

SYNOPSIS

01/26/2021

Review of “NERVTAG Paper on COVID-19 variant of concern B.1.1.7”

Article citation: Horby P, Huntley C, Davies N, Edmunds J, Ferguson N, Medley G, et al. NERVTAG paper on COVID-19 variant of concern B.1.1.7 [Internet]. London: Crown copyright; 2021 [cited 2021 Jan 26]. Available from: <https://www.gov.uk/government/publications/nervtag-paper-on-covid-19-variant-of-concern-b117>

One-minute summary

- The New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) reported with **40% to 50% confidence that COVID-19 Variant of Concern (VOC) B.1.1.7 is associated with an increased risk of death** compared to non-VOC, based on **preliminary evidence** from data of COVID-19 deaths linked to testing results in the community.
 - Using a Cox proportional hazards model on 2,583 deaths among 1.2 million COVID-19 patients, the London School of Hygiene and Tropical Medicine (LSHTM) estimated the **relative hazard of death (95% confidence interval) within 28 days of diagnosis** to be:
 - 1.35 (1.08–1.68), adjusted for misclassification of S-gene target failure (SGTF)
 - 1.28 (1.06–1.56), not adjusted for misclassification of SGTF after November 1, 2020
 - In a non-parametric analysis of data from all of England in epidemiological weeks 46 through 54, Imperial College London (ICL) estimated the **mean ratio of case-fatality rate (CFR)** to be:
 - 1.36 (1.18–1.56) by case-control weighting
 - 1.29 (1.07–1.54) by standardized CFR
 - In a **case-control** study of death data linked to community swab test results, the University of Exeter (UE) reported a **mortality hazard ratio** of 1.91 (1.35–2.71).
- In a retrospective **matched cohort study** by Public Health England (PHE) of 184,414 COVID-19 patients (92,207 were SGTF cases) matched by age, sex, week of diagnosis and region, an **increased risk ratio for 28-day case fatality** at 1.65 (1.21–2.25) was reported **only with additional time for follow-up and death verification**.
- Using high quality data based on lineage sequencing in a single national health trust (32 VOC cases and 184 non-VOC cases), the COVID-19 Clinical Information Network (CO-CIN) **did not find an increased mortality risk**—odds ratio: 0.63 (0.20–1.69).

Additional information

- The relative increase in CFR's seem to be consistent across age groups in the analyses by LSHTM, ICM, and apparent in the UE analysis.

- Sensitivity analysis considering covariates of hospital pressure did not substantially alter the results by LSHTM.
- Subsequent analysis of cases with polymerase chain reaction cycle threshold value under 30 to control for false classification as SGTF did not make any meaningful difference in the ICL results.
- Confidence in the data and generalizability of findings to the entire population are limited:
 - Short follow-up time and lags in availability of hospitalization data.
 - Small sample size—only 8% of all deaths during the study period were included in the analyses.
 - CFR in hospitalized patients does not fully address severity of illness by VOC.
 - CFR may be underestimated in analyses using SGTF as proxy for VOC as cases with low viral load may be missed and not all COVID-19 test samples were tested for VOC. On the other hand, CFR may be overestimated as SGTF can be detected in VOC's other than B.1.1.7 lineage.

PHO reviewer's comments

- Broader scale analysis including COVID-19 patients with no or mild symptoms would more fully inform the risk of hospitalization and death in VOC cases.
- Generalization of findings to other countries should take into consideration that public health measures to control the speed and extent of COVID-19 transmission, as well as health service access and capacity, differ across jurisdictions and may impact the risk of severe illness in VOC cases.
- Analyses included in this report were unpublished communications, have not been peer-reviewed, and were not publicly available for independent review; therefore, caution should be exercised when using them to inform policy decision-making.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of “NERVTAG paper on COVID-19 variant of concern B.1.1.7”. Toronto, ON: Queen’s Printer for Ontario; 2021.

Disclaimer

This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.

The application and use of this document is the responsibility of the user. PHO assumes no liability resulting from any such application or use.

This document may be reproduced without permission for non-commercial purposes only and provided that appropriate credit is given to PHO. No changes and/or modifications may be made to this document without express written permission from PHO.

Public Health Ontario

Public Health Ontario is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health

practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world.

For more information about PHO, visit publichealthontario.ca.

