# NON-COMMUNICABLE DISEASES

**Non-communicable diseases (NCDs) are a leading global killer affecting populations in both rich and poor countries and across all ages.**

***By Jane Brandt Sørensen***

## BACKGROUND

NCDs are non-infectious, take a long time to fully develop and are largely preventable. NCDs are chronic in nature and therefore require repeated and long-term contact with the healthcare system. They share common risk factors, often co-exist and thus provide common opportunities for intervention. The determinants of these diseases are linked to factors of modern living such as nutrition and physical activity; education; urban planning; trade; ageing of populations; food production; marketing and other cultural and socio-economic factors. To curb this group of diseases through addressing these determinants, collaboration between civil society, the private industry, academia and policy-makers is necessary.

"Cancer, diabetes, and heart diseases are no longer the diseases of the wealthy. Today, they hamper the people and the economies of the poorest populations even more than infectious diseases. This represents a public health emergency in slow motion"

***Statement by UN Secretary-General Ban Ki-Moon, 2009***

## WHAT ARE NCDs?

Non-communicable diseases (NCDs) and chronic diseases are a group of diseases that do not result from an infectious process; they cannot be transmitted between individuals – and are "not communicable".

They are thus – rather unfortunately - described as what they are not; communicable and infectious. It should be noted, however, that there are some exceptions to this definition. For example, cervical cancer has been found to be communicable through a virus, and other cancers also have an infectious agent as cause. In addition HIV/AIDS (a communicable disease) is also chronic in nature. Furthermore, environmental factors and behaviours may be passed on from e.g. mother to offspring and are thus 'transferred' if not 'transmitted'.

The four main NCDs are defined by the United Nations and the World Health Organization (1,2) as being:

- Cardiovascular diseases
- Cancer
- Chronic respiratory diseases
- Diabetes

These international institutions acknowledge that other conditions are closely associated with the major four NCDs, namely: (i) other non-communicable diseases (such as musculoskeletal and oral diseases); (ii) violence and injuries; (iii) disabilities, including blindness and deafness; and (iv) mental health (3).

That mental health is not fully included in definitions of NCDs has especially been criticised, since this group of diseases holds 14 % of the global burden of disease, with most of the people affected not having access to treatment. An example of this is depression, which is the leading cause of years lost due to disability (4).

## RISK FACTORS FOR NCDs

A set of shared and modifiable risk factors (risk factors that can be altered) are responsible for most NCDs including:

- **An unbalanced diet** (especially foods high in saturated and trans fat, salt and sugar)
- **Physical inactivity**
- **Tobacco use** (both smokeless and smoking forms of tobacco)
- **Harmful consumption of alcohol**
- **Environmental exposures** (indoor, such as from traditional cooking stoves, outdoor air pollution, and a range of microbes)

These risk factors in combination with non-modifiable risks (risk factors that cannot be altered) of age and heredity can lead to increased blood pressure and blood sugar; overweight and obesity; and increased cholesterol (1), which can lead to full-blown NCDs. This biological connection is similar across the world (5).

# NCDs AROUND THE WORLD

## SCOPE OF THE PROBLEM

NCDs cause reduced quality of life, disability and can lead to early death. They typically develop over relatively long periods — often first without causing symptoms. After they manifest, however, there is usually a protracted period of impaired health.

They are the world's largest killers challenging both rich and poor countries. In 2008, the diseases were responsible for an estimated 36 million deaths of the 57 million total global deaths (63 %).

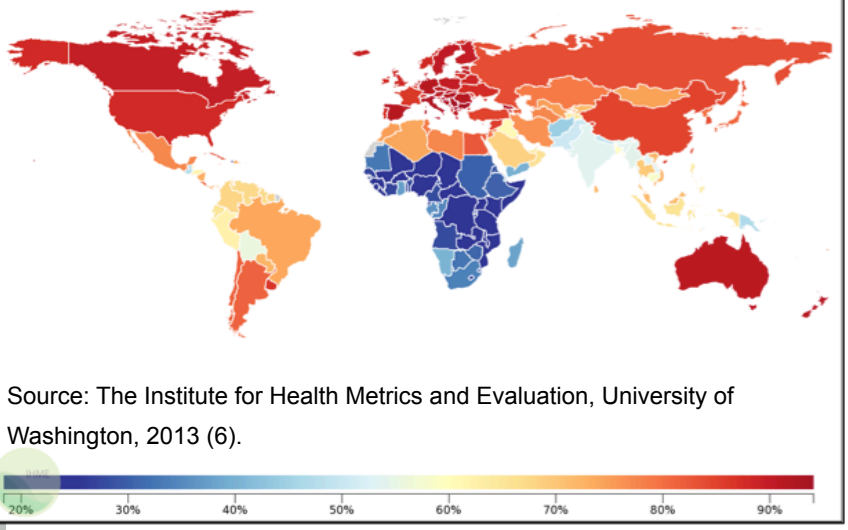
The prevalence of NCDs, as well as resulting deaths, are expected to increase significantly in the near future to 52 million deaths in 2030. By then, it is expected to be the most common cause of death (1).

Morbidity is an equally important measure: NCDs account for 46 % of disability-adjusted account life-years (DALYs)[1] and the diseases are projected to be responsible for three times as many DALYs in low- and middle-income countries (LMICs) by 2030 (1).

## NCDs IN LOW- AND MIDDLE-INCOME COUNTRIES

NCDs are a growing global problem, which affects all income groups and populations regardless of age, nationality, religion or ethnicity (7). The number of NCDs is increasing in areas with poverty with nearly 80 % of NCD-related deaths occurring in low- and middle-income countries (LMICs) (1). All populations are exposed to multiple risk factors - almost all to a growing and aging population - and to negative factors of globalization causing changes in development and life conditions, including increased accessibility of tobacco, unhealthy foods and alcohol (8). Together with inadequate prevention, health care, and education, especially poorer populations experience a steep rise of NCDs (9). NCDs and poverty thus creates a vicious circle, where poverty exposes individuals to risk factors for NCDs, and the resulting NCDs are in turn a significant driver in

**THE MAP BELOW SHOWS THE PERCENTAGES OF DEATHS CAUSED BY NCDS BY COUNTRY.**




Source: The Institute for Health Metrics and Evaluation, University of Washington, 2013 (6).

[1] *Disability-adjusted life years (DALYs) are a measurement where deaths at different ages and disability are measured. One DALY equals one lost year of healthy living. The burden of disease can be thought as a measurement of the gap between the current health status and an ideal situation where everyone lives into old age while being free of diseases and disability.*

leading families into poverty (1).

## REGIONAL SNAP-SHOTS

NCDs are behind most deaths in the majority of countries in the WHO regions of the Americas, the Eastern Mediterranean, Europe, South-East Asia, and the Western Pacific. It is estimated that NCDs will increase by 15% between 2010 and 2020 worldwide, with the greatest increase in Africa, South-East Asia and the Eastern Mediterranean regions.

The situation in the European region is estimated to be status quo, while the greatest total number of deaths is expected to occur in South-East Asia and the Western Pacific (1).

Many regions are challenged by death and disability from both NCDs and communicable diseases, also known as CDs (diseases resulting from an infection). More information about this phenomenon is available in the section *double burden of disease*.

Societies dealing with both NCDs and CDs are particularly a challenge in Africa. Here, CDs currently cause most deaths but NCDs are increasing speedily and expected to exceed CDs as the most common cause of death by 2030 (1). This is a serious challenge for healthcare systems – for instance did a study in Africa show that about 78% of participants were undiagnosed with diabetes (10).

In most places, NCDs account for the majority of DALYs. Aside from Sub-Saharan Africa, NCDs caused more than 50 % of DALYs in most countries. In Australia, Japan and richer countries in Western Europe and North America, the percentage exceeds 80 % (12).

In Latin America, many countries are now more challenged with the effects of over-nutrition and obesity than under-nutrition (1), whereas a big issue in Eastern Europe are high levels of alcohol and tobacco consumption and diseases associated with that. Serbia, for example, holds the record

of most tobacco consumed, with 2,861 cigarettes smoked per person annually (11).

# VULNERABLE INDIVIDUALS AND GROUPS

## SOCIAL DETERMINANTS

Social determinants, as defined by the WHO Commission on Social Determinants of Health, are constituted by the structural determinants and conditions of daily life and are thus crucial to explain health inequities.

More specifically these include distribution of power, income, goods and services, globally and nationally, as well as the immediate, visible circumstances of people's lives, such as their access to health care, schools and education; their conditions of work and leisure; their homes, communities, and rural or urban settings; and their chances of leading a flourishing life (1).

These structural determinants influence how services are provided and received and thereby shape healthcare outcomes and consequences.

Most NCDs are thus connected to social determinants such as poverty and access to healthy food, and in addressing the diseases the causes *behind* the causes must be understood. More specifically, the underlying social conditions that make certain groups of people more vulnerable than others, such as social and economic insecurity, gender inequality, and leading stressful lives (13).

In most countries, the poorest individuals of a population have the highest risk of developing NCDs and they are also least able to cope with the financial means needed (14).

## NCDs ACROSS ALL AGES

All age groups, including children, adults, and elderly are affected by NCDs.

In most of the world, people are living longer and entire populations are getting older; the average age of death has increased by 35 years since 1975. But living longer does not

necessarily mean that people are healthier – many live longer in ill health. NCDs are associated with older age (but not limited to) and the fact that people live longer, has contributed to the increase in both disability and deaths from NCDs (12).

Children from Jumla District, Nepal
Source: © Natalie Bailey/IRIN

However, this is by far a sufficient explanation of the increase in NCDs. Many NCDs actually start in and increasingly affect childhood. Children are especially vulnerable because they do often not have a say in what they are exposed to, and may grow up in environments that do not encourage them to live a healthy life; e.g. over- and under-nutrition; passive smoking and exposure to environmental hazards.

As early as conception, the human body is susceptible to NCDs, for instance if the mother drinks alcohol. An unhealthy birth-weight also impacts the risk of NCDs later in life (15).

In addition, NCDs increasingly hit and affect working-age adults. This is especially the case in LMICs, where NCDs are among the most significant cause of illness and death in this population group (13).

Worldwide, 9 million NCD deaths occur before the age of 60, and 90 % of these in LMICs. Furthermore, in these countries 80 % of disability from NCDs happens before the age of 60, compared to 13 % in high income countries (16).

This is both a health problem and an economic development issue, with a significant loss of productivity as consequence (9).

## VULNERABLE GROUPS

The rapid increase in NCDs in recent years affects poor and disadvantaged populations disproportionately, and is responsible for growing health inequalities within and between countries (17). Special attention must be paid to disadvantaged individuals due to, inter alia, their gender, ethnicity, age, and socio-economic group. For instance, studies show that indigenous people have higher rates of NCDs than the rest of the populations, among other issues, due to social and economic disadvantages (18).


A pregnant woman leaves a health clinic, South Sudan.

Source: Elizabeth Deacon/IRIN

Women are also particularly vulnerable to NCDs and the diseases cause 65 % of all female deaths worldwide. Although women in general live longer than men, it is in many instances linked to poor health. This is partly explained by the fact that women are more disadvantaged in terms of access to prevention, early detection, diagnosis, treatment and care of NCDs (19).

Additionally, when girls and women are affected by NCDs, it also influences the health and life of their children. If the mother is malnourished, chances increase of the infant suffering from under-nutrition, late physical and cognitive development, and NCDs in adulthood. Female mortality also impacts the overall household welfare, leads to child mortality, food insecurity, and increased work burden on children (19). Similarly, if the expectant mother is obese or has diabetes, both her life and the offspring's life are negatively affected.

## STIGMA AND DISCRIMINATION

Misinformation and lack of awareness may provoke discrimination against people living with NCDs. This could

be in employment and insurance. Women may also experience discrimination in terms of finding a husband, which in many places represents safety regarding economic and social status. This may discourage individuals from seeking diagnosis, treatment and revealing their health status (19).

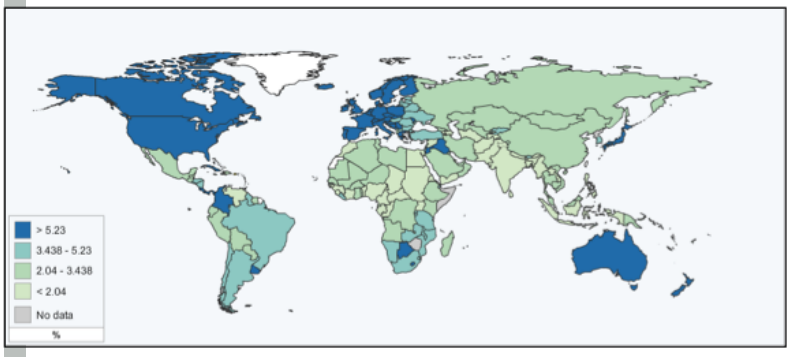
## PREVENTION & CONTROL

## PREVENTION

NCDs are in most cases preventable. Focusing on treatment of NCDs is often not affordable for most LMICs and action should be oriented toward curbing risk factors, promoting healthier lifestyles and improving living conditions (8). Most NCDs share risk factors that are preventable, which is supported by WHO's findings that an estimate of 80 % of heart disease, stroke, and type 2 diabetes and a third of cancers could be prevented (17).

Preventing NCDs is cheaper than - often life-long - treatment, and even modest changes in risk factors have a substantial public health benefit. For example, control of tobacco has proven effective and there are a number of other cost-effective interventions available for specific diseases to be pursued. NCDs often start early in life and continue throughout adulthood. It is therefore important to target all ages in prevention efforts (20).

**EXPENDITURE ON PUBLIC HEALTH AROUND THE WORLD (% OF GDP)**




Source: UNDP, International Human Development Indicators, 2010

## EARLY DETECTION, TREATMENT AND CARE

There are documented effective ways of treating and managing NCDs to enable the majority of people affected by them to lead productive and full lives (7). Most NCDs develop slowly over many years and exposure to risks accumulates throughout life, which means that there are opportunities for interventions throughout the life course (21). But this is directly dependent

on populations having access to care and treatment. This is a challenge in many LMICs where populations face higher levels of NCDs without the necessary economic and structural means to respond effectively (8), including lack of health care capacity (2). It is in the nature of NCDs that they need long-term management and healthcare, which highlights the importance of availability of safe and affordable medicine through access to pharmacies (22).

## DOUBLE BURDEN OF DISEASE

Many LMICs are not only battling rising rates of NCDs, but are also still challenged with providing sufficient prevention and treatment of communicable diseases (CDs). They are in this way challenged with the so-called “double burden” of disease (8).

Malnutrition and infection in early life increase the risk of NCDs later on, and for adults CDs and NCDs, such as diabetes and tuberculosis, can interact and may hit the same patient or population (23). The links between the two types of diseases are thus clear and when prioritizing health interventions in low-income settings, it is important to integrate approaches (24) through joint screening programs, common guidelines and the combining of services (21). An example of this would be to integrate the treatment of HIV and or TB with diabetes or interventions among pregnant women to prevent future diabetes and cardiovascular diseases in both the mother and child. This would be both cost-effective and increase the resultant health impact.

# OPPORTUNITIES AT POLICY LEVEL

## LEGISLATION AND REGULATION

Most NCDs share risk factors, which provides common opportunities for prevention. These risk factors along with environmental, economic, social and behavioural determinants in the population can be addressed through prevention and promotion of healthier life-styles and living conditions.

A way to address NCDs is targeting the common risk factors through legislation, regulation and fiscal policies. These include tobacco control, nutrition labelling, promotion and opportunities for physical activity, prevention of harmful use of alcohol, and providing health information to seek changes in behaviour.

A case in point is the Framework Convention on Tobacco Control, which has been a successful instrument in reducing tobacco-related deaths and diseases (1,16).

## COLLABORATION ACROSS SECTORS

NCDs are multi-complex by nature and not only an issue of health, but also one related to urban planning, agriculture, trade, education, food production, and the way goods are produced and marketed. These sectors should therefore also be included in targeting NCDs (16).

## PRIVATE SECTOR

The private sector - in and outside the health sector - can contribute significantly in targeting NCDs by supporting actions to address risk factors, and be engaged in making for example healthy food choices and affordable medications (26).

## CIVIL SOCIETY AND PATIENT ORGANIZATIONS

Partnerships among various groups and sectors are essential. One of the lessons from the battle for HIV/AIDS treatment is that well mobilized and consolidated patient organizations can push the agenda forward and demand proper responses from governments. Civil society can thus play a big role in shaping public views and holding the industry accountable.

The main civil society player in the NCD arena is the NCD Alliance, which was formed in 2009 by four organizations representing the four main NCDs.

**THE EIGHT MILLENNIUM DEVELOPMENT GOALS**

1. **Eradicate extreme poverty and hunger**
2. **Achieve universal primary education**
3. **Promote gender equality and empower women**
4. **Reduce child mortality**
5. **Improve maternal health**
6. **Combat HIV / AIDS, Malaria, and other diseases**
7. **Ensure environmental sustainability**
8. **Global partnership for development**

## POLITICAL FRAMEWORK

NCDs are not included in the Millennium Development Goals despite their apparent inter-linkages through poverty; nutrition; lack of education; and other health issues. However, advocacy did cause the UN General Assembly to commit governments to fight NCDs as a key result of the UN High-level Meeting on the Prevention and Control of Non-Communicable Diseases in September 2011(2,23).

At the 66 World Health Assembly, which took place in Geneva, May 2013, member states of the World Health Organization adopted an "omnibus resolution" on NCDs, combing decisions and recommendations on NCDs in one, single resolution.

NCDs are so far also included in the post-2015 development agenda and the final report of the global thematic consultation on health identifies NCDs as a priority for health in post-2015. It is, however, essential that NCDs are given proper attention in the future international development agenda as it will be an issue, which will only continue to grow.

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