United States found that many states' Medicaid fee-for-service programs reimbursed physician offices for vaccine products at rates below the private sector price, at times dipping as much as 85 percent below private sector price.³² Further, the report found that half of states do not permit pharmacy reimbursement for all ACIP-recommended vaccines.³²

Missed Opportunities

The World Health Organization defines “missed opportunities” for vaccination as any contact with health services by an individual who is eligible for vaccination (e.g., unvaccinated/partially vaccinated and free of contraindications to vaccination) that does not result in the individual receiving one or more vaccines for which they are eligible.³³ For instance, panelists emphasized that providers who do not stock certain vaccines are less likely to recommend those vaccines to their patients or must refer patients out of the clinic thereby increasing missed opportunities. Strategies to reduce missed opportunities discussed at the roundtable were to implement the standards for adult immunization practice (assess vaccination needs at every clinical encounter, recommend and offer needed vaccines, or recommend and refer if vaccines not stocked, then report vaccinations given to IIS), utilize standing orders, utilize reminder and recall methods to remind patients of needed vaccines, and leverage community-based relationships built during COVID-19 to improve convenient access to vaccines.



“[Another] issue is that, particularly for Medicaid, in many states, the payment that providers receive is so inadequate that they're not offering it at their clinics, and they're referring out. Any time you don't have a vaccine at the clinic...your uptake rate drops by about fifty percent.”

RECOMMENDATIONS TO INCREASE VACCINE ACCESS

Increase Medicaid Reimbursement for Adult Vaccines

Roundtable panelists recommended that Medicaid vaccine and vaccine administration payments in all states adequately pay providers to cover costs of vaccines and vaccination services. Panelists also noted that during the PHE, most state Medicaid programs reimbursed pharmacists for administering the COVID-19 vaccine instead of paying a lower dispensing fee. However, as noted, this practice of reimbursing pharmacists for vaccination does not expand beyond COVID-19 for all states, which may lead to a disincentive for pharmacists to maintain vaccination services.

Implement Standing Orders to Increase Opportunities for Vaccination

During the pandemic, broad standing orders—implemented under the Public Readiness and Emergency Preparedness Act and emergency use authorizations³⁴—allowed a broader definition of health care professionals able to administer vaccinations. Outside of the PHE, standing orders can be implemented by physicians as permitted by state law. Panelists recommended maintaining standing orders to administer vaccines which allow greater provider participation and increase accessibility for patients.

Build on Community-Based Relationships Established During COVID-19

Prioritization of the COVID-19 vaccine led to innovative solutions to address missed opportunities, especially among vulnerable populations and among racial and ethnic groups with historically lower vaccination rates. For example, pharmacies, providers and public health organizations were able to expend resources and create mobile units that delivered vaccinations directly to communities with limited access to care.³⁵ Panelists recommended leveraging relationships that were built with local pharmacies and community-based organizations during the pandemic—senior citizen centers, community centers, homeless shelters, community-based organizations, faith-based organizations and churches—to continue delivering vaccines. Bringing vaccines to where patients have access and already feel comfortable is essential to reducing missed opportunities.³⁶



“[During COVID-19 vaccine rollout], [pharmacy-run] mobile units would drive into neighborhoods and deliver vaccines in home rather than making the patient come to a health care provider. It was an effective intervention to increase access and help close some of those health equity gaps... pharmacies are in a lot of communities that other providers aren't necessarily in.”



Workflow and Data Integration Into Practice

Panelists discussed IIS, digital health interventions and tools to monitor and improve adult vaccination rates as key components to increase rates.^{37,38,39} These systems consolidate people's vaccination data so a person has a record of which vaccines they received from different providers. IIS also monitor immunization program activities (e.g., vaccine uptake, including by small geographic areas to help direct needed resources) and provide support for clinical decision making.³⁸ But despite their benefits, there are numerous challenges to successful utilization: inaccurate or incomplete data, lack of provider participation, inconsistent technology and limited jurisdiction for data sharing.³⁸



IMMUNIZATION INFORMATION SYSTEMS

Geographically defined databases, primarily operated under state and local laws, that store information on immunization doses administered by providers and that can be used to share information across patients, providers, pharmacies, retail clinics and public health agencies.³⁷

FACTORS CONTRIBUTING TO WORKFLOW AND DATA INTEGRATION ISSUES

Workflow Constraints

Panelists agreed that while the use of IIS is critical to improving vaccination rates as IIS can yield valuable information on vaccination status for providers, the issues surrounding the interoperability of IIS and electronic medical records (EMR) can lead to an increased amount of work on the provider to retrieve the information. Some panelists stated they often manually query the IIS (i.e., pull information) to get pertinent patient vaccination information instead of already having IIS vaccination data for their patient in their EMR. Some EMR vendors have made the process of querying the IIS automatic, allowing for bidirectional exchange of immunization data. However, this does not resolve the issue of the time required to review results to determine what vaccinations a patient needs, in a visit that is already time constrained.



“All of this information [from IIS], is very important for the patient, but someone has to do it in the background... So [IIS systems/ EMR alerts] nudge physicians and say we did the background for you, I think these are the two vaccines that the patient needs.”

Incomplete Data

The roundtable discussion centered around the limited, or frequently incomplete, available data in the IIS. Panelists noted that because pharmacists often operate outside the traditional health care setting, they rely on IIS, yet often do not receive information about patient health risks. And when pharmacists administer vaccines, IIS do not always appropriately send information back to the EMR for providers to reference. Panelists recognized this as an area for systemwide improvement through more consistent data sharing and increased interoperability.



“I think it's a chicken-and-egg thing. We want these quality measures, but...we hear the data is not readily available to do the quality measure. But...if there's a quality measure, we'll be incentivizing people to do the data.”

Limited Use of Adult Immunization Measures in Quality Reporting

One way federal entities like the Centers for Medicare & Medicaid Services (CMS) assess and encourage improvement in health care delivery is through quality reporting programs, which can encourage improvement through payment incentives, payment reductions and reporting of information on health care quality on government websites.⁴⁰ The use of digital measures such as *Adult Immunization Status* in state, federal and other quality reporting programs may provide an incentive for organizations to improve the collection and sharing of standardized vaccination information. This would align with CMS' goal to transition from paper-based measures to digital quality measures.⁴¹ CMS states that digital quality measures can provide usable and timely data from multiple sources to support delivery of high quality care and quality improvement.⁴² Currently, the *Adult Immunization Status* measure is included in the Merit-Based

Incentive Payment System; however, this program allows measures to be reported on a voluntary basis. Panelists emphasized that while this is a good start, adding the measure to additional programs would further encourage reporting.ⁱⁱ

ii. In 2021, the Medicaid [Child and Adult Core Sets Annual Review Workgroup](#) recommended that the *Adult Immunization Status* measure be added to the *Adult Core Set*. However, when CMS issued the [Medicaid Informational Bulletin](#) for the 2023-2024 reporting year, they cited concerns with feasibility of reporting the measure at a state level due to its digital nature.

RECOMMENDATIONS TO IMPROVE WORKFLOW AND DATA INTEGRATION

Increase the Usability of IIS

Roundtable panelists recommended encouraging IIS and EMR vendors to identify ways in which bidirectional data sharing between IIS and EMRs could be fully automated and consistent across vendors, saving time for clinical teams and easing retrieval of patient vaccination status.

Mandate Reporting to IIS for Adult Vaccinations

Roundtable panelists noted that mandated IIS reporting for COVID-19 vaccinations significantly increased use of the system and brought new data partners on board. They observed that the increased use of IIS greatly improved the system. This also facilitated the reporting of other vaccinations since reporting was “turned on”. Because the end of the PHE also ended the reporting mandate, panelists emphasized the importance of maintaining high levels of engagement gained during the pandemic. Potential improvements to IIS included standardizing report formats and query forms, conducting outreach to organizations that report to IIS but do not query IIS and working with users to smoothly incorporate IIS data into EHR systems. As the relationship between data use and data quality is well documented, panelists recommended that policymakers require reporting to IIS for all adult vaccinations, or at a minimum, vaccinations that are publicly funded.

Encourage Patient Use of IIS Data

Panelists also discussed the role patients play in utilizing health information from IIS, and the increased access patients had to their health information during the pandemic. For example, patients in some states could scan a QR code and easily access their COVID-19 vaccination records. The availability of this information empowers patients to access what vaccinations they have received and be aware of what vaccinations they may still need. Panelists recommended that patients have easy access to information about their vaccinations, including those beyond COVID-19, to encourage ongoing engagement in their health care.



"We did see a huge jump, from about 62 percent of adult capture with two or more adult immunizations, up to about 92 percent. That was really because of the COVID-19 reporting mandate. We not only saw more data from our known data exchange partners, but also it brought all sorts of new partners into that data exchange world. ... there's a relationship between data use and data quality—the more the data get used for clinical decision support, coverage rates, reminder recalls and everything else... the better it will get, so we're really encouraging that query piece from all points of clinical care."

Adopt the Adult Immunization Status Measure in Reporting Programs

Panelists noted that inclusion of *Adult Immunization Status* in reporting programs encourages organizations to prioritize interoperability of health record information because the measure requires the use of standardized electronic clinical data from sources such as EMRs and IIS. Not only will adoption into reporting programs incentivize interoperability, but it also has the potential to improve vaccination rates. Panelists noted that what is measured, gets managed and often improves.

While the *Adult Immunization Status* measure is included in some reporting programs, panelists recommended that CMS adopt the measure in the Medicaid Core Set. Because Medicaid is one of the largest payers in the United States, panelists saw this as a significant opportunity for increasing ACIP-recommended adult vaccination rates, including improving vaccine equity by encouraging vaccination of persons on Medicaid who traditionally have lower vaccination coverage, and incentivizing interoperability.



"...we seem to have somewhat glossed over the adoption of [the Adult Immunization Status measure] in a really large population, particularly in the backdrop of the Inflation Reduction Act passage, and the enactment of Medicaid coverage in October of 2023."

"...getting [the Adult Immunization Status measure] into the [CMS Medicaid] Adult Core Set, even though it doesn't necessarily have that [required reporting] mandate, given just the size of Medicaid and what we know about the inequities there, is going to be incredibly important."



INFLATION REDUCTION ACT OF 2022

Congress requires state Medicaid programs to cover and pay for all recommended adult vaccines without cost sharing by October 1, 2023

Conclusion

Immunization is a critical component to preventive health for many adults, and yet the vaccination rates for routine immunizations for adults are exceptionally low. Roundtable panelists discussed several systemwide challenges, including communication about vaccines to patients, provider education, missed opportunities to vaccinate, low incentives for providers to administer vaccines and challenges with health information exchange between vaccine management systems like IIS and EMRs. Roundtable panelists made the following recommendations based on their long-standing experience with vaccinations and lessons from the COVID-19 pandemic:

- Improve patient and provider dialogue about vaccination by educating, translating guidelines for implementation and building trust.
- Expand access to vaccinations by increasing Medicaid reimbursement, implementing standing orders and building on community-based relationships established during COVID-19.
- Enhance data integration by increasing the usability of immunization information systems (IIS) for providers and patients and mandating reporting to IIS for adult vaccinations.
- Adopt the *Adult Immunization Status* measure in reporting programs to encourage data exchange and greater implementation of vaccine recommendations into clinical practice.

By prioritizing these recommendations and leveraging lessons learned and strategies from the COVID-19 pandemic, the health care industry is poised to make strides in increasing adult vaccination rates, reducing disparities in vaccinations and improving the exchange of vaccine-related information.





References

- 1 Leidner, A. J., Murthy, N., Chesson, H. W., Biggerstaff, M., Stoecker, C., Harris, A. M., ... & Bridges, C. B. (2019). Cost-effectiveness of adult vaccinations: A systematic review. *Vaccine*, 37(2), 226-234.
- 2 United States Department of Health and Human Services (2022). Healthy people 2023. Retrieved from: <https://wayback.archive-it.org/5774/20220413193555/https://health.gov/healthypeople/objectives-and-data/browse-objectives/vaccination> (accessed August 8, 2023).
- 3 Centers for Disease Control and Prevention (2023). Weekly flu vaccination dashboard. <https://www.cdc.gov/flu/fluview/dashboard/vaccination-dashboard.html#:~:text=54.0%25%20overall%20among%20adults%20as,the%20end%20of%202019%2D20> (accessed August 8, 2023).
- 4 Centers for Disease Control and Prevention (2023). Adult immunization schedule by age. Retrieved from: <https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#note-pneumo> (accessed August 8, 2023).
- 5 Lu, P. J., Hung, M. C., Srivastav, A., Grohskopf, L. A., Kobayashi, M., Harris, A. M., ... & Williams, W. W. (2021). Surveillance of vaccination coverage among adult populations—United States, 2018. *MMWR Surveillance Summaries*, 70(3), 1.
- 6 National Committee for Quality Assurance. (2019). HEDIS electronic clinical data system (ECDS) reporting. Retrieved from: <https://www.ncqa.org/hedis/the-future-of-hedis/hedis-electronic-clinical-data-system-ecds-reporting/>. (accessed August 8, 2023).
- 7 Byron, S. C., Roth, L., Acton, R. M., & Shen, A. (2021). Harnessing electronic clinical data to report adult and prenatal immunization quality measures. *Journal of the American Medical Informatics Association*, 28(10), 2226-2232.
- 8 Morden, E., Byron, S., Roth, L., Olin, S. C. S., Shenkman, E., Kelley, D., & Scholle, S. H. (2022). Health plans struggle to report on depression quality measures that require clinical data. *Academic Pediatrics*, 22(3), S133-S139.
- 9 Chadi, A., Thirion D., Pierre-Marie, D. (2023). Vaccine Promotion Strategies in Community Pharmacy Addressing Vulnerable Populations: a Scoping Review. *Research Square*. <https://doi.org/10.21203/rs.3.rs-2515771/v1>
- 10 Kolobova, I., Nyaku, M. K., Karakusevic, A., Bridge, D., Fotheringham, I., & O'Brien, M. (2022). Vaccine uptake and barriers to vaccination among at-risk adult populations in the US. *Human Vaccines & Immunotherapeutics*, 18(5), 2055422.
- 11 Wang, Q., Yang, L., Li, L., Liu, C., Jin, H., & Lin, L. (2023). Willingness to Vaccinate Against Herpes Zoster and Its Associated Factors Across WHO Regions: Global Systematic Review and Meta-Analysis. *JMIR Public Health and Surveillance*, 9, e43893.
- 12 Dubé, E. (2017). Addressing vaccine hesitancy: the crucial role of healthcare providers. *Clinical Microbiology and Infection*, 23(5), 279-280
- 13 World Health Organization (WHO). (2019). Ten threats to global health in 2019. Retrieved from: <https://www.who.int/vietnam/news/feature-stories/detail/ten-threats-to-global-health-in-2019> (accessed August 8, 2023)
- 14 Ventola, C. L. (2016). Immunization in the United States: recommendations, barriers, and measures to improve compliance: part 2: adult vaccinations. *Pharmacy and Therapeutics*, 41(8), 492.
- 15 Centers for Disease Control and Prevention. (2017). Vaccination Programs: General Best Practice Guidelines for Immunization. Retrieved from: <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/programs.html> (accessed August 8, 2023).
- 16 Eiden, A. L., Barratt, J., & Nyaku, M. K. (2022). Drivers of and barriers to routine adult vaccination: A systematic literature review. *Human Vaccines & Immunotherapeutics*, 18(6), 2127290.
- 17 Kilich, E., Dada, S., Francis, M. R., Tazare, J., Chico, R. M., Paterson, P., & Larson, H. J. (2020). Factors that influence vaccination decision-making among pregnant women: A systematic review and meta-analysis. *PloS one*, 15(7), e0234827.
- 18 Kan, T., & Zhang, J. (2018). Factors influencing seasonal influenza vaccination behaviour among elderly people: a systematic review. *Public health*, 156, 67-78.
- 19 U.S. Department of Health and Human Services. (2022). Health people 2030: Access to primary care. Retrieved from: <https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-primary-care> (accessed September 1, 2023).
- 20 Campos-Outcalt, D., Jeffcott-Pera, M., Carter-Smith, P., Schoof, B. K., & Young, H. F. (2010). Vaccines provided by family physicians. *The Annals of Family Medicine*, 8(6), 507-510.
- 21 U.S. Department of Health and Human Services (2023). Challenges with vaccination data hinder state and local immunization program efforts to combat COVID-19. Retrieved from: <https://oig.hhs.gov/oei/reports/OEI-05-22-00010.pdf> (accessed September 1, 2023).
- 22 Centers for Disease Control and Prevention. (2019). IIS frequently asked questions. Retrieved from: <https://www.cdc.gov/vaccines/programs/iis/resources-refs/faq.html#Q13> (accessed September 1, 2023).
- 23 Centers for Disease Control and Prevention (2017). How to pay for vaccines. Retrieved from: <https://www.cdc.gov/vaccines/adults/pay-for-vaccines.html> (accessed September 1, 2023).

- 24 Hsu, T., (2022). As covid-19 continues to spread, so does misinformation about it. The New York Times. Retrieved from: <https://www.nytimes.com/2022/12/28/technology/covid-misinformation-online.html> (accessed August 8, 2023).

- 25 Granade, C. J., Lindley, M. C., Jatlaoui, T., Asif, A. F., & Jones-Jack, N. (2022). Racial and ethnic disparities in adult vaccination: A review of the state of evidence. *Health Equity*, 6(1), 206-223.

- 26 Chu, L., Fung, H. H., Tse, D. C., Tsang, V. H., Zhang, H., & Mai, C. (2021). Obtaining information from different sources matters during the COVID-19 pandemic. *The Gerontologist*, 61(2), 187-195.

- 27 National Vaccine Advisory Committee. (2014). Recommendations from the National Vaccine Advisory Committee: standards for adult immunization practice. *Public Health Reports*, 129(2), 115-123.

- 28 National Adult and Influenza Immunization Summit. (n.d.) A call to action to protect all adults from vaccine-preventable disease and disability. Retrieved from: <https://www.izsummitpartners.org/call-to-action-adult-immunizations/> (accessed September 1, 2023).

- 29 Lindley MC, Hurley LP, Beaty BL, Allison MA, Crane LA, Brtnikova M, Snow M, Bridges CB, Kempe A. Vaccine financing and billing in practices serving adult patients: A follow-up survey. *Vaccine*. 2018 Feb 14;36(8):1093-1100. doi: 10.1016/j.vaccine.2018.01.015. PMID: 29366706; PMCID: PMC5807000.

- 30 Hurley LP, Bridges CB, Harpaz R, Allison MA, O'Leary ST, Crane LA, Brtnikova M, Stokley S, Beaty BL, Jimenez-Zambrano A, Ahmed F, Hales C, Kempe A. U.S. physicians' perspective of adult vaccine delivery. *Ann Intern Med*. 2014 Feb 4;160(3):161. doi: 10.7326/M13-2332. PMID: 24658693; PMCID: PMC4594851.

- 31 Hutton DW, Rose A, Singer DC, Bridges CB, Kim D, Pike J, Prosser LA. Importance of reasons for stocking adult vaccines. *Am J Manag Care*. 2019 Nov 1;25(11):e334-e341. PMID: 31747238; PMCID: PMC9004468.

- 32 Avalere. (2023). Medicaid adult vaccine provider reimbursement in 2021: comparison across 50 states and Washington, DC. Retrieved from: <https://avalere.com/wp-content/uploads/2023/04/Medicaid-Adult-Vaccine-Provider-Reimbursement-in-2021.pdf> (accessed August 8, 2023).

- 33 World Health Organization. (2023). Increasing routine immunization coverage by reducing missed opportunities for vaccination. Retrieved from: [https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/implementation/reducing-missed-opportunities-for-vaccination-\(mov\)](https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization/implementation/reducing-missed-opportunities-for-vaccination-(mov)) (accessed August 9, 2023).

- 34 Health and Human Services Department. (2023). Eleventh Amendment to Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures Against COVID-19. Retrieved from: <https://www.federalregister.gov/documents/2023/05/12/2023-10216/eleventh-amendment-to-declaration-under-the-public-readiness-and-emergency-preparedness-act-for> (accessed August 8, 2023).

- 35 Centers for Disease Control and Prevention. (2021). Mobile vaccination resources. Retrieved from: <https://www.cdc.gov/vaccines/covid-19/planning/mobile.html> (accessed August 11, 2023).

- 36 Centers for Disease Control and Prevention (2022). Stories from the field. Retrieved: <https://www.cdc.gov/vaccines/health-equity/field-stories.html> (accessed August 11, 2023).

- 37 Sekar, K. (2022). Immunization Information Systems: Overview and Current Issues. Congressional Research Service. Retrieved from: <https://crsreports.congress.gov/product/pdf/R/R47024#:~:text=selected%20policy%20considerations.,Background%3A%20Immunization%20Information%20Systems,in%20SLTT%20public%20health%20departments.> (accessed June 1, 2023).

- 38 Scharf, L. G., Coyle, R., Adeniyi, K., Fath, J., Harris, L., Myerburg, S., ... & Abbott, E. (2021). Current challenges and future possibilities for immunization information systems. *Academic pediatrics*, 21(4), S57-S64.

- 39 America's Health Insurance Plans. (2015). Stakeholder roundtable: Improving adult immunization rates. Retrieved from: www.ahip.org/resources/stakeholder-roundtable-improving-adult-immunization-rates (accessed May 16, 2023).

- 40 Centers for Medicare & Medicaid Services (2022). CMS quality reporting and value-based programs & initiatives. Retrieved from: <https://mmshub.cms.gov/about-quality/quality-at-CMS/quality-programs> (accessed August 11, 2023).

- 41 Centers for Medicare & Medicaid Services (2022). Meaningful measures 2.0: moving from measure reduction to modernization. Retrieved from: <https://www.cms.gov/medicare/meaningful-measures-framework/meaningful-measures-20-moving-measure-reduction-modernization> (accessed August 14, 2023).

- 42 Centers for Medicare & Medicaid Services (2023). Digital quality measures: specifying the future of quality measurement. Retrieved from: <https://mmshub.cms.gov/sites/default/files/2023-02-22-MMS-Info-Session-dQM-Final.pdf> (September 1, 2023).



Questions? Submit them to **My NCQA**