State Recovery Now

Policy Playbook

Stimulating Business Recovery: Reducing the challenge to verify vaccination status

A guide to helping communities adopt a digital vaccine certification for their residents

Executive Summary

Every state in the US maintains an immunization registry (also known as an "immunization information system", or IIS for short), where every COVID-19 vaccination is required by federal law to be reported. Yet, there is no standard way for these records to be shared with vaccinated individuals.

The state of California built a web-based application that works with the state's IIS and allows residents to request a Digital COVID-19 Vaccine Record (DCVR). From July to October 2021, California has delivered 7 million digital vaccine records to California residents. Business associations such as the San Francisco Bar Owners Alliance have adopted the DCVRs, and now all of their members are requiring vaccination verification for indoor access.

By releasing the DCVR solution's code to the public domain, the state of California hoped to reduce the costs associated with implementing a similar system in other states. In California, the cost of the DCVR is estimated to be well below $0.50/year per vaccinated individual for the DCVR. Each additional state that commits to using a similar system increases the value of this emerging standard – and helps create a common approach to vaccination verification. Individuals accustomed to presenting their DCVR in one community can do so in any other location where DCVRs are commonly accepted.

The one-time use of American Rescue Plan Act (ARP) funds is well-suited for providing DCVRs to residents because: 1) Most of the cost is paid upfront, while ongoing costs are low; 2) DCVRs support public health goals and will help kickstart and sustain economic activity; 3) SMART Health Cards provide a straightforward and easy way to implement technology to issue verifiable, trustworthy records of vaccination to help meet vaccine mandates; and, 4) An effective verification mechanism provides a stronger incentive for vaccination, resulting in reduced hospitalizations and deaths.

Background

COVID-19 vaccines are the most effective tool to help communities end the pandemic. An increasing number of venues are interested in confirming the vaccination status of people who gather indoors. This means that vaccinated people will need to carry their paper CDC cards or copies of them everywhere they go. Carrying the physical card can be challenging as people may forget their card at home, leave it in their clothes that go through the laundry, or lose it in other ways.

Furthermore, as concerns about the ease with which individuals can fake a CDC card, a more secure and verifiable record is important. Being able to verify that someone who claims to be vaccinated is actually vaccinated increases trust in the system, and contributes to safer environments where people are gathering.

A DCVR gives those who are vaccinated a way to verify their vaccination status without having to carry their CDC cards. A DCVR based on vaccinations reported to the state IIS is a much more reliable mechanism for businesses wishing to confirm vaccination status in places where it is required.

The Vaccination Credential Initiative, a public-private coalition of states, health systems, non-profits, and technology companies, developed a Fast Healthcare Interoperability Resources (FHIR)-based framework for digitally presenting vaccination records called the SMART Health Cards (SHC) framework.

The SHC framework gives an issuer (a state IIS, or a vaccine provider) the ability to issue a digital credential that provides information about the individual's vaccination record. This credential presents a scannable QR code that is a digitally-signed JSON bundle. States can provide SHC credentials based on the information in their IIS, enabling all vaccinated residents the ability to store a digital copy of their paper CDC card. Those residents can then optionally share that digital copy anywhere that vaccination verification is required. Using an app like the SMART Health Card verifier app from The Commons Project, any business can then verify the authenticity of that record.

California's SMART Health Card-compliant solution is a simple web-based application that queries the state's IIS allowing residents to obtain a DCVR. If information shared by the resident matches information already in the state IIS, a confirmation is sent by SMS or email to the resident with a link to the resident who can then retrieve their DCVR. Android users can save their DCVR to Google Pay; Apple users can share their DCVR with Apple Health and Apple Wallet. Alternatively, users can save a screenshot of their DCVR to their camera roll or print it out.

Outcomes

From June to October 2021, California delivered more than seven million DCVRs to California residents. It is an entirely optional service, with no requirements that it be used or presented. More importantly, just one month after launch, bars and restaurants in cities across California started requiring vaccination verification from customers who

wanted to enter indoor areas. One week later, the San Francisco Bar Owners Alliance indicated that all of their members would require vaccination verification for indoor access; other private associations have followed suit. The continued combination of high vaccination rates in the city of San Francisco and six weeks of private vaccine mandates demonstrated the success of this approach.

As of this writing, estimates are that 150 million vaccinated Americans have access to a SMART Health Card copy of their vaccination record (in addition to California, New York, Louisiana, Hawaii, Washington, and Colorado, a number of pharmacies and health systems are issuing SMART Health Cards as well). In the absence of a federal mandate that establishes a nationwide

standard for vaccine verification, SMART Health Cards have emerged as the de facto standard.

Each additional state that commits to SMART Health Cards increases the value of that emerging standard – and creates a growing, common approach to vaccine verification. Individuals accustomed to presenting their SMART Health Card in one community can do so in the same manner in any other location where SMART Health Cards are common. Providing a common interface increases the ease with which vaccination information can be verified, and increases trust in the vaccination effort nationwide as it becomes more difficult to present fraudulent vaccination records.

Associated Costs

Aside from the costs of implementing this solution, there are other potential costs associated with managing a DCVR. California, being the largest state in the nation with three independent registries, experienced data quality issues where residents were not immediately able to obtain their DCVR. A three-pronged approach is needed to address the data quality challenges: 1) Give the public a way to request remediation so they can obtain their DCVR if they were unable; 2) Develop solutions to remediate data issues; and, 3) Actively work with providers to improve data quality and remediate historical gaps. Many factors drive costs related to these efforts including the state's population and IIS data quality.

As for cost to the user, SMART Health Cards do not require the user to have access to sophisticated technology: a printed QR code works just as well as a digital copy. More

importantly, from an equity perspective, it is critical that states commit to issuing SMART Health Cards so every vaccinated resident has equal access to a digital copy. Otherwise, only those patients of health systems with the means to invest in SMART Health Card solutions will have access to the portability of a SMART Health Card. When a state implements a DCVR system on top of its IIS, it helps to ensure that everyone vaccinated in the state can access a SMART Health Card.

Assessing the Return on Investment

There are clear economic benefits of providing a DCVR. Bars and restaurants that want to implement a vaccination requirement for indoor gatherings to keep their staff and customers safe can easily do so by asking to see and scan DCVRs upon entry, as opposed to expecting residents to carry their CDC cards at all times. Since DCVRs reduce the challenge for clients to provide their vaccination status, and staff to confirm the vaccination status of clients, businesses can more easily carry out a vaccination requirement.

Furthermore, DCVRs would remove a barrier to implement vaccination mandates as they would make it easier for people to verify their vaccination status when requested, either for commercial purposes or to comply with an employer mandate. Research [shows](#) that when such mandates are enforced people who may be hesitant to get immunized are more likely to get their vaccinations, improving the health and protection of the entire community. Additionally, there is [evidence](#) that the faster a community gets most people vaccinated, the faster that community can return to "normal", and economists overwhelmingly [agree](#) that vaccine mandates would promote a faster and stronger economic recovery, while saving more lives. Encouraging residents to get vaccinated will result in a population less likely to be hospitalized if infected by COVID-19, and far less likely to die from COVID-19, while promoting economic growth.

Why is this a compelling use of one-time funding?

The one-time use of American Rescue Plan Act (ARP) funds is well-suited for providing DCVRs to residents because:

- Most of the cost of providing access to digital vaccination records is paid upfront, while ongoing costs are low.

- Digital vaccination records support public health goals and will help kickstart and sustain economic activity, providing a long-term boost to a state's revenue sources.

- SMART Health Cards provide a straightforward and easy way to implement technology to issue verifiable, trustworthy records of vaccination to help meet vaccine mandates.

- An effective verification mechanism provides a stronger incentive for vaccination among unvaccinated populations, resulting in reduced hospitalizations and deaths.

Authority for ARP Spending: States and Local Governments may implement this policy using funds under Public Health (EC1) and under Addressing Negative Economic Impacts (EC2).

Implementation

To ensure effective implementation, state and local governments should assess readiness and engage relevant partners early on.

Assessing Readiness

State governments already have experience managing an immunization registry for COVID-19 vaccinations. To deploy an effective DCVR, they must make sure that these systems are up to date and that they have the necessary technology with a protocol to share records with vaccinated individuals. Policymakers are encouraged to use the guiding questions below to reflect on their capacity to implement this program successfully:

- What is the state of the immunization registry and its data? Have we run the necessary quality checks on the data?
- Has a protocol been developed to share data that is user friendly and effective, but ensures that individual privacy is protected?

- Is the IIS and the protocol to share data compatible with digital capacity?
- Is the necessary data and tracking capacity available to implement and measure progress?
- Are there established relationships with key stakeholders? How will buy-in be sought?

Essential partners for successful implementation

- The state's Department of Public Health or its equivalent, which is likely the best suited agency to lead this project given the IIS and other health related aspects of the project.
- The state's Department of Technology or equivalent, which would need to support the technology aspects of the project to guarantee its successful rollout and implementation.
- The Governor's office, which would need to be prepared to communicate what this system is and why it matters. In California, the emphasis placed on the opt-in nature of the system was an early key to ensuring that people understood this was not required and participation was encouraged for their own ease and convenience.
- Public and private organizations that have worked on providing access to trustworthy and verifiable copies of vaccination records in digital or paper form to individuals, which are currently in a good position to coordinate cross-state interoperability and other technical considerations to ensure the seamless use of DCVRs that are based on the SMART Health Card standard.

Engaging Stakeholders and Beneficiaries

Engaging early with stakeholders and beneficiaries can make the program implementation run smoother, as there are many gears moving at the same time. Two groups of key stakeholders that should be engaged early on are:

- Local bars, restaurants owners, and gyms, which could implement vaccination verification measures and accept DCVRs, depending on the jurisdiction. In California, the organic adoption by businesses helped reinforce the beneficial aspects of the SMART Health Cards.
- Organizers of massive gathering events such as sport activities and concerts, which will benefit from a simple and rapid way to verify vaccination, reduce risks of transmission, and increase confidence in attending their events.
- Vaccine providers, who are in the best position to improve the data quality in the state IIS and should be engaged as early as possible. Most states are frustrated by inconsistent data submitted to the IIS, and the biggest barrier to this system working for every resident is if the information in the IIS isn't complete or accurate. Once launched, this system

shines a light on where the data are least complete – and vaccine providers can and should be encouraged to submit as many updated records as possible.

Risk Mitigation

What could go wrong?

Key possible risks to address include:

- **Low quality of information:** People who cannot get their accurate DCVR because their information is missing from the IIS, or doses were not correctly reported by the vaccine provider, will be frustrated, and will need help to remediate errors.

- **Privacy and security:** A poorly designed system could deliver the wrong DCVR to the wrong person, resulting in personal health information being displayed to someone other than the vaccinated individual.

How can these risks be mitigated?

The following actions can help mitigate these risks:

- Ensuring that individual help is available – a help desk, or support ticket system – will help manage expectations and ensure those who want a DVR can retrieve one. This remediation can be costly and time-consuming.

- Ensuring that the system design meets a high standard of security, and has passed quality controls before being rolled out.

Data and Learning Strategy

Baseline Systems: Necessary inputs to implement the policy effectively

The specific systems will be a function of what systems the state is already using. As a particular case, a technical overview of the SMART Health Cards framework is available. Other data architecture considerations are relevant to the solution as well. For example, California had data in three separate IIS's and had implemented a consolidated data repository for all COVID-19

vaccinations. This data repository would be the source for matching DCVR requests to return the vaccination information. Important considerations for California included the following:

- Understanding gaps in data completeness and then working with providers to patch records.

- Reconciling a person's vaccination information when those vaccinations were captured on separate patient records.

- Updating the data available to DCVR more frequently to increase the ability to match.

- Communications to providers to improve data quality.

- Standing up a technical solution for remediation request submission and processing. This was essential due to the State's population and the number of tickets expected. Note that remediations can be costly.

- California set a service level commitment for addressing remediation requests and communicating status of remediation requests to requesters.

Measuring Progress: How can progress toward the desired outcomes be measured — both to assess progress and inform improvement along the way?

Measuring progress is essential to understanding progress and making improvements along the way. The goal of this system is to reduce the challenge for individuals to prove vaccination status by providing residents access to a digital vaccination record. Hence, one important aspect of the solution for states in terms of outputs is how many people are downloading their DCVR. This requires tracking the demand for DCVRs, successful retrieval, and the quality of the data, as successful matches are a key determinant in terms of usage. This could also require tracking whether businesses are adopting DCVRs as their preferred method to verify vaccination status. Understanding the categories of remediations helps with decision making. And lastly, tracking remediation request status and aging is an important aspect of public satisfaction with the solution.

Additional Resources

California releases Digital Vaccine Record code: A blog explaining California's decision to release the DVR code and how to access it.

Understanding California's Digital Vaccine Records: A podcast discussing the experience of the DVR in California.

Playbook Authors

Rick Klau

California Chief Technology Innovation Officer

Rick.Klau@state.ca.gov

Amanda Attaie

Senior Lead Advisor, Vaccine Projects, California Department of Public Health

Amanda.Attaie@cdph.ca.gov

Michelle Jelačić

Public Information Officer, California Department of Public Health

Michelle.Jelacic@cdph.ca.gov