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Evidence Reviews

Summary: Case definitions for surveillance integrated for influenza and COVID-19

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Title: A rapid review on case definitions for surveillance integrated for influenza and COVID-19

In response to the COVID-19 pandemic, Global Influenza Surveillance and Response System (GISRS) network have integrated the testing of COVID-19 specimens into the workflows. It remains unknown whether the common case definitions for influenza surveillance such as, influenza-like illness (ILI) and severe acute respiratory infection (SARI) are suitable for COVID-19 surveillance and whether the case definitions need modification for COVID-19 surveillance.

This rapid review aims to collect existing evidence on case definitions for COVID-19 surveillance on the basis of influenza surveillance, and includes two reviews: a review on clinical characteristics of COVID-19 and a review on the performance of existing COVID-19 surveillance.

Summary answer:

Fever and cough were the two most common clinical symptoms of COVID-19 cases for all ages, with median prevalence of 83% (IQR: 80–87) and 60% (IQR: 58–63), respectively. These two symptoms were followed by loss of smell or taste (41%, IQR: 26–48), fatigue (31%, IQR: 23–39) and anorexia (30%, IQR: 28–34). Asymptomatic cases accounted for 12% of COVID-19 cases (IQR: 9–14). The prevalence of symptoms was broadly similar between children (under ~18y) and adults except for fatigue and asymptomatic cases: only 9% of paediatric COVID-19 cases had fatigue whereas 30% of adult cases had fatigue; 19% of paediatric COVID-19 cases were asymptomatic whereas only 0.4% of adult COVID-19 cases were asymptomatic.

History of travel to COVID-19 affected areas and contact with suspected and confirmed COVID-19 cases was used for COVID-19 surveillance, at the beginning of the pandemic. SARS-CoV-2 positivity in ILI/ARI/SARI surveillance ranged between 1.8% and 25.6% and was highest in the elderly group and lowest among children. Ecological studies found positive correlation between excess ILI/ARI and COVID-19 cases or influenza-negative cases, indirectly supporting the use of flu surveillance for capturing COVID-19 cases.

Summary of methods:

We conducted two rapid reviews, 1) on the clinical characteristics of COVID-19; and 2) on the case definitions used for COVID-19 surveillance based on influenza surveillance and its performance metrics, e.g. sensitivity and specificity.

For Review 1, we screened reviews that were under the collection of “clinical characteristics” indexed by the “COVID-19 evidence review” website (<https://www.covid19reviews.org/>). We included systematic reviews/rapid reviews that reported pooled prevalence estimates of clinical symptoms of laboratory-confirmed COVID-19 cases.

For Review 2, we searched the WHO database of global COVID-19 literature on 18th August 2020. We considered two different search strategies, namely strategy A and strategy B, which focused on capturing different types of research. Strategy A focused on case definitions that had been used by countries for COVID-19 surveillance and did not contain any terms on the performance of the surveillance (e.g. sensitivity and specificity) whereas strategy B focused on the performance metrics of the surveillance.

Conclusions:

- As individual symptoms, fever and cough are the two most common COVID-19 symptoms, followed by loss of smell/taste, fatigue and anorexia.
- Little is reported on the prevalence of combinations of symptoms that have been used for influenza surveillance (e.g. fever + cough).
- For COVID-19 surveillance, a criterion of history of travel to COVID-19 affected areas or history of contact with suspected/confirmed COVID-19 cases was used by countries in addition to the case definitions used by influenza surveillance.
- However, no studies assessed formally the performance of COVID-19 surveillance, e.g. sensitivity and specificity.
- Nonetheless, several studies reported that SARS-CoV-2 positivity among ILI/ARI/SARI cases was between 1.8% and 25.6%, which could indicate the positive predictive value of COVID-19 surveillance.

Link to full review and any relevant updates: See <https://edin.ac/case-definitions>

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