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COVID-19 control strategies cost effective in South Africa

A combination of public health strategies for controlling COVID-19 transmission and preventing deaths appears to be cost effective in South Africa, according to findings of a study published in *The Lancet Global Health*.

The dynamic Clinical and Economic Analysis of COVID Interventions (CEACOV) microsimulation model, populated with data from literature published between January and June 2020, was used to evaluate the cost effectiveness of five public health epidemic control interventions in KwaZulu-Natal province, South Africa, over 360 days: COVID-19 testing alone, in patients presenting to healthcare centres; contact tracing in households with COVID-19 cases; isolation centres for cases not requiring hospital admission; mass symptom screening and molecular testing of symptomatic patients by community healthcare workers; and quarantine centres for household contacts who test negative for COVID-19. Cost effectiveness was assessed over a lifetime time horizon based COVID-19 deaths averted in scenarios with COVID-19 effective reproduction rate (R_e) values of 1.5 and 1.2.

At an R_e of 1.5, COVID-19 testing alone was associated with the greatest number of deaths due to COVID-19. A combination of COVID-19 testing, contact tracing, mass symptom screening and use of isolation and quarantine centres was estimated to reduce the COVID-19 death rate by 94% compared with COVID-19 testing alone, and increase healthcare costs by 33%, resulting in an estimated incremental cost-effectiveness ratio (ICER) of $340* per life-year saved (LYS), which was well below the willingness-to-pay threshold of $3250 per LYS. In settings in which use of quarantine centres was not feasible, the combination of COVID-19 testing, contact tracing, mass symptom screening and use of isolation centres was cost effective versus COVID-19 testing alone, with an ICER of $590 per LYS.

At an R_e of 1.2, the combination of COVID-19 testing, contact tracing and use of isolation and quarantine centres was the lowest-cost strategy, and dominated (more effective and less costly) all other strategies except the combination of COVID-19 testing, contact tracing, mass symptom screening and use of isolation and quarantine centres, which had an estimated ICER of $27 590 per LYS.

"We recommend that policy makers consider a combined strategy of health-care testing, contact tracing, isolation of confirmed cases, mass symptom screening, and quarantine of household contacts of cases to address COVID-19 epidemic control efficiently. Where quarantine centres are not feasible . . . a strategy that includes the other interventions would still provide clinical benefit in an economically efficient manner," concluded the authors.

* 2019 US dollars

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