

## Factoring in a COVID-19 seasonality – Experiences from Germany

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We wish to complement important work by Monto and colleagues [1] by adding empirical observations around mortality in Germany with a particular view to seasonality. Indeed, while “it’s unclear whether COVID-19 is seasonal like the flu” [2], in Germany, surges of infections and mortality [3, 4] are in line with empirical information on the seasonality of other human coronaviruses (HCoVs) [1]. Epidemiologically, seasonality of COVID-19 is, thus, plausible.

More specifically, between 2010 and 2018, patients with acute respiratory infections in Michigan were tested for HCoVs types OC43, 229E, HKU and NL63.4. In effect, the HCoVs were seasonal with similar transmission potentials to influenza A(H3N2). They were mainly transmitted between October and May, with maxima between December and March. When exploring mortality in Germany during surges 1 and 2, SARS-CoV-2 infection maxima from March to May and from August onwards [5] coincided with mortality excesses [3, 4]. SARS-CoV-2 thriving in autumn, winter, and spring compared to summer may also be one explanation for the following observation: necessary counter-measures ‘appeared’ to yield mitigation faster in Germany during surge 1 compared to the still ongoing surge 2, with the surges separated by summer months.

In principle, Liu et al. [6] are certainly right that regarding a seasonality the “pattern remains unclear owing to the limited data and difficulties in separating the impacts of social distancing”. However, the facts that counter-measures regarding social distancing in Germany in 2020 and 2021 appear similar but the effects on mortality certainly may not allow the following hypothesis: in Germany at least, we overestimated effects of the necessary counter-measures and underestimated seasonality effects. We could even posit that we overestimated effects of counter-measures *because* we underestimated how much a to-be-predicted seasonal SARS-CoV-2 decline helped us reduce infections and mortality with many fewer counter-measures.

Why would establishing – and factoring in – a COVID-19 seasonality be so important? Kanzawa and colleagues [7] emphasized already that too limited data currently disallow answering whether SARS-CoV-2 will “disappear magically by summer.” Importantly, even if

COVID-19 were to become a recurrent seasonal infectious disease [8], individual caution and community countermeasures may remain warranted during the whole year. Yet, from a public health point of view, a predictability of a main challenge such as in winter months – possibly with combinations of COVID-19 and infections with other corona viruses and seasonal influenza – may hold benefits: Some seasonal focus on preparing healthcare settings could facilitate COVID-19 containment and prevention. From a research point of view, studies would have to consider seasonality of COVID-19 when estimating the effectiveness of non-pharmaceutical interventions and vaccination programs.

Monto et al [1] concluded that “only time will tell whether SARS-CoV-2 becomes a persistent presence in the seasonal HCoV landscape“. If so, seasonal viral highs and lows could provide powerful approaches to meet COVID-19 challenges.

## +References

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(1) The authors do not have a commercial or other association that might pose a conflict of interest (e.g., pharmaceutical stock ownership, consultancy, advisory board membership, relevant patents, or research funding);

(2) There was no specific funding;

(3) Neither all nor part of the information has been presented in public;

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