

Memo: Epidemiological assessment in relation to timing of municipal elections

2021-06-07

Preamble

The South African COVID-19 Modelling Consortium (SACMC) has been contacted by multiple parties with requests for epidemiological information needed to inform their contributions to the Inquiry into Ensuring Free and Fair Local Government Elections During COVID-19 being conducted by Justice Moseneke on behalf of the Electoral Commission of South Africa. This document summarizes relevant information as of the date above.

Current status and expected trajectory of the COVID-19 epidemic in South Africa

South Africa is expected to officially enter the third wave of its COVID-19 epidemic in mid-June, and several provinces have already entered a third wave. Based on the first two waves of the epidemic in South Africa, epidemic waves tend to last 5-8 weeks, though there is substantial variation among provinces (Table). The current rate of epidemic growth suggests that the third wave may have a lower peak incidence but longer duration than the previous two waves.

It is also worth noting that:

- Transmission continues to occur during inter-wave periods. For example, the country had an average of 1,625 new cases per day between 2020-09-15 and 2020-11-15 (between waves 1 and 2) and an average of 1,325 new cases per day between 2021-03-15 and 2021-05-15 (between waves 2 and 3).
- There is substantial uncertainty regarding the potential for new variants, particularly the B.1.1.7 / Alpha and B.1.617.2 / Delta variants of concern, to alter the trajectory of the epidemic in the coming months. Both of these variants appear to be more transmissible than the B.1.351 / Beta variant that drove South Africa's second wave.

	<i>Weeks with incidence† above the half-peak</i>		<i>Weeks from new wave declaration to end of wave declaration‡</i>
	Wave 1	Wave 2	Wave 2
<i>South Africa</i>	6.3	5	9.4
<i>Eastern Cape</i>	5.1	9.2	11.6
<i>Free State</i>	4.9	7.6	8
<i>Gauteng</i>	5.1	3.7	7
<i>KwaZulu-Natal</i>	5	5.1	8.6
<i>Limpopo</i>	5.1	3.3	7.1
<i>Mpumalanga</i>	4.3	4.1	8.3
<i>North West</i>	5	3.7	8.3
<i>Northern Cape</i>	10.6	1.1	-*
<i>Western Cape</i>	9.1	6	10.6

† 7-day moving average

‡ Based on the definitions given in the MAC Advisory on the Second Wave

* Northern Cape has not met the end-of-wave criterion following the declaration of the second wave

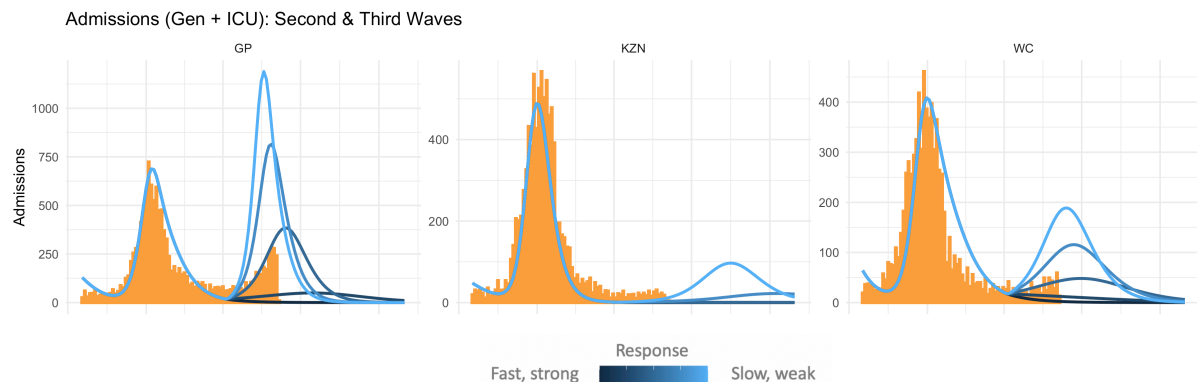
Likelihood of reaching community (“herd”) immunity by October 2021

Based on the initial estimates of the reproduction number in South Africa, the Ministerial Advisory Committee on COVID-19 Vaccines estimated that 67% of the population would need to be immune to infection for community (“herd”) immunity to be reached. The emergence of variants of concern that are more transmissible than the originally circulating variants suggests that reaching community immunity will require an even higher percentage of the population to be immune. Combined with the slow pace of vaccine roll-out to date and ongoing supply constraints, the probability of reaching community immunity by October 2021 is considered low.

Other relevant epidemiological considerations

Aside from the potential for emergence of new variants, an increasing contact rate between susceptible and infectious individuals is expected to be the primary driver of the third and subsequent waves of the COVID-19 epidemic, and this must be taken into account in determining the size of gatherings (including political gatherings) permitted under COVID-19 regulations.

The SACMC’s report entitled “COVID-19 modelling update: Considerations for a potential third wave” (2021-04-29)¹ considered a range of potential scenarios for a third wave that reflected different behavioral patterns, ranging from a slow response to rising infections with weak adherence to measures that reduce transmission (“slow, weak”) to a fast response with strong adherence (“fast, strong”). The projections clearly indicated that the height and duration of resurgences are highly dependent on behavioral factors. Current hospital admissions in Gauteng and Western Cape are approximately in line with an intermediate scenario (Figure). Campaign activities, if not carefully implemented, could alter the trajectory as a result of increased contact rates.



Contact

Inquiries should be directed to Dr. Harry Moultrie at <harrym@nicd.ac.za>.

¹ Available at: <https://www.nicd.ac.za/wp-content/uploads/2021/05/SACMC-Third-wave-report-290421.pdf>