

Media Release
Actuarial Society of South Africa
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The severity of South Africa's third Covid-19 wave will depend on its timing

While South Africa is unlikely to escape a third wave of Covid-19 infections, the severity in terms of confirmed cases, hospital admissions and deaths will depend on its timing, according to research released by the Covid-19 Working Group of the Actuarial Society of South Africa (ASSA).

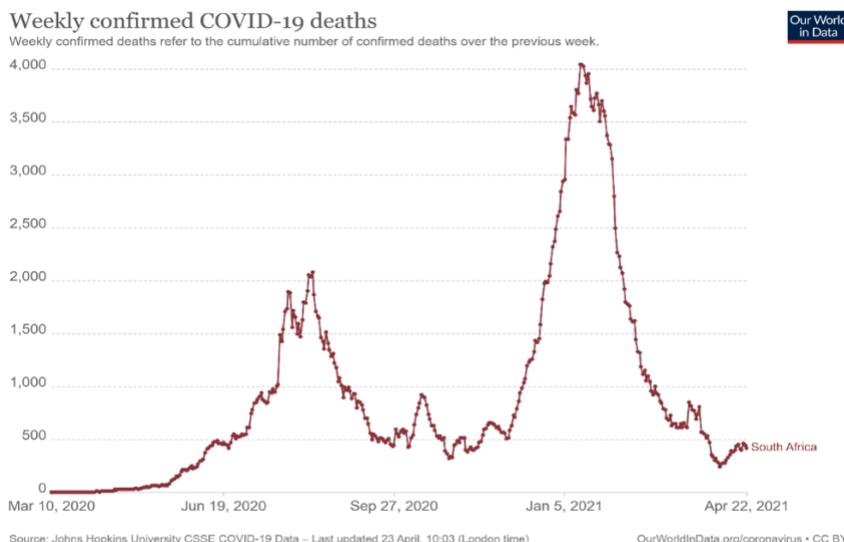
Actuary Adam Lowe, a member of the ASSA Covid-19 Working Group, says historical parallels and emerging evidence from around the world indicate that the quicker the third wave follows the second wave, the less severe it is likely to be.

According to Lowe, South Africa could experience one of three scenarios:

1. **An early third wave in May (most likely):** An early third wave is expected to be less severe than the second wave and is most likely to materialise in May 2021. Not only does historical precedent set by the Spanish Flu pandemic in 1918 and 1919 support this scenario, but it is also a realistic expectation given the public holidays and school holidays in April.
2. **A delayed third wave (less likely, but not impossible):** A third wave of similar magnitude to the second wave becomes more likely the longer the peak is delayed. A more severe third wave would be likely to peak in late winter (July/August) at the earliest.
3. **Worst case scenario (very unlikely):** A large and sudden third wave could be possible if available patterns and interpretations of patterns prove to be flawed.

1. An early third wave – May 2021

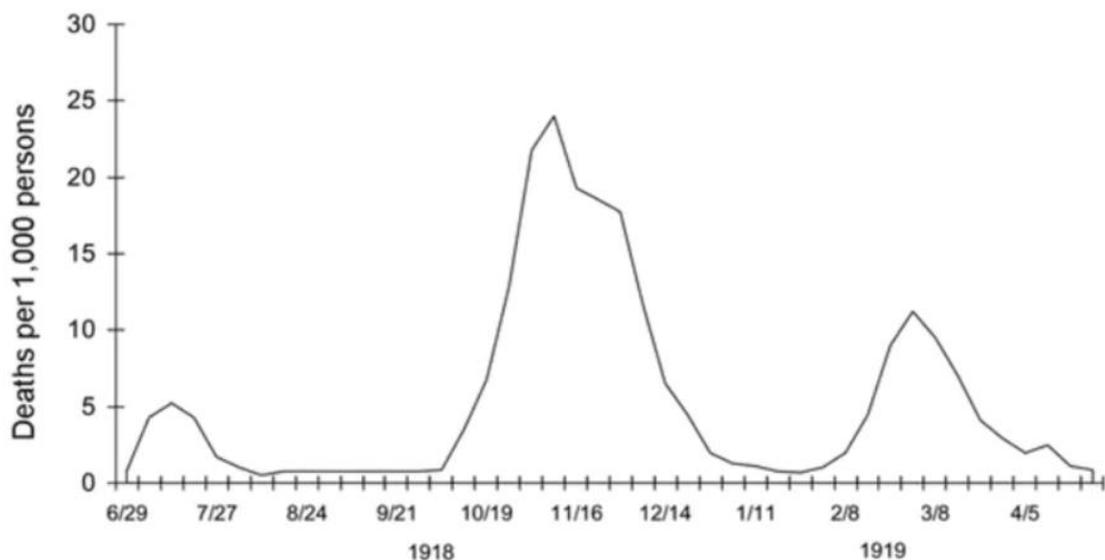
Lowe says that Covid-19 wave patterns from around the world, including South Africa, show that generally a smaller first wave of Covid-19 infections is followed by a larger second wave. South Africa experienced the peak of its first wave of infections between July and August 2020 and the peak of the more severe second wave from December 2020 to January 2021 (see graph below).



According to Lowe, Covid-19 wave patterns studied by members of the ASSA Covid-19 Working Group show that these wave patterns are similar to those of the Spanish Flu pandemic in 1918 and 1919. He says while the Spanish Flu was caused by an influenza virus (H1N1 virus) and not a coronavirus, the Covid-19 pandemic shares many similarities with the Spanish Flu such as reach, spread and global impact.

He points out that most countries experienced the Spanish Flu pandemic in three waves, before the H1N1 virus became part of the normal annual flu outbreaks.

The graph below shows weekly deaths from the H1N1 virus in the United Kingdom from June 1918 to May 1919. The article from which the graph was extracted noted that the global wave pattern of Spanish Flu was similar to that of the UK.



Three waves of death during the pandemic: weekly combined influenza and pneumonia mortality, United Kingdom, 1918–1919. The waves were broadly the same globally. Taubenberger JK, Morens DM. 1918 Influenza: the Mother of All Pandemics. *Emerg Infect Dis.* 2006;12(1):15-22. CC BY

Lowe explains that although South Africa's first wave of Covid-19 was more severe than the relatively low peak of the Spanish Flu first wave, the pattern of the first two waves is very similar: a smaller first wave, roughly a four month gap and then a large second wave.

“If we were to extrapolate the patterns of Spanish Flu into Covid-19, we could expect a third wave roughly four months from the peak of the second wave, but at a lower magnitude. Given South Africa's second wave peak in early January 2021, the Spanish Flu pattern would put the peak of the third wave in May 2021, at a lower magnitude than the second wave.”

“The logic behind this would be that a large proportion of the population was infected in the first and more notably second waves of the pandemic in South Africa resulting in broad-based immunity. This would dampen the severity of the wave in terms of deaths and hospital admissions and potentially even confirmed cases making a large third wave unlikely in this scenario.”

2. A delayed, more severe third wave – July/August 2021

Lowe says since the early, less severe third wave theory is based on the build-up of some level of immunity in the population following the first and second waves, a third wave of similar magnitude to the second wave would require the virus overcoming these immunity levels in some way.

According to Lowe, this could happen in two ways:

- The virus could continue to mutate and a new variant even more infectious than the 501Y.V2 variant could emerge in South Africa, increasing the rate of spread and overcoming the immunity which has been built up; or
- Sufficient time could pass for the immunity granted to those infected to run out or reduce sufficiently to allow for significant levels of re-infection to occur.

“Both of these would appear to require significant time to lapse to enable immunity post infection to weaken significantly. This would mean that any large third wave would only be likely to peak in late winter, between July and August, at the earliest.”

Lowe stresses that once the wave is delayed for this long, accurately predicting its potential magnitude becomes almost impossible. He does believe, however, that this scenario is less likely, given the current interpretation of the evidence available.

3. Unlikely worst case scenario

According to Lowe, the worst case scenario would be an early third wave in May as severe or even more severe than the second wave.

He explains that in order for this scenario to materialise an unlikely, but not impossible, combination of circumstances would be required to create an environment where an even more infectious variant runs through a population with lower than anticipated immunity.

Lowe says the following potential circumstances could contribute to a severe early third wave:

- An overestimate of the people infected in the first two waves, which would result in a flawed estimate of immunity; and
- A series of super spreader events either through natural behaviour over the holiday period or reduced vigilance on the part of a population which has been locked down for over a year; and
- The more rapid than expected emergence of a new and more deadly variant of the virus (even when compared to 501Y.V2).

Lowe concludes that while none of this is impossible to believe, this represents a reasonably unlikely set of requirements. “As such, although this could be considered a reasonable worst case scenario, it appears to be significantly less likely than the other three scenarios.”

Ends

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Actuarial Society of South Africa (ASSA)

The Actuarial Society of South Africa is the professional organisation for actuaries and actuarial students in South Africa. The vision of the Actuarial Society is an actuarial profession of substance and stature, serving, and valued by, our communities as a primary source of authoritative advice and thought leadership in the understanding, modelling and management of financial and other measurable risks.