Project proposal

Version 22-4-2020

Monitoring behavioral change in real-time to assess compliance with social-distancing interventions and to provide nowcasts of transmission events for COVID-19 in the Netherlands.

Background: In controlling COVID-19 it is very important to have timely information on ongoing transmission, such that we can intervene with targeted control measures. In the Netherlands there are various monitoring instruments for the transmission of COVID-19. We can monitor transmission events that happened more than 14 days ago using the incoming hospital admission data, and look up the admitted patients by reported day of symptom onset, and use back calculation to get the most likely day of infection. We can monitor transmission events that happened about 14 to 10 days ago an online surveillance instrument ("infectieradar") where participant report symptoms, and which we can calculate back to time of symptom onset. For monitoring potential transmission events over the most recent 10 days we are looking at social media.

Project Aim: Monitor changes in behavior over the most recent 10 days, which could lead to increased transmission of COVID-19 in the Netherlands.

Approach: We propose a two step approach. First we monitor changes in behavior in the population that could signify a change in behaviour. The Google mobility reports are compiled once a week with a reporting delay of 3 days. This would be helpful for the days immediately following the report. A daily reporting of trends, or a daily statistical analysis that focuses on detecting changes in trends (rather than trends), would help here.

Second we model the transmission using an age-structured spatial model where potential transmission events are classified by setting (home, school, work, transport, leisure, other). The Google mobility reports would help here to estimate changes in the proportion of potential transmission events by setting. This would require correlating changes in the google indicators to changes in potential transmission events. The model can be used for "nowcasting" the transmission events.

Anticipated Results:

A proxy for change in number of transmission events , and a nowcast for number of transmission event, in the most recent 10 days.

Implementation in infectious disease control:

Our models are used to inform infectious disease control in the Netherlands. We participate in the modelling groups of the ECDC, and WHO.

Project team:

Professor 5.1.2e PhD; 5.1.2e PhD; 5.1.2e PhD; 5.1.2e PhD; 5.1.2e PhD; 5.1.2e ; 5.1.2e PhD. National Institute for Public Health and the Environment (RIVM); Leiden University Medical Centre; London School of Hygiene and Tropical Medicine.

Short biography 5.1.2e :

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Buiten reikwijdte

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He has an h-index of 45 and an i-10 index of 106.

Google scholar: https://scholar.google.nl/citations?user=qr89h8QAAAAJ&hl=en