

Improving Immunization Information Sharing to Support Targeted COVID-19 Vaccination Outreach

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Executive Summary

As COVID-19 vaccine supply has outpaced demand in many areas of the United States, state and local officials are focused on conducting outreach to individuals who have not yet been vaccinated. To support efforts to push vaccines into communities, health care partners—including health insurance providers, health care providers, health maintenance organizations (HMOs), home care agencies, area agencies on aging, and entities like regional health improvement organizations and Health Information Exchanges (HIEs)—can play a critical role in identifying and engaging unvaccinated populations. However, the ability to conduct efficient and effective outreach depends on timely and complete access to vaccination data from state, territorial, and jurisdictional immunization information systems (IISs), which are confidential, population-based, computerized databases that record immunization doses administered by participating providers to persons residing within a state, territory, or certain local jurisdictions.

Facilitating improved data sharing with health care partners will require both state and federal leadership to address the myriad of legal, regulatory, technological, and logistical challenges that have hindered inter- and intra-jurisdictional immunization data sharing. While the American Rescue Plan Act and other COVID stimulus funding have provided states with resources to support IIS capacity improvements that can help facilitate meaningful information sharing across the health care ecosystem, there is a substantial opportunity for federal leaders to develop a long-term vision for IIS that supports better data exchange between public health and the health system. Key considerations for state and federal leaders to make immediate and long-term investments in IIS interoperability and information exchange with health care partners include:

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 <ul style="list-style-type: none">• Provide support and guidance to states for using federal funding to modernize IISs• Provide ongoing support to IISs linked to uniform standards• Encourage federal agencies to report into state IISs	 <ul style="list-style-type: none">• Identify options for authorizing IIS information sharing with health care partners based on existing legal frameworks• Leverage stimulus funding to invest in technology and workforce infrastructure that can meet future needs• Develop mechanisms for communication and coordination with health care partners• Share, replicate, and scale innovative practices

As public health officials seek to address gaps in public health preparedness and response revealed by the COVID-19 pandemic, bridging gaps between public health and health system data infrastructure will be a key priority to prepare for and respond to future public health emergencies. Beyond the initial push to vaccinate the public against COVID-19, ensuring a robust vaccination infrastructure and strengthening linkages between IISs, public health surveillance, and health care partners can help better position public health agencies to facilitate future booster campaigns, support consumer access to vaccination records or vaccine credentialing efforts, generate real-world evidence to assess vaccine effectiveness or side effects, support surveillance efforts to monitor breakthrough infections, and prioritize unvaccinated individuals for contact tracing and outbreak suppression.

Introduction

With continued efforts to vaccinate the U.S. adult population, as well as children and adolescents as the COVID-19 vaccine is authorized in younger age groups, the Biden Administration has [announced](#) a renewed effort to expand vaccine accessibility and build vaccine confidence by engaging communities across the country. Initial phases of vaccine distribution often emphasized speed of delivery through mass vaccination sites and other high-efficiency approaches. However, as vaccine supply has outpaced demand in many areas, state and local officials are shifting strategies to reach individuals who have not yet been vaccinated, continue to experience barriers to access, or require additional outreach from trusted messengers to build vaccine confidence. Moving forward, achieving widespread and equitable vaccine access for all Americans will require expanding partnerships and accessibility through community organizations, schools, churches, workplaces, primary care providers, and community settings, as well as employing targeted, data-led strategies to reach unvaccinated populations.

As efforts to push vaccines into communities continue, health care partners—including health insurance providers, health care providers, health maintenance organizations (HMOs), home care agencies, area agencies on aging, and entities like regional health improvement organizations and Health Information Exchanges (HIEs)—can play a critical role in efficiently identifying and engaging unvaccinated populations with established connections to health systems.¹ With aligned incentives for improving health and reducing overall health costs for patient populations, many health care partners are able to leverage trusted patient relationships, data systems and analytic expertise, and care coordination experience to augment state vaccination outreach efforts with high-touch efforts to connect individuals to vaccines. Although health care partners may have access to limited patient vaccination data through claims or electronic health records (EHRs), the ability to do efficient and effective outreach to unvaccinated individuals across a provider or health plan patient population will depend on timely and complete access to COVID-19 vaccination data from state immunization information systems (IISs). The ability to share state IIS data and support bi-directional information exchange on a population basis with key health care partners is limited and variable across jurisdictions, with significant legal and regulatory, technological, and logistical challenges that have hindered information sharing to date. To support state leaders in developing data-driven partnerships that can augment vaccination outreach efforts, this issue brief will:

- **Identify current barriers to sharing immunization information with health care partners**
- **Highlight innovative strategies for leveraging state immunization data and health care partners to support targeted outreach efforts**
- **Provide considerations for state and federal leaders for strengthening IISs and supporting improved outreach, coordination, and information sharing with health care partners**

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¹ Trusted community partners will continue to play a critical role in increasing vaccine access and uptake, especially for communities that face systemic barriers to health system access. For more details on community-led outreach and vaccination strategies, see [Prioritizing Equity in COVID-19 Vaccinations](#) and [Addressing Early Challenges in COVID-19 Vaccine Distribution](#).

Understanding the Role of IISs in Public Health Surveillance and Outbreak Response

IISs are confidential, population-based, computerized databases that record immunization doses administered by participating providers to persons residing within a geopolitical area. Currently, 63 IISs operate across all 50 states, territories, and a number of local jurisdictions. While the Centers for Disease Control and Prevention (CDC) maintains a set of [functional standards](#) to support uniformity and consistency of operations, data quality, resources and capacity, and technology requirements across IISs, IISs are governed and maintained at the state and local levels.

According to the vision set out by the CDC's [Immunization Information System Strategic Plan](#), IISs are intended to support real-time, consolidated immunization data and services available for authorized clinical, administrative, and public health users as well as consumers. While some variability in functionality exists across IISs, consistent [core functions](#) include:

- **Supporting public health surveillance and response at the population level** by monitoring vaccine coverage rates, identifying areas at risk of outbreaks, and supporting immunization program operations to improve vaccination rates and reduce vaccine-preventable disease.
- **Supporting clinical care at the patient level** by creating and maintaining consolidated patient immunization histories that can be accessed by providers and individuals, assisting with clinical decision support, and generating reminders for on-time vaccinations.

To support both public health and clinical care functions, strong relationships and communications between states and IIS stakeholders are critical. Improved interoperability and bi-directional exchange of information between IISs and immunization providers are necessary to ensure data quality and support clinical care in provider settings. Health care partners can further the goals of state leaders and IISs at both the population level through outreach efforts to boost vaccination rates among their patient populations, as well as at the patient level by ensuring that patients have information and convenient options for receiving recommended vaccinations. Broader and more timely sharing of population-level immunization data with authorized health care partners, such as health plans and providers, can help support efficient, targeted efforts to engage patient populations that may face additional risks from COVID-19, may be homebound or experience barriers to access, or may need additional information and outreach from a trusted health care provider. Beyond the current COVID-19 vaccination effort, early evidence suggests significant [declines](#) in the administration of routine childhood and adolescent vaccines. Providing health care partners with timely and complete information on vaccination status across their patient populations can also help targeted efforts to “catch up” on routine vaccinations that will prevent outbreaks of other vaccine-preventable diseases.

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Remaining Gaps and Challenges to IIS Data Sharing

Throughout the COVID-19 vaccination effort, leveraging existing IIS infrastructure has been critical to timely reporting and tracking of COVID-19 vaccine administration. In this effort, jurisdictional IISs have significantly scaled systems to accommodate additional demands; implemented new functionality, such as appointment scheduling; onboarded a variety of new and non-traditional immunization partners; and supported timely reporting of redacted data to federal partners. Despite this progress, significant barriers to greater immunization information sharing with health care partners remain:

- **Legal and Regulatory Restrictions on Access to Immunization Data:** According to [standards](#) set by the CDC, all IISs must protect the privacy and security of personal health information and have a written privacy policy defining use of and access to IIS information. Although sharing identifiable information with public health officials is considered a permissible public health activity under the [Health Information Portability and Accountability Act](#) (HIPAA), IISs must follow applicable [state legislation](#) or regulations that may authorize, prohibit, or not specify the permissibility of sharing of immunization information with other health care partners who may be well-positioned to promote vaccination. Some state statutes or regulations explicitly allow entities like health plans or HIEs to be authorized users of the state's IIS, while other states have general sharing provisions that will allow the state to approve any other entity that it deems appropriate. Other states may have laws that allow the state to expand the entities that have access to immunization data to respond to a public health emergency. In cases where authorizing language does not exist or certain health care partners are not explicitly authorized to receive IIS information, liability concerns may make state officials hesitant to authorize sharing information with health care partners. This legal ambiguity and variation across states has resulted in a fragmented state-by-state approach that has inhibited scaling of effective data sharing strategies and hindered the effectiveness of various stakeholders' efforts to increase vaccination rates.
- **Technology Challenges:** In addition to some variation in IIS function and capacity, many IISs are legacy systems in need of significant investment and modernization to support expanded interoperability, improve data quality, and enable data exchange on the scale required to support COVID-19 and routine vaccination efforts. IISs have experienced a dramatic increase in demands during the COVID-19 pandemic, with anecdotal reports from state IIS officials suggesting as much as a ten-fold increase in submission and queries from providers and other authorized users.² This increase has placed significant burdens on IISs that threaten to slow response times, hinder patient care, and complicate efforts to exchange regular and timely data on patient populations with health care partners. Facilitating bulk patient matching through application programming interfaces (APIs) or responding to large batch inquiries that would enable health care partners to identify unvaccinated individuals within their patient populations will require significant investments in capacity.

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² Reports of IIS demand increases derived from an interview with American Immunization Registry Association (AIRA) officials.

- **Leadership and Coordination:** Like much public health infrastructure, IISs have sometimes operated in funding and operational silos that have discouraged or limited coordination with health care partners. State public health agencies and immunization programs also have been strained by limited resources, the ongoing pandemic response, competing priorities, and burnout. While modernizing data systems and regulatory approaches to facilitate information sharing will be critical, state health leadership also can designate specific points of contact or establish clear processes for collaborating with health care partners, as well as work to instill a culture of information-sharing, partnership, and collaboration between partners and across jurisdictions that can promote a uniform and standardized response.

Opportunities and Examples of Data-Driven Partnerships to Support COVID-19 Vaccination Outreach

Despite potential limitations to full immunization data sharing with health care partners, many states are leveraging IIS data and health care partnerships to target vaccination outreach and engagement at both the community and individual levels. For example, several states leveraged population-level IIS data to identify counties or census tracts with low vaccination uptake or provider availability, and are working with health care and community partners to target resources and outreach in these communities. The **North Carolina** Department of Health and Human Services published a publicly-available [map](#) that overlays vaccination rates based on IIS data and [Social Vulnerability Index](#) (SVI) data by census tract to inform vaccine providers and partners about areas most in need of targeted outreach and accessible vaccination opportunities. The state then works with primary care associations to encourage local providers to enroll as vaccine providers, and works with local community organizations to support culturally-appropriate outreach and convenient vaccination opportunities.

While community-level immunization data can support “microtargeting” of communities with low vaccination rates, fully leveraging the potential of health plans and providers to coordinate care and conduct outreach will require the ability to match patient and health plan member lists with IIS information to identify unvaccinated individuals within their patient populations. EHR and claims data can help health care partners further to identify and prioritize individuals who may have chronic conditions or social vulnerabilities that pose barriers to vaccination. This data also can facilitate follow-up for a second dose. As states continue to seek opportunities for engaging unvaccinated populations, the following examples of data-driven outreach efforts illustrate the potential for improved information exchange and coordination with health care partners.

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Data Sharing Collaborations with Health Insurance Providers

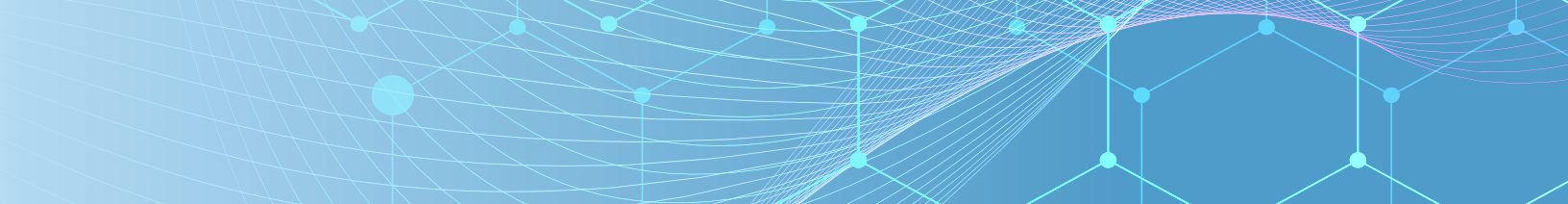
Health plans have significant enrollee data and relationships that can be leveraged to support state vaccination outreach efforts. However, according to a recent [survey](#) of health insurance providers conducted by AHIP, 65 percent of member health plans indicated that the lack of accurate information indicating which members have been vaccinated has challenged their efforts to increase COVID-19 vaccine uptake. The effectiveness of these partnerships depends on health plans' access to timely, accurate, and complete information to know which of their members have been vaccinated, and ideally, when and with which vaccine. Although health plans may have access to patient vaccination information data through administrative reimbursement claims, this data is often not timely nor complete. Vaccinations administered at mass vaccination sites or pharmacies may not be reflected in claims data, leaving a significant visibility gap regarding which patients have been vaccinated. As an example of how better access to IIS data can improve visibility and guide efforts across patient populations, one interviewed commercial plan shared that claims information available through the Centers for Medicare & Medicaid Services indicated that only 18.6 percent of their Medicare patient population in a certain state had been vaccinated. When the plan was able to integrate state IIS data with claims, the number of patients with vaccination records increased 215 percent, providing a more accurate vaccination rate of 58.8 percent across the same patient population. Other insurance providers have reported that claims are only capturing roughly one-third of the vaccinations in their patient populations that would be anticipated based on population vaccination rates reported by the CDC.³

A number of states have partnered with health plans to support outreach to unvaccinated members, with a focus on engaging communities experiencing high social vulnerability, supporting community-led efforts, and addressing barriers like transportation or appointment scheduling. One example of a successful partnership is the [Vaccine Community Connectors Program's](#) partnership with the State of **Illinois**. AHIP, Blue Cross Blue Shield Association, Illinois Association of Medicaid Health Plans, and Illinois Life and Health Insurance Council have partnered with the state to help vaccinate seniors and Medicaid managed care members who live in the top 25% SVI tracts in Illinois. To operationalize this outreach, Illinois is sharing a weekly IIS feed and a list of priority ZIP codes that have the lowest vaccination rates with health plans, which informs health plans' efforts to conduct targeted outreach to unvaccinated members living in these prioritized locations. Health plans are contacting members to answer their questions and help them schedule vaccination appointments. Illinois has held appointments at mass vaccination sites and provided health plans with access to a centralized scheduling system to help support members' access to vaccination. To support ongoing collaborative efforts and increase vaccination rates, health plan access to the Illinois IIS will expand from Medicaid to Medicare, and may soon include commercial health plans.

Although health plans—whether offering Medicaid, Medicare, or commercial coverage—may not be considered authorized IIS users in all states, some states have determined they are able to share IIS data with Medicaid MCOs, home health care agencies, and care managers that are engaged as Medicaid providers as a treatment, payment and health care operations (TPO) or

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³ Information on insurance provider visibility on vaccination rates was based on interviews with select commercial and managed care plans.



public health activity under HIPAA. For example, under this authority, **Utah**'s Medicaid program executed a data sharing agreement to gain direct access to information contained in the state's IIS. The Utah Medicaid program shares IIS data with Medicaid plans to identify which members have been vaccinated and support plans' direct outreach to members who may be at risk of COVID-19. However, health plans are not always interpreted as data exchange partners protected by HIPAA in every state. Other states are utilizing current health plan access processes that exist for [HEDIS](#) reporting.

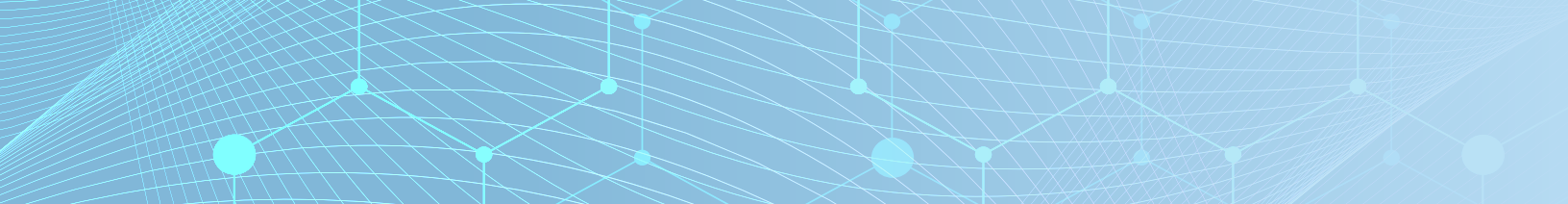
Other states have leveraged authorities under state public health emergency declarations to authorize IIS access for health plans to support COVID-19 vaccination outreach activities and increase vaccination rates. In February 2021, the Commissioner of the **Massachusetts** Department of Public Health ordered the Massachusetts Immunization Information System (MIIS) to share immunization data with commercial health insurers, Blue Cross and Blue Shield of Massachusetts, Inc, HMOs, and MassHealth to support these organizations in contacting and educating their members on COVID-19 vaccinations. MassHealth, the state's Medicaid program, worked with the Department of Public Health to receive a recurring feed of COVID-19 vaccination data. A data use agreement (DUA) between the Department and MassHealth was created to facilitate this exchange, and Department IIS staff collaborated with MassHealth data warehouse staff to coordinate the reporting. MassHealth now receives weekly reports containing raw IIS data, which is then shared with Medicaid plans. MassHealth staff is creating dashboards that demonstrate how vaccination rates by age, race and ethnicity, geography, and plan type may vary. Plans have indicated interest in using this data to conduct targeted outreach to unvaccinated members and help schedule appointments for first and second doses. MassHealth is incentivizing all of its managed care entities to increase vaccination rates by providing monetary incentives to all plans that meet a vaccination target and/or the top performing plans.

Facilitating bi-directional data exchange with providers through HIEs

Health systems and providers have trusted relationships with their patients, and are important partners to increase vaccine confidence and access. Although health care providers are able to query IISs for individual records at the point of care, interoperability challenges and a lack of user-friendly EHR design can impede seamless integration of immunization data into EHR systems, and as a result, health systems may have limited visibility of vaccination rates across their entire patient populations. This challenge includes situations where patients may cross state or jurisdiction borders to receive health care, including vaccinations. The ability to match patients lists with patient vaccine histories would allow providers to support much more targeted outreach to vulnerable and unvaccinated patients.

While the existence, functionality, and completeness of data within HIEs also can vary from state to state, in states with [existing HIE infrastructure](#) and statutes that allow HIE access to IIS data, HIEs can integrate their data sets to enrich immunization data sets and support providers with actionable information to support outreach to unvaccinated patients. Many HIEs have access to patient health data from claims and clinical information, prior hospitalizations, and EHRs that can make patient demographics data in IISs more accurate and complete and supplement racial and ethnic data that is missing or incomplete. Some HIEs also have robust patient matching capabilities to ensure patients' health data from multiple sources are accurately linked. For

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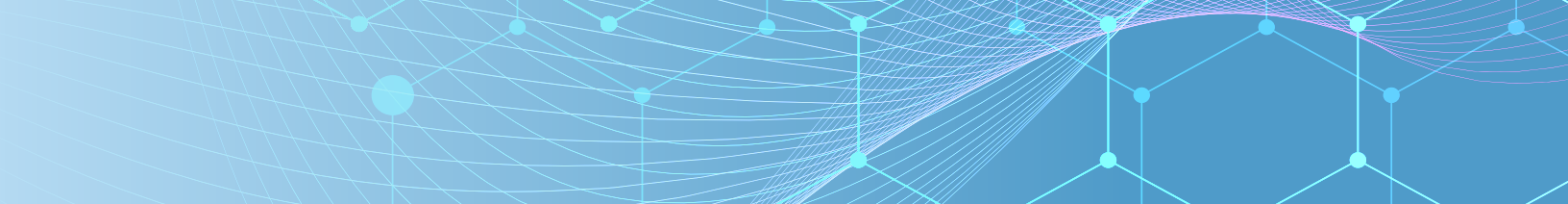


example, **Maryland**'s HIE, Chesapeake Regional Information System for our Patients (CRISP), partnered with the state Department of Health to efficiently match IIS data with claims and prior hospitalization data to help the IIS gain more accurate and complete race and ethnicity data. CRISP also operates a vaccine tracker service (VTS) to provide clinicians in Maryland and Washington, DC with a sortable list of their patients and their vaccination status to support outreach. CRISP combines data from the Maryland IIS (which is queried once per day) with patient panels (from participating practices and Medicaid MCOs) and patient demographics data, including information on race/ethnicity and chronic conditions (from Medicaid and Medicare claims and prior hospitalizations). CRISP combines these data using a Master Person Index (MPI) to facilitate the accurate matching of patient data. After being reviewed, the data are loaded into a data lake and organized into tables. CRISP's VTS has the ability to ensure that only authenticated users are able to view the data for their specific patients. The VTS shows providers whether a patient has been vaccinated, which vaccine they have received, and whether they are late for a second dose. The VTS also generates daily summary reports on patients' vaccination status by age, race, and geography for providers to identify potential inequities. To date, the VTS has been accessed by 366 practices in Maryland and Washington, DC.

In January 2021, the U.S. Department of Health and Human Services (HHS)'s Office of the National Coordinator (ONC) [awarded](#) over \$20 million in funding from the Coronavirus, Aid, Relief, and Economic Security Act (CARES Act) to support increased data collaborations between HIEs and IISs, including efforts to support public health agencies in better tracking and identifying patients who have not yet received vaccinations. Some states have also taken legislative action to facilitate sharing IIS data with HIEs. For example, **Arizona** recently passed [legislation](#) to share IIS data with the state HIE, Health Current. Health Current is currently working with the Arizona Department of Health Services to create vaccine dashboards and tools to share with providers and health plans. Manifest MedEx, an HIE in **California**, partnered with a Medicaid plan that receives weekly IIS data that shows members' vaccination status. Manifest MedEx combined this IIS data with additional data including Medicaid claims, demographics, and health data, and shared this information with the health plan in an easy-to-use format. The robust data set allowed the plan to filter and sort by members' ZIP code, language, race and ethnicity, and other factors, which supported outreach efforts to populations with higher risks of exposure and severe COVID-19 illness.

Considerations for State and Federal Policymakers

Supporting improved data sharing with health care partners that assist in the current COVID-19 vaccination effort, potential booster campaigns, and routine immunization catch-up will require both state and federal leadership to address the myriad of legal, technical, resource, expertise, and coordination challenges that have hindered inter- and intra-jurisdictional information sharing to date. Immediate action is needed to invest in modernization of IIS technical capacity and address regulatory and operational hurdles to facilitate meaningful information sharing across the health care ecosystem in support of public health goals. Coronavirus funding legislation has provided significant resources for augmenting state vaccination data infrastructure. The American Rescue Plan Act of 2021 ([P.L. 117-2](#)) includes \$7.5 billion dollars to support states, territories, and local jurisdictions with vaccine distribution, including information technology, standards-based data, and reporting enhancements to support sharing of data related to vaccine distribution. The Coronavirus Response and Relief



Supplemental Appropriations Act, 2021 ([P.L. 116-260](#)) included \$3 billion dollars to states to support a range of vaccination [activities](#), including enhancing IIS infrastructure to improve data quality and data exchange with federal, local, and other appropriate partners. While these resources are critical to sustaining IIS operations during the pandemic, substantial opportunity remains for federal leadership to develop both best practices for enhancing IISs as well as a long-term vision for IIS and public health modernization that supports better data exchange between public health and the health system. The following are considerations for state and federal leaders to make immediate and long-term investments in IIS interoperability and information exchange with health care partners:

Considerations for Federal Policymakers

- ***Provide Support and Guidance to States for Using Federal Funding to Modernize IISs***
While recent federal funding to support state immunization programs can help support a range of immunization data infrastructure improvements, federal guidance on best practices or strategies for enhancing IIS infrastructure has been limited. With state public health agencies facing competing priorities and limited bandwidth, ongoing assistance and guidance on best practices from the CDC, as well as leadership and interagency coordination at the White House and HHS level, are needed to support a national policy framework to increase and encourage standardization and interoperability across IISs.
- ***Provide Ongoing Support for IISs Linked to Uniform Standards***
IISs have traditionally been challenged by underinvestment and a lack of dedicated funding and expertise. Sustained and predictable funding is needed to support continuous improvement in IIS capacity to achieve interoperability. The Immunization Information Modernization Act of 2021 ([H.R. 550](#)), introduced in the House of Representatives, would invest \$400 million in IISs, with a requirement that HHS create a strategic plan for improving these systems and designate specific data and technology standards. While continued investment in IISs can help address current gaps in the public health data workforce and technology, a national approach for assessing current infrastructure capabilities, gaps, and adoption of uniform standards can help avoid a fragmented state by state approach and enhance preparedness for future pandemics.
- ***Encourage Federal Agencies to Report into State IISs***
Currently, vaccines administered by federal entities, including Veterans Affairs, the Department of Defense, Bureau of Prisons, and the Indian Health Service are not reported into state IISs, contributing to significant gaps in visibility on population vaccination rates for state officials. While efforts to integrate federal partners in the [IZ Gateway](#) may help facilitate improved information sharing between federal providers and state jurisdictions in the future, encouraging and removing roadblocks for federal agencies to report administered vaccines directly to state IISs will support improved data quality within IISs and provide state officials with a more accurate picture of population-level vaccination coverage.

Immediate action is needed to invest in modernization of IIS technical capacity and address regulatory and operational hurdles to facilitate meaningful information sharing across the health care ecosystem in support of public health goals.

Considerations for State Policymakers

- ***Identify Options for Authorizing IIS Information Sharing with Health Care Partners Based on Existing Legal Frameworks***

State legal frameworks vary significantly as to whether non-provider health care partners, such as health plans and HIEs, are explicitly authorized as users of state IISs or whether sharing of identifiable data may be either permissible at the discretion of the state or authorized under a public health emergency. To support information sharing when not explicitly permitted, states may examine existing authorities and data use agreements to determine permissible activities or seek legislative or regulatory changes as appropriate.

- ***Leverage Stimulus Funding to Invest in Technology and Workforce Infrastructure That Can Meet Future Information-Sharing Needs***

Federal infrastructure funding allocated to states can be used to support a range of data system improvements, including efforts to improve data collection, bi-directional exchange, patient matching, and analysis of immunization information. In advance of and in response to additional demands during the COVID-19 vaccination effort, states have made immediate efforts to improve system capacity to handle the increased number of queries to the IIS, including moving to cloud-based systems to augment server capacity and flexibility. However, existing IISs may still struggle with the burden of large batch queries from health care partners, resulting in slow response times and affecting provider access to real-time information. To help support data exchange, states may consider setting up a parallel data infrastructure to augment existing IIS infrastructure, such as data lakes that can be populated on a regular basis, with cloud-based technologies to support queries from payers or linkage to other public health surveillance data.

- ***Develop Mechanisms for Communication and Coordination with Health Care Partners***

While addressing legal and technology barriers to information exchange with health care partners is critical to developing collaborative, data-driven partnerships, in some instances the lack of political will or mechanisms for coordination have hindered progress. As state officials seek to update data systems as a part of public health modernization efforts, instilling a culture of information sharing and prioritizing health system collaborations with public health officials can help accelerate these efforts.

- ***Share, Replicate, and Scale Innovative Practices***

As states continue to build collaborative partnerships and approaches for targeting outreach to unvaccinated communities, identifying strategies for overcoming challenges and sharing lessons learned with other states and partners can help generate momentum for effective approaches. In particular, efforts to understand the impact and effectiveness of targeted patient engagement efforts can help ensure that states and health care partners are employing the most effective approaches for engaging patients with significant concerns or challenges around COVID-19 vaccine access. Although variable legal and regulatory landscapes may challenge replication across states, health care entities with a national or multi-state footprint can expand effective approaches across multiple states.

Conclusion

Health care partners and public health agencies share a mutual goal of effectively engaging unvaccinated patient populations, particularly patients that may face additional risks from COVID-19 or may benefit from direct outreach and assistance from trusted health care providers. As states continue to build partnerships for reaching remaining unvaccinated populations, effectively mobilizing these health care partners will require improved interoperability and timely data exchange that can support microtargeting and timely follow up for individuals who have not yet been vaccinated. Complementary efforts will be critical to reaching unvaccinated populations that remain disconnected from health systems.

Beyond the initial push to vaccinate the public against COVID-19, strengthening linkages between IISs, public health surveillance, and health care partners can help better position public health agencies to address broader priorities for overcoming the COVID-19 pandemic. These priorities may include facilitating future booster campaigns, supporting consumer access to vaccination records or vaccine credentialing efforts, generating real-world evidence to assess vaccine effectiveness or side effects, supporting surveillance efforts to monitor breakthrough infections, and helping states prioritize unvaccinated individuals for contact tracing and outbreak suppression.

As public and private officials across the health care system continue to consider lessons learned and seek to address gaps in U.S. preparedness and response to the COVID-19 pandemic, bridging gaps between public health and health system data infrastructure will be a key priority to prepare for and respond to future public health emergencies. Although federal [public health data modernization](#) efforts are underway to improve data sharing and integration across the public health ecosystem, these efforts largely target surveillance, lab reporting, and vital records. Although not explicitly excluded, state IISs were not directly included in funding estimates and allocations, and as a result, have not benefited from these modernization efforts to date. Ensuring a robust vaccination infrastructure that is capable of capturing accurate population-level data and supporting targeted efforts to reach unvaccinated populations will be critical to both overcoming the current pandemic and future efforts to prevent outbreaks of vaccine-preventable diseases. To facilitate this type of dynamic information exchange, sustainable investment and a national policy framework to support immunization infrastructure modernization are needed.

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