

# Impact of COVID-19 on other infectious diseases

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In the past 18 months, COVID-19 has caused over 4 million reported deaths<sup>1</sup> globally and potentially serious long term complications for millions more. But the indirect impact of COVID-19 on health is probably even greater. Worldwide, COVID-19 and its associated lockdowns have had serious economic consequences, including increases in unemployment and poverty, which may lead to poorer long term health outcomes. In addition, the impact of the growing mental health issues arising out of enforced isolation and lack of human contact, are not fully known nor quantified.

Looking more closely within the health sector, the focus on COVID-19 that has been required during the pandemic, has shifted attention away from other important health services. In terms of infectious diseases, the most worrying consequences are the drop-off in screening and treatment programmes for HIV and TB. A recent study of 69 clinics in KwaZulu-Natal<sup>2</sup> reported that contrary to initial fears, the supply of ARVs to existing patients was generally maintained during the 2020 COVID-19 lockdown. However, the number of HIV tests and the number of new patients initiating ARVs declined considerably. Similarly, data from the first wave in 2021 showed a significant decrease in the number of TB tests in the public sector.<sup>3</sup> There is thus most likely an increased pool of infectious persons with untreated HIV and/or TB in the community, and according to mathematical models, this is projected to lead to an increased incidence of TB and increased mortality due to TB of between 5–15% over the next 5 years.<sup>4</sup> Outbreaks of vaccine-preventable diseases such as measles in children are another possible danger as routine childhood immunisation services have been disrupted with a decrease in the number of fully immunised children at 1 year of age of 4.3% in 2020 compared to 2019 and decreases of close to 10% or more in the Northern Cape (11.8%) and Eastern Cape (9.9%).<sup>5</sup>

The measures introduced to counter the spread of SARS-CoV2, such as lockdowns, physical distancing, closure of schools and crèches, limitation of (international) travel,

wearing of masks and increased hand hygiene, have disrupted the circulation of other seasonal viruses in many countries worldwide. In South Africa, the annual winter influenza season did not materialise in 2020, while the respiratory syncytial virus (RSV) season was delayed from the usual early autumn months (March/April) until summer (October – first few months of 2021).<sup>6,7</sup>

Similar declines in certain invasive respiratory-borne bacterial diseases were also noted in many countries, including in South Africa in 2020, notably in those due to *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Neisseria meningitidis*.<sup>8</sup> In contrast, invasive bacterial diseases transmitted by other routes of infection, e.g. Group B *Streptococcus* and various food-borne illnesses, did not decline.

Surprisingly what is possibly the most serious long term consequence of the COVID-19 pandemic for the overall health of the general population, may be currently invisible to many people. This is the acceleration in the growth and spread of antimicrobial resistance. Antimicrobial resistance means that microorganisms have changed so that the medicines used to treat them, including antibiotics, antifungals and antivirals, are no longer effective. Antimicrobial resistance is recognised as a rising threat to human health and has been projected to result in 10 million deaths per year by 2050.<sup>9</sup> COVID-19 has resulted in the massive exposure of millions of people to antimicrobials. Initial advice for the management of COVID-19 did recommend antibiotic treatment as used for atypical pneumonia, with a beta-lactam antibiotic such as co-amoxiclav together with a macrolide such as azithromycin. However, this advice was quickly retracted when it became apparent that bacterial co-infection was rare, occurring in less than 5% of patients. This applies even in patients with severe COVID-19 requiring ICU admission, in whom a recent local study showed no association between early antibiotic use and mortality.<sup>10</sup>

Bacterial secondary or super-added hospital-acquired (or nosocomial) infection is somewhat more common, occurring in about 15% of patients, especially those who are intubated and those with prolonged ICU stay. Hospital-acquired infection is diagnosed in a similar way in COVID-19 patients as it is in non-COVID-19 patients, through inflammatory markers such as CRP may not be as reliable.

Unfortunately, nosocomial infections can be caused by multi-resistant organisms such as carbapenem-resistant Enterobacteriales (CRE), multi- or pan-drug resistant *Pseudomonas aeruginosa* and *Acinetobacter baumannii*, as well as *Candida auris*. Increased prescribing of broad-spectrum antimicrobials such as carbapenems, linezolid and echinocandins can facilitate the ongoing emergence and spread of these multi-resistant pathogens. The increased prevalence of multi-resistant pathogens poses a risk to all patients irrespective of COVID-19 status and is likely to persist even beyond the COVID-19 pandemic.

### What can be done to avert the subsequent epidemics provoked by COVID-19?

Firstly, we need to manage the COVID-19 pandemic, meaning that the global vaccination programme must be rolled out as quickly as possible, together with ongoing adherence to necessary non-pharmaceutical interventions that limit and control the spread of infection. Uncontrolled replication and spread of COVID-19 facilitates the ongoing evolution of COVID-19 variants, thereby extending the pandemic.

Secondly, we need to practise antimicrobial stewardship among COVID-19 patients, both in the community and in the hospital, in order to limit unnecessary and excessive antimicrobial use and the subsequent pressure for development of antimicrobial resistance. We also need to ensure adequate surveillance systems for monitoring the use of antimicrobials and antimicrobial resistance.

Thirdly, we need to deal with increased numbers of other infections. There will be a larger cohort of RSV-naïve children who may become infected as social mixing resumes, as well as spill over into the older adults, in whom RSV infection is increasingly recognised when molecular diagnostic methods are used. We urgently need catch-up programmes in the community for childhood immunisation and for the screening, diagnosis and enrolment into treatment of persons with TB and HIV.

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