

# System for Certification of Immunity

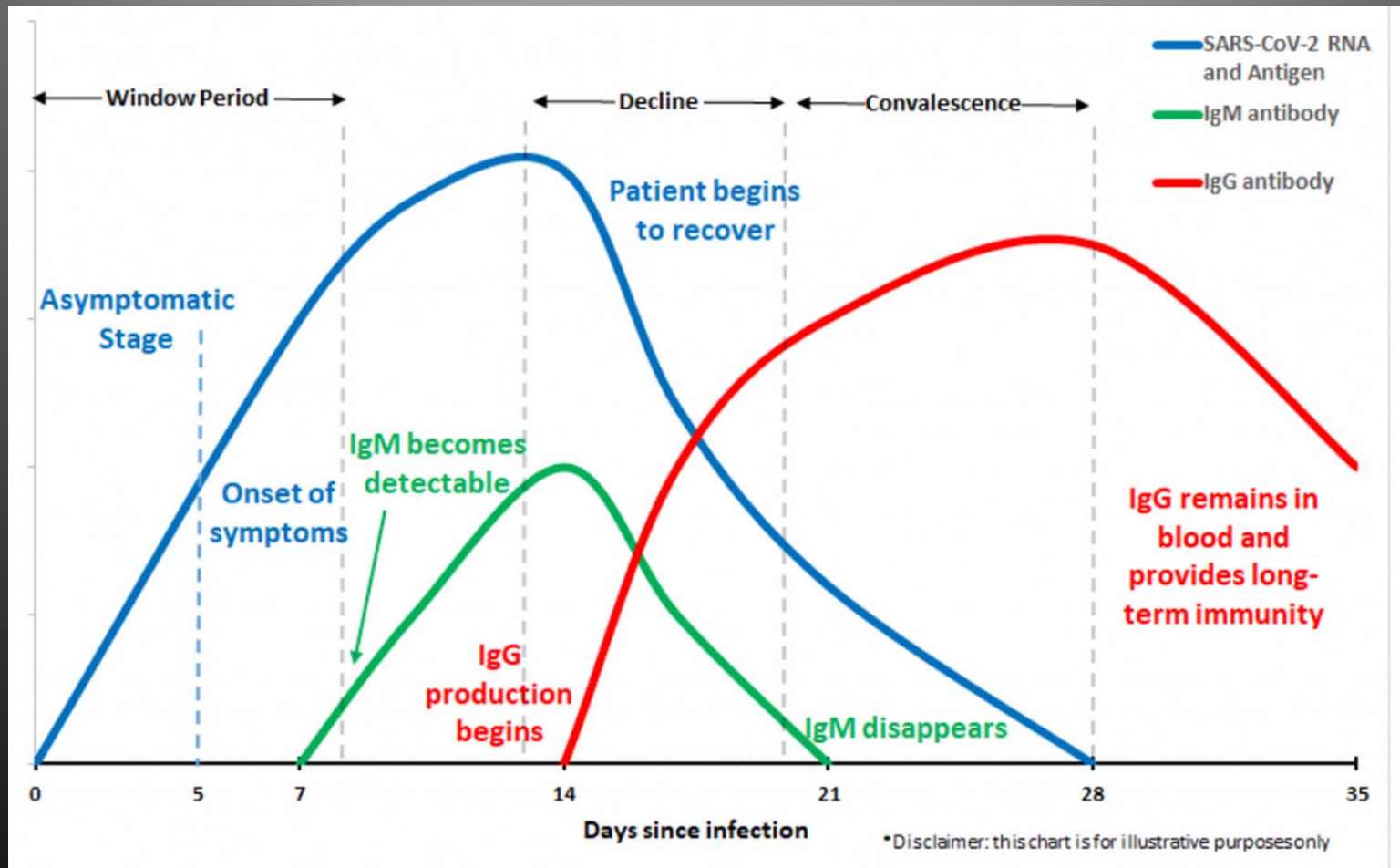
A Means to Speed Society's  
Return to Function

Conceptualized by Dr. Charles A. Lewis, MD MPH  
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# Getting Back to Work

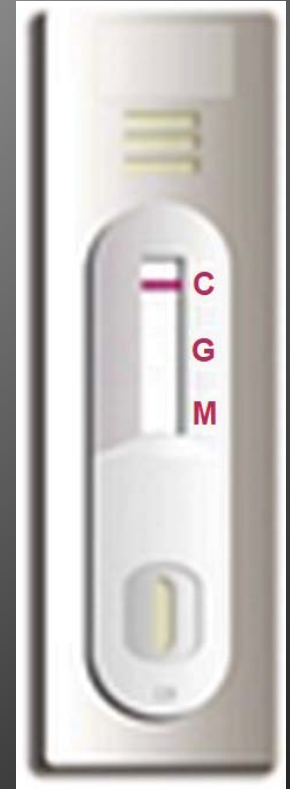
- Immune individuals have low to zero risk of getting or spreading a disease – they can return to normal activities.
- Many people may have had mild or asymptomatic cases and can safely return to work .
- IgG testing can identify those that are immune to a disease, either from exposure to the disease or from immunization.
- IgG testing for antibodies to a given disease is generally simple and inexpensive.

Development of antibodies to SARS-CoV-2 takes about 20 days from exposure. Active viral shedding may end a bit sooner.



# Testing is Easy

- Point of care IgM/IgG testing is or will soon be available, likely for about \$20 per test (wholesale).
- It is a 5 – 15 minute test.
- Easy to perform, a couple drops of blood.
- High specificity.
- Like a pregnancy test.



# Confirmation is Difficult

- Having a COVID-19 immune status is valuable.
- A positive test will allow people to return to work, go to restaurants, and socialize.
- A positive test will allow people to travel and cross borders.
- There will be very high incentives and a market for cheating and falsification of immunity testing.

# Secure and Certification and ID

- A standardized, secure, visible ID will *increase trust* that workers are immune and not a risk.
- Example – cashiers that check out groceries for at risk elderly, or when getting on public transport, or using Uber.



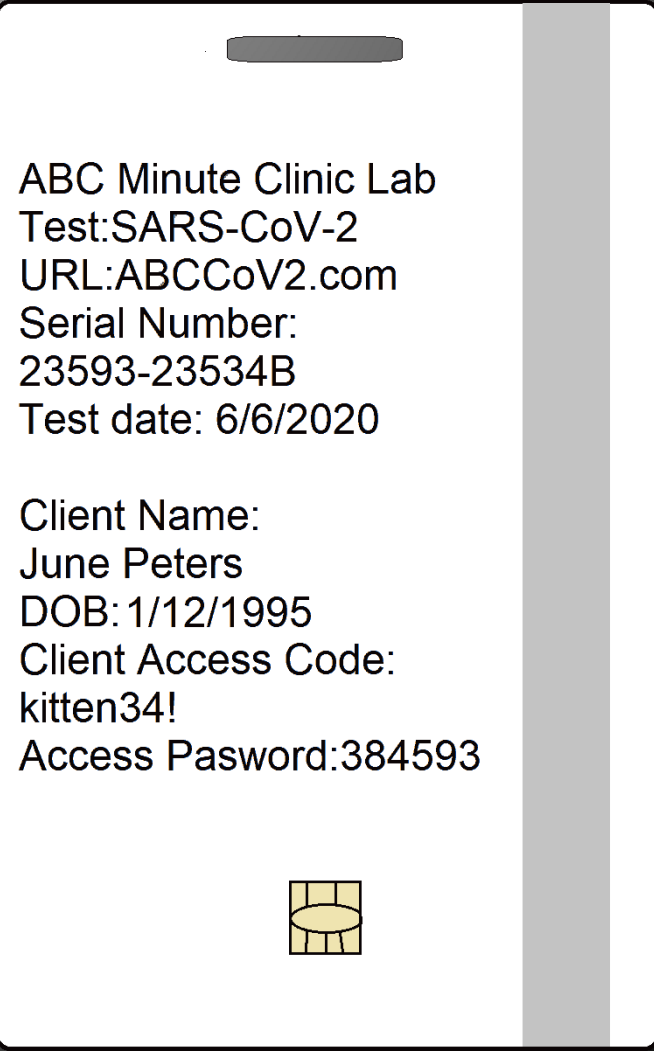
# ID Features



- Large photo and name for easy ID at several feet distance.
- Background color and layout standard for disease, with disease symbol.
- QR code for easy scanning and verification against forgeries.

# Private Data on Back

- Back of Card has test center info and date of testing, password data , links to secure network confirmation of authenticity.
- RFID chip and/or magnetic strip may be used for these and extra security features.
- Back of card can be hidden from general public view.



ABC Minute Clinic Lab  
Test:SARS-CoV-2  
URL:ABCCoV2.com  
Serial Number:  
23593-23534B  
Test date: 6/6/2020

Client Name:  
June Peters  
DOB: 1/12/1995  
Client Access Code:  
kitten34!  
Access Pasword:384593





# Card Links to Official Certificate

- Official digital certificate shows proof of identity, test data and test results.
- Links to blockchain verification to prevent spoofed websites.
- Downloadable for workplace verification of compliance.

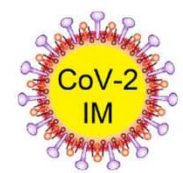
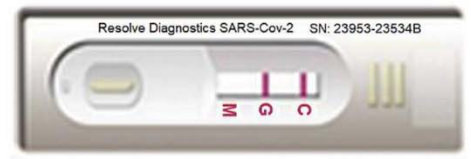
ABC Minute Clinic

Store Number 534  
2157 Hodges Lane  
Hartford, CT 06118  
959-555-1212

Client: June A. Peters  
DOB: 01/12/1995  
Identification presented: CT drivers license # 888888888



Test performed: SARS-COV-2 IgM/IgG Antibody Test. Test date: June 6, 2020  
Test Kit: Resolve Diagnostics SARS-COV-2; Kit Serial Number:23953-23534B  
Test Results: IgM Negative. IgG Positive. [Blockchain security link](#) /QR:



Interpretation: This test verifies that this individual has established immunity to SARS-CoV-2 with a test specificity of 97%.

Test performed by:

Judy Jetson, ARNP  
Lic. Number: CTM 5033622

*Judy Jetson* ARNP

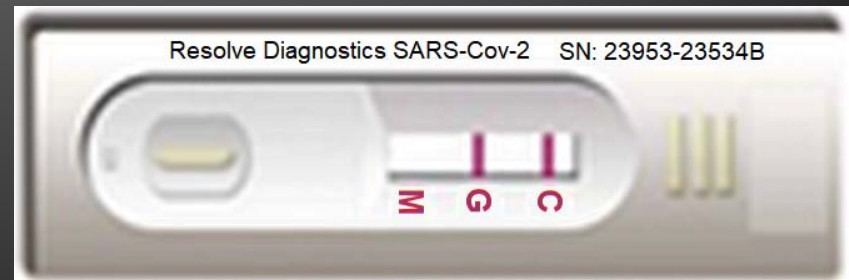
Certification Date:  
Date 6/6/2020

# Simple Testing

- Schedule 10 minute slot at a minute clinic.
- Present photo ID, contact info and payment.
- Sign HIPAA form, report any history of exposure.
- Quick finger stick for blood sample.
- Get receipt with access codes for test results – ready in an hour.
- Pick up ID card or have it mailed if results are positive.

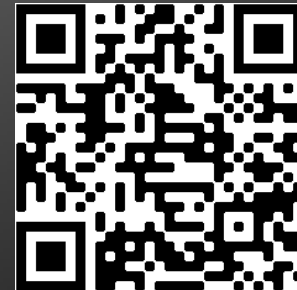
# Authenticating Tests Kits

- Each test kit needs an individual serial number and private test validation key from the manufacturer, sealed inside the package.
- A scannable QR code can be used as the key.
- This will validate the test, and allow the results to be entered into the blockchain register for results. Only licensed practitioners will have access to the software, and a single use, SN and key will be required to register the results.



# Virtual Card

- Smart phones and other mobile devices can be used to present immunity certificates. The image will present a verification ID photo and a scannable QR code that allows authentication.
- Certified authentication apps will allow QR code linking only to authentic, secured sites to prevent a counterfeit card to link to a spoofed validation site.



# Security

- Requires manufacture to provide traceable unique encrypted codes for each test kit to prevent falsified testing.
- Blockchain database prevents alteration except a one time report of test results by licensed professional.
- Access to results only by pass code, only to one individual, and only with their permission.

# Security System

- Prevents creation of fake test kit serial numbers.
- Prevents fake registrations of test results.
- Prevents misdirection to spoofed sites.
- Prevents alteration of test results.
- Allows quick, easy access to results with tested individuals permission.
- Allows collection of aggregated data for public health use.

# Weakness in this System

- Although results are photographed for archival, and can be seen in the official certificate, a corrupted licensed practitioner could use an immune person's blood to give a positive test result for a non-immune individual.
- Statistical monitoring could likely identify rampant falsification.

# Regulatory Action Needs I

- Promulgate Standards for ID:
  - Appearance (size, background color for disease/year), layout photo size, etc. so that it is clearly recognizable and distinguishable.
  - Required data content.
  - Set new appearance standards as new diseases emerge to prevent use of old immunity cards.
  - Define minimum security features.



# Regulatory Action Needs II

- Promulgate Standards for Immunity Certificate:
  - Set minimum test specificity
  - Set criteria for natural immunity .
  - Set criteria for vaccine immunity.

# Regulatory Action Needs III

- Promulgate rules for data security
  - Set rule that manufacturers include unique secure, private key code and serial number for each test kit.
  - Set rules that only licensed practitioners have access to software to amend blockchain database.
  - Assist in limiting trusted database sites to prevent creation of spoofed sites.
  - Set the same standards for foreign testing for U.S. use, so that anyone traveling to the U.S. would have identical certification documents.



Data: Testing Company, Data, Series, etc.



June Peters

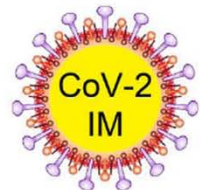
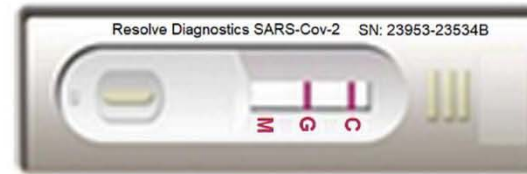
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