

18F

GSA

Vaccine Attestation

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Team

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1. Executive Summary

Our work was focused on the safe return of the federal workforce to buildings. Our particular charge regarded trying to address how to record and share contractors' attestation of vaccination status. Our focus on attestation (a statement whose truth is asserted *without* evidence) changed three weeks into our effort, as Executive Orders 14042¹ and 14043² together established requirements for the federal workforce (including contractors) to be fully vaccinated against COVID-19 ([Section 2: Background](#)). In response, we pivoted to demonstrate systems to capture *evidence* of vaccination status, as opposed to an *attestation*.

We approached this work from a principled standpoint ([Section 3: Principles](#)). Any solution we developed needed to be equitable and accessible, given a potential user base of 10M+ users. Because it would handle personal health information, we believed it should preserve privacy and leave control of such information in the hands of individuals. Our solution needed to be transparent and clear in operation, lest it incur distrust; our work takes place against a social and political backdrop of misinformation and distrust of public systems ([Section 4: Goals](#)).

Our research with agency leaders and industry experts yielded a broad understanding of safety, privacy, and implementation concerns that would impact our work ([Section 5: Design Considerations](#)). UX and design considerations focus on user flows as well as communications and messaging in vaccine attestation and evidence-tracking systems. Policy considerations suggest ways that education and safety can, in the future, be kept at the fore. Our technology leverages open standards for representing and sharing personal health information; Smart Health Cards provide an open framework for both decentralizing and protecting the privacy of personal health information.

What follows is a brief summary of the project background, principles, goals, and design (one page each). For future teams charged with continuing this work, we include a set of design considerations ranging from user experience to policy to technical implementation. We've also included policy and communication considerations to support safe facilities and workspaces. These considerations are an expression of our team's principles and goals *at a particular moment in history*, and may not apply to future efforts if the context has changed sufficiently.

¹ [Executive Order 14042](#): Ensuring Adequate COVID Safety Protocols for Federal Contractors

² [Executive Order 14043](#): Requiring Coronavirus Disease 2019 Vaccination for Federal Employees

2. Background

Our engagement was 36 work days. It began on August 16th, 2021 and ended on Monday, September 20th.

Our initial charge focused on workplace safety. During the first 18 days, we focused on vaccine attestation for contractors and visitors to federal buildings and lands. This involved conducting interview- and desk-research regarding agencies, their operations, and the socio-technical solutions that might play a role in supporting government-wide attestation and COVID-19 testing programs.

- We interviewed agency leaders, CIOs, building managers, and federal employees who regularly visited federal facilities.
- We spoke with industry leaders on digital health records, including potential partners who contributed to the development of national standards in this space.
- We mapped policy documents to understand and operationalize those policies, with particular concern for edge cases and unforeseen consequences.
- We prototyped systems for capturing vaccination records and test results in human- and machine-readable forms.

On September 9th, two Executive Orders were issued: [14042](#) and [14043](#). These Executive Orders established the requirement for all federal employees and contractors to be vaccinated against COVID-19.

Our project shifted focus from a question of how to capture a contractor's *attestation* of vaccination status to one of how to capture *evidence* of vaccination status for federal employees. This focus shift was due to the immediate and impending deadline communicated in the Executive Orders. During the final 6 days of the project, we developed user-flows, began architectural design informed by compliance processes, and began to set up the automation and code that would serve as a foundation for this project. We were prepared, from prior work, to launch code and ATO on an extremely rapid basis.

Monday, September 20th, the project ended.

3. Principles

As our research progressed, we established principles to serve as the foundation for our work. These principles emerged from our discovery, and guided the solution space described in Section 5: Design Considerations.

1. **Equity and Accessibility.** Any solution to vaccine attestation (and, later, evidence of vaccination) would need to be equitable and accessible. Assumptions about systems that might work for Federal employees might fail to be equitable when proposed for contractors or workers covered under an OSHA order. Similarly, any solution that is not accessible to everyone is exclusionary, and we were unwilling to envision such systems.
2. **Privacy.** Vaccination information is Protected Health Information (PHI). All of the information is sensitive. So we ask: are we asking for only necessary (minimal) information? Has the user provided consent? How do they retain control of their information? How is access limited to only those that need to know? Securely ensuring people's privacy, and allowing them to control how and where their information is used, helps to establish and safeguard the public's trust in the system.
3. **Transparency and Clarity.** The COVID-19 pandemic, on top of immense tragedy, has sowed uncertainty and distrust in our society. Health guidance during the pandemic has shifted often. Transparency of purpose and clarity of process is vital in ensuring integrity in the information provided. Have we effectively communicated why, what and how?
4. **Open Standards.** Finally, we believe that open tools and open standards are the necessary and interoperable foundation for any digital project that will serve the government and the public. This principle is *emergent*: only by using standards unencumbered by licenses or copyright can we achieve our other principles of equity, accessibility, privacy, and transparency.

These principles emerged from our reading, conversations with leaders across government, and our own lived experiences designing and developing systems that serve the public. Given evolving policy and the pandemic itself, these principles serve as the foundation upon which any work is built. TTS should evaluate continuation of the work if it can not uphold these principles.

We recommend Siddarth et al.'s *Vaccine Credential Technology Principles* for its considered exploration of these principles³. We found this work late in our process, and found it to align extremely well with and speak to our own sincerely held beliefs.

³ Preprint, *Computers and Society*. <https://arxiv.org/abs/2105.13515>

4. Goals

Our team was tasked with handling vaccination attestation for contractors and visitors who would be working in federal buildings or on federal lands. Initially, we had two goals for this work.

First, **we wanted the workforce to be safe**⁴. This goal was supported unconditionally by conversations with agency leaders, all of whom were concerned with operating their agencies and facilities in a way that kept people safe. In some cases, this meant remaining in a “maximum telework” posture, and for others, it meant establishing protocols and practices in the workplace to protect people who needed to be physically present in the workplace.

Second, **we wanted to engender trust**. To **attest** to something means to *assert it is true without evidence*. This meant that the process of attestation was fundamentally about trust. Thus, any educational materials, agency processes, or software systems we developed would need to enhance trust in the attestation process. This goal was reinforced through conversations with agency leadership.

Midway through our work, two new Executive Orders ([14042](#) and [14043](#)) were issued requiring vaccination for the Federal and contracting workforce. Our efforts shifted from *attestation* of vaccination status to *evidence* of vaccination. Our primary goals—to keep the workforce safe and to engender trust—did not change, but now we had a third goal: **protecting the personal health information of the workforce**.

If we were called upon to continue our work, these three goals would continue to be “north star” goals of our efforts:

1. To keep the federal workforce (writ large) safe.
2. To engender trust in government and its processes.
3. To develop socio-technical systems that protect and guarantee the privacy of the people whose data we are entrusted with.

⁴ [Executive Order 13999](#): Protecting Worker Health and Safety

5. Design Considerations

Our design considerations are written for a future implementation team. This is not an implementation specification; it is a watercolor depiction of how our [principles](#) and [goals](#) manifested as user experience and technical design. The entire window for this work spanned 36 days, and we were rapidly moving through research, design, architecture, and ATO considerations with the intention of starting small and iterating. A future team may find our thinking useful, or the context may be too different to be of value.

In the project's repository, we outline our [user](#), [policy](#), and [technical considerations](#)^{5,6,7}. The end goal is to promote safety and equitable access to government facilities and services. Our user research showed us the diversity of the workforce, the challenges in rapid workplace and policy changes, how employees perceive buildings as not only places to work but also as community spaces, and how psychological safety is a crucial component of trust. Aided by conversations with partners and agencies, we discuss some preliminary user flows, notification loops, and how to enable clear communication of goals for behavioral change.

In terms of policy, our guidance is to establish a universal mask mandate as the only enforceable and viable policy that promotes and upholds safety in the workplace. We also suggest building educational tools to help facilities personnel make good decisions which will help clarify guidance from the Safer Federal Workforce Task Force and ensure policies are consistent with behavioral expectations. Inherent these policy recommendations is a model of collective responsibility.

Regarding technology, we chose Smart Health Cards⁸ as a standard for representation and verification of vaccine related information. We review our prototyping for vaccine attestation, outline several information architecture concerns (in particular, we discuss the sensitivity of recording personal health information), consider how best to implement PPRLs (privacy-preserving record linkages), possible ATO (authorization to operate) roadblocks and how to overcome these, and conclude with a list of resources of organizations and open standards that were useful in our technical work.

⁵ <https://github.com/18F/vaccine-attestation/blob/master/051-users-product-and-more.md>

⁶ <https://github.com/18F/vaccine-attestation/blob/master/052-policy.md>

⁷ <https://github.com/18F/vaccine-attestation/blob/master/053-technical.md>

⁸ <https://smarthealth.cards/>