ATMIRE

The unanticipated costs of COVID-19 to South Africa's quadruple disease burden

Item Type	Article
Authors	Hofman, K.;Madhi, S.
Citation	Hofman K, Madhi S. The unanticipated costs of COVID-19 to South Africa's quadruple disease burden. South African Medical Journal 2020;110(8):698-699. doi:10.7196/SAMJ.2020.v110i8.15125
DOI	10.7196/SAMJ.2020.v110i8.15125
Publisher	Health and Medical Publishing Group
Journal	The South African Medical Journal
Rights	Attribution 3.0 United States
Download date	2024-08-07 18:24:05
Item License	http://creativecommons.org/licenses/by/3.0/us/
Link to Item	http://www.samj.org.za/index.php/samj/article/view/13018

This open-access article is distributed under Creative Commons licence CC-BY-NC 4.0.

The unanticipated costs of COVID-19 to South Africa's quadruple disease burden

The COVID-19 pandemic has already impacted on South Africa (SA)'s economy and disrupted the healthcare system. While much has been said about the former, with few exceptions little has been discussed about the disruption to routine, essential healthcare services. The pandemic poses threats previously unknown and has reordered priorities for health. Hospitals have reprogrammed care units to accommodate COVID-19 patients, while others have temporarily closed.[1] To limit the spread of SARS-CoV-2 infection, SA has used the most effective prevention toolkit currently available – social-behavioural measures such as social distancing, handwashing, and ensuring that transportation and workplaces apply safety protocols.

It is, however, critical to ensure that in focusing on COVID-19 we do not lose sight of the opportunity costs of shifting priorities. In order to do so, we must now also ensure that:

- Health services address both supply-side and demand-side issues in innovative ways to reach the majority of the population
- We use priority setting approaches to ensure that we think more carefully about how many lives we are losing to or saving from COVID-19, as opposed to lives that could be lost by disruption of essential services
- We understand both the indirect and direct effects of the pandemic on comorbidities
- We understand the social and psychological ramifications of the pandemic and efforts to contain it, and can engage with experts who can think about ways to use this crisis to transform health services.

These experts should not be confined to clinicians and epidemiologists. To ensure the best outcome, there is a need also to engage communicators, as well as behavioural and social scientists.

It is acknowledged that even in the best of times, efforts to address SA's quadruple disease burden are challenging. This challenge is generated by the confluence of HIV and tuberculosis (TB) with obesity and non-communicable diseases (NCDs), continuing poor outcomes for child and maternal mortality, and injury and violence, all the in context of the inequities produced by our social determinants of health. In particular, the associated loss of income as a result of the lockdown has also increased hunger, and will have an impact on malnutrition. However, the full extent of the potentially drastic knock-on effect of COVID-19 on these critical issues is not appreciated. We already know that the nation-wide lockdown has resulted in shifts on both the demand side and the supply side. On the supply side, human resources shift to COVID-19 has resulted in limited services for diagnosis, treatment and prevention of other health issues. On the demand side, the public has avoided health facilities, and has been affected by transport restrictions. For example, since the beginning of the lockdown, the National Institute for Communicable Diseases has shown a 48% decline in testing for TB, as well as a 33% reduction in newly diagnosed positive cases over a 5-week period compared with the 6-week period preceding the level 5 lockdown.[2] In related data, since the beginning of the lockdown on 27 March 2020, the Gauteng Department of Health estimated that ~1 090 patients with TB, untreated HIV and chronic conditions such as diabetes are more vulnerable to severe COVID-19. For example, COVID-19 may indirectly affect management of patients with diabetes, but more directly when diabetics are infected, resulting in poorer health outcomes. This exacerbation of the multiple disease burden puts further strain on the national healthcare system. Not only does it have cost implications, but more importantly, the human resources for delivering routine care during a pandemic are limited.[1,3]

Until we have a vaccine or a cure, COVID-19 may be among us for a while. Finite resources cannot be diverted solely to the pandemic. Careful priority-setting, taking into consideration the costs and benefits of basic health interventions and services, is critical to the success and sustainability of public health gains of the past decades, while simultaneously addressing the COVID-19 pandemic.

There is also an urgent need for transparent and explicit decision-making that takes into account the losses and gains of shifting resources and simultaneously fosters equity in the distribution of health expenditure and subsequent outcomes.

When developing guidance for the health system and weighing different options, policy makers must consider the potential effects of COVID-19 on SA's complex disease burden. We need to ensure the continuity of health promotion, disease prevention and treatment services in order to avert excess death from the top four conditions and prevent increases in their incidence during and after the COVID-19 pandemic. Even if the resources at health facilities were not overwhelmed by focus on COVID-19, the economic impact of the pandemic, such as increased unemployment, has the potential to erode the spending power of those who already struggle to pay their transport costs to the clinic.

Possible impacts of privileging COVID-19 on the quadruple burden of disease include the following examples:

HIV. A 6-month interruption of supply of antiretrovirals across the whole population of HIV patients on treatment in SA would lead to a ~2-fold increase in HIV-related deaths over a 1-year period. This amounts to an excess of between 83 800 and 140 900 adult HIV deaths should such a high level of disruption occur.[4]

Maternal and child health (MNCH). Disruption to MNCH services could have a similarly devastating impact. A 9 - 18% reduction on MNCH coverage over a 6-month period would lead to an additional 2 160 child deaths at a minimum in SA,[5] despite children being at extremely low risk for severe COVID-19 illness. Of all MNCH services, sustaining routine childhood immunisation is particularly important. Measles in particular is a highly contagious disease that mostly affects children aged <5 years. The basic reproductive number for measles (i.e. the average number of people who could be infected by every one person with measles) in a susceptible population is between 12 and 18. In contrast, while we do not know this for certain, the reproductive number of symptomatic cases of SARS-CoV-2 is thought to be ~2.5.[6] Previous SA research in 2010 shows what can happen when health workers are diverted to focus on a single issue – in this case, a catch-up campaign for measles. In 2010, over this same 3-week period in 52 districts, there was a 30% decrease in children completing the primary course of immunisation, a 10% decrease in antenatal visits, and a 12 - 17% decrease in use of injectable contraceptives.[7]

NCDs. SA has high rates of type 2 diabetes (12%), obesity and overweight (68% of women and 31% of men aged ≥15 years) and hypertension (35%),[8] which may actually be underestimates of the burden of these comorbidities.[9,10] Control of these NCDs is critical, since individuals with these comorbidities are at increased risk of severe COVID-19 illness and death.[11] Any pandemic response needs to ensure that disruption to routine medical appointments and tests is minimised to prevent interruptions in NCD management and continuity of care.

Violence and injury. During the original lockdown, when alcohol sales were banned, trauma admissions and motor vehicle injuries were reduced. Following the opening of alcohol sales, there was a surge of both intentional and unintentional harm. At the same time, officially reported cases of gender-based violence (GBV) seemed to decrease, but the number of GBV distress calls increased from 12 000 to almost 80 000 by week 3 of the lockdown,[12] suggesting that women could not access services. A 2014 study estimated that GBV, and in particular violence against women, costs the SA economy a minimum of ZAR28.4 - 42.4 billion per annum, or between 0.9% and 1.3% of the gross domestic product in the year 2012/13.[13] A loss of focus on the fight against GBV during the pandemic will be extremely detrimental for women and children.

Summary

The COVID-19 pandemic has revealed and exacerbated pre-existing weaknesses in our healthcare system. Efficient and equitable allocation of resources is therefore critical, now more than ever. Unless we prioritise interventions that that are cost-effective and address the major challenges from both the demand side and the supply side, SA will experience increased mortality and morbidity from diseases that have been sidelined in favour of COVID-19. This outcome will obliterate hard-won improvements in life expectancy over the past decade, thwarting any chance of SA reaching its 2030 Sustainable Development Goals. To avert this scenario, the Academy of Science of South Africa (ASSAf) Standing Committee on Health urges the National Department of Health:

- **To engage a broad spectrum of stakeholders without delay**
- **To request evidence of the potential trade-offs and the consequent resource implications**
- **To promote a co-ordinated and collaborative funded research programme that encompasses multiple disciplines, both for understanding the health burden complexity and for breakthrough innovations in public health and healthcare.**

Authorship. This article is based on an ASSAf statement dated 7 July 2020 and was co-authored by the ASSAf Standing Committee on Health Members, in alphabetical order Prof. John Ataguba, Prof. Olalekan Ayo-Yusuf, Prof. Minrie Greeff, Dr Elizabeth Lutge, Prof. Angela Mathee, Prof. Neil McKerrow, Prof. Mosa Moshabela, Prof. Shane Norris, Prof. Solomon Rataemane, Prof. Steve Reid, Prof. Linda Richter, Prof. Heidi van Rooyen and Dr Caradee Wright.

Karen Hofman
SAMRC/Wits Centre for Health Economics and Decision Science, PRICELESS, University of the Witwatersrand School of Public Health, Faculty of Health Sciences, Johannesburg, South Africa

Shabir Madhi
Medical Research Council: Respiratory and Meningeal Pathogens Research Unit, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa; and Department of Science and Technology/ National Research Foundation, Vaccine-Preventable Diseases Research Chair, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

1. Steyn D. Covid-19: SA's TB response has already been affected. CityPress, 28 April 2020. https://city-press.news24.com/News/covid-19-sas-tb-response-has-already-been-affected-20200427 (accessed 24 May 2020).
2. National Institute for Communicable Diseases. Impact of COVID-19 intervention on TB testing in South Africa. 10 May 2020. https://www.nicd.ac.za/wp-content/uploads/2020/05/Impact-of-Covid-19-interventions-on-TB-testing-in-South-Africa-10-May-2020.pdf (accessed 3 June 2020).
3. Shange N. Almost 11,000 HIV-positive patients in Gauteng have skipped ARV collection during lockdown. SowetanLIVE, 19 May 2020. https://www.sowetanlive.co.za/news/south-africa/2020-05-19-almost-11000-hiv-positive-patients-in-gauteng-have-skipped-arv-collection-during-lockdown/ (accessed 24 May 2020).
4. Jewell BL, Mudimu E, Stover J, Kelly SL, Phillips A. Potential effects of disruption to HIV programmes in sub-Saharan Africa caused by COVID-19: Results from multiple mathematical models. Figshare, preprint 11 May 2020. https://figshare.com/articles/Potential_effects_of_disruption_to_HIV_programmes_in_sub-Saharan_Africa_caused_by_COVID-19_results_from_multiple_mathematical_models/12279914 (accessed 23 May 2020).
5. Roberton T, Carter ED, Chou VB, et al. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: A modelling study. Lancet Glob Health 2020;8(7):E901-E908. https://doi.org/10.1016/S2214-109X(20)30229-1
6. Lai C-C, Shih T-P, Ko W-C, Tang H-J, Hsueh P-R. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. Int J Antimicrob Agents 2020;55(3):105924. https://doi.org/10.1016/j.ijantimicag.2020.105924
7. Verguet S, Jassat W, Bertram MY, et al. Supplementary immunization activities (SIAs) in South Africa: Comprehensive economic evaluation of an integrated child health delivery platform. Glob Health Action 2013;6(1). https://doi.org/10.3402/gha.v6i0.20056
8. National Department of Health, South Africa, Statistics South Africa, South African Medical Research Council and ICF. South Africa Demographic and Health Survey 2016. Pretoria: NDoH, 2019. https://dhsprogram.com/pubs/pdf/FR337/FR337.pdf (accessed 14 July 2020).
9. Stokes A, Berry KM, Mchiza Z, et al. Prevalence and unmet need for diabetes care across the care continuum in a national sample of South African adults: Evidence from the SANHANES-1, 2011 - 2012. PLoS ONE 2017;12(10):e0184264. https://doi.org/10.1371/journal.pone.0184264
10. Berry KM, Parker W, Mchiza ZJ, et al. Quantifying unmet need for hypertension care in South Africa through a care cascade: Evidence from the SANHANES, 2011 - 2012. BMJ Glob Health 2017;2(3). https://doi.org/10.1136/bmjgh-2017-000348
11. Kluge HHP, Wickramasinghe K, Rippin HL, et al. Prevention and control of non-communicable diseases in the COVID-19 response. Lancet 2020 (epub 8 May 2020). https://doi.org/10.1016/S0140-6736(20)31067-9
12. Metsing B. Gender-based violence cases rose by 500% since start of lockdown – Lifeline. IOL, 20 May 2020. https://www.iol.co.za/the-star/news/gender-based-violence-cases-rose-by-500-since-start-of-lockdown-lifeline-48193496 (accessed 25 May 2020).
13. Khumalo B, Msimang S, Bollbach K. Too costly to ignore – the economic impact of gender-based violence in South Africa. Johannesburg: KPMG Human and Social Services, 2014. http://www.ci.uct.ac.za/overview-violence/reports/too-costly-to-ignore-the-economic-impact-of-GBV-in-SA (accessed 25 May 2020).

S Afr Med J 2020;110(8):698-699. https://doi.org/10.7196/SAMJ.2020.v110i8.15125