NCD Team

Diabetes, a silent killer in Africa

Rationale

Demographic, sociocultural, and economic transitions are driving increases in the risk and prevalence of diabetes and other noncommunicable diseases. To achieve the SDG targets, African countries are tackling multidimensional challenges from communicable diseases and increasing trends of noncommunicable diseases. Diabetes imposes an economic burden on Africa, including catastrophic spending in controlling the disease at the individual level. Diabetes is the priority disease that must be tackled to achieve the SDG target of reducing by one third premature mortality from noncommunicable diseases by 2030.

Key messages

- Globally, an estimated 537 million adults aged 20–79 years are currently living with diabetes. This represented 10.5% of the world's population in this age group in 2021.

- An estimated 24 million people were living with diabetes in Africa* in 2021, predicted to increase by 129% to 55 million by 2045.

- Africa* had the second lowest diabetes-related expenditure (US$ 13 billion), accounting for 1% of global diabetes-related expenditure. In Africa, diabetes spending is health care-associated for drugs, diagnosis, medical supplies and consultation.

- More than half (54%) of people living with diabetes in the African Region* are undiagnosed.

- Between 2011 and 2021, the Region recorded a five-fold rise in type 1 diabetes among children and teenagers below 19 years, with cases surging from four per 1000 children to nearly 20 per 1000.

- Only 36% of countries in the African Region have essential medicines for chronic diseases in public hospitals, according to a 2019 WHO survey.

*Africa * = International Diabetes Federation (IDF) African Region*

1. What is diabetes?

Diabetes is a chronic disease characterized by raised blood glucose level, known as hyperglycaemia:

- ≥ 200 mg/dl or ≥ 11.1 mmol/L at random blood test), caused by insufficient insulin production from the pancreas or the body's inability to use insulin (insulin resistance). Long-term, uncontrolled high blood sugar will damage human organs and body parts. Diabetes is a major cause of blindness, kidney failure, heart disease, stroke, and lower limb amputation.

Diabetes type 1

Caused by deficient insulin production in the body, requiring external insulin supply. In the past, it was known as insulin-dependent, juvenile, or childhood onset diabetes. It cannot be prevented. Excessive urination (polyuria), thirst (polydipsia), constant hunger, weight loss, vision changes, and fatigue are common symptoms.

Diabetes type 2

Caused by insufficient production of insulin or inability of the body to use insulin effectively. Being overweight and physically inactive are contributing factors. This has been observed in 95% of persons diagnosed with diabetes. While this type was previously limited to adults, it has recently extended to a growing number of children. Its symptoms are similar to those of type 1, but less noticeable in the early stages. Consequently, it may only be diagnosed several years after onset. Onset can be prevented or delayed by a healthy lifestyle, such as avoiding tobacco and alcohol, sticking to a healthy diet and engaging in physical activity.

Gestational diabetes

The type of hyperglycemia occurs in pregnant women with a high risk of complications during pregnancy and delivery. Their children are also at high risk of type 2 diabetes. It can be diagnosed through prenatal screening during regular antenatal care visits.

Ketosis-prone type 2 diabetes

It is an uncommon form of non-immune ketosis-prone diabetes. It was initially identified in young African Americans, variously described as subtypes of T1DM or T2DM. Some have suggested that idiopathic or type 1B diabetes be reclassified as ketosis-prone type 2 diabetes. Its similar phenotypes were seen in sub-Saharan African populations.

People present with ketosis and evidence of severe insulin deficiency, but later go into remission and do not require insulin treatment. Further ketotic episodes occur in 90% of these people within 10 years.

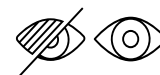## Main symptoms

Thirst	Excessive Urination	Weight Loss	Fatigue	Constant Hunger	Vision Loss

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2. Consequences

Long-term uncontrolled blood sugar in people living with diabetes may damage their heart, blood vessels, eyes, kidneys, and nerves with serious consequences such as:

- Two to three times increase in the risk of heart attacks and stroke.

- In the lower limbs, slow wound-healing, with inadequate blood flow, weakened sensation with nerve damage (neuropathy) are the predisposing factors to diabetic foot ulcers. It might lead to limb amputation.

- Diabetic retinopathy is caused by chronic damage to the retinal blood vessels, which impairs a person's vision and leads to blindness.

- Diabetes is the major common cause of renal failure.

- Unfavourable treatment outcomes observed for patients with infectious diseases such as tuberculosis and COVID-19: COVID-19 patients with diabetes have increased mortality risk.

Healthy lifestyle modifications can help to delay the onset of type 2 diabetes and prevent its complications:

- **Maintain a healthy body weight,**
- **Healthy diet,**
- **Engage in physical activity and exercises,**
- **Avoid tobacco use or quit smoking.**

The amount of alcohol use, tobacco consumption, obesity, per capita income, total population, and unemployment rates are all statistically significant global lifestyle and socioeconomic determinants of diabetes prevalence.

Diagnosis

- History taking: Some patients may present with classical symptoms of high blood sugar
- Testing for high blood sugar:
  - Random blood sugar (test done any time of the day). Diabetes is diagnosed at blood glucose greater than or equal to 200 mg/dl.
  - Fasting blood glucose (FBG), test taken after eight (8) hours of fasting (only water may be drunk). Diabetes is diagnosed at fasting blood glucose greater than or equal to 126 mg/dl
  - Oral glucose tolerance test (OGTT): Diabetes is diagnosed at two-hour blood glucose greater than or equal to 200 mg/dl.
- Glycated hemoglobin (HbA1C or A1C) test: provides a measure of the average blood sugar levels over the past three months: Diabetes is diagnosed at an A1C greater than or equal to 6.5%

Treatment

- Treatment depends on the type of diabetes, the levels of blood sugar and presence of complications:
  - **Type 1:** Blood sugar controlled by insulin injections
  - **Type 2:** Early diabetes with lower blood sugar can be managed by lifestyle modification; high or persistent blood sugar controlled by oral medicine or insulin injection
- To prevent complications, regular medical check-ups are necessary, such as monitoring of blood pressure, blood sugar, and lipid profile
- Screening of any signs and symptoms of diabetes complications as peripheral vascular disease (PVD), diabetic kidney disease (diabetes nephropathy), retinopathy screening, etc.

3. Challenges in the African Region

- Diabetes is a silent killer: People may not notice their diabetes status because it may take some time for symptoms to manifest or for any complications to set in. When these symptoms and complications are severe, they became a socioeconomic burden on the affected person and their family members.

- Limited diabetes knowledge among Africans are among the barriers to getting an early diagnosis.

- Limited diabetes testing: inadequate health facilities with trained health workers.

- Cost of, and access to medication: Management of diabetes requires regular blood sugar monitoring and taking of drugs. Many people in Africa cannot afford these in the long term.

- Estimated medical expenses per individual per year for uncomplicated diabetes in four countries ranged from US$ 126 to US$ 1093 in Guinea, US$ 137 to US$ 869 in Mali, US$ 212 to US$ 828 in Benin, and US$ 224 to US$ 859 in Burkina Faso.

Growing trends

- An estimated 24 million adults (20–79 years) were living with diabetes in the International Diabetes Federation (IDF) African Region in 2021, giving a regional prevalence of 4.5%. Fifty-four per cent of people living with diabetes in the Region are undiagnosed, the highest proportion of all IDF Regions.

- Type 2 Diabetes of recent has been growing in sub-Saharan Africa (SSA), along with the epidemiological transition. Fast-paced urbanization, urban poverty and globalization are the key factors in the transition. The prevalence is still low in some rural populations, but high prevalence has been observed in people living in urban areas.

- Infectious and chronic noncommunicable diseases are major contributing causes of morbidity and mortality, giving rise to a double burden; with all social classes affected.

- Wealthy people have a higher risk of chronic diseases while poor are experiencing higher risks of infectious diseases.

- African countries' health systems require more investments and resources to manage the growing burden of NCDs. Diabetes should be integrated into existing primary health care services to cover its costly long-term treatment and diagnosis.

- One hundred years after insulin was discovered, there is still limited access to insulin and associated devices in many countries. By making universal access to insulin a priority on the global health agenda and national health policies, its availability and affordability should be improved.

Figure 1: Estimated number of people living in Africa with diabetes, prevalence and deaths due to diabetes
(Source: IDF, Diabetes Atlas 2021, 10th edition, 2022)

Adult population in Africa	2021	2030	2045
Aged 20–79 years	527m	696m	1.05b
Diabetes (20–79 years)	**2021**	**2030**	**2045**
Regional prevalence	4.5%	4.8%	5.2%
Age-adjusted comparative prevalence	5.3%	5.5%	5.6%
Number of people with diabetes	24m	33m	55m
Number of deaths due to diabetes	416,000	-	-

m=million, b=billion

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Figure 2: Top five countries in Africa *(Source: IDF, Diabetes Atlas 2021, 10th edition, 2022)*

Top five countries for age-adjusted prevalence of diabetes (20–79 years)	2011	2021
United Republic of Tanzania	2.8%	12.3%
Zambia	4.8%	11.9%
Comoros	8.6%	11.7%
South Africa	7.1%	10.8%
Seychelles	12.4%	8.5%
Top five countries for number of people with diabetes (20–79 years)	**2011**	**2021**
South Africa	1.9m	4.2m
Nigeria	3.1m	3.6m
United Republic of Tanzania	472 900	2.9m
Ethiopia	1.4m	1.9m
Democratic Republic of the Congo[i]	730 700	1.9m

[i] based on extrapolation from similar countries
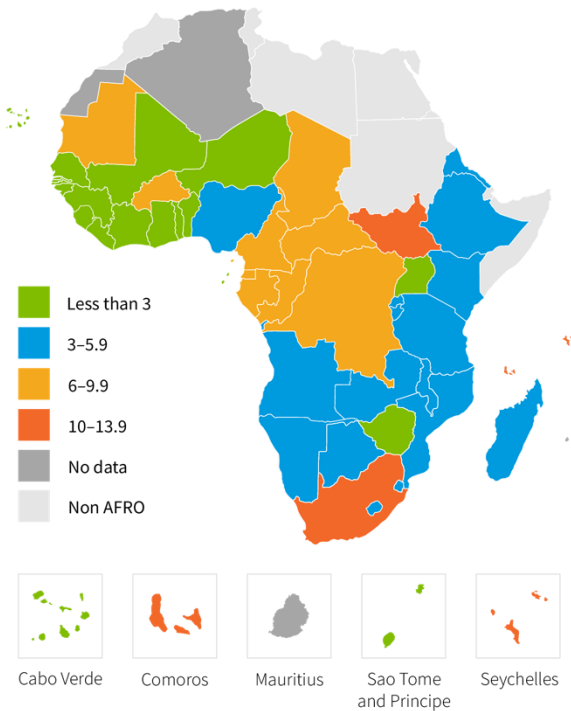
m=million b = billion

Figure 3: Estimated prevalence (%) of diabetes by age and sex for the IDF African Region in 2021
(Source: IDF, Diabetes Atlas 2021, 10th edition, 2022)
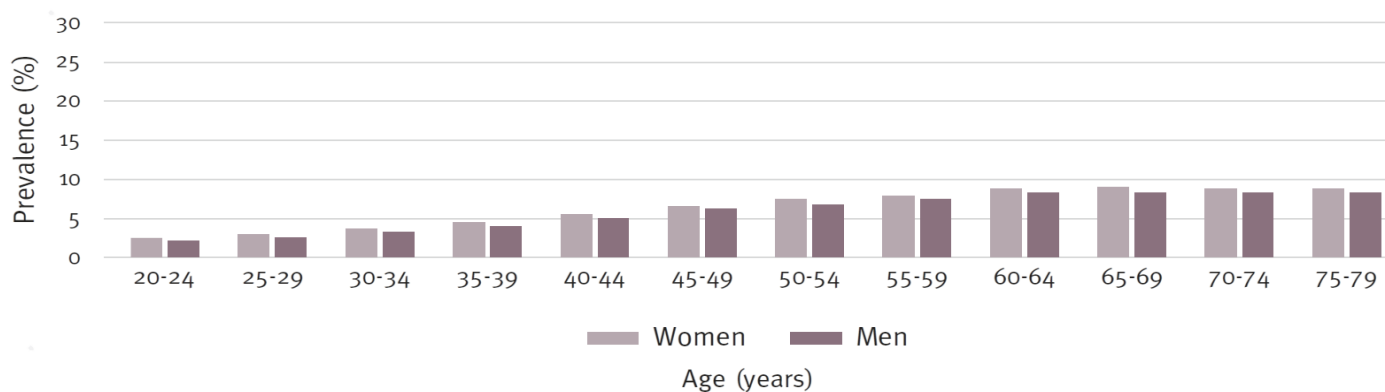
In 2021, people living with diabetes were from all adult age groups in Africa; more women lived with diabetes than men in all groups.

Figure 4: Age-standardized prevalence of raised blood glucose/diabetes among persons aged 18 years or older or on medication *(Source: WHO African Region, Atlas of African Health Statistics, 2022)*

Legend:
- Less than 3
- 3–5.9
- 6–9.9
- 10–13.9
- No data
- Non AFRO

Cabo Verde   Comoros   Mauritius   Sao Tome and Principe   Seychelles

Percentage of facilities providing screening for major NCDs including diabetes.

- According to a WHO survey of 41 sub-Saharan African nations, just 22% provide emergency inpatient care for serious NCDs, whereas 37% have minimal outpatient care.

- The COVID-19 crisis disrupted care for diabetic complications in 56% of the countries. Closing or slowing down services is likely to exacerbate patients' underlying diseases, resulting in more severe cases of NCDs.

Figure 5: Trends in probability (%) of dying between age 30 and exact age 70 from cardiovascular disease, cancer, diabetes or chronic respiratory disease in the WHO African Region, 2010, 2015 and 2019, WHO *(Source: WHO African Region, Atlas of African Health Statistics, 2022)*

2019   2015   2010
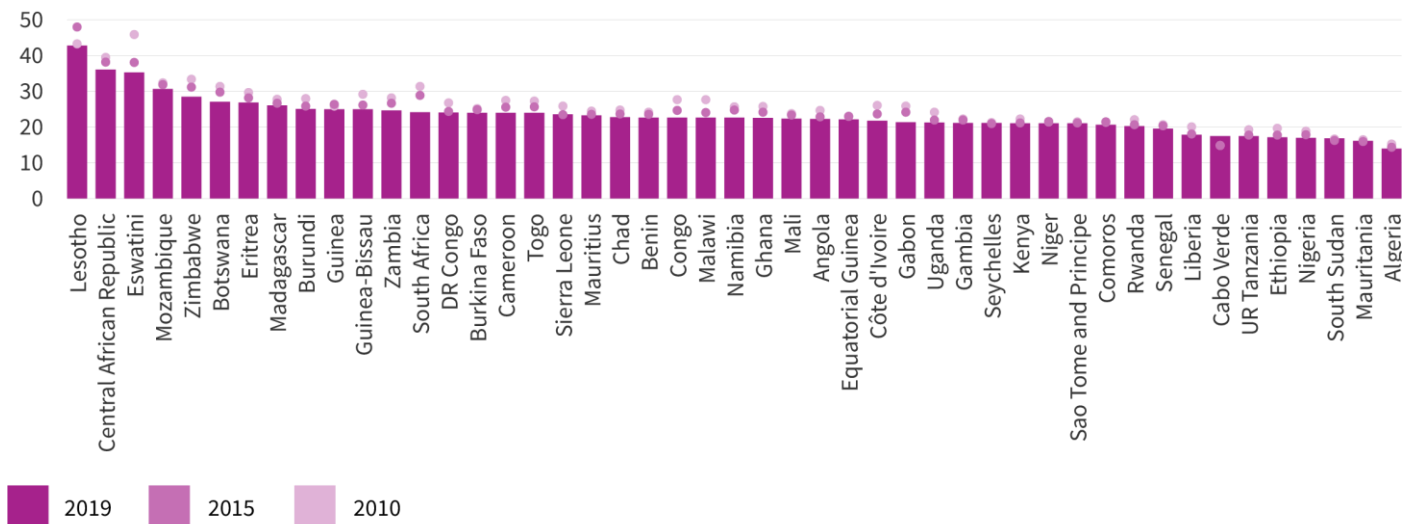
In 2019, more than three quarters of African countries had levels above the regional average for the probability of dying from NCDs between the ages of 30 and 70 years. Countries in the Southern and West African subregions were the most affected, with a few countries from East Africa.

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WHO Member States set the new 2030 global targets for diabetes at the World Health Assembly in May 2022.

By 2030:

- 80% of people living with diabetes are diagnosed
- 80% of people with diagnosed diabetes have good control of glycaemia
- 80% of people with diagnosed diabetes have good control of blood pressure
- 60% of people with diabetes of 40 years or older receive statins
- 100% of people with type 1 diabetes have access to affordable insulin treatment and blood glucose self-monitoring.

The purpose of these targets is to reduce the risk of diabetes, and to have more access to equitable, comprehensive, affordable, and quality treatment and care.

- In May 2021, the World Health Assembly agreed on a resolution on strengthening prevention and control of diabetes with recommended action to increase access to insulin, promote convergence and harmonization of regulatory requirements for insulin and other medicines and health products for the treatment of diabetes.
- WHO launched the Global Diabetes Compact, a global initiative to sustain the improvements in diabetes prevention and care in April 2021.

Engagement structure of the WHO Global Diabetes Compact
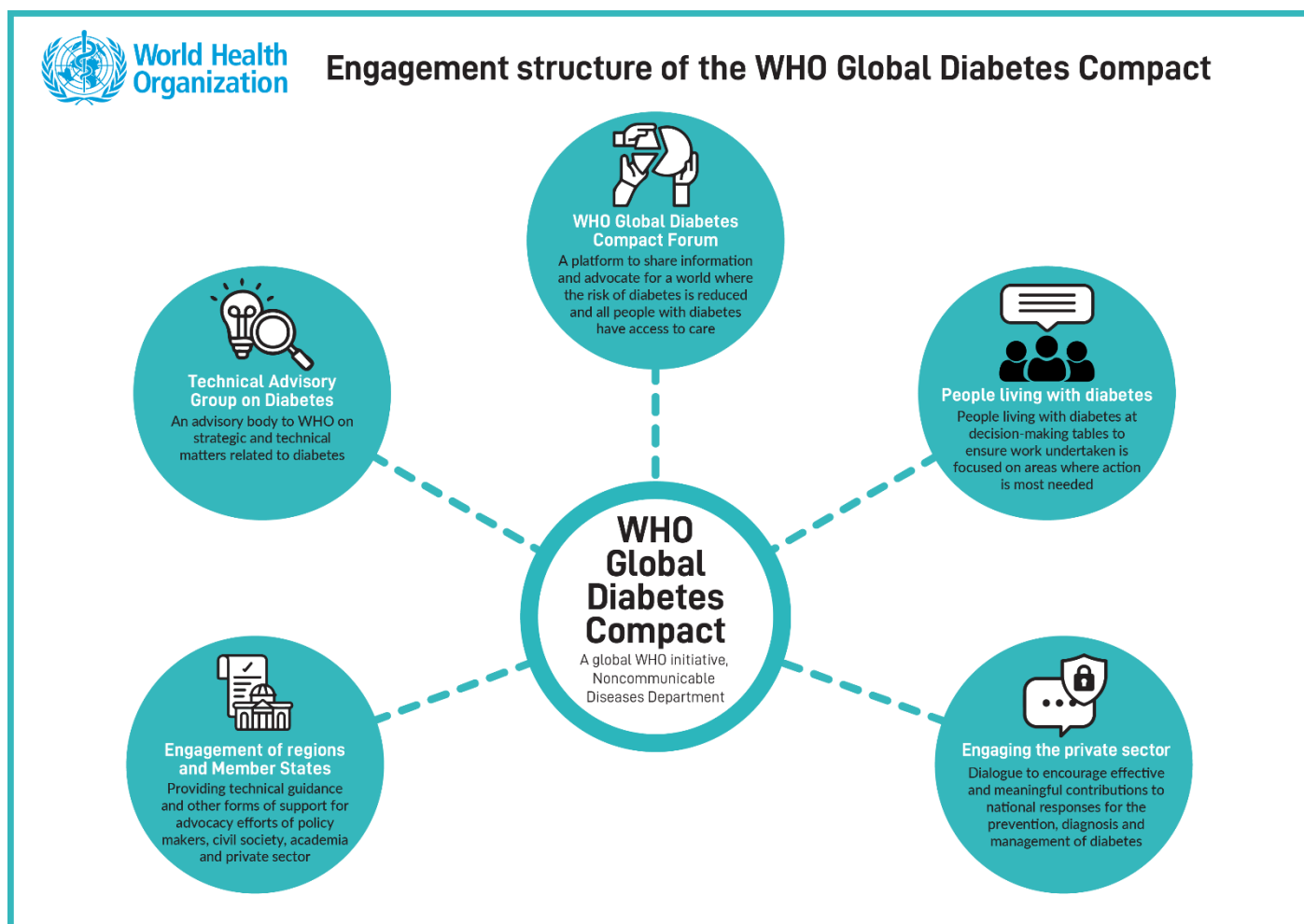
- According to the regional strategy to address severe noncommunicable diseases (NCDs) at first-level referral health facilities, the guiding principles focus on the provision of services for chronic and severe NCDs in district hospitals.

- The principles also emphasize the importance of government leadership, universal health coverage, equity, evidence-based and cost-effective interventions, resource efficiency, patient-centred approaches, collaboration between the public and private sectors, and multisectoral and multidisciplinary approaches.

- The goal is to provide access to quality NCD services that are appropriate, accessible, and affordable for all people, particularly those in poor and disadvantaged communities, with a focus on financial protection for poor and rural populations.

- The implementation of these principles should be based on promoting human rights, gender equity, and evidence-based best practices.

Ten priorities intervention were identified:

- Assessing system readiness, capacity and needs;

- Including PEN-Plus interventions in national operational plans;

- Mobilizing resources;

- Integrating service delivery at district hospitals;

- Strengthening capacity to provide palliative care;

- Establishing training and mentorship programmes for mid-level health-care providers;

- Strengthening referral pathways and people-centric linkages throughout the continuum of care;

- Ensuring availability of essential medicines and basic equipment for the management of chronic and severe NCDs at district hospitals;

- Promoting research, innovation, and development;

- Strengthening strategic information and surveillance.

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Sources

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