

Proposed amendments to testing, quarantine, and isolation regulations in the Western Cape

A. Testing

Rationale

In the setting of an infectious disease, the purpose of diagnostic testing is to inform clinical management or to prevent transmission of the disease.

Existing South African regulations and Covid-19 transmission data

Current Covid-19 public sector outpatient management includes assessing the patient for clinical warning signs, administering paracetamol, advising isolation, and recommending that the patient return to the facility if any warning signs develop.¹

Critique of current quarantine regulations

1. Diagnostic testing does not change mild Covid-19 clinical management. During Covid-19 surges, when testing criteria were restricted, all “low risk” patients were diagnosed and managed clinically. Those that went on to develop severe disease returned to emergency centres and were definitively tested when admitted to hospital. Aside from a diagnostic test, all “high risk” patients who initially presented with mild disease were managed the same as “low risk” patients—they were advised to return if symptoms worsened.
2. A very high proportion of cases are asymptomatic (a local study estimated the symptomatic proportion as being just 16% of all infections),² while testing is heavily biased towards symptomatic cases. In addition, even in the minority of symptomatic cases, testing is far from universal. Furthermore, the SARS-CoV-2 test sensitivity is suboptimal, leading to many false negative results.³⁻⁵ The inability of the current testing strategy to identify the bulk of cases is illustrated by the high SARS-CoV-2 seropositivity rates seen across multiple provinces in serosurveys, suggesting that as few as 1 in every 10 cases might be being diagnosed.⁶ For these reasons, *the vast majority of Covid-19 cases go undetected, since contact occurs in the context of a case that is never identified in the first place. Therefore, the public health impact of testing a small minority of total cases is negligible. Outpatient Covid19 testing does not decrease community transmission.*
3. Preliminary unpublished seroprevalence data from the Cape Metro showed a SARS-CoV-2 anti-spike protein antibody rate of approximately 90%, suggesting extremely high local immunity from either prior infection and/or vaccination. In the past 7 days in the Western Cape, there have been 10,023 Covid-19 Cases diagnosed, 251 hospital admissions (2.5%), and 6 deaths (0.05%).⁷ The significantly lower admission and death rates, in comparison to prior waves, hopefully signals the high level of community protection against severe disease. Prioritization of Covid-19 over all other healthcare conditions is no longer justified, especially if the trend of disproportionately mild disease continues.

4. Given the current positivity rate of 35%, if 10,023 Covid-19 cases were diagnosed, that means that 28,637 tests were done in the past 7 days, with 45% being at the primary healthcare level.⁸ If a patient spends an average 4 hours in a primary healthcare centre from start to finish, that means over 50,000 patient-hours were spent in the past week assessing and testing very mild Covid-19 disease. Most of those patients would stay home and self-manage if diagnostic testing were not offered at primary healthcare.

Recommendation:

We propose that primary healthcare level Covid-19 testing be abandoned for all patients.

Rationale: In the face of Omicron's high reproductive rate, current primary healthcare levels of testing are unsustainable. A large proportion of primary healthcare resources are being diverted to testing and managing mild Covid-19 cases at the expense of HIV, TB, non-communicable diseases, and other acute medical illnesses. Testing has no impact on clinical management for the individual nor is it impacting community transmission, hospital admissions or deaths, which are currently low likely due to a high seroprevalence from prior infections and vaccinations.

B. Quarantine

Rationale

“Quarantine” refers to the separation or restriction of activities of persons who are believed to have been exposed to a communicable disease to see if they become ill.⁹ Alongside isolation and contact tracing, quarantine is one of the control measures that can be undertaken in a disease outbreak, typically early in the epidemic course, and when there are limited medical countermeasures. The evidence suggests that quarantine can be an effective measure in outbreaks of ebola, Middle East Respiratory Syndrome (MERS), as well as possibly other pathogens.¹⁰

Quarantine is only effective and/or practical in certain circumstances:¹⁰⁻¹²

- When the effective reproductive number (R_t) is within the range where quarantine can make a meaningful difference (i.e. a moderate R_t)
- When there is a short incubation period
- When the asymptomatic infectious period is either short or absent
- When a very high proportion of exposed individuals can be quickly and reliably identified

Overall, quarantining is generally seen as an extreme, though sometimes necessary, control measure for a disease outbreak. It does not generally have a role for endemic diseases, where control is not possible.

Existing South African quarantine regulations

In early 2020, South Africa implemented a 14-day quarantine period for “high risk” contacts of patients with SARS-CoV-2 as one of the control measures for COVID-19. High risk individuals were defined as those who “had face-to-face contact (≤ 1 metre) or [were] in a closed space with a COVID-19 case for at least 15 minutes”, including healthcare workers unless they were wearing appropriate personal protective equipment.¹³ This was later amended to allow for “essential workers” such as healthcare workers to undergo testing for SARS-CoV-2 on day 7 of their quarantine, and to return to work if this test was negative.

Critique of current quarantine regulations

Quarantine is not currently an effective measure for containing SARS-CoV-2's spread, given what is now known about the pathogen, for the following reasons:

1. A very high proportion of cases are asymptomatic (a local study estimated the symptomatic proportion as being just 16% of all infection²), while testing is heavily biased towards symptomatic cases. In addition, even in the minority of symptomatic cases, testing is far from universal, since patients may not seek testing when their symptoms are mild and when testing would be burdensome. Furthermore, the SARS-CoV-2 test sensitivity is suboptimal, leading to many false negative results.³⁻⁵ The inability of the current testing strategy to identify the bulk of cases is illustrated by the high SARS-CoV-2 seropositivity rates seen across multiple provinces in serosurveys, suggesting that as few as 1 in every 10 cases might be being diagnosed.⁶ For these reasons, *the vast majority of high-risk contacts go undetected, since contact occurs in the context of a case that is never identified in the first place. This renders quarantine's potential public health role negligible.*
2. The definition of a "high risk contact" is in any case based on an outdated understanding of transmission dynamics for SARS-CoV-2. The definition concentrates on droplet spread while ignoring aerosol spread, which can occur over distances greater than 1-1.5 metres, and does not require as close a temporal association with the index case. In addition, it ignores the increased intrinsic transmissibility of subsequent variants of concern compared to the ancestral strain, while ignoring the fact that pre-existing immunity (from vaccination and/or natural infection) changes the transmission dynamics further.

In addition, quarantining has a substantial economic and social burden in the current context, including:

1. Significantly depleted staffing levels at healthcare facilities. This can threaten the integrity of the healthcare system, when ironically one of the original rationales given for quarantining was to limit the burden on this same healthcare system. There have been 242 Western Cape healthcare worker infections in the past 7 days, 196 of those in the past 4 days alone.⁸ If each infected healthcare worker has 1-4 contacts, then approximately 726 staff members are currently in quarantine and off work for at least 7 days, in addition to the 242 staff isolating for their own infection. Staff quarantining places exponential strain on human resources. Reports of extreme staff shortages in the Western Cape have emerged this week, including the closing of New Somerset Hospital's antenatal clinic for 2 weeks due to a lack of staff.
2. Significant reduction of economic and governmental activities due to large staff absenteeism. On an individual level, this may include loss of income and loss of employment.

Recommendation:

We propose that quarantining be abandoned for contacts of COVID-19 cases. Linked to this, we further propose that contact tracing be abandoned.

Rationale: Given that current testing only identifies a small minority of all COVID-19 cases, quarantining contacts of these cases serves no demonstrable public health purpose.

C. Isolation

Rationale

In the context of public health, “isolation” refers to the separation of a patients with a communicable disease from those who are healthy.¹⁴ Its major public health aim is to prevent onward transmission of the disease to other individuals, and thus to contain the size of the epidemic.

Isolation is used more widely than quarantining is, and is used for both epidemic (e.g. MERS, SARS-CoV-1) and endemic pathogens (e.g. tuberculosis, influenza).

Existing South African quarantine regulations

In early 2020, South Africa implemented a 10-day isolation period for all confirmed COVID-19 cases. The 10 days were to be counted from symptom onset in mild cases, from clinical stability in severe cases, and from test date in asymptomatic cases.

Critique of current isolation regulations

It is doubtful that isolation of positive cases serves a substantial public health purpose, given the low rate of case ascertainment in South Africa. As mentioned in the previous section, testing is heavily biased towards symptomatic cases, but only a small percentage of cases are symptomatic.² Furthermore, only a limited proportion of symptomatic cases access testing, and even when testing is performed, false **negative** results are frequent.³⁻⁵ Thus, only a small proportion of positive cases are identified.

Furthermore, even when cases are correctly identified and timeously isolated, the bulk of onward transmission has likely already occurred, owing to SARS-CoV-2’s high propensity for transmission around the time of symptom onset, including substantial pre-symptomatic transmission.¹⁵⁻¹⁷

As with quarantining, there are substantial costs involved with the practice:

1. Significantly depleted staffing levels at healthcare facilities, which may impair the functioning of the healthcare system. There have been 242 Western Cape healthcare worker infections in the past 7 days, 196 of those in the past 4 days alone.⁸
2. Significant reduction of economic and governmental activities due to large staff absenteeism. On an individual level, this may include loss of income and loss of employment.

Recommendation:

Given the limited public health utility of isolation, we suggest that isolation be reduced from 10 days to 5 days.

- In the period between 5 and 10 days, the patient should wear a mask at all times (healthcare workers should wear a N95 mask).
- Asymptomatic patients should not isolate at all, since it is not clear when they were infected, and prolonged, asymptomatic shedding is common.

Rationale: We suggest that the isolation period be seen as a trade-off between its (limited) benefits and its costs, rather than as an effort to reduce the chances of onward transmission to zero for the small proportion of cases that are identified. Individuals are most infectious close to the time of their symptom onset. A healthcare worker with COVID-19 is unlikely to spread the disease to his/her coworkers in an environment where there is uniform wearing of N95 masks (or equivalent).¹⁸

Furthermore, the viral load in vaccinated individuals drops more quickly than in unvaccinated individuals, presumably rendering them non-infectious even more rapidly.¹⁹

D. Public Health Messaging

Recommendation: Given the proposals above, it is very important that the public is urgently informed of the reasons behind the change in guidelines.

Public Messaging:

1. Testing of mild Covid-19 cases, isolation of cases, and quarantining of contacts has had no impact on the epidemic since wave 1. Omicron's high reproductive rate makes testing and isolation of cases even more futile.
2. Over 80% of Covid-19 is asymptomatic. Therefore, most people with active Covid-19 infection are unknowingly in the public domain. During a surge, people must assume that they are regularly exposed to Covid-19. Isolating a small proportion of Covid-19 cases and quarantining their contacts does not protect individuals, and may create a false sense of security if the public assumes that all COVID-19 cases and contacts are effectively in isolation or quarantine.
3. However, people can protect themselves from Covid-19 by: wearing masks indoors, socializing outdoors, ventilation (opening windows), and VACCINATION. Vaccination has been shown to protect individuals against severe disease and should be encouraged as our best weapon against Covid-19.
4. Covid-19 is here to stay. We cannot continue to cripple the healthcare system and economy with what does not work (testing of mild Covid-19, quarantining contacts, and isolating cases for a prolonged period).
5. People must stay home if they are mildly ill and only go to hospital if they are unwell, and in need of treatment. Testing mild Covid-19 cases no longer makes any difference in the epidemic or to individual management. Masking, Ventilation, and most importantly Vaccination are the best defense against Covid-19 moving forward.

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