



## PRESSURE POINTS

Call for simultaneous  
**ACTION ON DIABETES  
AND HYPERTENSION** for more  
resilient health systems



## ACKNOWLEDGEMENTS

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## Call for simultaneous action on diabetes and hypertension for more resilient health systems

**Noncommunicable diseases (NCDs) are on the rise and now constitute seven of the world's top 10 causes of death.<sup>(1)</sup> This group of diseases kills around 41 million people every year, and causes half of all global disability. Almost one quarter of all people worldwide live with at least one NCD, including 463 million people who live with diabetes and 1.13 billion people living with hypertension (commonly known as high blood pressure, a chronic condition and risk factor for NCDs).<sup>(2)(3)(4)</sup> Many of these people live with both conditions, as they commonly occur together. Diabetes is now among the top 10 causes of death worldwide – deaths from diabetes have increased by 70% since 2000.<sup>(1)</sup> The major cause of morbidity and mortality in people living with diabetes is heart disease, which is exacerbated by hypertension.**

Co-morbidity, where a person lives with one or more disease or condition at the same time, is increasingly becoming the norm globally, and the number of people living with more than one NCD has steadily increased over the past 20 years. Diabetes and hypertension for example commonly occur together, and both are linked to a wide range of other NCDs, due to complications or being triggered by the same risk factors. This policy brief therefore makes the case for simultaneous action for both conditions as an opportunity for decision-makers to achieve an exponential positive impact on wellbeing, health systems strengthening and sustainable development.

The urgency and opportunity for action on NCDs has never been greater. The majority of people who have died from COVID-19 were living with underlying NCD conditions, most commonly hypertension, cardiovascular disease or diabetes. People living with multiple chronic conditions have been found to be at significantly higher risk. The global COVID-19 pandemic disproportionately impacted people living with NCDs, due both to the links between COVID-19 and many NCDs and severe disruptions in almost all countries to timely diagnosis, treatment, care and support services. The pandemic has demonstrated the interconnections between NCDs and communicable diseases, and a need for integrated responses and solutions for health security and health systems resilience, both in terms of recovery and future preparedness.

2021 marks the centenary of the discovery of insulin – yet 100 years on and despite great strides in treatment, half of adults living with diabetes are undiagnosed and access to essential and affordable care for people living with diabetes remains a distant reality for many in low- and middle-income countries (LMICs). As for hypertension, even in high-income countries (HICs) the condition is only under medical control for one in five people.<sup>(5)</sup>



**2021**  
**100 YEARS**  
since the  
**DISCOVERY OF**  
**INSULIN**

◀ Health worker checking an elderly patient's blood pressure at her home during the COVID-19 outbreak

## Policy background

Governments have made numerous political commitments to act on NCDs at United Nations (UN) High-Level Meetings on NCDs and via adoption of the WHO global NCD targets and the Sustainable Development Goals (SDGs).<sup>(6)(7)(8)(9)(10)(11)(10)</sup> However, progress at the national and regional levels remains far too slow and uneven: Fewer than twenty countries worldwide are on course to meet SDG target 3.4 to reduce premature mortality from NCDs. The rising tide of NCDs and co-morbidity has received insufficient investment, research and policy commitment, resulting in fragmented health systems, rising healthcare costs and poorer health outcomes.

If progress towards the SDGs and the goal of Universal Health Coverage (UHC) are to be achieved, sustained action on NCDs – including diabetes, hypertension and their co-morbidities – is essential.

“Personally, I have had challenges in managing two conditions at once, my diabetes and hypertension. Taking medication for both has resulted in a pill burden that has been particularly problematic for me, leading to anxiety, depression, low motivation and worse treatment outcomes.”

NCD advocate, Zimbabwe.

### What is a co-morbidity?

Diseases or conditions that occur at the same time, in the same person. NCD co-morbidities can occur because diseases share the same risk factors, or because some diseases predispose individuals to developing others.<sup>(12)</sup>

### People living with multiple NCDs – a growing, but underserved group

Co-morbidity is reported to affect between 13-95% of people accessing healthcare globally – such a wide range reveals just how little is known about the burden.<sup>(13)</sup> Causes of co-morbidity are still insufficiently understood and research on the topic, particularly in LMICs, is scant. However, it is known that people living with one NCD are more likely to develop other NCDs, chiefly because of common risk factors and/or due to complications.<sup>(14)</sup>

89% of people living with diabetes and 68% of people living with hypertension also live with at least one additional NCD co-morbidity, commonly including heart disease, stroke, depression, dementia, oral disease and/or chronic renal disease.<sup>(15)(16)(17)</sup> Many, but not all, of these comorbidities are due to a direct causal link (see page 8).

- The prevalence of people living with more than one NCD has steadily increased over the past 20 years to the extent that it is now common in HICs and increasingly recognised as a challenge in LMICs.<sup>(18)</sup>
- There is a strong link between people living with multiple NCDs and advanced age. The global population aged 65 years and older is expected to grow to 1.5 billion people by 2050, so can no longer be overlooked in global health and development discussions.<sup>(19)(20)</sup>

Despite this, co-morbidity has not received sufficient attention in current global policies or commitments on NCDs, which has limited the recognition of the specific needs of people living with multiple NCDs in healthcare, NCD policies, research agendas and investment cases.<sup>(21)(22)(23)(19)</sup>



A Red Cross volunteer checks blood pressure in Mongolia.

### Diabetes and hypertension, two sides of the same coin

- Diabetes and hypertension are closely interlinked, due to shared risk factors including obesity, vascular inflammation, and high cholesterol. This means that people living with diabetes are also likely to have hypertension and vice versa.
- Heart disease complications are also common for people living with diabetes and/or hypertension, and are related to microvascular disease\* (such as chronic kidney, nerve and eye disease) and macrovascular disease† (such as stroke and diseases of vessels in the heart and lower limbs).<sup>(24)</sup>
- People living with diabetes and/or hypertension are more likely to have an additional disease. For example, studies have shown that 75% of people had at least one additional co-morbidity at the time of their type 2 diabetes diagnosis and 44% had at least two other conditions.<sup>(25)</sup>

### Co-morbidities reveal underlying inequalities

Co-morbidities highlight inequalities at global and national levels, as they are more common in communities with fewer resources.<sup>(26)</sup>

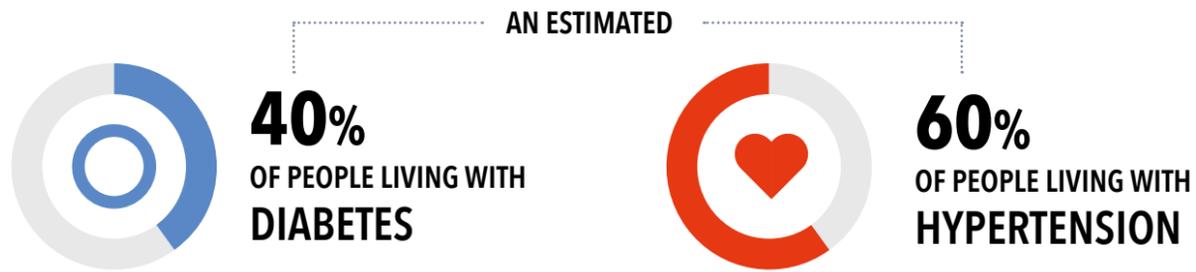
For example:

- Since its discovery 100 years ago, insulin has saved the lives of countless people living with diabetes; however, today only half of the 65 million people living with type 2 diabetes who need insulin are able to access it. Beyond this life-sustaining medication, a substantial number of people living with diabetes cannot access or afford the items needed to measure their blood glucose (e.g. glucometers, test strips, lancets) or the needles and syringes needed to safely administer insulin. This issue dramatically increases an individual's risk of diabetic complications, disability and premature death and is particularly noticeable in LMICs - home to 79% of people living with diabetes.<sup>(27)</sup>
- Children and adolescents living with diabetes from families of lower socioeconomic status have a greater risk of chronic kidney disease and early death than those from better off families.<sup>(4)</sup>
- Lower socioeconomic status is also associated with increased risk of developing hypertension, and those who have received lower levels of education are twice as likely to have hypertension than people with higher educational levels.<sup>(28)</sup>

\* Microvascular disease is a disease of the finer blood vessels in the body, for example those found in the eyes, kidneys and feet.

† Macrovascular disease is a disease of the large blood vessels in the body, for example large arteries of the heart, brain and limbs.

## Common co-morbidities for people living with diabetes or hypertension

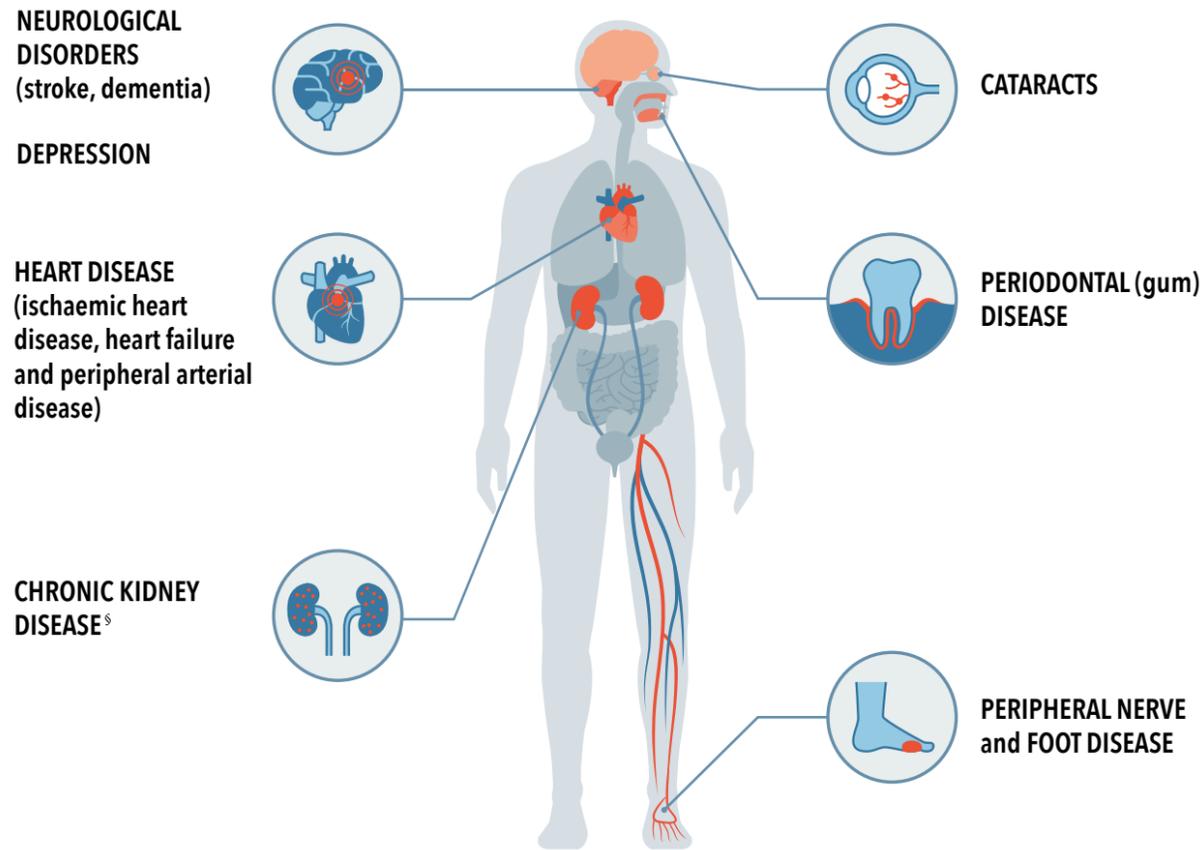


have co-morbidities that occur because of a direct causal link between the diseases or their risk factors

For example, obesity accounts for 80-85% of the overall risk of developing type 2 diabetes and high cholesterol.(12)(29)(15)(30)(18)‡

### FREQUENT CO-MORBIDITIES OF DIABETES AND HYPERTENSION INCLUDE

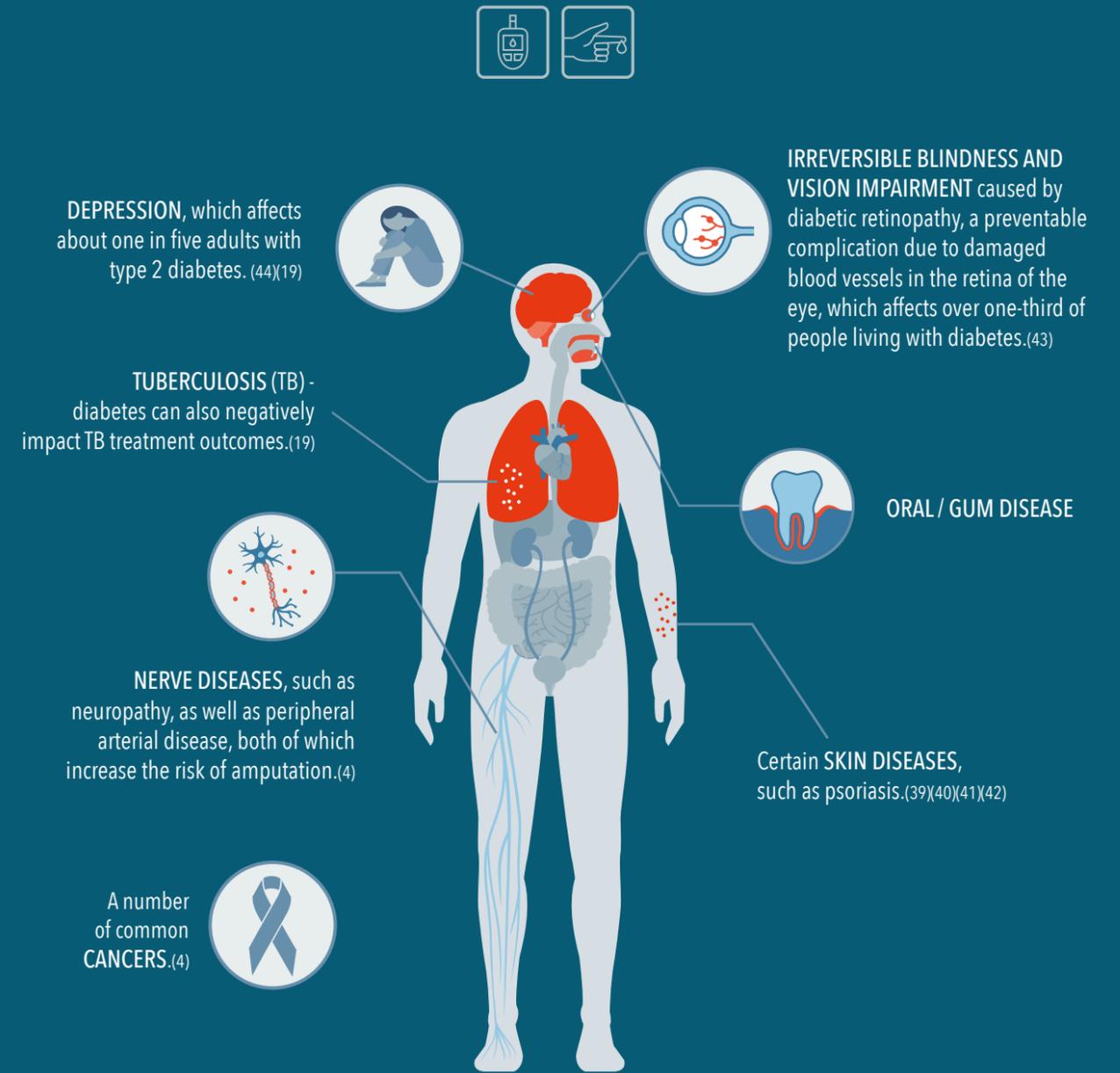
(15)(31)(32)(33)(34)(35)(36)(37)(38)(39)(40)



‡ In addition, some people living with diabetes and/or hypertension have co-morbidities that occur by chance or do not share similar risk factors. Sometimes, treatments for these diseases can negatively affect management of diabetes and/or hypertension.(23)(29)(15)(30)(18) This includes diseases and conditions such as hypothyroidism, osteoporosis or chronic obstructive pulmonary disease (COPD).(25)

§ Diabetes, hypertension, or a combination of both, cause 80% of end-stage kidney disease globally.(4)

## PEOPLE LIVING WITH DIABETES are more likely to develop:



Complications and co-morbidities are highly preventable, if people living with diabetes and/or hypertension have access to timely, well-coordinated prevention, screening, diagnosis and care.

## The current situation:

### Challenges for people living with diabetes and hypertension and the costs of inaction

#### Co-morbidities necessitate navigating fragmented health systems that remain focused on treating single diseases

People living with multiple NCDs often have to navigate fragmented health systems, designed and structured around single disease management and parallel medical specialities. People living with multiple chronic conditions have different needs than those with a single chronic condition, requiring coordination of their medical management and support. This can be associated with contradictory medical advice; poor referral systems, causing some individuals to be lost during the follow-up; inefficient allocation of resources, such as over-prescribing and over-hospitalisation; and poorer patient outcomes, anxiety and frustration.

- On occasion, disease management plans can even act in opposition to each other. For example, some treatment options used for hypertension (Thiazide diuretics) can increase the risk of developing diabetes – although if well managed the benefits outweigh the risk, and some antipsychotics used to treat psychiatric diseases have been associated with increased risk of developing diabetes as well as cardiovascular diseases.<sup>(4)(19)</sup> This puts people living with multiple NCDs at risk of errors of both omission (i.e. not providing people with the medical care required) and commission (i.e. prescribing a medication that adversely interacts with another medication).
- The situation is exacerbated by lack of guidance and training for medical staff on how to manage people living with multiple NCDs, which in part is due to the fact that people living with multiple NCDs are often excluded from randomised trials. <sup>(19)</sup> As a result, people living with multiple NCDs tend to experience a lower quality of care and lower quality of life outcomes.<sup>(15)(31)</sup>

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**“The focus of each of my days varies, as challenges flow from medical, pharmaceutical, social, emotional, physical, mental, and nutritional aspects, to self-love and hope.”**

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Advocate living with obesity, diabetes, autoimmune disorders and osteoporosis, Kuwait

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#### Living with co-morbidities can negatively impact the ability to manage diabetes and/or hypertension

Co-morbidities can reduce management options available to treat individual diseases. They can also create barriers to self-care because of competing disease management priorities as well as logistical and time constraints. This can lead to a triggering or worsening of other conditions, creating limitations and lowering the quality of life. In turn, this can cause a more rapid decline in health and a greater likelihood of disability.<sup>(19)(18)</sup>



Rohan Arora lives with Type 1 Diabetes in India. He faces challenges each day, especially since the start of the COVID-19 pandemic.



**PEOPLE LIVING WITH DIABETES**  
are more likely to develop



**ORAL DISEASES, SUCH AS GUM DISEASE,** which leads to worse diabetes outcomes



and further increased risk of developing **HEART DISEASE** if left untreated <sup>(33)(45)</sup>

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**Depression is common in people living with diabetes, causing them to be twice as likely to have poor adherence to medication, be at increased risk for work absenteeism, and have poorer health outcomes than those living with diabetes alone.**<sup>(44)(19)</sup>

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## Co-morbidities increase the costs of health and social care

“From hospitalization to regular purchase of medicines, it is always cash. This of course has been catastrophic for the family income. The medicines alone cost almost \$100 each month,” [relative to gross national income per capita of \$754 per year, 2017]

Advocate living with diabetes and CVD, Burundi

People living with co-morbidities often experience higher out-of-pocket (OOP) expenditures, which can commonly exceed the combined treatment costs of the individual diseases.<sup>(26)</sup> OOP expenditures are often catastrophic, pushing families into poverty in the absence of strong social protection systems, and particularly affect younger adults. As insurance schemes often do not stretch to manage co-morbidities, quality can be jeopardised through seeking cheaper options. In addition, people living with co-morbidities are more likely to be faced with impossible choices between paying for necessary treatment for their conditions or paying for family essentials such as food, heating or education.<sup>(46)(19)(12)</sup>

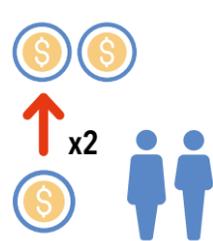
### THE COST OF CARE for HYPERTENSION in the USA ranges from

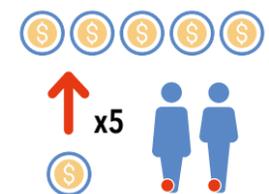
 **US\$ 3,914** mean per year for those with no co-morbidities

 to **US\$ 13,920** per year for those with three or more co-morbidities.<sup>(28)</sup>

People living with **DIABETES** face higher OOP medication costs than people with almost any other chronic disease.

On top of this:

 **x2** The **HEALTH COSTS** of treating the **COMPLICATIONS OF DIABETES** is **DOUBLE** the direct health costs of treating diabetes itself.<sup>(31)(4)(47)</sup>

 **x5** People with **DIABETIC FOOT ULCERS** bear five times higher health expenditures.<sup>(4)</sup>

For people living with diabetes and four or more co-morbidities, **THE COST OF CARE CAN BE 30 TIMES MORE THAN FOR PEOPLE WITH DIABETES** without co-morbidities.<sup>(31)(4)(47)</sup>

Woman receiving eye care for diabetic retinopathy. ▶



### Co-morbidities increase the risk of acute medical events and disability

Combinations of co-morbidities such as hypertension and diabetes greatly increase the likelihood of acute emergencies such as strokes, heart attacks, and acute heart or kidney failure. Such acute events alongside chronic complications, such as chronic kidney failure, retinopathy or peripheral neuropathy, increase the risk of disability, reduced quality of life, and increased need for medical care and societal support.

**Diabetic retinopathy** is the leading cause of irreversible blindness and vision impairment among working-age adults, despite being treatable through early detection and treatment.<sup>(48)(43)</sup> Although other causes of blindness decreased between 1990 and 2020, diabetic retinopathy-related blindness increased by 68%, mainly in LMICs.<sup>(49)</sup>

**Diabetic complications** are among the most common causes of amputations worldwide. Worldwide on average, one person living with diabetes loses a lower limb to amputation every 30 seconds.<sup>(4)</sup>

## The case for action:

### Opportunities and benefits of timely diagnosis and treatment of co-morbidities

The increasing number of people living with more than one NCD is a rising public health challenge, which must be met with comprehensive policies for the timely prevention and management of diabetes and hypertension. Action at the national level provides an opportunity for governments and policy makers to simultaneously tackle co-morbidity, strengthen existing diabetes and hypertension programmes, and in turn reform health systems to better respond to NCDs and provide integrated services.

### Policymakers have the opportunity to:

Ensure timely diagnosis and treatment of diabetes and hypertension before costly co-morbidities cause further suffering, loss of productivity and negative economic impact.

Improvements in care for people with diabetes and hypertension, prevention of complications before they develop (primary prevention), as well as screening for, early detection and prompt treatment of complications when they arise (secondary prevention), promise to improve quality of life and to be highly cost effective.<sup>(4)(50)</sup> It is important to routinely include preventable co-morbidities in cost-benefit and return-on-investment calculations for diabetes and hypertension interventions to make a clearer case for investment.

Adequate **CONTROL OF SUGARS** can **REDUCE RISK OF AMPUTATION** by over a third.<sup>(4)</sup>



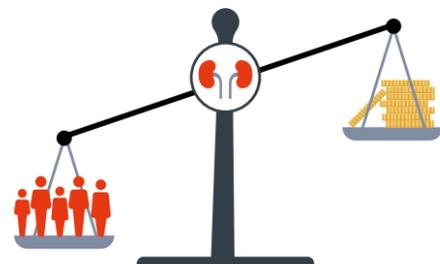
Adequate **CONTROL OF BLOOD SUGAR** and **BLOOD PRESSURE**

**REDUCES THE RISK** of developing

**HEART DISEASE** and **CHRONIC KIDNEY DISEASE**, and their associated high costs health systems.<sup>(4)(38)</sup>



**DIALYSIS** and **KIDNEY TRANSPLANTATION** alone range between **US \$35,000** and **US \$100,000 per PATIENT**, which is unaffordable for governments and individuals in many parts of the world.<sup>(51)(4)</sup>



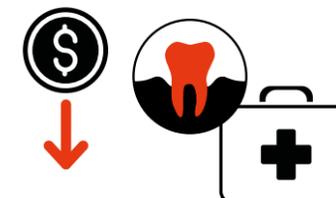
Adequate **CONTROL** combined with **EARLY DETECTION** and timely **TREATMENT** of vision-threatening **DIABETIC RETINOPATHY** can **PREVENT**



In people living with diabetes, screening, **PREVENTION** and **TREATMENT** of **DEPRESSION** results in better self-management and improved quality of life.<sup>(44)</sup>



**TREATING GUM DISEASE** has a **POSITIVE IMPACT** on blood glucose control, reduces the likelihood of hospitalisation, and lowers the cost of treating diabetes.<sup>(33)</sup>



### Tackle socio-economic inequalities.

Simultaneous action on diabetes and hypertension will serve to reduce health inequalities for people in poorer and marginalised groups:

Co-morbidities are associated with adverse health outcomes and are more likely in women, older people and lower socioeconomic groups.<sup>(16,25) (18)</sup>

In high-income countries (HICs), people living in more deprived areas have a higher likelihood of co-morbidities at the time of a diabetes diagnosis (72% of females; 64% of males) compared to those in higher-income settings (67% of females; 59% of males).<sup>(16)(25)</sup>

#### LIKELIHOOD OF CO-MORBIDITIES IN HICs



## Call to preventative action on diabetes, hypertension and their co-morbidities

**COVID-19 has been a wake-up call for the imperative for integrated health systems. Governments and policy makers must not ignore the rights and needs of the increasing number of people living with diabetes and hypertension and their associated co-morbidities.**

### We call on policymakers to:

#### 1. Pivot to prevention

- In light of the costs of inaction and enormous benefits of cost-effective prevention of the onset of both hypertension and type 2 diabetes, governments are called on to dramatically step up implementation of proven policy responses for primary prevention and health promotion. These measures include those recommended by WHO as part of the Global Action Plan on NCDs, particularly in relation to diet, and those included in WHO technical packages, such as MPOWER (tobacco control), HEARTS and HEARTS-D (cardiovascular disease and diabetes diagnosis and management), SHAKE (sodium reduction), ACTIVE (physical activity) and REPLACE (transfats elimination).
- Tackle the commercial, social and environmental determinants of diabetes, hypertension and their co-morbidities by integration of national health and NCD strategic plans and budgets across other sectors such as education, employment, trade and social services.

#### 2. Strengthen national screening, diagnosis, surveillance and monitoring of co-morbidities

- Improvements in monitoring and surveillance of NCDs and co-morbidities at the national level is essential for planning and implementing health policy in all countries. Monitoring and surveillance are fundamental tools for public health, providing health information in a timely manner so that countries have the information they need to respond to NCDs and shape health systems and services accordingly.

#### 3. Further global research on co-morbidities

- At the global level, there is a need to support and promote research into the true scale, trajectory and patterns of co-morbidity of NCDs, particularly in LMICs. In addition, further research on implementation and health systems research on sustainable delivery of care for people living with multiple NCDs is needed.<sup>(19)(18)(12)</sup>

#### 4. Ensure quality, affordable care for people living with diabetes, hypertension and other co-morbidities, by integrating NCD prevention and care into national UHC benefit packages

- Governments need to ensure quality, affordable care for people living with diabetes, hypertension and other co-morbidities. Given that women, older people and those from lower socioeconomic groups are more likely to live with multiple NCDs, essential NCD prevention and care services – including those for diabetes, hypertension and their co-morbidities – must be integrated into all national UHC benefit packages.
- Efforts should be made towards collecting and reporting information on both met and unmet needs, including effective coverage of services, improving access and financial risk protection for priority interventions, and defining quality assurance measures.

- Governments, other purchasers, donors, and suppliers all can work to ensure access to quality-assured and affordable medications and diagnostics is critical to increasing coverage and improving disease control.
- Every US \$1 invested in NCD prevention and control in LMICs will yield a return of US \$7 by 2030, while the costs of inaction are far higher <sup>(9)</sup> – and must in future reflect the learnings from the COVID-19 pandemic, and the costs of inaction on NCDs in terms of population and health system vulnerability to future health threats.
- Catalytic development assistance funding will be vital to support governments in LMICs to provide these essential services and strengthen integrated health systems.

#### 5. Reform health systems to ensure person-centred care

Health systems reform is required to shift away from the current siloed, disease-centered approach health care and move towards a person-centred and integrated model that ensures safe, appropriate and effective care for all, including those living with co-morbidities.<sup>(15)</sup>

##### Reforms should include:

- An increasing focus on overall quality of life goals, guided by people's overall needs – rather than disease management goals for single conditions, reflected through changes to health system governance and planning (including engagement of people living with NCDs in decision-making processes, health financing, health information systems) and across the continuum of services for health promotion, prevention, treatment, rehabilitation and palliation.<sup>(18)</sup>

- Reorientation of the health workforce, moving from the current focus on medical specialists to a strengthened primary healthcare workforce trained to support people whose health care needs span multiple diseases. Health workers should be supported by the development of evidence-based clinical guidance for people living with diabetes, hypertension and associated co-morbidities. This guidance should include how to integrate care (e.g. rationalisation and streamlining of clinical appointments and medications) and how to provide education on risk factors and bi-directional screening opportunities (e.g. screening for TB amongst people living with diabetes).<sup>(52)</sup>
- A focus on patient education for people living with diabetes and hypertension to enable self-management.

#### 6. Include prevention of co-morbidities within a cost-benefit analysis of diabetes and hypertension programmes to strengthen their investment cases

At present the economic costs of co-morbidities are not systematically considered in the allocation of resources. For example, they are not included in cost effectiveness analyses for WHO's recommended NCD interventions.<sup>(53)</sup> Instead, policy makers should ensure that diabetes and hypertension as well as their shared, preventable co-morbidities are recognised and included within cost-benefit calculations for primary<sup>†</sup> and secondary<sup>\*\*</sup> prevention strategies. This will enable identification of cost-effective interventions for the integrated management of diabetes and hypertension and their co-morbidities. These interventions should address mental health conditions and be focused on primary health care to ensure that services are widely accessible, affordable and of high quality to meet the needs of those living with diabetes and hypertension.

† Primary prevention: interventions or activities aimed at preventing a disease before it occurs.

\*\* Secondary prevention: interventions or activities aimed at reducing the impact of a disease that has already occurred.

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