

# Backward contact tracing: The literature

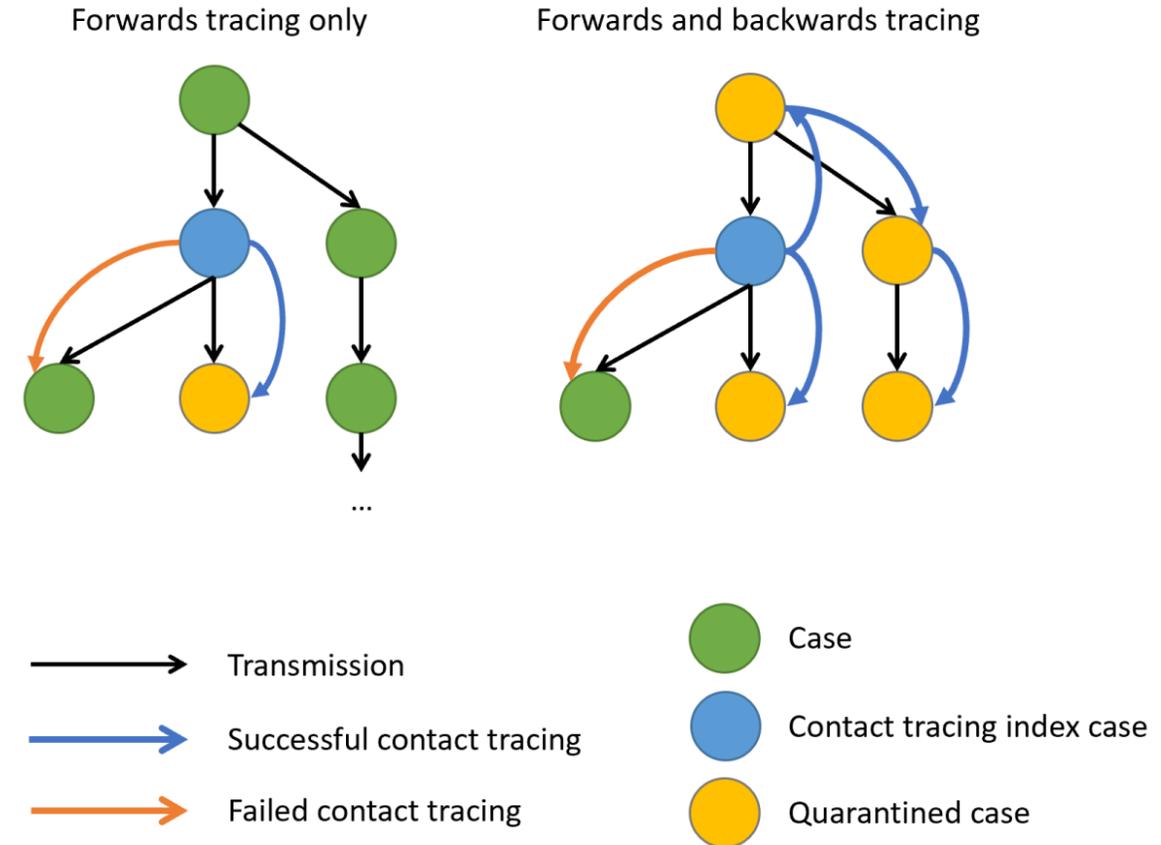
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# Backward contact tracing: the literature

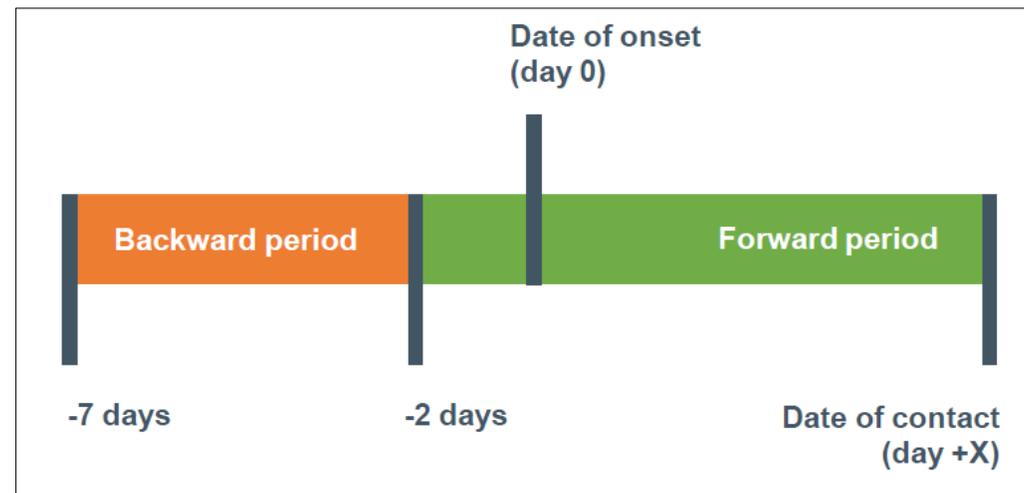
- Literature search (PubMed/preprints) May 2021
- One key article: Endo et al.
  - Modelling study: effectiveness of backward CT + traditional (forward) CT
  - Overdispersion of cases
  - Backward CT more likely to identify primary case
  - Primary cases likely to generate 3-10x more infections
  - Increases CT effectiveness by 2-3x



- Kojaku et al. (2020)
  - Hypothetical and empirical COVID-19 datasets
  - Backward CT most effective when infections are not equally distributed
  - Digital contact tracing [proximity tracking apps] can increase impact on backward CT
- Bradshaw et al. (1)
  - Bidirectional CT can ↓ R number by at least 0.3
  - Adding smartphone-based exposure information ↓ R number further (0.25)
  - Most effective when case ascertainment sub-optimal (poor test sensitivity) or when a positive test is required before commencing CT
- Bradshaw et al. (2)
  - Bidirectional CT can be used effectively in situations with new variants to identify cases with new variants when prevalence of the new variant is low
  - Regions with even “moderately functional” CT programmes focusing on new variants could substantially slow spread of infection

# Findings from other papers

- Foster et al. (2021)
  - Small pilot study (20 cases identified and backward CT implemented)
  - Local knowledge and local networks underpins its effectiveness
- Fyles et al. (2021)
  - Modelling study using UK CT model, examined effect of recall bias/delay
  - Limiting delay to identification of primary case is crucial or benefit of backward CT lost
- Scarabel et al. (2020)
  - Needs to be performed  $\geq 5$  days prior to symptoms/positive test



# Countries where backward CT has been implemented

- Little operational detail
- Countries identified included Japan, South Korea, Vietnam, Taiwan, US
  - Focus on identifying clusters and stamping out widespread transmission (rather than identifying each individual case)
  - Relied on experienced contact tracers, some prioritisation
  - Wide variety of potential infection settings identified



<https://www.japantimes.co.jp/news/2020/11/04/world/contact-tracers-eye-cluster-busting-tackle-covid-19s-new-surge/>

# Limitations of backward CT

- Logistical burden
- When to implement/prioritise backward CT?
- Relies on engagement
- Requires sharing of information and intelligence
- Effectiveness hinges on reducing delays in testing, tracing and isolation
- Test sensitivity and specificity
  - false results; role of positive predictive value
- Modelling studies – no distinction between mild and severe symptoms or individual aspects



# References

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