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SYNOPSIS

12/07/2020

Review of "Options to reduce quarantine for contacts of persons with SARS-CoV-2 infection using symptom monitoring and diagnostic testing"

Article citation: Centers for Disease Control and Prevention. Options to reduce quarantine for contacts of persons with SARS-CoV-2 infection using symptom monitoring and diagnostic testing [Internet]. Atlanta, GA: Centers for Disease Control and Prevention; 2020 [modified 2020 Dec 02; cited 2020 Dec 07]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html

One-minute summary

- The Centers for Disease Control and Prevention (CDC), using modelling and existing data, investigated options for reducing the quarantine period for close contacts exposed to patients with Coronavirus Disease 2019 (COVID-19) in the United States (US).
- Currently, the CDC recommends a quarantine of 14 days with symptom monitoring (no testing).
- **The CDC has provided two acceptable alternatives to the 14-day quarantine period, aimed at reducing the quarantine period:**
  - **10-day quarantine (no testing):** Contacts can discontinue quarantine if they are symptom-free after 10 days.
  - **7-day quarantine (with reverse transcription polymerase chain reaction [RT-PCR] testing 48 hours prior to end of quarantine, i.e., day 5 or thereafter):** Contacts can discontinue quarantine if they are symptom-free and their RT-PCR test was negative.
  - In both options, contacts must continue daily symptom monitoring through quarantine day 14 and continue with non-pharmaceutical interventions (NPIs; e.g., wearing face coverings, maintaining physical distancing, performing hand and surface hygiene).
- **Median post-quarantine risk of transmission (RT-PCR and antigen test performed 48 hours prior to end of quarantine; assuming that the antigen test has a sensitivity of 70%):**
  - **14-day quarantine:**
    - No test: 0.1% (range: 0.0–3.0)
    - RT-PCR test: 0.0% (range: 0.0–1.2)
    - Antigen test: 0.1% (range: 0.0–2.9)
  - **10-day quarantine:**
    - No test: 1.4% (range: 0.1–10.6)
    - RT-PCR test: 0.3% (range: 0.0–2.4)
    - Antigen test: 1.1% (range: 0.1–9.5)

    - **7-day quarantine:**
        - No test: 10.7% (range: 10.3–22.1)
        - RT-PCR test: 4.0% (range: 2.3–8.6)
        - Antigen test: 5.5% (range: 3.1–11.9)
- **Considerations for reducing quarantine period:**
    - **Testing resources:** Additional capacity is required to perform quarantine-ending testing, especially to ensure quick turnaround times and rapid reporting.
    - **Equity:** Quarantine testing should be made widely available across all communities.
    - **Serologic testing:** Serological testing results indicating past infections are not recommended for ending quarantine.
    - **Evaluating quarantine measures:** The CDC recommends jurisdictions collect data on compliance with contact tracing, willingness to complete quarantine, ability to complete quarantine, impact on public health resources, and post-quarantine transmission rates.

Additional information

- The model was developed by the CDC and uses supplementary peer and and non-peer-reviewed research.[1-3]
- The CDC notes that testing upon entry to quarantine did not reduce post-quarantine transmission risks; however, where resources are available, testing may improve contact tracing by identifying asymptomatic co-incident or possibly index cases.
- The CDC recognizes that any quarantine shorter than 14 days is less effective for reducing post-quarantine risk of transmission; however, they did not include an *a priori* threshold of acceptable increased risk.
- The authors postulate that shortening quarantine may increase adherence to public health recommendations, without any citation of supporting evidence for this theory. The authors recommend evaluation of alternative quarantine strategies; not only in terms of compliance with quarantine and contact tracing activities, but also for any potential negative impacts such as post-quarantine transmission.
- The authors include modelled ranges of increased post-quarantine transmission risk based on varying community prevalence levels.
- **European Centre for Disease Prevention and Control (ECDC) has recently updated their guidance on quarantine.[4]**
    - The ECDC recommends that contacts remain in quarantine for 14 days, with a negative RT-PCR test upon entry to quarantine.
    - As an alternative, contacts may discontinue quarantine early if they receive a negative test on day 10. The ECDC emphasizes that testing to end quarantine should not impact resources for testing symptomatic individuals.
    - Early release from quarantine should be assessed carefully for contacts who work with high-risk populations (e.g., long-term care homes, healthcare settings, detention facilities).
    - If released early, contacts are advised to monitor symptoms through quarantine day 14, continue wearing face coverings, and maintaining physical distancing.
    - To encourage completion of quarantine, the ECDC recommends that public health authorities should provide income support, assistance with acquiring food and essentials and with finding locations for people that cannot quarantine at home.

PHO reviewer's comments

- We provide further information on incubation periods and quarantine considerations for returning travelers in PHO's *Rapid review: COVID-19 incubation period and considerations for travellers' quarantine duration*.[5]
- Currently, there is no empirical evidence examining different quarantine or self-isolation periods for asymptomatic contacts (with or without testing); however, limited modelling studies suggest that shorter quarantine periods with testing may be comparable (in terms of disease detection and prevention of transmission) to 14-day quarantine periods without testing for preventing infectious individuals entering the community. There is no established threshold for the level of acceptable residual risk from post-quarantine transmission, and tolerance for risk will not be homogeneous across settings (e.g., long-term care home vs school) and regions of the province based on their community prevalence and related impacts on health care and public health system capacity (e.g., green vs red regions).
- All high risk of exposure contacts are already recommended to be tested during their quarantine in Ontario, but uptake is unknown as negative testing results do not alter quarantine duration. Use of testing to reduce quarantine may result in additional testing volume for the province. While out of scope for this document, the implications on the COVID-19 testing system are important to consider. It is also unknown at this time to what degree contacts in Ontario adhere with 14-day quarantine and if reductions in quarantine duration would impact adherence.
- It is also expected that the implications of missing undetected cases and their risk for forward transmission after entering the community will also depend on their individual-level adherence with public health measures and the societal prevention measures in place for preventing community transmission.

Additional references

1. Johansson MA, Wolford H, Paul P, Diaz PS, Chen T-H, Brown CM, et al. Reducing travel-related SARS-CoV-2 transmission with layered mitigation measures: symptom monitoring, quarantine, and testing. medRxiv 20237412 [Preprint]. 2020 Nov 24 [cited 2020 Dec 07]. Available from: https://doi.org/10.1101/2020.11.23.20237412

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3. Clifford S, Quilty BJ, Russell TW, Liu Y, Chan Y-WD, Pearson CAB, et al. Strategies to reduce the risk of SARS-CoV-2 re-introduction from international travellers. medRxiv 20161281 [Preprint]. 2020 Jul 25 [cited 2020 Dec 07]. Available from: https://doi.org/10.1101/2020.07.24.20161281

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5. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Rapid review: COVID-19 incubation period and considerations for travellers' quarantine duration [Internet]. Toronto, ON: Queen's Printer for Ontario; 2020 [cited 2020 Dec 07]. Available from: https://www.publichealthontario.ca/-/media/documents/ncov/main/2020/12/covid-19-incubation-travellers-quarantine-duration.pdf?la=en

Citation

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