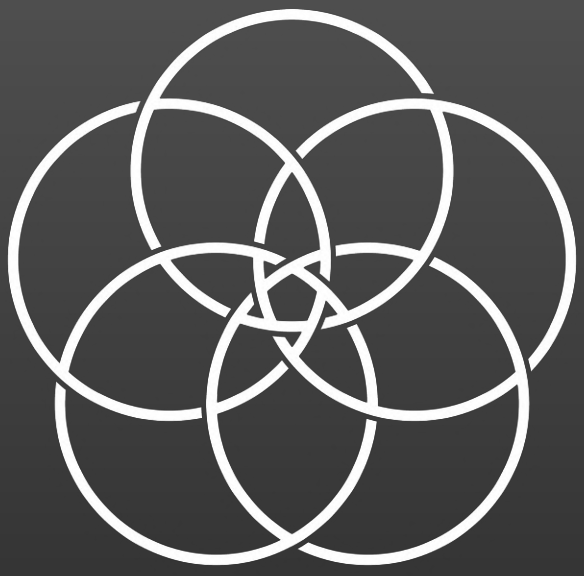

UNUM ID

www.UnumID.org

Proof of Vaccination

Get back in business!

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In Brief

Video Demo: https://bit.ly/2J8D1n2
Slide Deck: https://bit.ly/375S212

Unum ID enables **instant, inexpensive proof of COVID-19 vaccination.** This allows businesses — from stadiums to office buildings to restaurants — to get back to 100 percent capacity as soon as possible. Checking that a person has been vaccinated is as simple as having an employee out front scan a QR code on the person's phone. Both the person and the employee use the free Unum ID mobile app.

Unum ID specializes in digital identity technology. Our software leverages asymmetric cryptography, biometrics, and zero knowledge identifiers to uniquely tie identity data to a person over time. In this context, our tech allows users to store proof of vaccination securely on their mobile devices and instantly use it to enter establishments. It's just like a digital concert ticket, but Unum ID ensures it's reliable, secure, and non-transferable — only usable by the exact person who was vaccinated.

Experts project that, even with the emergence of several successful vaccines in recent weeks, it will likely take all of 2021 to vaccinate everyone, and a large percentage of people say they won't ever get vaccinated. This means that, for at least all of next year, businesses will be unable to get back to full capacity unless they admit only (or mostly) vaccinated people, creating safe zones for normal commerce. This requires a portable, fast, and inexpensive way to check that someone has been vaccinated, which traditional healthcare systems are completely unable to provide. This is the crucial need Unum ID fills.

Safe and sanitary:
- Touchless verification
- Scan through glass or from 6 ft away

Secure and non-transferable:
- Cryptographically tied to device, protected by biometrics
- Only usable by one person

Inexpensive:
- Just $0.29 per check
- Volume discounts

No personal data exchanged:
- Customer receives a "yes" or "no"
- No health data or liability

Context

The Business Need

COVID-19 vaccines are on the way, but distribution will be slow, and a substantial portion of the population may elect not to take them. Therefore, even with effective vaccines on the market, it will remain difficult to keep people safe as they return to normal life. For example, health experts estimate it won't be until late 2021 that people can stop wearing masks.

There is no precedent for people needing to show vaccination records on a daily basis to access services outside of healthcare. Traditional health records are not well suited to this situation. By providing a digital, portable, and secure format, Unum ID makes verifying proof of vaccination easy and sanitary, helping people stay safe and businesses stay open.

Problems With Existing Systems

Current healthcare systems are completely ill equipped to provide portable proof of vaccination. Providers today issue medical records by (1) providing physical credentials like paper printouts, (2) keeping private records in siloed databases, and (3) requiring outside parties to contact them to retrieve the records. The COVID-19 pandemic has exposed serious problems with these methods:

1. Physical credentials are transmitters of viral particles, expensive to distribute, easy to lose, and easy to forge.
2. Siloed records can't be used widely enough to deal with a pandemic.
3. Requiring outside parties to contact providers to access records doesn't work with the overload a pandemic creates. (This is why, for example, people who receive COVID-19 tests are typically only contacted if the result is positive, since it takes far too long to contact everyone.)

Unum ID technology solves these problems with digital proof of verification credentials:

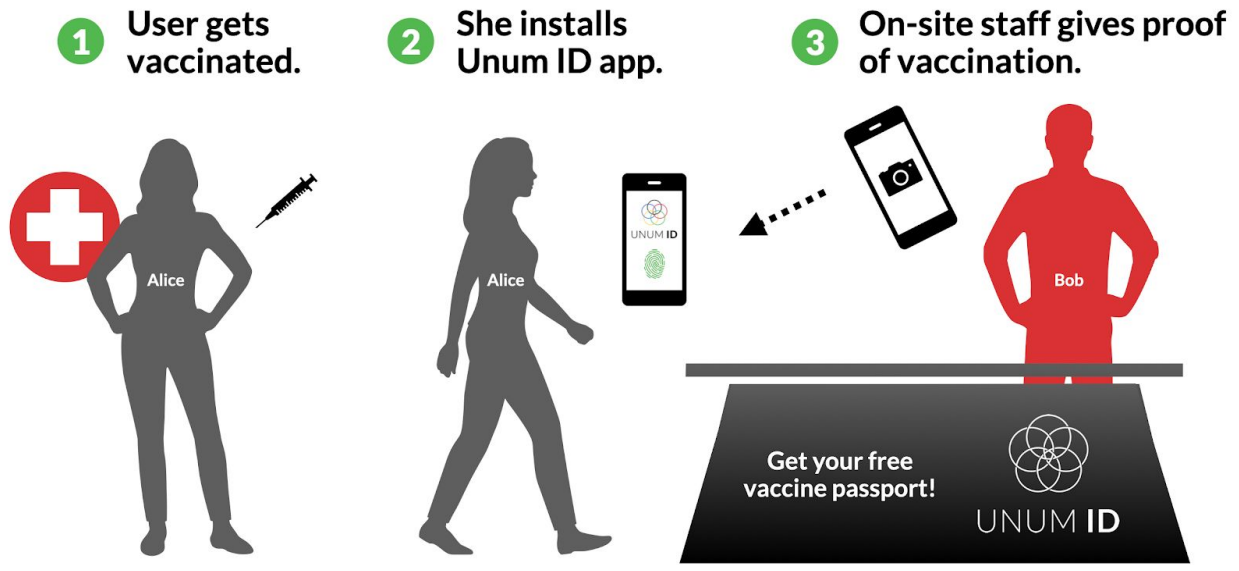
1. Our credentials are touchless and sanitary, free to distribute, hard to lose because they're tied to people's phones, and impossible to forge because they're secured with cryptography and biometrics.
2. Our credentials are stored on people's phones (and in cloud backups), not in any database, so they can be used anywhere.
3. Our credentials can be used without needing to contact health providers, making them well suited to the massive scale of a pandemic.

How It Works

Video Demo: https://bit.ly/2J8D1n2

Everything works through the (free) Unum ID mobile app. The app uses state-of-the-art technology to securely store a person's proof of vaccination on their phone in a way that's easy for businesses to verify. But the complex underpinnings are hidden behind an extremely easy user and customer experience.

Getting Proof of Vaccination



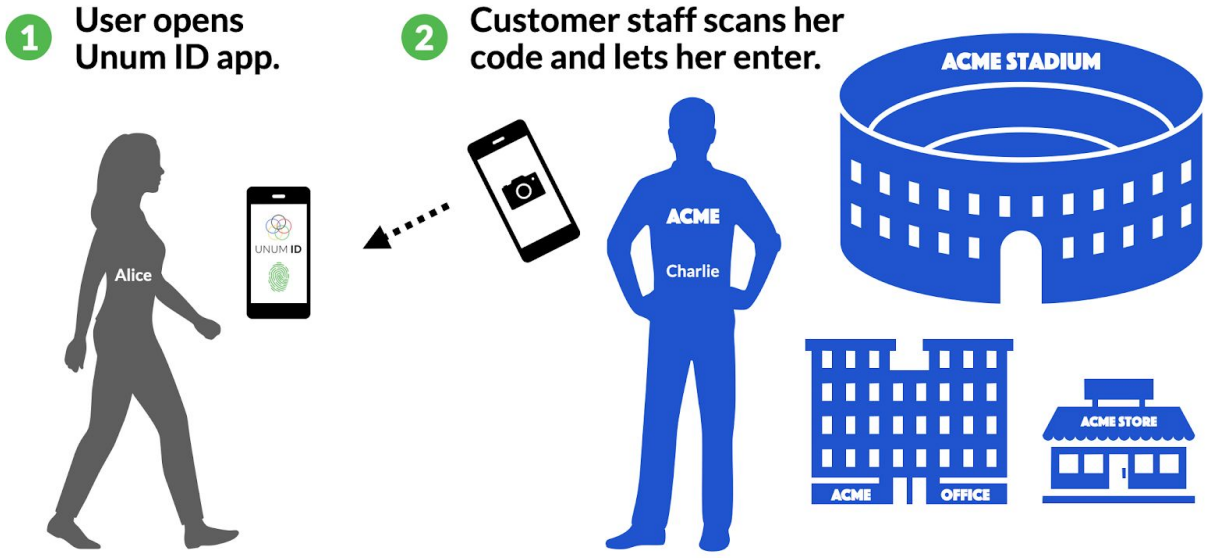
Alice is a person getting vaccinated, and Bob is an on-site staff member who has the app installed and is authorized to give proof of vaccination. The process is extremely simple:

1. Alice gets vaccinated.
2. She installs and opens her app.
3. Bob (who saw Alice get vaccinated) uses his app to scan the QR code her app displays.

The QR code in Alice's app updates, giving her proof of vaccination.

This process is repeated for vaccines requiring multiple doses, and it works even if the user gets each dose at a different location. v2 of the solution will allow users to receive proof of verification at any time after they were vaccinated, not just at the time of vaccination.

Using Proof of Vaccination



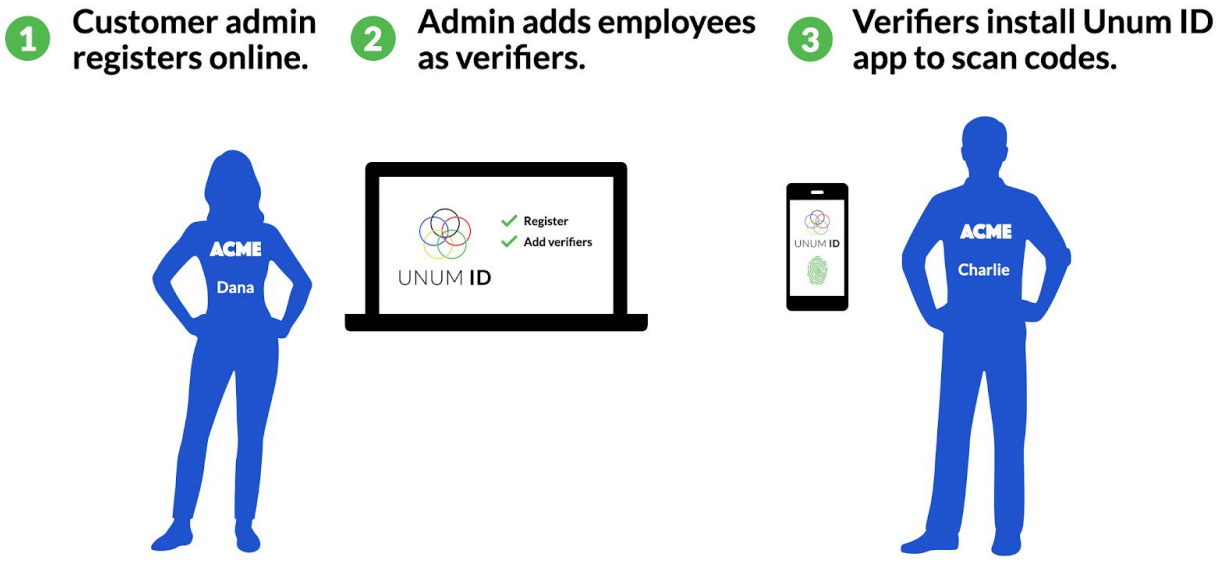
ACME is a business letting people in if they've been vaccinated. Charlie is an ACME employee who has the app installed and is authorized to verify that people have proof of vaccination. As before, the process is extremely simple:

1. Alice opens her app.
2. Charlie uses his app to scan the QR code her app displays.

Charlie sees that Alice has proof of vaccination and lets her into the ACME building.

All that's required to verify proof of vaccination is an employee out front who can scan QR codes. This makes the solution extraordinarily flexible. Whether ACME has a stadium, an office building, a store, or otherwise, it can instantly and inexpensively verify that people have been vaccinated against COVID-19. ACME can *get back in business!*

Business Setup

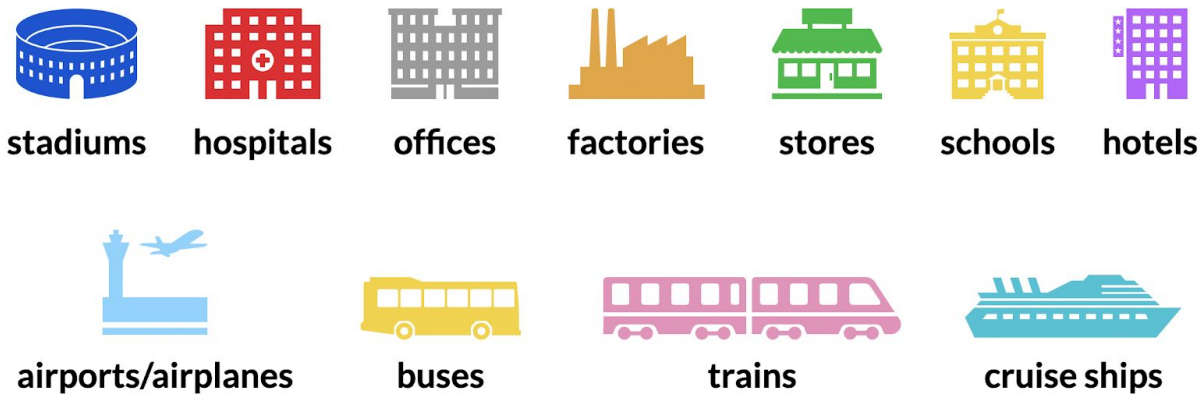


ACME is a business that wants to check that people have been vaccinated. Dana is an ACME admin, and Charlie is an ACME employee who will scan people's codes.

1. Dana registers ACME as a customer through the web portal.
2. Dana adds employees like Charlie as verifiers.
3. Charlie installs the Unum ID app to scan people's codes.

Dana can also use the web portal to add payment information, access invoices, add and remove other admins and verifiers, and see how many verifications ACME has done.

Because the system works entirely through a free mobile app and web portal, it's suitable for any business imaginable. All that's needed is an employee who can scan people's codes.



Pricing

Proof of vaccination verifications (successful scans) cost just $0.29 each. You can pay as you go or pre-pay, and there are volume discounts in each case:

Verifications	Unit Cost	
	Pay as You Go	Pre-Pay
1 - 10,000	$0.29	$0.26
10,001 - 100,000	$0.23	$0.21
100,000 - 1,000,000	$0.20	$0.18
1,000,000+	$0.18	$0.17

We are open to custom contracts for large clients or those with special requests. Please email us at sales@UnumID.org with any inquiries.

Key Features

Video Demo: https://bit.ly/2J8D1n2

Touchless and Sanitary Design

- **Every part of the solution is touchless.** Staff members are onboarded and trained remotely, customer admins add employees as verifiers remotely, people receive proofs of verification by displaying QR codes to be scanned, and verifiers verify those proofs by scanning QR codes.
- **Unum ID QR codes can be scanned from a distance and through clear materials.** The Unum ID app presents the codes in large format with high contrast and turns screen brightness to the maximum setting. This makes it easy to scan the codes from six feet away (or further) and through clear materials like glass and acrylic.

Non-Transferability

- **Proof of vaccination can only be used by the person who received it:** it can't be transferred to anyone else. The proof is cryptographically tied to a private key stored in the secure hardware element of the user's phone. It's only valid if presented with a cryptographic signature created with that private key, which no one (not even the phone manufacturer) can remove from the device or even access. This means that, even if the proof data itself were transferred to another phone it would be useless. Any verifier who scanned the user's resulting code would see that it's invalid.
- **Proof of vaccination is biometrically tied to the person** who received the proof in the first place. To unlock and use the app, the person needs to pass a biometric check within 15 seconds of displaying their code to a verifier. This ensures that the proof is only usable by the person who received it, even if another person gains possession of the phone, whether they steal it or the person willingly gives it to them.

Reliability

- **Only staff authorized by Unum ID can give proof of vaccination.** These staff are either health professionals working or trained Unum ID staff at vaccination sites.
- **Staff only give proof of vaccination when they have incontrovertible proof a person was vaccinated.** For example, a nurse administering a vaccination can be certain the person was vaccinated! It's enough for a person to simply claim they've been vaccinated.

- **The solution works for vaccines that require multiple doses,** even if people receive doses at different locations. They simply need to have their QR codes scanned at each location by authorized staff.
- **The Unum ID backend runs on IBM infrastructure** built for massive scale and heavy use. We have redundancy across several availability zones to ensure maximum fault tolerance. Because the solution runs through a mobile app and web portal, it's extremely scalable by design, ready to service thousands of customers and many millions of people.

Security

- **We use asymmetric cryptography with private keys stored in the secure hardware of the user's phone.** This hardware is isolated from the rest of the device and allows us to securely create and use private keys without ever interacting with them directly. Even the phone manufacturer cannot access these private keys. In old devices without secure hardware, we use the mobile operating system's trusted execution environment (TEE), which simulates this functionality to provide a comparable level of security.
- **All data is encrypted in transit and at rest** using TLS with certificate pinning and RSA encryption keys on user devices.
- **Only staff authorized by Unum ID can give proof of vaccination.** See "Reliability" above for more information.
- **Only verifiers authorized by customer admins can verify proof of vaccination** by scanning QR codes.

Privacy

- **We store *zero* medical data about people who receive proof of vaccination in our database.** We only store nonsensitive public keys and, if people opt in, basic contact information. For customers, we handle payment information through a third party provider and store basic contact information about admins and verifiers.
- **A person's proof of vaccination data is stored *only* on their device and in cloud backups they control** through device default providers like iCloud and Google Drive. They can opt out of these cloud backups if they choose. This data does not contain medical or other sensitive information. (It might in future versions of the solutions, since this opens up other helpful applications, like sharing detailed medical records.)
- **Businesses verifying proof of vaccination do *not* receive any personal data.** They only receive a "yes" or "no" that the person has been vaccinated against COVID-19.
- **Proof of vaccination is only given and verified with full consent** of the person receiving it.
- **If collection of medical data is required, Unum ID will only handle that data with full consent and in compliance with HIPAA** and similar regulations. This may be

necessary in v2 of the solution, where people will have the option to receive proof of vaccination remotely and after the fact, e.g. by submitting scans of paper records and a government ID.

Compliance and Liability

- **GDPR and similar:** The solution requires little or no collection of personal identifiable information. To the extent that this is required, it will be done with full consent and other standard provisions (the right to have data deleted, etc.).
- **HIPAA and similar:** v1 of the solution requires no collection of medical data. To the extent that later versions require this, it will be done with full consent and strict security controls.
- **SOC and similar:** We will maintain robust internal security controls above and beyond what's required by law to ensure maximum security and public trust.
- **Businesses verifying proof of vaccination with Unum ID have no added liability.** They do not receive any personal data, and we are responsible for any errors resulting from negligence, technical failure, and similar errors.
- **We are pursuing government support** to facilitate adoption and partnerships with health providers. If you are a government official, please reach out to us at contact@UnumID.org.

FAQ

What if a person loses their phone or gets a new one?

Not a problem. By default, the person's app is backed up to their iCloud (on iOS) or Google Drive (on Android) account. If they lose their phone or get a new one, the app will be restored to the new device and everything will work like before.

The person can choose to opt out of the backup, but they'll be warned that they'll lose proof of vaccination if they switch phones. Even in this case, they can apply for proof of vaccination again.

Is the proof of vaccination data on the person's phone sensitive? Is it secure?

No, the proof of vaccination data is only a "yes" or "no" that the person has been vaccinated against COVID-19. It doesn't contain any medical information or other sensitive data (though future versions of the solution may include this).

Yes, the data is extremely secure. The Unum ID app requires that the person has set up a device biometric and passcode. Even if they lose their phone, the data in the app is extraordinarily well protected (e.g. even the FBI couldn't break into an iPhone). The person can also choose to remotely erase their device for ultimate protection. In this event, they can apply for proof of vaccination again.

Which devices is this solution compatible with?

The Unum ID app is compatible with all modern smartphones, both iOS and Android devices. The web portal can be accessed from any web browser, on any device.

Does this work for people without compatible devices?

Yes, people without devices will receive paper QR codes instead of digital ones displayed in the app. However, businesses can choose to reject these, as they can't be guaranteed to be non-transferable. That is, there's no way to prevent someone who gets vaccinated and receives a paper code from giving that code to someone who wasn't vaccinated. It's up to each business to decide if this is a risk they want to take.

Does scanning people's codes require breaking social distancing rules?

No, the QR codes can easily be scanned from six feet away and through clear materials. The Unum ID app presents the codes in large format with high contrast and turns screen brightness to the maximum setting.

Get Started

Video Demo: https://bit.ly/2J8D1n2
Slide Deck: https://bit.ly/375S212

To join the waitlist for Unum ID's proof of vaccination solution, **contact our sales team at** sales@UnumID.org. The solution will be available in the coming weeks, and you'll be the first to know.

We're actively pursuing relationships with health providers, government bodies, major venues, volunteer groups, and more. If you're interested in working with us, please **reach out to us at** contact@UnumID.org.