



## **WHO Technical Specifications, Implementation Guidance, Reference Implementations & Tooling for Digital Documentation of COVID-19 Certificates (DDCC)**

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# DDCC context and challenges

## Global level challenges

- **Inconsistent data collected or interoperability standards – incompatibility** → One vaccine certificate issued by one country cannot be easily read or verified in another
- **Consistently changing policies** following evolving science
- **Global standards require global cooperation** → “interoperability” of systems stem from “interoperability” of people

## Challenges faced by governments

- **Numerous competing products** for digitally documenting vaccination status; high opportunity for private sector to monopolize solution
- **Lack of criteria** for assessment of solutions or **specs for product** development
- **Governments needing to choose between a number of standards** on digital certificate functions, privacy of data, governance, procedures to mitigate misuse – undermining confidence
- **Investments need to be aligned with any existing** digital health strategy and interoperate with existing digital solutions & tools in country

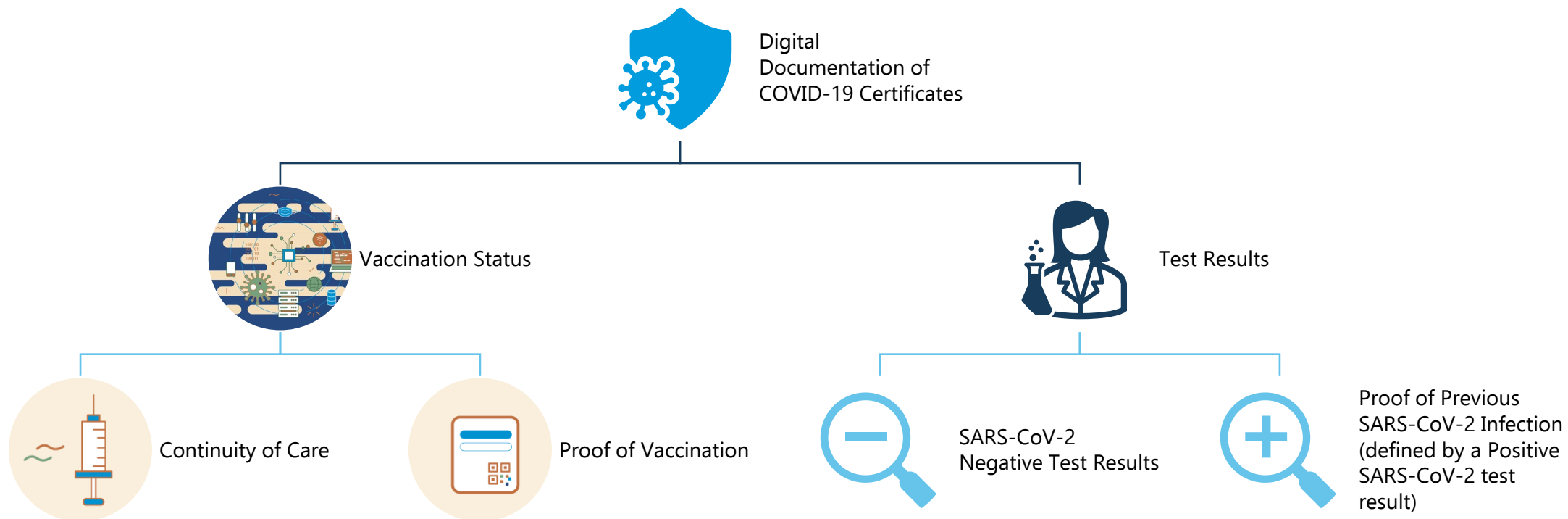
## Individual-level challenges

- Some jurisdictions **limiting individuals** from travel, private and public venues - guidance on ethical use needed
- Possibility for **fraudulent paper and digital certificates** – undermining trust
- **High confusion** around where/how to get vaccine certificates for travel or otherwise. No understanding of what they should expect to get from their health care provider or public health authority

# Objectives of the technical specifications and implementation guidance on DDCC

- ✓ To **publish implementable specifications and standards** for data representation, functionality, privacy, and national trust architecture for use cases;
- ✓ To **develop guidance** detailing governance, ethics, and implementation best practices, and links to trust architecture;
- ✓ To **ensure the design** of the DDCC is in a format that is accessible to all, does not increase the digital divide, and does not lead to vendor lock-in.

# DDCC technical specifications and implementation guidance cover multiple use cases



# Designs principles based on ethical considerations and privacy protection

1. Should **not increase health inequities** or increase the digital divide
2. Everyone who has been vaccinated or tested has the **right to obtain and hold a DDCC**
3. Needs to be in a format that can be accessible to all (i.e., **paper and digital, online and offline**)
4. Individuals should **not be treated differently** or given different levels of trust based on the format of their DDCC
5. The interoperability specifications used in DDCC solutions should be based on **open standards** to ensure equitable access to digital tools.
6. Solution infrastructures should **not lock-in** individuals or Member States into a commitment with only one vendor.
7. Be as **environmentally friendly** as possible.
8. Designed to augment and work **within the context of existing health information systems**, as appropriate.
- 9. Minimization of health data** for purposes not related to health care, and privacy-protecting features, should be built into the system and be respected accordingly.
- 10. Anti-fraud mechanisms** should be built into any approach.
11. Digital technology should **not be the only mechanism** available for verification.

# DDCC Specifications support paper-first, augmented by digital

## Traditional paper-based records for vaccination

**International Certificate of Vaccination or Prophylaxis**  
(i.e. yellow card)

**National Immunization Home-based Record**

## Traditional paper-based records for test reports

**Test report**

## Digital Documentation of COVID-19 Certificates

### DDCC:VS

A handwritten paper certificate with only a HCID, which links to a DDCC:VS

OR

A handwritten paper certificate with a 2D barcode containing the full DDCC:VS core data set



A PDF print-out certificate with only a HCID which links to a DDCC:VS

OR

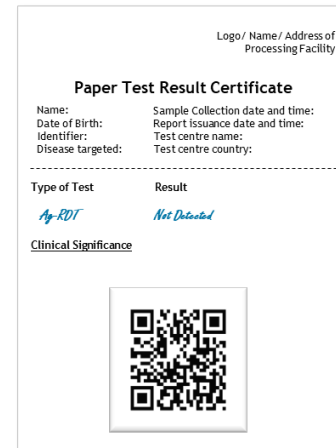
A PDF print-out with a 2D barcode containing the full DDCC:VS core data set



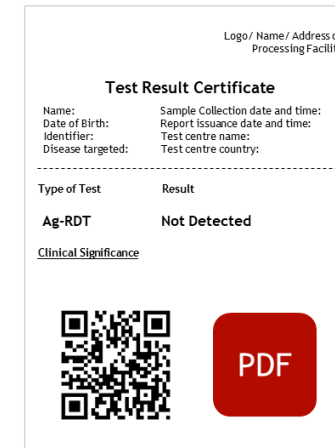
A DDCC:VS held on a smartphone



### DDCC:TR represented as various Test Result Certificates



(2) a handwritten paper test result certificate with only a HCID which links to a DDCC:TR OR a handwritten paper test result certificate with a 2D barcode containing the full DDCC:TR core dataset



(3) a PDF print out test result certificate with only a HCID which links to a DDCC:TR OR a PDF print out with a 2D barcode containing the full DDCC:TR core dataset



(4) a DDCC:TR held on a smartphone

# What is in the document?

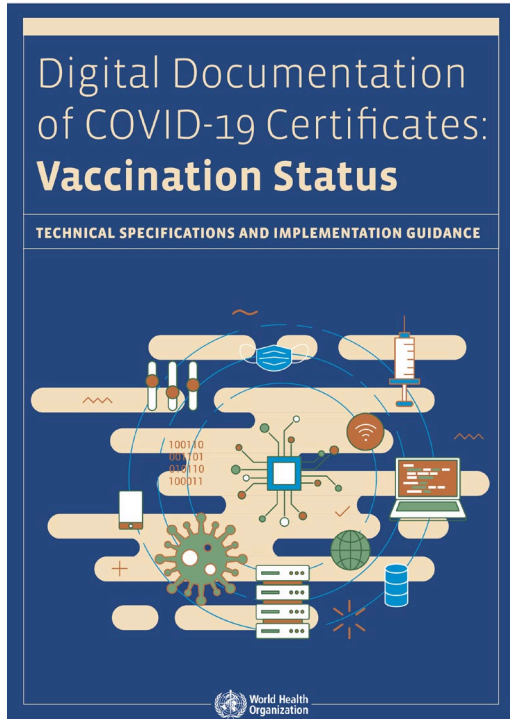
It is *NOT* a policy document

## *Requirements and specifications for technology implementers*

- Business processes, workflows & use cases
- Core data elements mapped to standard terminology code sets (including an annexed spreadsheet)
- Functional and non-functional requirements
- Overview of signing a digital certificate with PKI
- HL7 FHIR Implementation Guide (linked website) detailing relevant standards for consistent representation and interoperability

## *Implementation considerations*

- Data protection principles
- Ethical considerations
- National governance considerations



Digital Documentation of COVID-19  
Certificates: Test Result

Technical specifications and implementation guidance



# Assumptions for country responsibilities



1. Countries choose the **modalit(ies)** to implement COVID-19 certificates (e.g. paper, smart phone application, etc.)
2. Multiple point of service solutions operating, based on **what countries want** to implement
3. Countries responsible for implementing necessary **policies to support** the issuance and verification workflows
4. Countries **determine which mechanism for unique identification** (e.g. health ID, national ID number, passport number, etc.) and whether they wish to bind the certificate to identity
5. Countries determine **which trust frameworks** to use for validation of COVID-19 certificates & establish agreements with other countries that outline the governance process for establishing trust (e.g., equivalence)



# Architecting for the future

The Digital Documentation of COVID-19 Certificate specifications set the foundation for supporting an internationally recognized patient summary that is held by an individual

## DIGITAL DOCUMENTATION OF COVID-19 CERTIFICATES

- Vaccination events
- Lab test results (positive or negative test results)

## Can also be expanded to document

- Routine immunizations for children

## PERSONAL HEALTH RECORD

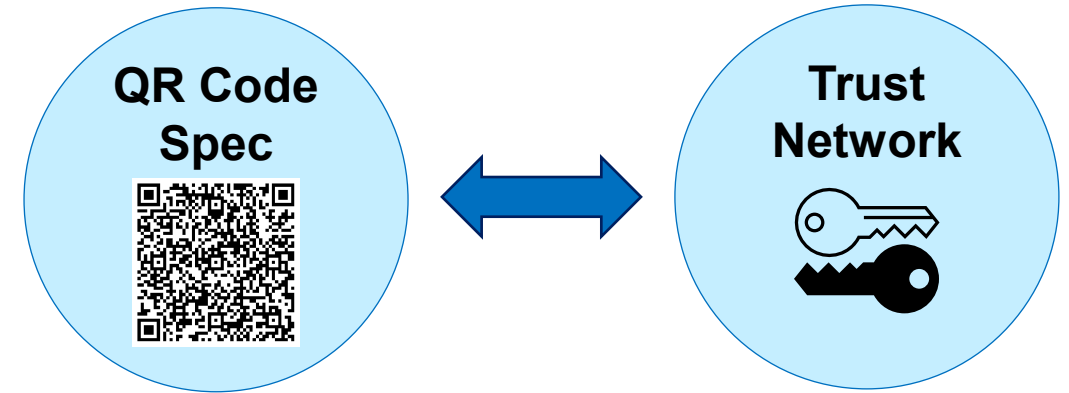
Can also support:

- International patient summary standard
- Other health events
- Risk factors
- Allergies
- Etc.

# Comparison to other initiatives

## Several COVID-19 certificates are already in the marketplace

- EU Digital Covid Certificates (DCC)
- DIVOC
- Smart Health Cards / VCI
- LAC Pass



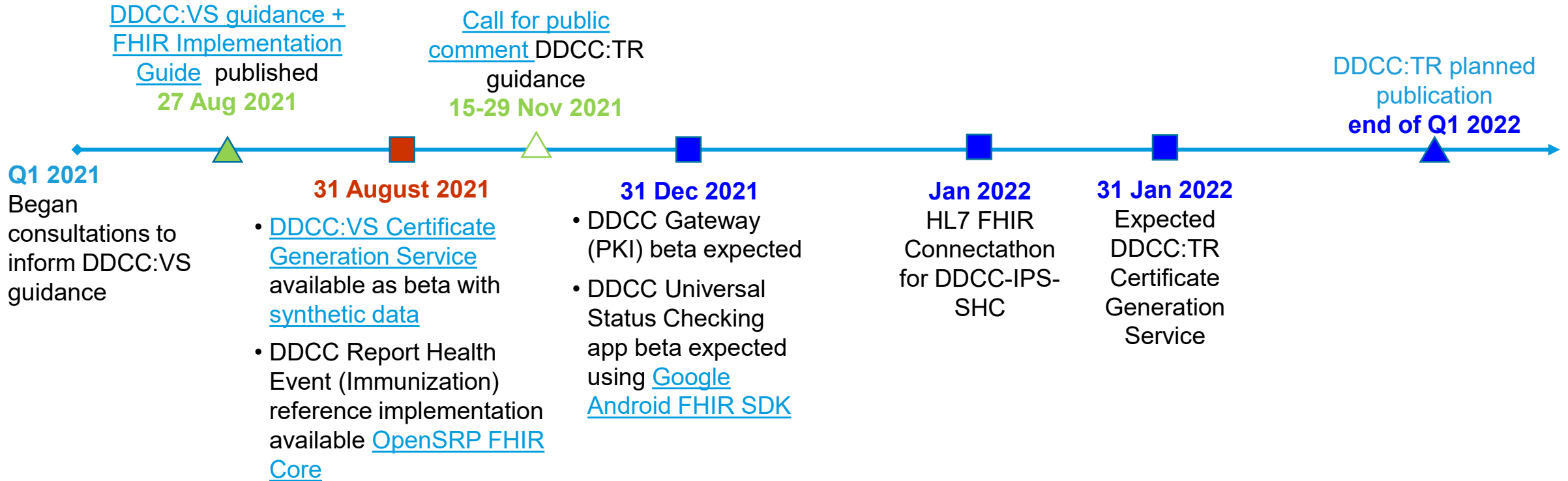
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## WHO DDCC provides an “umbrella” specification



- Signed HL7 FHIR document provides:
  - ✓ common data model
  - ✓ support for multiple QR codes
- Federated Regional/National Trust Network in progress - *generalize EU DCC Gateway*



# Timelines for tools and guidance



**Key**

-  Guidance documents
-  Reference Implementation and Tooling

Thank you!

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