

## South Africa Country Report

# PASCAR and WHF Cardiovascular Diseases Scorecard project

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### Abstract

Data collected by the Pan-African Society of Cardiology for the World Heart Federation's Cardiovascular Diseases Scorecard project in Africa are presented. We summarise the strengths, threats, weaknesses and priorities identified from the collected data for South Africa, which need to be considered in conjunction with the associated sections in the accompanying infographic. Data sets that were used include open-source data available online and government publications. In the section on priorities and the way forward, we highlight the multifactorial health challenges with which South Africa has had to deal and the progress that has been made.

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On behalf of the World Heart Federation (WHF), the Pan-African Society of Cardiology (PASCAR) co-ordinated data collection and reporting for the country-level Cardiovascular Diseases Scorecard to be used in Africa.<sup>1,3</sup> The South African Heart Association, members of PASCAR and the WHF assisted in collating and verifying these data. Based on the collected data, we summarise the strengths, threats, weaknesses and priorities identified, which need to be considered in conjunction with the

associated sections in the accompanying infographic. We used open-source data sets from the World Bank, the World Health Organization (WHO), the Institute for Health Metrics and Evaluation, the International Diabetes Federation (IDF) and relevant government publications.

### Part A: Demographics

According to the World Bank (2018), South Africa is an upper-middle-income country (MIC), with 34% of its people living in rural areas. Despite its status as an upper MIC and to appreciate the country's health status and challenges, it is important to note that it also occupies the status as one of the most unequal societies worldwide. The official unemployment rate in 2019 was close to 30%, while there is a large income and wealth inequality (the bottom 60% of the population hold 7% of net wealth).<sup>4,5</sup> Almost 19% of the population were living below the US\$1.9-a-day ratio in 2014.<sup>5</sup> Life expectancy at birth in 2018 was 60 years for men and 67 years for women.<sup>5</sup> The general government health expenditure was 4.4% of the gross domestic product (GDP) in 2017,<sup>5</sup> while the total government health expenditure was 8.8% of the GDP in 2014.<sup>6</sup> In 2019, the country's GDP per capita was US\$6 001.40, and the gross national income per capita purchasing power parity (current international \$) was US\$12 530 in 2018.<sup>5</sup>

### Part B: National cardiovascular disease epidemic

#### The national burden of cardiovascular diseases (CVD) and risk factors for non-communicable diseases (NCD)

South Africa reports premature death based on the sustainable developmental goals (SDGs), target 3.4, and only addresses premature death above the age of 30 years.<sup>7</sup> Therefore, all premature deaths caused by, for example, unoperated or operated congenital heart disease (CHD), rheumatic heart disease (RHD), peripartum cardiomyopathy and other cardiomyopathies in children, adolescents and young adults, remain unreported. Given the significant burden of these disorders in under-30-year-olds, there may be a significant under-reporting of premature cardiovascular deaths in the country.

South Africa's premature death rate attributable to CVD (30–70 years old) was 14% in 2012, which is the highest of the countries under investigation.<sup>8</sup> Several data sources suggest that

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the main burden of CVD is from heart failure (HF), ischaemic heart disease (IHD) and cerebrovascular disease.<sup>9,10</sup> Premature deaths (age 30–70 years) attributable to NCD, which included cancer, diabetes or chronic respiratory diseases, in addition to CVD, was 26% in 2016.<sup>11</sup> The age-standardised total CVD death rate was 16.1%, while the percentage of disability-adjusted life years (DALYs) resulting from CVD was 7.0% in 2017.<sup>12</sup>

RHD, which has an estimated prevalence of 1.01%, is one of the main causes of premature CVD-related morbidity and mortality in the youth. This prevalence is similar to that of Tanzania and slightly lower than Mozambique's 1.09%. The total RHD mortality rate in 2017 was 0.22% of all deaths, which is almost similar to that of Cameroon (0.2%), but lower than Namibia and Senegal (0.27 and 0.28%, respectively) and Sudan's 0.38% (Table 1).<sup>12</sup>

### Tobacco and alcohol

The WHO age-standardised prevalence of tobacco use in adult men and women ( $\geq 15$  years) in 2018 was 46.8 and 16%, respectively (Table 1).<sup>13</sup> Similar prevalence data suggest that 1.68% of 10–14-year-old boys and 0.81% of girls smoked,<sup>13</sup> while among the adolescents (13–15-year-olds), 24.3% of boys and 19% of girls used one form or another of tobacco (Table 1).<sup>14</sup> The estimated annual direct healthcare-related cost of tobacco use was R11.4 billion (about US\$0.77 billion) in 2016.<sup>15</sup> In 2004, the premature CVD mortality rate attributable to tobacco in South

Africa was 18%.<sup>16</sup>

Alcohol is a major contributor to the burden of disease in South Africa. The three-year (2016–18) average recorded alcohol consumption per capita ( $\geq 15$  years) was 7.3 litres (Table 1).<sup>14</sup> Among risk factors that drive the most death and disability combined in 2017, alcohol ranked fourth highest, which is a slight improvement from 2007 when it ranked third.<sup>17</sup>

### Raised blood pressure and cholesterol

The percentage of men and women with raised blood pressure (BP) [systolic BP (SBP)  $\geq 140$  mmHg or diastolic BP (DBP)  $\geq 90$  mmHg] was 27.4 and 26.1%, respectively in 2015, which increased with age.<sup>14</sup> In the first South African National Health and Nutrition Examination Survey (SANHANES), the prevalence for raised SBP was 5.3% in persons  $< 25$  years old, rising to 50.5% in the 55–64-year-old group, and 63.7% in those over 65 years.<sup>18</sup> The percentage of DALYs lost because of hypertension was 5.2%, whereas the mortality rate caused by hypertensive heart disease was 2.0% in 2017 (Table 1).<sup>12</sup>

According to Global Health Observatory data, the estimated age-standardised raised total cholesterol (TC;  $\geq 5.0$  mmol/l) level was 35.5% in 2008, while only Tunisia had a higher TC level at 40.7%.<sup>14</sup> Data from SANHANES, conversely, indicated a prevalence of elevated TC in men, 15–65 years and older, of 18.9% that varied widely by province (Limpopo 10.9% and Western Cape 34.8%). In women, 15–65 years and older, 28.1%

Table 1. Cardiovascular disease indicators for South Africa

Indicators	Male	Female	Total	Year
<b>Status of the national CVD epidemic</b>				
Premature CVD mortality (30–70 years old) (% deaths)	–	–	14	2012
Total CVD mortality (% of deaths)	13.9	18.8	16.1 (31.8)*	2017
Total RHD mortality (% of deaths)	0.23	0.21	0.22 (.5)*	2017
DALYs attributable to CVD (%)	6.8	7.2	7.0 (14.7)*	2017
AF and atrial flutter (%)	0.29	0.29	0.29 (.5)*	2017
Prevalence of RHD (%)	0.91	1.1	1.01 (.5)*	2017
<b>Tobacco and alcohol</b>				
Prevalence of adult tobacco use ( $\geq 15$ years old) (%)	46.8 (36.1)**	16 (6.8)**	–	2018
Prevalence of youth (13–15-year-olds) tobacco use (%)	24.3 (18.2)**	19.0 (8.3)**	–	2011
Estimated direct (healthcare-related) cost of tobacco use in the South African population (current US\$)	–	–	0.77	2016
Proportion of premature CVD mortality attributable to tobacco (%)	–	–	18.0 (10)*	2004
Recorded alcohol consumption per capita ( $\geq 15$ years old) (litres of pure alcohol) (three-year average)	–	–	7.3	2016–18
<b>Raised blood pressure and cholesterol</b>				
Population with raised BP (SBP $\geq 140$ mmHg or DBP $\geq 90$ mmHg) (%)	27.4 (24.1)**	26.1 (20.1)**	–	2015
Population with raised TC ( $\geq 5.0$ mmol/l) (%) <sup>#</sup>	18.9	28.1	23.5 (38.9)**	2012
DALYs attributable to hypertension (%)	5.1	5.3	5.2 (8.7)*	2017
Mortality caused by hypertensive heart disease (% of deaths)	1.4	2.8	2.0 (1.7)*	2017
<b>Physical activity</b>				
Adolescents ( $< 13$ – $\geq 19$ years old) who are insufficiently active ( $< 60$ minutes of moderate- to vigorous-intensity PA daily) (%)	37.7	47.5	42.8 (80.7)**	2011
Adults (age-standardised estimate) who are insufficiently active ( $< 150$ minutes of moderate-intensity PA per week, or $< 75$ minutes of vigorous-intensity PA per week) (%)	28.5	47.3	38.2 (27.5)**	2016
<b>Overweight and obesity</b>				
Adults who are overweight (BMI $\geq 25$ – $< 30$ kg/m <sup>2</sup> ) (%)	40.5	65.4	53.8 (38.9)**	2016
Prevalence of obesity (BMI $\geq 30$ kg/m <sup>2</sup> ) (%)	15.4	39.6	28.3 (13.1)**	2016
<b>Diabetes</b>				
Defined population with fasting glucose $\geq 126$ mg/dl (7.0 mmol/l) or on medication for raised blood glucose (age-standardised) (%)	9.7 (9)*	12.6 (8)*	11.3	2014
Prevalence of diabetes (20–79 years old) (%)	–	–	12.7 (9.3) <sup>#</sup>	2019

CVD, cardiovascular disease; RHD, rheumatic heart disease; DALYs, disability-adjusted life years; AF, atrial fibrillation; SBP, systolic blood pressure; DBP, diastolic blood pressure; TC, total cholesterol; PA, physical activity; BMI, body mass index.

\*IHME global data exchange;<sup>12</sup> \*\*WHO global data;<sup>14</sup> #SANHANES;<sup>18</sup> # IDF Diabetes Atlas.<sup>20</sup>

had raised TC levels (Table 1), with similar varied prevalence by province (Limpopo 15.9% and Western Cape 39.3%).<sup>18</sup>

### Physical activity

The age-standardised estimate for adults who were insufficiently active [ $< 150$  minutes of moderate-intensity physical activity (PA) per week, or  $< 75$  minutes of vigorous-intensity PA per week] was 38.2% (Table 1). Data from the third Youth Risk Behaviour Survey were available for adolescents,  $< 13$ – $\geq 19$  years old, who were insufficiently active.<sup>19</sup> Of these 10 189 participants, 42.8% had done insufficient or no PA during the week preceding the survey, with more females (47.5%) practising a sedentary lifestyle than adolescent males (37.7%).<sup>19</sup>

### Overweight and obesity

In 2016, more South Africans (53.8%) were overweight, compared to most other African countries under investigation. Only Tunisia recorded a higher prevalence rate at 61.6%. For obesity, South Africans ranked the highest at 28.3%, followed by Tunisia with a rate of 26.9%. These figures are also higher than the global mean prevalence rates of 38.9 and 13.1% for overweight and obesity, respectively.<sup>14</sup> Far more women than men, respectively, were overweight (65.4 vs 40.5%) and obese (39.6 vs 15.4%).<sup>14</sup>

### Diabetes

The percentage of the population defined with a fasting glucose level  $\geq 7.0$  mmol/l or on medication for raised blood glucose (age-standardised) in 2014 was 11.3%. In 2019, the age-adjusted prevalence (20–79 years old) of diabetes was 12.7%, which is much higher than the rate of 3.9% for Africa (Table 1).<sup>20</sup>

## Part C: Clinical practice and guidelines

### Health system capacity and guidelines for NCD risk factors

South Africa had an average of 9.1 physicians and 13.08 nurses per 10 000 of the population in 2017,<sup>14</sup> with 18 hospital beds per 10 000 people in 2018.<sup>21</sup> Locally relevant clinical tools to assess CVD risk and recent clinical guidelines for CVD prevention are available.<sup>22,23</sup> National guidelines for the treatment of tobacco dependence were compiled by the South African Thoracic Society and endorsed by CANSAs (Cancer Association of South Africa) and TAG (Tobacco Action Group).<sup>24</sup> Local guidelines are available for the management of dyslipidaemia,<sup>25</sup> type 2 diabetes mellitus,<sup>26</sup> hypertension<sup>27</sup> and HF,<sup>28</sup> with recent updates in 2018 and 2020 for the latter. These guidelines have all been drawn up through local associations and societies by specialists in their respective fields, as opposed to government health agencies. For communicable but preventable CVD, society guidelines exist for pharyngitis, acute rheumatic fever and RHD.<sup>29,30</sup> South Africa has been a leader in conducting global population studies on RHD,<sup>31,32</sup> for example, the REMEDY study, which provides a tool to measure the quality of care. Alternative models to assess care specific to acute cardiac events has been developed, using Discovery Health data.<sup>33</sup>

### Essential medicines and interventions

The WHO has developed an essential list of medicines<sup>34</sup> for cardiovascular medication, which covers treatment for angina, arrhythmias, hypertension, elevated lipids, HF and essential antithrombotic, antiplatelet and thrombolytic agents. All treatments on the list are available in public and private health sectors. Guidance and therapy for secondary prevention of rheumatic fever and RHD, which are also on the national essential drugs lists, are widely available in the public health sector, including those for CVD risk stratification and cholesterol measurement.<sup>30</sup>

### Secondary prevention and management

Although South Africa has programmes and guidelines in place for primary and secondary prevention and management of CVD, available data suggest that a significant proportion of patients who should be on appropriate secondary prevention therapy are not. Examples include (1) the low use of statin and antiplatelet treatment after myocardial infarction and stroke,<sup>35</sup> (2) the low use of penicillin prophylaxis in patients with a history of RHD demonstrated in the REMEDY study,<sup>36</sup> and (3) the finding that approximately 44% of people with hypertension were on any treatment in 2016.<sup>37</sup>

## Part D: Cardiovascular disease governance

A national strategic plan for the prevention and control of NCD and their risk factors has been developed, which includes CVD as the most important of these diseases.<sup>38</sup> NCD have been identified as a priority area within the national strategy, as evidenced by the appointment of a separate deputy director general and staff dedicated to the area. The following strategic priorities have been identified within the NCD space in the national plan for the next decade:

- introducing legislation and regulation to reduce the modifiable risk factors for NCD
- reducing costs and increasing the efficiency of health interventions, including providing affordable medicines, devices and vaccines, essential NCD health services, including preventative services
- establishing comprehensive surveillance mechanisms, health information systems, and dissemination processes to assist policy, planning, management and evaluation of NCD prevention and control.<sup>38</sup>

Therefore, important national NCD surveys, such as the SANHANES and South African Demographic and Health Surveys (SADHS), include data on NCD risk factors such as hypertension, diabetes, anthropometry and tobacco smoking.<sup>38</sup> South Africa also tracks the CVD-related mortality rate through a regional and national death register, co-ordinated by Statistics South Africa.<sup>39</sup> Although preventative strategies have been developed for rheumatic fever and RHD, South Africa has fallen short in its control efforts, and implementation thereof has been inadequate.<sup>40</sup>

In South Africa, the Tobacco Products Control Act 83 of 1993 was the first tobacco-control law and has been amended over time, the latest being in 2018.<sup>41,42</sup> A summary of the latest Control Tobacco Products and Electronic Delivery Systems Bill, published in the Government Gazette on 9 May 2018, covers

gaps and exploited loopholes.<sup>42</sup> South Africa has been part of the WHO framework convention on tobacco control (FCTC) since 2005 when its national tobacco-control plan was approved.<sup>43,44</sup>

Collaborative projects for NCD interventions, which include CVD, have been implemented between the Ministry of Health and non-health ministries and civil societies.<sup>38</sup> These include organisations/institutions such as the South African Medical Research Council, Human Sciences Research Council and Statistics South Africa. The percentage of total annual government expenditure on cardiovascular healthcare is not known. South Africa was part of the WHO-CHOICE (CHOosing Interventions that are Cost Effective) project that assessed cost-effective health outcomes for CVD prevention and control using mathematical modelling.<sup>45</sup>

### Assessment of policy response

The costs relating to CVD in South Africa have been discussed in various publications.<sup>46,47</sup> However, no legislation mandating health financing, specifically for CVD or other NCD risk factors, is available. Although legislation of affordable essential CVD medicines is available, South African pharmaceutical policies do not meet the lowest prices of those achieved internationally.<sup>48</sup> Indirectly, through the Constitution and the National Health Act (No. 61 of 2003),<sup>49</sup> as amended, patients' rights are protected and improved interventions, facilities and health-system procedures or resources, which could include CVD, are mandated.<sup>50,51</sup>

Legislation is employed in areas where smoking is banned. Advertising, promotion and sponsorship of all forms of tobacco, along with measures to protect tobacco-control policies from tobacco industry interference, have been implemented.<sup>43</sup> However, clear and visible warnings appear on less than half of the main display areas of tobacco packs.<sup>43</sup> Furthermore, the amended Act provides for control over smoking, advertising of tobacco products and other related matters.<sup>42</sup> In South Africa, the excise tax of the final consumer price of tobacco products in 2018 was 52%<sup>43</sup> and that for alcohol 23%.<sup>52</sup>

The national Department of Health (NDoH) commissioned the University of Cape Town's Lung Institute to develop a symptom-based integrated clinical management guideline that included the screening of individuals at high risk of CVD and other related NCD.<sup>53</sup> Finding sustainable funding for these diseases is challenging, and only available for research; consequently, none is available from taxation.<sup>54</sup> Equitable nationwide access to healthcare professionals and facilities are in progress, although at a slow pace.<sup>55</sup>

In 2016, National Treasury documented recommendations to implement taxes on unhealthy foods, and particularly sugar-sweetened beverages (SSB), which were introduced in 2018.<sup>56</sup> In South Africa, these taxes were passed at 11%, although 20% was proposed.<sup>57</sup> Legislation on banning the marketing of unhealthy foods to minors has been drafted but not yet tabled.<sup>58</sup> No legislation exists mandating clear and visible warnings on foods that are high in calories, sugar or saturated fats, mostly because there is no universal agreement on what these should be.<sup>59</sup> However, the South African Bureau of Standards oversees labelling and marketing in the food and health category.<sup>60</sup> Policy interventions that promote a diet to reduce CVD risk and those that facilitate PA have been introduced through the Healthy Lifestyle campaign of the NDoH.<sup>61,62</sup>

### Stakeholder action

Non-governmental organisation advocacy for CVD policies and programmes in South Africa is visible and effective, as indicated in the 2018 annual report of the Heart and Stroke Foundation of South Africa (HSFSA).<sup>63</sup> Professional education for healthcare providers and patients is provided through participation at international and national conferences, which are organised by the South African Heart Association (SA Heart).<sup>64</sup> SA Heart has several specialised interest groups, such as the Heart Failure Society of South Africa (HeFFSA), South African Society of Cardiovascular Intervention (SASCI), and the Cardiac Arrhythmia Society of Southern Africa (CASSA), among others.<sup>64</sup> Continuing medical education can also be accessed online via the South African Medical Association and other bodies. RhEACH is a non-governmental organisation providing education for people living with RHD.<sup>65</sup>

Civil societies, such as the South African NCD Alliance (SANCDAA), were involved in the development and implementation of a national tobacco-control plan.<sup>43,66</sup> The NDoH addresses NCD (and consequently CVD) in its National Development Plan,<sup>62</sup> which involves various stakeholders such as the SANCDAA<sup>67</sup> and HSFSA.<sup>63</sup> These professional associations also aim at reducing premature CVD mortality by 25% in 2025.<sup>63,67</sup> SANCDAA is involved in a national multi-sectoral co-ordination mechanism for NCD/CVD as discussed at their first stakeholder meeting held on 11–12 February 2014.<sup>68</sup> Kolbe-Alexander *et al.*<sup>69</sup> identified a need for worksite health promotion to address the prevalence of CVD and related risk factors, which were on the increase. These researchers proposed this strategy to be the better choice to reach at-risk persons.<sup>69</sup> Health/wellness screening, which includes BP measurement at workplaces, is promoted and encouraged by many companies and specifically the medical aid industry. The HSFSA, through its health promotion programme, offers services such as the employee wellness programme.<sup>63</sup>

The following strengths, weaknesses, threats and priorities are summarised as part of the scorecard data collected for South Africa.

### Strengths

At the 2011 United Nations General Assembly meeting, the former minister of health, Dr Aaron Motsoaledi, said that South Africa had led efforts to implement tobacco-control legislation. He continued to mention the country had passed regulations in reducing the use of trans fats, along with those to reduce the salt content in processed food.<sup>70</sup> In the SANHANES, conducted in 2012, investigators noted substantial gains had been made to reduce tobacco use.<sup>71</sup> South Africa's national tobacco-control plan, as part of the FCTC, has been hailed by the WHO, among others.<sup>43,44</sup>

The 2015–2020 strategic plan of the NDoH was drafted to 'achieve measurable improvement in critical public health' in which requests were made for partnership with communities in disease prevention and promotion of health and wellness.<sup>72</sup> In this plan, NCD, of which CVD rank the highest, will be addressed as part of the strategic goals of the NDoH. These, among other things, are to prevent disease and reduce its burden, re-engineer primary healthcare and improve the quality of care.<sup>72</sup> A new updated strategic plan 2030 is being commissioned.

The vision of the National Development Plan is to have significantly reduced the prevalence of NCD by 28% in 2030 through health promotion and wellness strategies.<sup>62,67,72</sup> The NDoH's Healthy Lifestyle campaign aims to promote healthy lifestyles through interventions that address inadequate nutrition, physical inactivity, alcohol abuse, tobacco smoking, high BP and diabetes to reduce CVD risk.<sup>61</sup> Every 10 years, a national surveillance system such as the SADHS or SANHANES, which includes CVD and their risk factors, is implemented.<sup>38</sup>

Various clinical guidelines have been introduced to manage the underlying NCD risk factors in the prevention of CVD and other related diseases.<sup>21-29</sup> South Africa is one of the African countries that has introduced taxes on unhealthy foods or SSB.<sup>73</sup> This introduction of a tax on SSB in April 2018 was a small victory in the fight against obesity. According to Professor Hofman, director of PRICELESS SA (Priority Cost Effective Lessons for Systems Strengthening) at the Wits School of Public Health, taxing should reduce the intake of harmful products through increasing the price. Hofman also advocated that advertising to children, in particular, needs attention.<sup>74</sup>

South Africa has a well-developed regulatory standards system that oversees the labelling and marking requirements.<sup>60</sup> However, Hofman asks for clear front-of-package (FOP) labelling.<sup>74</sup> Hofman was quoted saying 'There are three ways to curb nutrition-related NCDs in South Africa: [the] tax on unhealthy foods, halting of marketing of unhealthy foods and transparency about what people are eating.'<sup>74</sup>

## Threats

The use of reporting protocols designed for diseases prevalent in high-income countries has meant that conditions affecting the poorest billions in the world have been omitted or undercounted in low- and middle-income countries. The recently published Lancet NCDI Poverty Commission, 'Bridging the gap in universal health coverage for the poorest billion',<sup>75</sup> highlights that reporting premature death based on the SDG target 3.4 is inadequate for most of Africa. The reason being that only premature deaths above age 30 years are reported.<sup>7,75</sup> This inadequate definition for premature death is pronounced in regions with high poverty levels and a high burden of deaths among children and young people younger than 30 years old. These premature deaths are mostly caused by CHD, RHD, peripartum cardiomyopathy<sup>76</sup> and other cardiomyopathies. Under-reporting remains a great threat to addressing CVD in South Africa because one cannot act on preventing future deaths if these are not reported.

South Africa's premature CVD mortality rate at 14% is higher than its neighbouring country, Mozambique (8%), and most other African countries under review. The WHO-CHOICE project that assists countries with health policy and planning has flagged South Africa's very high adult and high child CVD mortality rates as a foremost priority, which needs to be addressed.<sup>77</sup> Of concern is that premature mortality is not limited to CVD, the risk of premature NCD mortality is similar to that of Sudan (26%), and is also higher than most of the other countries and neighbouring Namibia (21%).<sup>78</sup>

Although dated, in 2004, the proportion of premature CVD mortality attributable to tobacco was very high at 18%, compared to the other African countries. The prevalence of tobacco use among men (46.8%) and women (16%) in 2018 was

higher than the global levels at 36.1 and 6.8%, respectively.<sup>14</sup> In a recent article, researchers noted the total cost of smoking in South Africa in 2016 amounted to US\$2.27 billion, of which about a third went to in- and out-patient healthcare.<sup>15</sup> In 2013, disease-related tobacco use was estimated to cost R1.2 billion.<sup>24</sup> The percentage of deaths caused by tobacco was 10.11% in 2016, killing 550 men every week, and requiring action by government and other related organisations.<sup>13</sup>

The data for alcohol consumption and its health consequences remain a concern and threat to the nation's health. A high alcohol-attributable fraction to road traffic injuries (25.2%), liver cirrhosis (43.4%),<sup>79</sup> along with being the fourth largest risk factor contributing to death and disability, all point to significant work needed to reduce the alcohol-related burden.

Raised BP of South African men and women is a concern for developing CVD, as the prevalence is higher than the global figure of 22.1%.<sup>14</sup> Although, the SANHANES researchers reported lower national TC levels, in some provinces such as the Western Cape, the women (39.3%) presented with levels higher than those of the WHO global data (38.9%) (Table 1).<sup>14,18</sup> Of the defined population, 11.3% had raised blood glucose levels, while the prevalence of diabetes more than doubled over two years in 2019 from 5.5 to 12.7%, also creating an increased risk for CVD.<sup>14,20</sup>

Obesity, which is not only the result of physical inactivity but also poor eating habits, gives rise to a high diabetes prevalence. In a recent joint statement, leaders of the WHF and the World Stroke Organization urged governments to move away from the widely adopted approach of addressing clinical factors such as hypertension, obesity and physical inactivity individually in isolation.<sup>80</sup> They advocate for a far broader approach by following the population-wide strategy.<sup>80</sup>

Vorster *et al.*<sup>81</sup> acknowledged that in light of starvation, the global obesity epidemic demonstrates a 'worldwide failure to attain the goal of optimal nutrition for everyone.' Focus on the food and beverage industry has increased because of food marketing to children being considered as partially responsible for childhood obesity.<sup>82</sup>

RHD remains a threat in Africa and developing countries. In a cost-effective strategy, it was suggested that all children presenting with pharyngitis be treated with penicillin without a throat culture, which could be costly.<sup>83</sup> A systematic review<sup>9</sup> and another on CVD, HF, IHD, cerebrovascular disease and other related risk factors, such as hypertension, pose even higher risks for developing CVD in South Africa and many other African countries.<sup>10</sup>

Professor Hofman mentioned that a study conducted by the American Chamber of Commerce determined that NCD will cost the South African economy 7% of the GDP by 2030. These diseases have debilitating effects on the quality of life and, ultimately, result in death.<sup>84</sup>

## Weaknesses

South African pharmaceutical policies do not meet the lowest prices of those achieved internationally for affordable essential CVD medicines.<sup>48</sup> Although the Essential Medicines List at primary healthcare level contains diabetes type 1 and 2 medication (insulin, metformin), insulin is not available at most clinics.<sup>67</sup> Warfarin is the most widely used anticoagulant in the

public sector, with more people using it than in the private sector. However, in most provinces, it is only made available at designated international normalised ratio clinics and hospitals, as opposed to primary care clinics or community centres.<sup>85,86</sup>

In a report to inform the minister of health, SANCTA emphasised that although action plans to address diabetes and hypertension had been assembled, these were merely window dressing and without any support.<sup>66</sup>

Sustainable funding for CVD from the taxation of tobacco or other 'sin' products does not exist. Although legislation exists mandating clear and visible warnings on at least half of the principal display areas of tobacco packs, only 40% of the space is covered.<sup>67</sup>

In 2012, adjusted transparent alcohol excise tax was introduced that distinguished between alcoholic beverages (wine 23%, clear beer 25% and spirits 48%).<sup>87</sup> However, in 2018, excise taxes for alcohol were based on the rate of beer at 23% and lag behind those of tobacco products.<sup>52</sup> In May 2014, the Department of Health published draft regulations relating to the labelling of foodstuffs that will see severe restrictions on the advertising of unhealthy foods to children.<sup>58</sup> By 2016, this draft legislation was still under discussion.<sup>88</sup>

### Priorities and the way forward

Twenty-five years after South Africa underwent a peaceful transition from apartheid to democracy, the country has a complex and two-tiered healthcare system that has not been able to address the health needs of most of its population.<sup>89</sup> The public system serves 84% of the population but is chronically underfunded and understaffed, with enormous challenges. The wealthiest 16% of the population has access to private healthcare, consuming 58% of the GDP expenditure on health.<sup>89</sup> Over 70% of doctors in the country are employed in the private sector. Furthermore, the healthcare system has to contend with multiple colliding epidemics, which include HIV and tuberculosis, CVD, mental health and other NCD such as injuries, substance abuse and violence, and unacceptably high mortality rates attributable to maternal and childhood diseases. More than 12% of the South African population of 57 million is HIV infected, having the world's largest antiretroviral therapy programme, subsidised by the government and provided free of charge. South Africa is one of the few African countries that has universal healthcare for people with HIV.<sup>89</sup>

South African priorities for dealing with CVD have to be seen in the overall context of all those colliding conditions,<sup>89</sup> and a simplified multi-sectoral approach is needed.<sup>80</sup> Because of the stretched and competing resources and limited health infrastructure, the following strategies are currently planned and partially underway:

- improvement in diagnosis and management of NCD/CVD at the primary care level, including via an integrative service with infectious diseases such as HIV/tuberculosis
- development of human resources including task sharing and task shifting (e.g. use of non-physician technicians)
- improving salaries for health professionals to retain them in the public workforce domain
- increased and easier access to essential medicines for CVD by promoting simplified regimens, generic drugs and combination tablets

- development of context-specific guidelines and algorithms for risk stratification and medical management appropriate to the South African context
- population-wide interventions to promote a healthy diet, physical activity, healthy environment and cessation of smoking and alcohol abuse
- strengthening surveillance and quality assurance systems<sup>89</sup>
- increasing the partnerships between industry and government to map out the promotion of healthy food options and a healthier work environment
- strengthening the Directorate for Chronic Diseases, Disability and Geriatrics that has produced and distributed several national guidelines for preventing and controlling NCD.

More effective collaboration between the medical and non-medical government sectors with the public and industry will facilitate better overall use of resources, tackling the larger burden of CVD affecting South Africans from childhood to old age.

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