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# Likelihood of undetected COVID-19 infection in a group

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DRDC | RDDC



Canada 

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# Outline

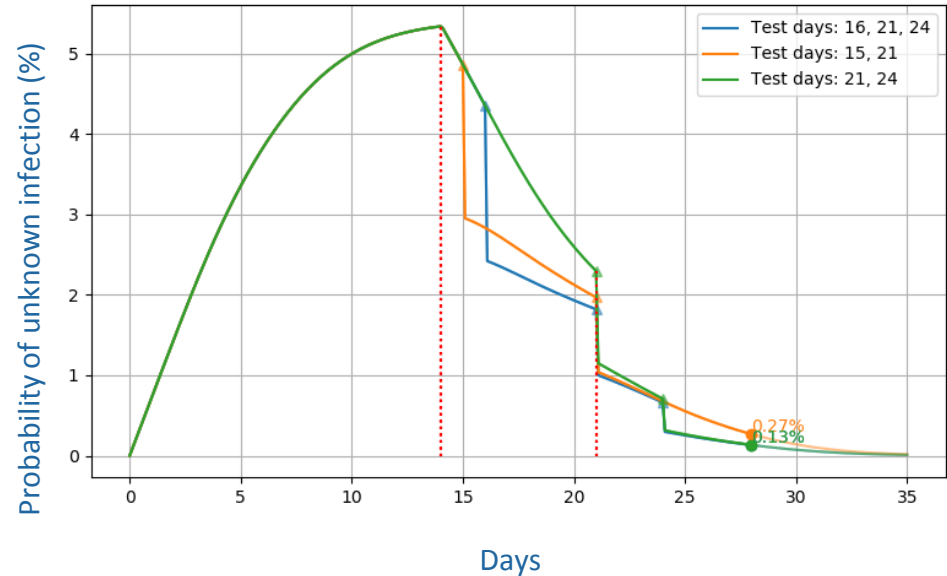
- Context
- Demo

# Acknowledgements

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# Early work

- Risk analysis used to inform continuity of operations at NORAD:
  - *How much quarantining and testing are needed to reduce likelihood of undetected infection to a level with which Commander is comfortable?*



- Canadian Forces Health Services requested an online calculator to provide a similar functionality across the Department of National Defence (DND) and the Canadian Armed Forces (CAF).

# Online calculator for DND/CAF medical advisors (version 1)

Likelihood of undetected COVID-19 infection in a group  
Effect of quarantining and testing

UNCLASSIFIED

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Questions/Feedback can be sent to the **FUSION Centre positional mailbox**.

# Subsequent developments

- 80% solution: a pretty good answer now is better than a perfect answer delivered after the decision has been made.
- Point prevalence had to be specified by the user:
  - Now inferred from case data using Bayesian inference with probabilistic programming and an SEIR model (susceptible, exposed, infectious, recovered), and displayed on a point prevalence map of the World
- Improvements in version 2:
  - Group members coming from multiple locations
  - Time-dependent test sensitivity and correlation between successive tests
  - Antigen tests

# Demo of version 2, integrated with point prevalence map

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## COVID-19 Point Prevalence Map

This map shows the past, current, and near-term estimates of point prevalence of SARS-CoV-2. Point prevalence is defined here as the proportion (expressed as a percentage) of the population...

**Prevalence**

- 0.00%
- 1.00%
- 2.00%
- 3.00%
- 4.00%
- 5.00%

Search Search

### Likelihood of undetected COVID-19 infection in a group

Group 1

Baseline

10 Normal Presence

Use Region Prevalence

Canada - Ontario - Ottawa

No PCR Tests Actions

+ Add Group

Submit Reset



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