

# A tale of two contact-tracing apps: comparing Australia's COVIDSafe and New Zealand's NZ COVID Tracer

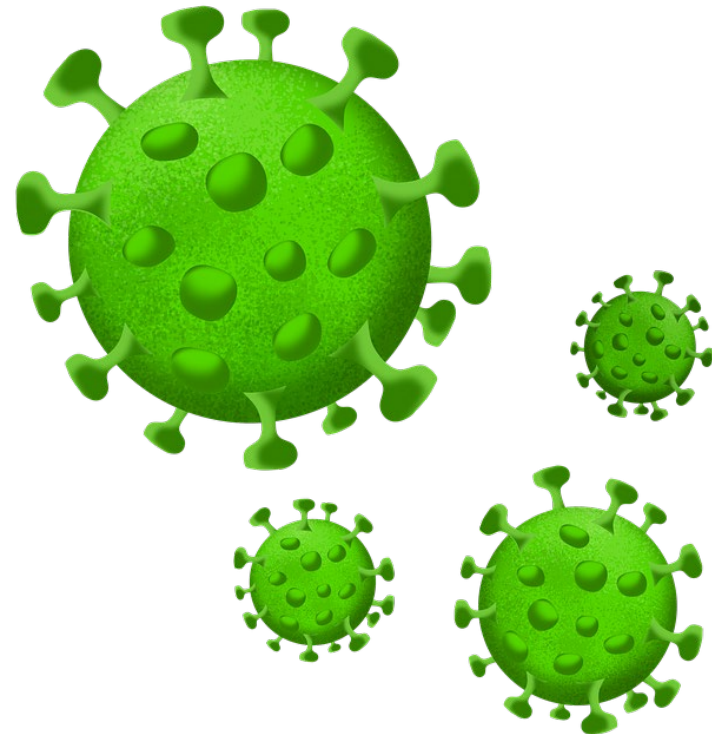
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Tracking and Tracing Apps for Covid-19, September 29 2020

# Context

- COVID-19 pandemic
- March 2020:
  - both countries adopt an “elimination” strategy:
  - economic and social ‘lockdowns’ (stronger in NZ)
- May 2020
  - both countries appear to be succeeding in elimination
  - both introduce smartphone-based contact tracing apps
    - in Australia prior to lockdown-easing
    - in NZ after lockdown-easing
- July 2020 – resurgence of community transmission in Australia (Victoria)
- August 2020 – resurgence of community transmission in NZ (Auckland)



# The Apps

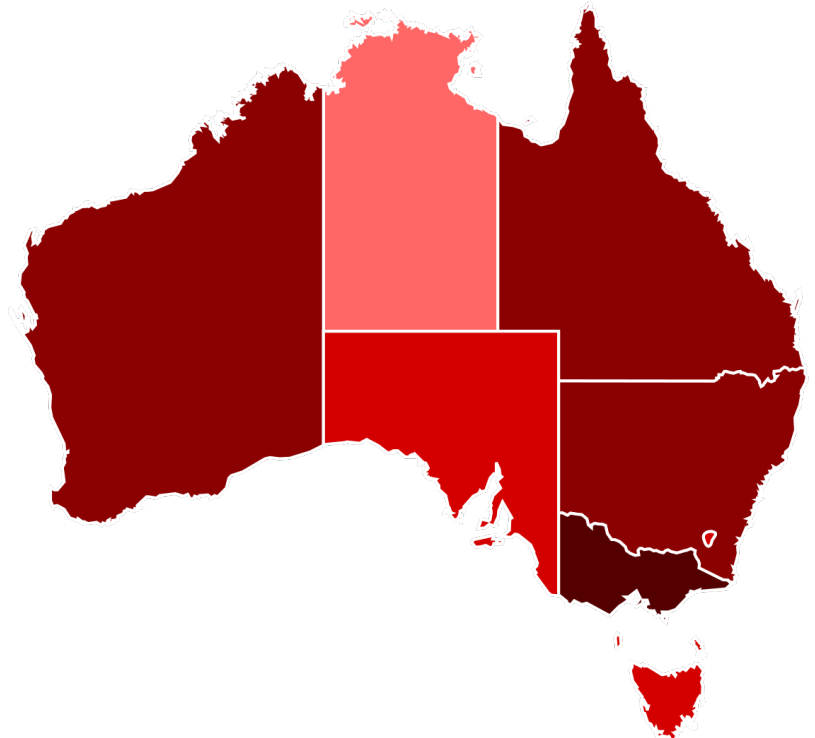
# Australia: COVIDSafe

- Bluetooth-based
  - Singapore's BlueTrace open source software
  - data stored on Amazon Web Services within Australia
- Users 'opt in'
  - download from Apple or Google app store
- Cryptographically-encoded "handshake" exchanged when any two app-enabled phones
  - come within 2 metres of each other
  - and remain in that proximity for at least 15 mins
- Handshake data deleted after 21 days



# When Smartphone owner tests COVID-19 +ve

- User decides whether to upload phone data to Contact Tracing service
- Contact Tracer
  - combines phone, interview data
  - determines contacts to “list”
  - automated messages sent to “listed” “contacts” identified on central system
- Optional Bluetrace feature
  - system can automatically broadcast a message to all contacts



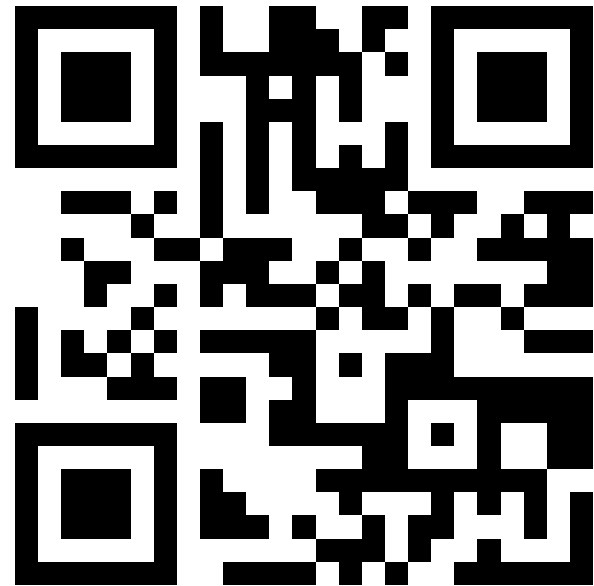
# Effects on Contact Tracing Processes

- Risks
  - app may identify “false positives”
    - phones 2m apart for 15 mins but physically separated (e.g. offices, apartments)
    - if using automated messaging, “too many” people may present for testing, causing bottlenecks in this part of the system
  - “false negatives”?
    - cannot detect virus transmission from particles on surfaces
- Summary
  - looks promising



# NZ COVID Tracer

- QR code-based “digital diary” kept by individual app users
  - extends from MBIE contact register obligations for businesses operating during lockdown
- Businesses register, download and display code
  - unique for each business premise; mandatory from August
  - initially required MBIE business registration, subsequently relaxed to allow unregistered (informal) businesses to participate
- Users download app
  - register contact information initially
  - then scan codes every time a premise is entered
- Phone data deleted after 31 days



# When Smartphone owner tests COVID-19 +ve

- Phone user decides whether to upload phone data to Contact Tracing service
- Contact Tracer
  - combines phone data with interview data
  - identifies premises user has visited when infectious
  - requests contact register information from business
  - parses business information to identify and “list” individuals who may meet the 2m/15 min criteria
- Optional automated alert
  - users can opt to be alerted if they have entered a premise at the same time as someone testing +ve





# Effects on Contact Tracing Processes (New Zealand)

- Contact identification
  - app identifies locations visited, not individuals
  - separate processes for premise records
- Premise registers a new feature
  - adds a step to contact-tracing
  - imperfect records – individual scans **in but not out**
    - no closeness of proximity or length of exposure
    - risk contingent on premise characteristics
    - requires explicit human judgement



# Effects on Contact Tracing Processes



- Business records of who else was present
  - highly variable form (including paper records)
  - difficult and/or costly to parse
- Creates more work for contact tracers
  - increases the more businesses participating and the more users scanning their activities (more target premises identified)
- So likely will *reduce* contact tracer efficiency relative to the non-app counterfactual
  - greater manual effort required the higher is adoption and use

# Other factors (New Zealand)

## Automated messaging

- does not require contact tracer time
- but will generate a large number of “false positives”
- huge increase in numbers presenting for testing
  - delaying testing of true positives
  - thereby militating against elimination objective

## What about contact at non-business premises?

- e.g. parties at private homes (where Bluetooth apps still operate)

## Large costs in addition to contact tracing

- business obligations; “scanning fatigue” amongst users

But does ensure up-to-date contact info is recorded

# The proof of the pudding will be in the eating

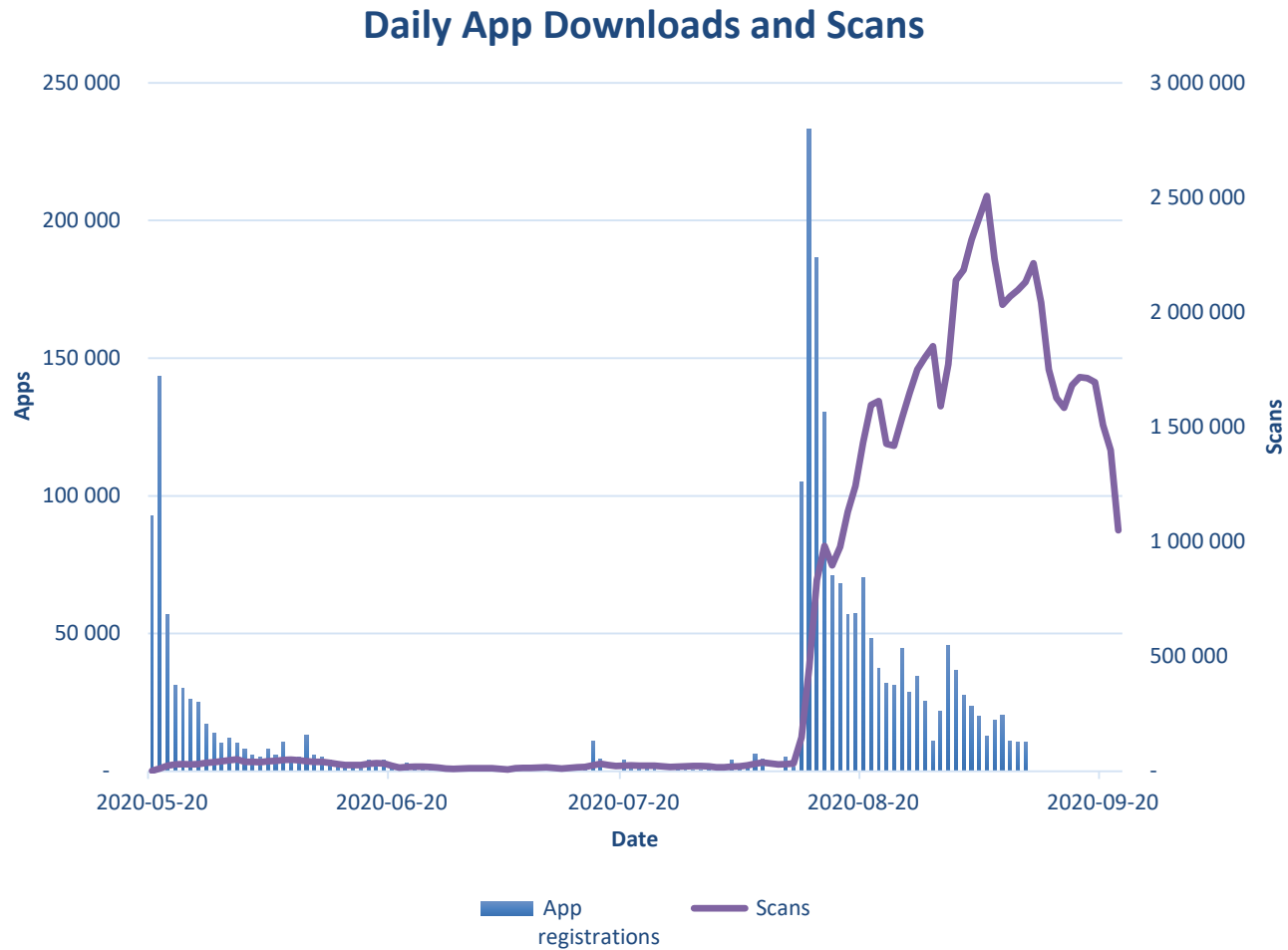
Recent  
resurgences have  
been of little help  
in evaluation

- low uptake
- and in NZ's case low usage

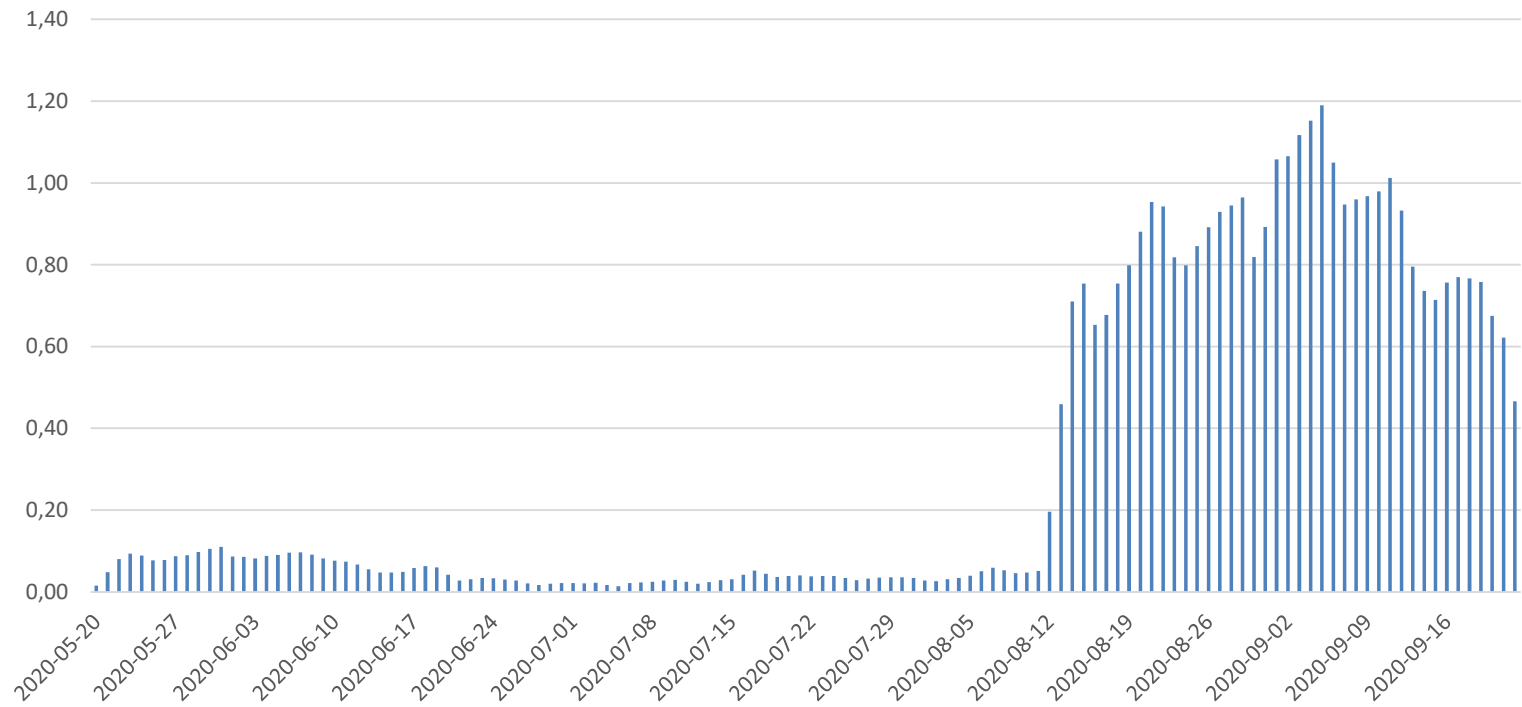
NZ app now  
mandatory for  
businesses but  
not users

- even though no standardisation  
of collection and
- processing of business records

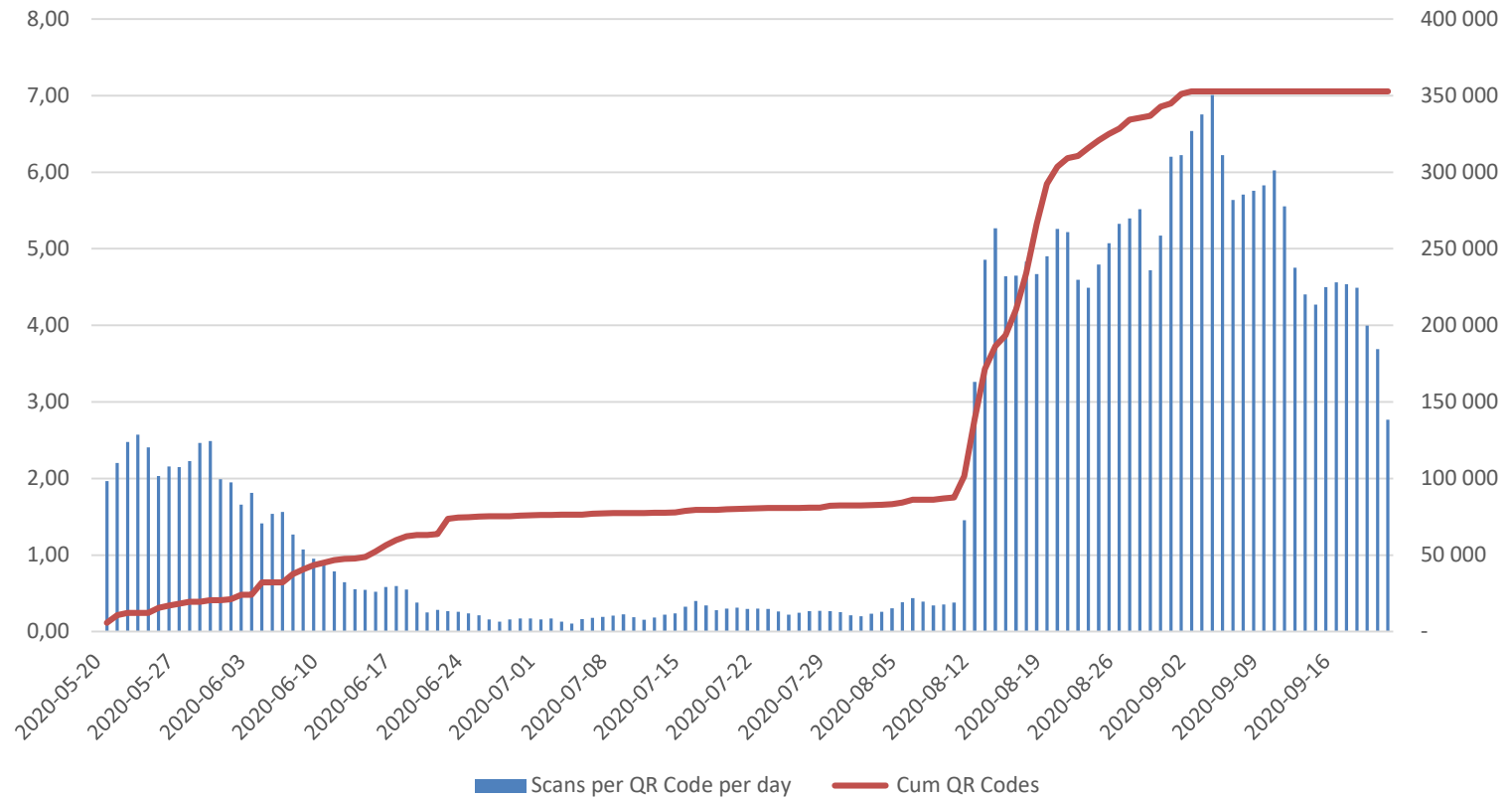
# NZers are not “Dining”



## Scans per app per day



## QR Code Activity



# Integration with human processes

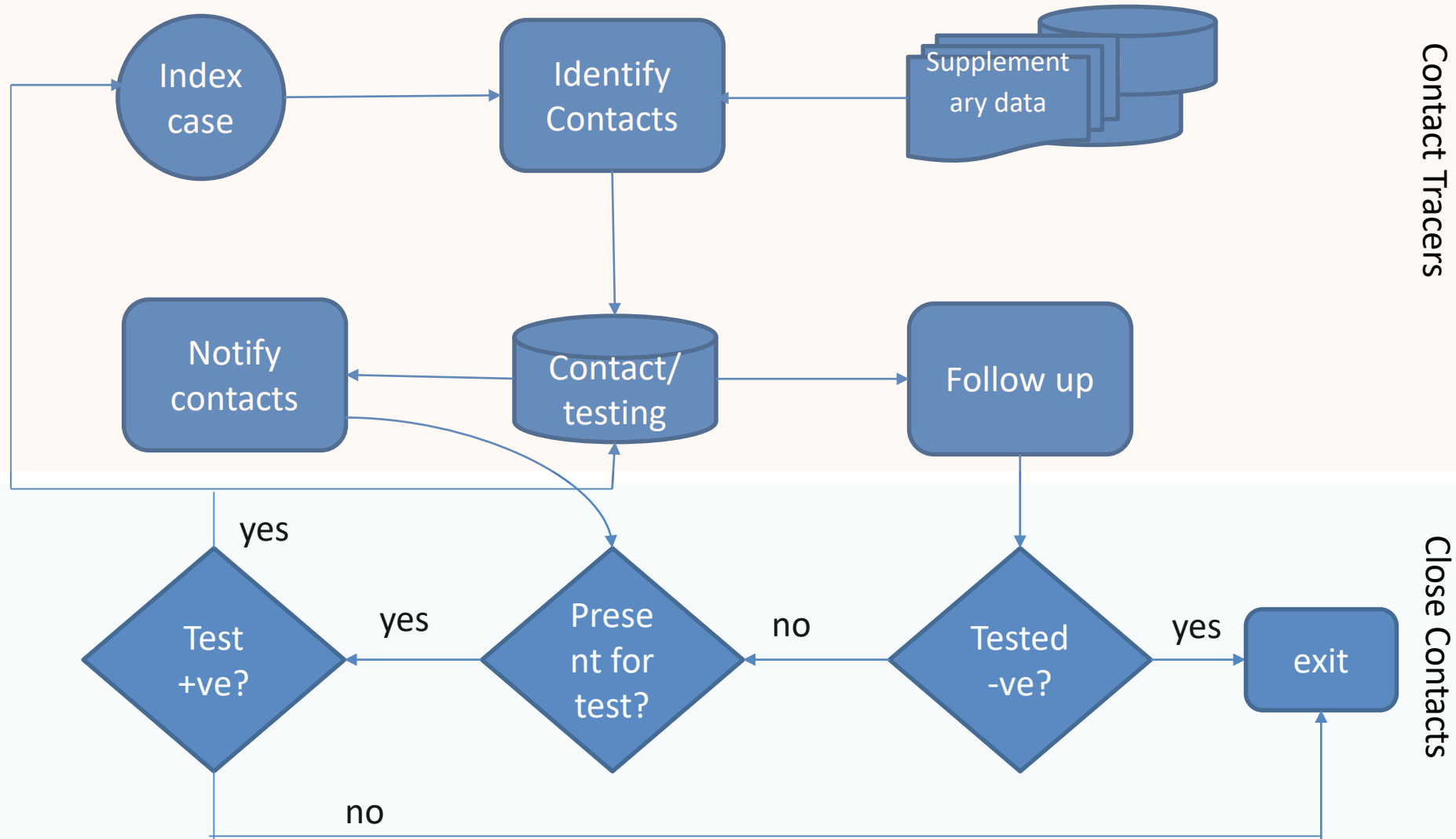


# Context: Contact Tracing Processes

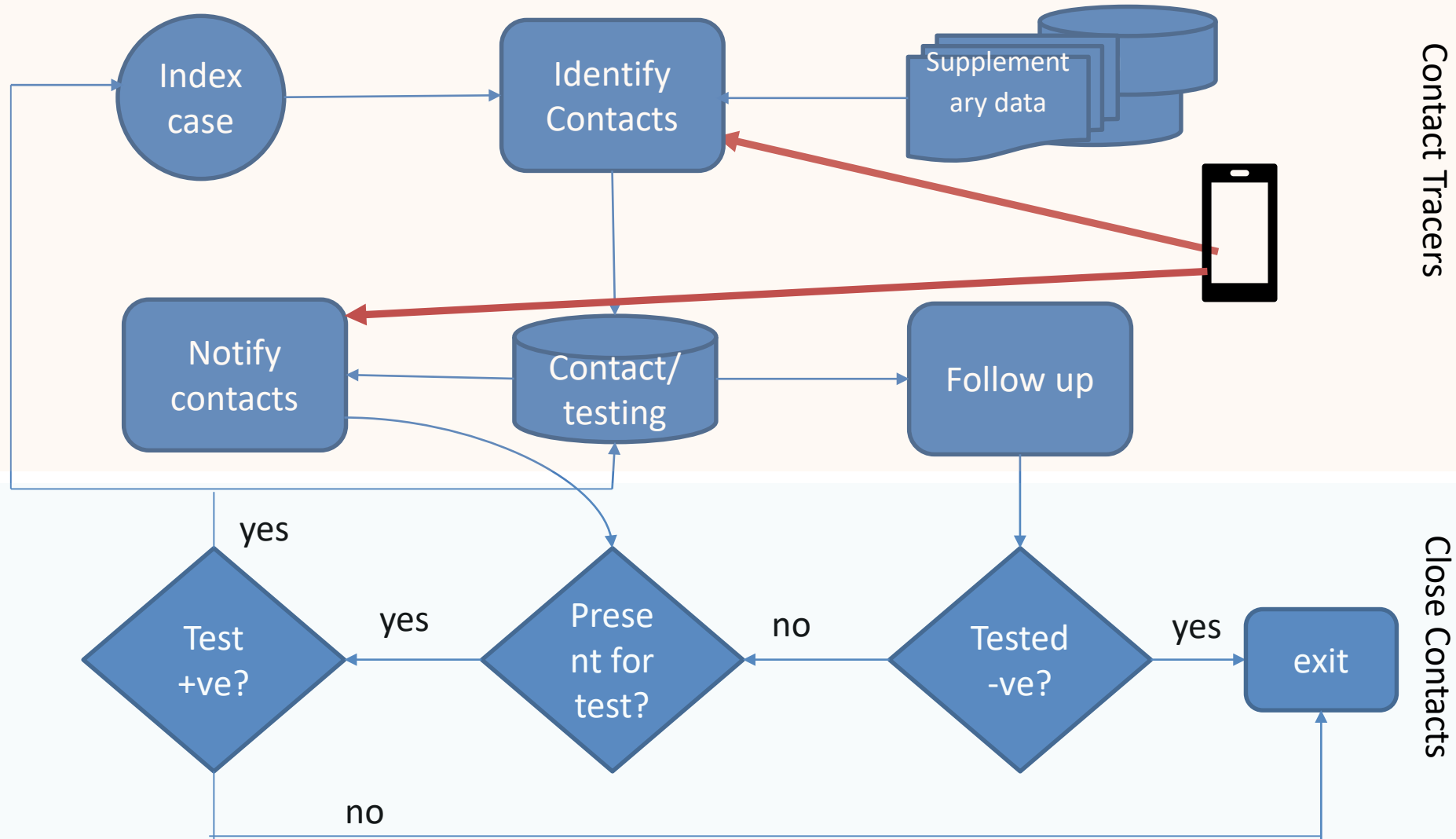
- Key plank of elimination strategy
- Interrupt chain of virus transmission
  - identify and isolate close contacts as soon as possible
- Three steps
  - close contact identification
  - contact listing
  - contact follow-up



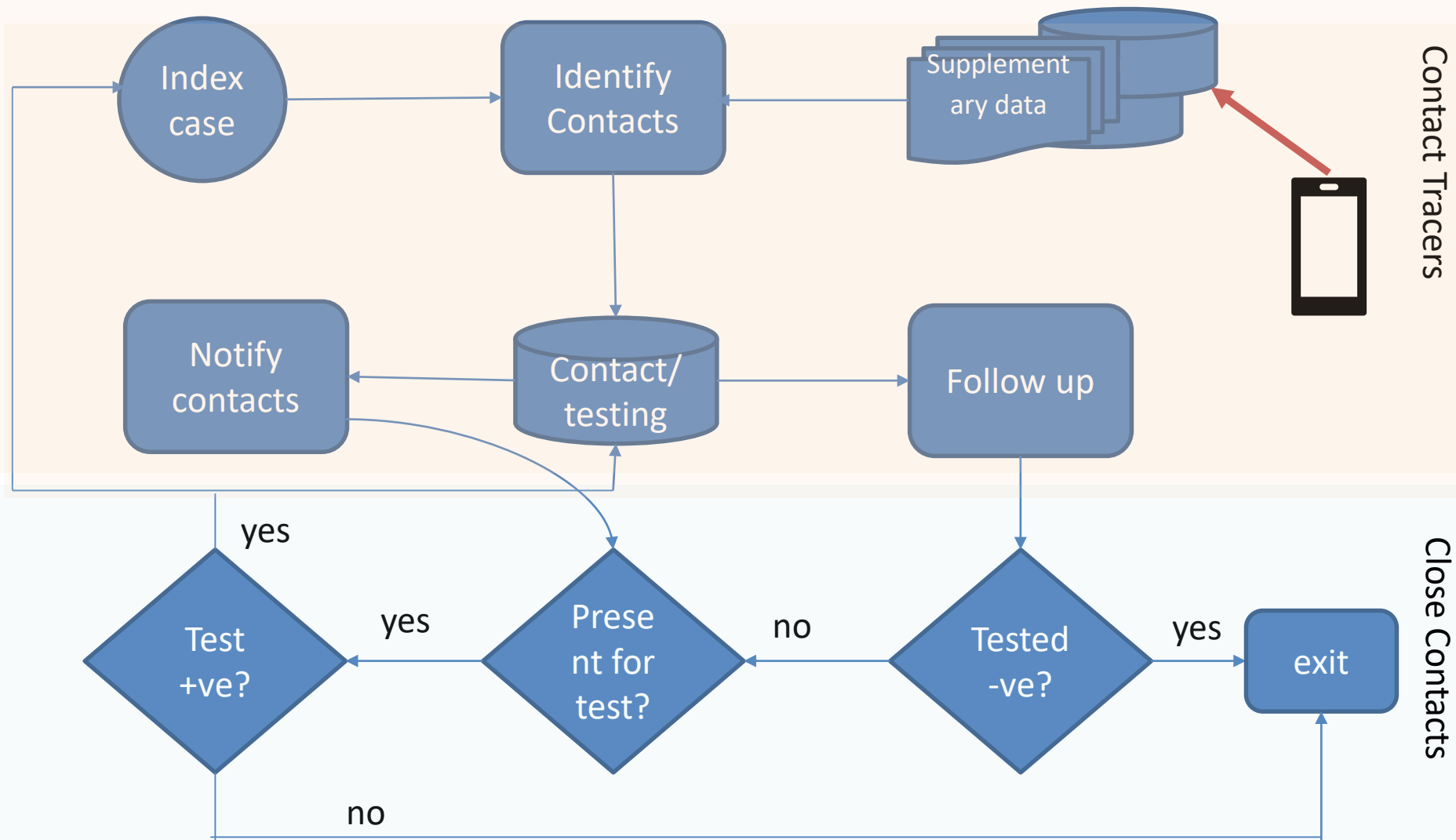
# Standard Contact Tracing Processes



# COVIDSafe and Contact Tracing Processes



# Standard Contact Tracing Processes




# Summary

Contact tracing requires human contacts to be identified



Bluetooth apps use phones as a proxy for humans

but may miss transfers via surfaces



QR code apps tie individuals to locations, not to other humans

further steps required to link  
humans at the locations

efficacy depends on these  
location-based apps

apps recording “in and out” can  
isolate individuals of interest

but human skill still needed to  
assess risk as all premises differ