

## Have we learnt anything from COVID-19, and can we put it to good use in the future?

We are not quite 6 months into the pandemic lockdown in South Africa (SA), and our caseload and mortality are finally declining. SA has been spared the severe implications of significant hospitalisations and deaths seen with COVID-19 in the Northern Hemisphere. But as we open up our country, and our hospitals and clinics start to return to normal business, it behoves us as healthcare professionals to look back on the things we did well, and especially at the things we did not do well, so that we can learn some lessons for the future. It would be sad if we shook our heads and patted ourselves on the back and moved on without reflecting on the crisis that has affected us all.

We have seen multiple attempts by the fake news mill and even the reputable press to spread fear and misinformation. One of the worst cases of poor advice was to allow compassionate use of hydroxychloroquine prior to efficacy and safety study completion. This agent has now been proven to be unhelpful and potentially dangerous.<sup>[1]</sup> Some of the information has been couched as supportive, but has not helped mitigate disease or anxiety. One of the items in this category is attempts to call children 'super-spreaders', responsible for disease and death in teachers, parents and the elderly. It remains true that paediatric cases are increasing,<sup>[2]</sup> but certainly not to the extent that we are told. Children are still less responsible for transmission than adults.<sup>[3-7]</sup> In addition, disease is less severe in SA children than in adults, and mortality in children is rare.<sup>[2]</sup>

We have, however, seen a disease with an enormous impact on people, healthcare services, economies and mental health. Europe and the USA have been more severely affected than Africa and SA, where mortality has fortunately been lower.<sup>[2]</sup> Speculation over this phenomenon is rife, but no proof of reasons for it exists so far. It may be possible that Africans have a degree of innate and T-cell memory based on other common vaccines and annual coronavirus infections.<sup>[8,9]</sup> However, theories of fewer angiotensin-converting enzyme 2 (ACE-2) receptors, BCG protection, more sunshine (and possibly higher vitamin D levels) are not only unfounded, but in many cases wrong. The reason for the severe inflammatory state in some individuals with COVID-19 is now known to be endothelial dysfunction as a result of ACE-2 receptor activation by viral binding.<sup>[10]</sup> The comorbid conditions that increase COVID-19 severity are all associated with an impaired immune response and with endothelial dysfunction.<sup>[10]</sup>

There is now clear evidence that increased disease severity is caused by a deficiency of nicotinamide adenine dinucleotide (NAD<sup>+</sup>). The comorbidities of hypertension, obesity and diabetes, and age, are associated with oxidative stress, and SARS-CoV-2 infection further limits silent information regulator 1 (SIRT1) production.<sup>[11]</sup> This process results in a massive cytokine release, pro-inflammatory event.

We need to spend some time reflecting on the many people who we have lost in this pandemic.<sup>[12]</sup> Sadly, they include many of our key healthcare workers, many taken in the prime of their lives. This is not only a sad loss in personal terms but a loss to the health system of our country, already badly shaken by the virus.

Give some thought to the implications of lockdown on children. A generation who were at school learning, being fed and receiving healthcare has not seen these care packages for 6 months.<sup>[13]</sup> Most SA children have not been able to 'go online' to learn, do not have parents who can assist with teaching, and have not been able to remain in contact. School reopening is not only a kindness we need to extend to children, it is an imperative to save lives.<sup>[14,15]</sup> We should

also reflect on the closure of our hospital wards to visitors. This has had an effect on adults in hospital, but the negative effect on children in paediatric and neonatal wards has been dramatic. Young sick children need their parents, especially when hospitalised. Neonates and infants also need breastfeeding, and although many hospitals have tried to support delivery of expressed breastmilk, this has been less than optimal for poor families. Rates of formula feeding have risen in a country where exclusive breastfeeding is encouraged for multiple health reasons.

Many statements on the disease and its impact, and sadly many predictions of timelines and disease severity made by 'experts', have been dismissed by reality. Even now as we see a fall in cases, we need to learn from our colleagues in the north that if we unlock our country to freedom from masks, hand washing and distancing, we may well see a second spike. An additional problem in SA is that our healthcare services have been adversely affected. A second wave or spike will not be easy to handle medically.

As teachers of our future healthcare professionals, we have faced enormous challenges in keeping students learning. Our imperative has been to turn out interns in 2021 and every year going forward. We could not put the year on hold. But we learnt that much of medical teaching and assessment can be done online or in small groups. We also learnt that in order to keep students upbeat we needed to communicate facts frequently and honestly. We learnt that our students, and we as teachers, needed to manage the virus and to maintain our universities together.

Despite lockdown, increased poverty and economic loss, many individuals and organisations have stepped up to offer care.<sup>[16]</sup> We have seen feeding schemes flourish, we have seen the homeless cared for, and we have seen spectacular acts of generosity.

One area that we have largely ignored in SA is psychological care of our population and our locked-down families. Yes, organisations advertise this care, but widespread uptake is lacking.<sup>[17,18]</sup> We have also come to realise that even healthcare professionals and front-line workers need this support. We are only starting to offer this much-needed care to our colleagues.

We know that one thing that has happened in medicine is realisation of the opportunity for research into and around the pandemic. Every university has a number of projects ongoing, and collaboration has been profound. We should better understand this disease and hopefully learn how to protect ourselves and our country in the future.

Underneath the lockdown, the impact and the deaths, many of our population have been left angry. Angry at the poor communication from leaders, the fake news mill, the lost opportunities, the economic devastation and the lack of individual help. We should learn that frequent and honest communication with our people is critical to getting through a crisis. Nothing is more important than telling people what is going on, honestly and frequently.

As we look back on the pandemic, we are now learning that SARS-CoV-2 has one last consequence. We now know that 'long-term syndrome' is a possibility for many people who were infected. Instead of a return to perfect health, many in the population are left with residual health issues, both physical and mental.<sup>[19,20]</sup>

In conclusion, it is to be hoped that we learn the lessons nature has tried to teach us. We hope that we will band together to resuscitate our country and our world, and we truly believe that our daily living should reflect a new philosophy of care for one another.

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