Family Medicine and Community Health

International examples of primary care COVID-19 preparedness and response: a comparison of four countries

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This work was the basis of a panel presentation and discussion on international examples of primary care COVID-19 preparedness and response at the World Organization of Family Doctor's World 2021 conference on 23 November.

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ABSTRACT

We report the learnings gleaned from a four-country panel (Australia, South Africa, Egypt and Nigeria) sharing their countries' COVID-19 primary healthcare approaches and implementation of policy at the World Organization of Family Doctor's World virtual conference in November. The countries differ considerably with respect to size, national economies, average age, unemployment rates and proportion of people living rurally. South Africa has fared the worst with respect to waves of COVID-19 cases and deaths. All countries introduced strategies such as border closure, COVID-19 testing, physical distancing and face masks. Australia and Nigeria mobilised primary care, but the response was mostly public health and hospital-based in South Africa and Egypt. All countries rapidly adopted telehealth. All countries emphasised the critical importance of an integrated response between primary care and public health to conduct surveillance, diagnose cases through testing, provide community-based care unless hospitalisation is required and vaccinate the population to reduce infection spread.

The World Organization of Family Doctor's (WONCA) Working Party on Research has a well-established process of running workshops at regional and world conferences, whereby a panel of experts present attributes of primary healthcare in their respective countries. A predeveloped template is used, and the comparative data plus ensuing discussion has formed the basis of a number of peer-reviewed publications.[1] Profiling and juxtaposing different countries' primary healthcare approaches and their implementation of policy, as promoted by the WHO and WONCA, can reflect key lessons on how to implement primary healthcare and improve service delivery.

At the 2021 WONCA World virtual conference last November, the workshop focused on the contribution of primary healthcare to managing and preventing COVID-19 in four selected countries: Australia, South Africa, Egypt and Nigeria. A call was made to members of the WONCA Working Party on Research planning to attend the conference to contribute to the panel, and countries selected for diversity of region and other characteristics. The aim of this paper is to analyse the findings of this interactive meeting and reflect on the lessons learnt from these comparisons.

The four countries vary considerably with respect to their national economies, the size of their populations, the life expectancy of their citizens, their unemployment rates and the proportion of the people who live in urban settings (table 1).

They have also had very different experiences of the COVID-19 pandemic. South Africa has fared worst, with three severe waves (figure 1).[2] Egypt has had several smaller waves, while Australia successfully managed a suppression strategy until August this year, when a Delta outbreak became established. While Nigeria reports the lowest case rate, resource constraints on testing means considerable under-reporting and case rates are likely to be much higher than reported.

This pattern is also evident when looking at recorded deaths from COVID-19 per million (figure 2).

National vaccination rates are shown in figure 3, which dramatically highlights the inequity in vaccination coverage.[3] In November 2021, high-income country Australia had 71% of its 26 million population fully vaccinated, whereas South Africa was at 23%, and the larger lower middle-income countries Egypt and Nigeria were at 13% and 1.6%, respectively. Vaccines were being provided free in Australia and Egypt to those over 12 years and in South Africa and Nigeria to those over 18 years. Primary healthcare has been involved in vaccination provision in all four countries. In South Africa, vaccination has been provided at pharmacies, clinics and

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Table 1 Characteristics of the four countries

Country	Income category	Population in millions	Population under 40 years old	Median age in years	Life expectancy in years	Rural	Unemployment rate	Cumulative confirmed deaths/million people*
Australia	HIC	26	53%	38	84	14%	5.2%	35.21
South Africa	Upper MIC	60	73%	28	64	34%	32.6%	358.67
Egypt	Lower MIC	102	75%	25	72	58%	7.3%	63.78
Nigeria	Lower MIC	213	82%	18	56	48%	33.3%	5.55

*Cumulated deaths per million as of 30 November 2021, COVID-19, OurWorldInData.org.
HIC, high-income country; MIC, middle-income country.

community venues, and in Nigeria, primary care (PC) and public health (PH) work together to conduct vaccination. Reasons for low vaccination rates in Egypt and Nigeria are likely to be complex, but as well as access issues with high rural populations, promulgation of anti-vaccination misinformation and religious beliefs may be contributing factors. Nigeria's criteria for vaccination were 18 years and older, meaning that only half the population were eligible.

Australia's low COVID-19 infection rates are explicable, given it is a high-income country and managed to suppress outbreaks of infection for many months until vaccines were available. Despite lower vaccination rates, Egypt and Nigeria fare better than South Africa. Given the testing regimes, cases will be under-reported, but we expect this to be true in all three countries. For Nigeria, in particular, some COVID-19 deaths may be unreported, but there is no corresponding increase in excess deaths to indicate that this is the explanation. Contributing factors may be early border closures and less international connectivity, a higher proportion of people living rurally with more outdoor living and the population being very young. Compared with South Africa, Nigeria has much lower rates of comorbidity with respect to diabetes (10.8% vs 3.6%)[4] and HIV (19.1% vs 1.3%).[5] There is also a theory about the possibility of 'trained immunity' to SARS-CoV-2 from prior infections such as Lassa, malaria, tuberculosis and BCG vaccination, although this needs further research.[6]

Panellists were asked to identify factors or strategies that had reduced or slowed the spread of infection. The responses were remarkably similar. All countries identified early border control as a key at the start of the pandemic. Other factors identified were lockdowns during periods of community transmission as well as COVID-19 testing. Contract tracing and surveillance were also cited in Australia and Egypt, although in Nigeria and South Africa resource constraints limited testing to high

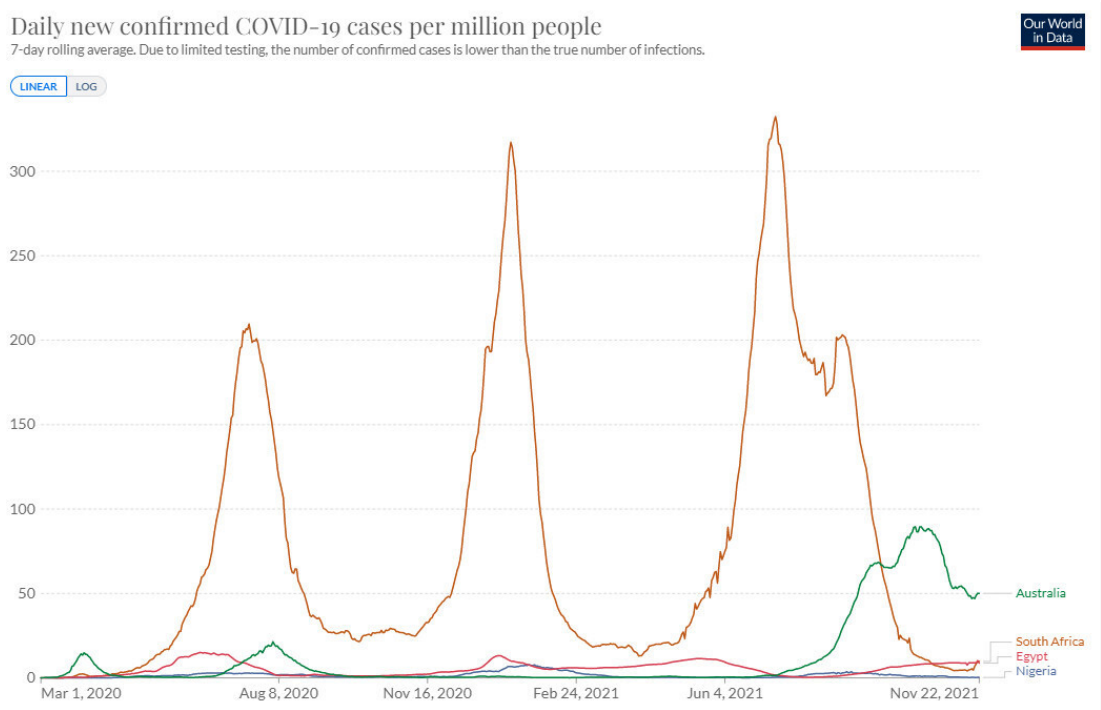

Figure 1 Daily new confirmed COVID-19 cases per million people (7-day rolling average) as of 22 November 2021. Source: Johns Hopkins University CSSE COVID-19 Data.

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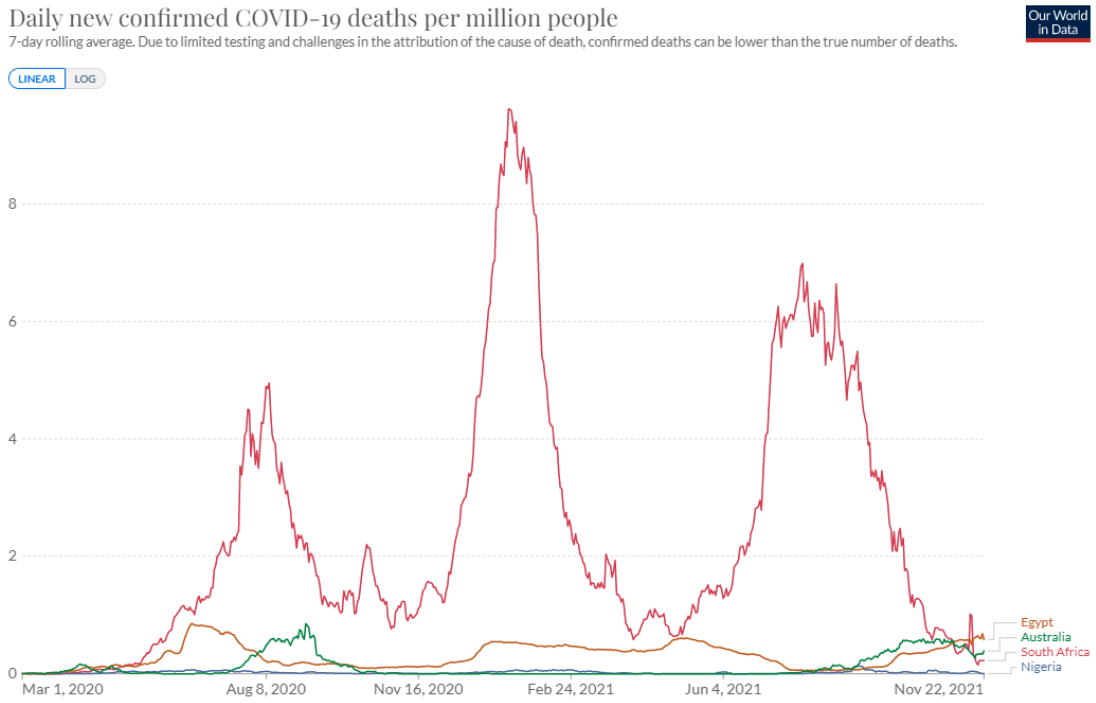

Figure 2 Daily new confirmed COVID-19 deaths per million people (7-day rolling average) as of 22 November 2021.

risk, suspected or exposed cases. All countries identified PH measures such as physical distancing, hand washing and face masks. In Australia, important strategies included protection of at-risk patients, the rapid move to telehealth for the whole population and the segregation of COVID-19-related and usual care with the establishment of general practitioner respiratory clinics. In South Africa, PC facilities created separate streams for those with COVID-19-related symptoms and those without.[7] In Nigeria, PC and PH worked together to conduct health education on testing and vaccination. National leadership has been important with regular communications about the actions the government was taking and the reasons for these.

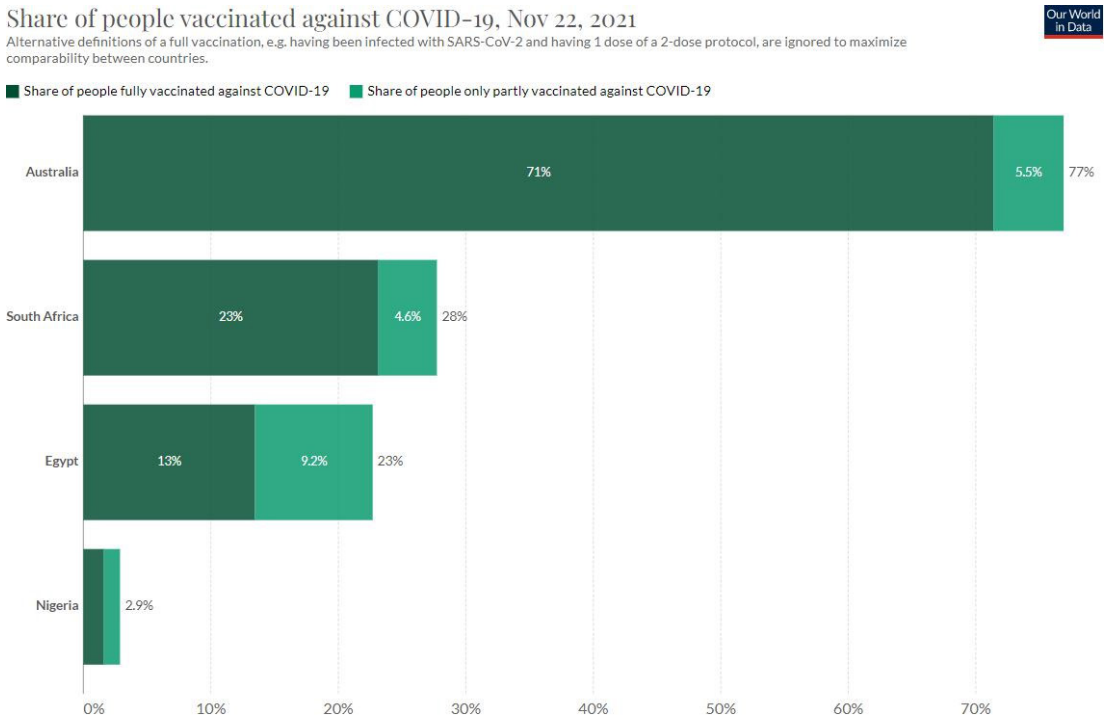

Figure 3 Share of people vaccinated against COVID-19 as of 22 November 2021. Source: Official data collated by Our World in Data. This data is only available for countries which report the breakdown of dose administered by first and second doses in absolute numbers.

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Policy-makers involved PC in the acute COVID-19 phase to a greater or lesser degree. In Australia, a National COVID-19 Primary Care Response was developed in consultation with stakeholders and ongoing engagement with the PC workforce, including a $1.1 billion initial funding package. This included provision of community-based mental health services. In Nigeria, policy-makers strengthened the role of and financial support for PC, but in South Africa national policy-makers mostly engaged with PH and infectious disease specialists with a focus on major hospitals and intensive care unit (ICU) beds. PC provided testing, treatment and support services to affected people, screening and testing took place in community settings in South Africa,[8] patients were triaged in PC in Nigeria and sent to PH centres for testing, while in Egypt there was limited coordination between PH and PC for triage and testing. In South Africa, family physicians also staffed and ran field hospitals for those only needing oxygen, recuperating, needing control of comorbidities or palliative care (not eligible for ICU).[9]

Technological innovations were apparent in all countries. Australia with more advanced technology and internet access, rapidly developed telehealth as an alternative to face-to-face consultations. In South Africa, PC facilities discovered the value of communicating with patients via alternative means (eg, WhatsApp) as most people have access to a mobile phone. In Egypt, a variety of technology innovations targeted specific high-risk groups such as telehealth for people with COVID-19 and diabetes and a WhatsApp chatbot for supporting self-management in people with diabetes.[10] In Nigeria, PC used telehealth through phone calls and SMS messages via dedicated hospital lines alongside face-to-face consultations.

The challenges identified were remarkably similar for all four countries. For all, early availability of adequate supplies of personal protective equipment in PC was an issue. Problems associated with lack of coordination between PC and PH were outlined. Australia, a high-resource country, did not have issues with capacity for COVID-19 testing, but testing ability was limited in Nigeria and Egypt and the long turn-around time for test results limited the effectiveness of contact tracing in South Africa. Faster vaccination was a major issue identified by Nigeria and Egypt as was initial vaccine supply and public concern about adverse effects in Australia and South Africa.

In South Africa, adaptation of PH messages to low socioeconomic contexts could have been done better with recognition of the inability to self-isolate for people living in shacks with shared toilets. Australia adopted a specific focus to equitable targeting of priority populations, including Aboriginal and Torres Strait Islander people, residents of aged care facilities, people from culturally and linguistically diverse backgrounds and those with disability.

CONCLUSION: LESSONS FOR OTHER COUNTRIES

Table 2 outlines the strategies, experiences and limitations of each country's response.

Each country summarised what had worked well, and what had not, from which other countries may learn. For Australia, having a National COVID-19 Primary Care Response was key. Rapid introduction of telehealth for the whole population helped to reduce spread, protect the workforce and ensure continuity of care. General practitioners led 'fever' clinics and vaccination offered through general practices and pharmacies across the country was catalysed by the public's familiarity with PC settings, as well as through large, centralised hubs and in-reach programmes to support hard-to-reach communities.

South Africa also identified that good communication and strong political leadership is key. What was needed was a clear command structure in the health system to coordinate all levels of care. Where community-orientated PC was implemented, this provided the ability to decongest facilities and provide more services in the community and household as well as to provide education and screening for COVID-19 to the whole population at risk.[7 8 11] However, community engagement and participation was insufficient in many areas to tailor PH messages to the local circumstances and ensure

Table 2 Strategies, experiences and limitations of each country's response

Pandemic responses	Australia	South Africa	Egypt	Nigeria
Strategy	National COVID-19 Primary Care Response; rapid introduction of telehealth; targeting of high-risk priority populations	Strong political leadership	Quarantine hospitals assigned in in every governate	National leadership with regular communications about government actions and rationale
Experiences	GP "fever" clinics and vaccination; large, centralised hubs and in-reach programmes to hard-to-reach communities	Good communication; separate PC streams for those with and without COVID-19-related symptoms	World Bank funding assisted implementation of Universal Health Insurance Law providing more equitable access to healthcare	PC and PH worked together to conduct health education on testing and vaccination
Limitations	Could have been earlier access to PPE and initial vaccine supply	Insufficient community engagement to coordinate care; poor laboratory services; focus on major hospitals and ICU beds	Inadequate PPE and other resource supply; integration between PH and PC, testing capacity and vaccine roll-out could be improved	Poor remuneration and resourcing of PC workforce; professional 'brain drain' to other countries; suboptimal border control and surveillance measures; slow diagnosis and treatment of COVID-19 cases; poor vaccination roll-out

GP, general practitioner; ICU, intensive care unit; PC, primary care; PH, public health; PPE, personal protective equipment.

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understanding and support for PH measures. Laboratory services proved to be a critical bottleneck.[12]

The Egyptian response included assigning quarantine hospitals in every governate, with medical teams composed of different specialties to take care of the inpatients in these hospitals. In June 2020, Egypt received US$400 million from the World Bank[13] to implement their 2018 Universal Health Insurance Law[14] and provide more equitable access to healthcare.

For Nigeria, the pandemic has highlighted the need for better remuneration and resourcing of the PC workforce to prevent or minimise the professional 'brain drain' to other countries. The response to the pandemic could have been improved by increased border control and surveillance measures, and the ability to promptly diagnose and treat COVID-19 cases.

All four countries emphasised the critical importance of an integrated response between PC and PH services to protect the population, conduct surveillance, diagnose cases through testing, provide community-based care unless hospitalisation was required and vaccinate the population to reduce infection spread. The importance of collaboration, communication and integration between PC and PH in addressing epidemics has long been recognised.[15] Lack of involvement of PC and poor integration with PH in the COVID-19 response has been identified in other countries. This was a key theme in a 2020 international study looking at the pandemic response in 111 countries,[16–18] and has also been recognised in a number of European studies.[19–21] PC frequently demonstrates agility and innovative capacity in the face of limited resources and a changing environment[22] contributing to the resilience required in the face of pandemics.

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