Ascertainment of laboratoy-confirmed COVID-19 deaths in Switzerland until January 2022

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# Summary

**Background.**

**Methods.**

**Results.**

**Conclusions.**

# Introduction

* Two ways to estimate the global impact of covid-19 in terms of mortality.
* Excess mortality: assumptions, advantages and limitations
* Mandatory reporting of laboratory-confirmed deaths
* Public debate in Switzerland
* Problems with BFS method
* Aims

# Methods

## Reporting of laboratory-confirmed deaths in CH

## Statistical model

* Nature Com [1]
* 95% CrI

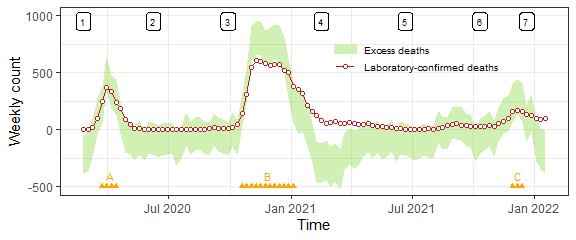
## Metrics

* Full propagation of uncertainty
* Define current excess (lower bound 95% CrI > 0)
* Coverage (laboratory-confirmed deaths within the 95% CrI of excess)
* Absolute difference (excess - laboratory-confirmed deaths, with 95% CrI)
* Ascertainment of deaths (laboratory-confirmed deaths / excess, with 95% CrI), assuming that excess is only due to COVID-19

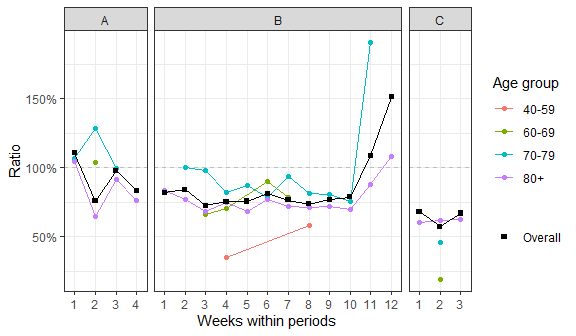
# Results

Table 1. Laboratory-confirmed deaths and excess deaths in Switzerland by epidemic phase.

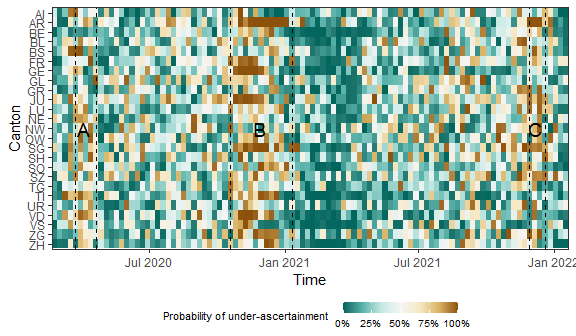
| Phase | Start | End | Laboratory-confirmed deaths | Excess deaths (95% CrI) | Excess deaths, accounting for temperature (95% CrI) |
| --- | --- | --- | --- | --- | --- |
| 1 | 2020-02-24 | 2020-06-07 | 1,683 | 566 (-1,498 to 2,624) | 554 (-1,623 to 2,798) |
| 2 | 2020-06-08 | 2020-09-27 | 97 | -1,032 (-3,066 to 945) | -1,028 (-3,160 to 1,213) |
| 3 | 2020-09-28 | 2021-02-14 | 7,159 | 7,058 (4,907 to 9,304) | 7,075 (4,634 to 9,461) |
| 4 | 2021-02-15 | 2021-06-20 | 828 | -2,875 (-5,502 to -521) | -2,942 (-5,573 to -565) |
| 5 | 2021-06-21 | 2021-10-10 | 354 | -661 (-2,613 to 1,328) | -706 (-2,795 to 1,213) |
| 6 | 2021-10-11 | 2021-12-19 | 860 | 946 (-424 to 2,301) | 906 (-559 to 2,165) |
| 7 | 2021-12-20 | 2022-01-23 | 543 | -240 (-900 to 360) |  |
| Total |  |  | 11,524 | 3,792 (-5,824 to 14,087) | 4,188 (-6,068 to 13,875) |



*Figure 1*. Comparing weekly counts of laboratory-confirmed deaths with weekly excess deaths over the 7 phases of the epidemic in Switzerland (shown at the top). Orange triangles on the bottom signal the three periods A, B and C of high excess mortality (defined as when the lower bound of excess mortality is greater than 0).



*Figure 2*. Ratio of laboratory-confirmed deaths over median excess deaths during the three periods of high excess mortality A, B and C. Only age groups with high excess mortality during a given week (i.e. the lower bound of excess mortality is above 0) are shown.



*Figure 3*. Probability that the number of laboratory-confirmed deaths is lower than the number of excess deaths in a given week by canton. The three periods of high excess mortality are highlighted.

References

[1] G. Konstantinoudis *et al.*, “Regional excess mortality during the 2020 covid-19 pandemic in five european countries,” *Nature Communications*, vol. 13, no. 1, pp. 1–11, 2022.

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