

**Sri Lanka**  
**State of the Economy Report 2013**

**Chapter 13**  
**The Emerging Health Challenge of Non-Communicable Diseases**

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## 13. The Emerging Health Challenge of Non-Communicable Diseases

### 13.1 Background

The transformation of a country's development status, together with a demographic transition on the one hand, and an epidemiological transition on the other, brings significant health challenges to an economy. Owing to the rapid decline of fertility and an increase in life expectancy, Sri Lanka is seeing an increase in the proportion of people in the age group of 60 years and above.<sup>1</sup> For instance, the total fertility rate (TFR)<sup>2</sup> in 1990 was 2.5,<sup>3</sup> and declined gradually to 2.3 in 2010.<sup>4</sup> Life expectancy at birth for both sexes was 74 years in 1990, and increased to 77 years in 2009.<sup>5</sup> As a result, the population in median age is declining while the population aged 60 years and above is increasing. The percentage of population 60 years and above stood at 12.2 per cent in 2012,<sup>6</sup> and is expected to double to 24.4 per cent by 2040.<sup>7</sup> Sri Lanka's population is ageing faster than in many other developing countries. For instance, the increase in the 60 years and above age group in Sri Lanka was 12 per cent in 2010, while this figure stood at 8 per cent on average for the Asian region.<sup>8</sup>

This epidemiological transition has brought about drastic changes in Sri Lanka's disease patterns over the past half century. In the past, the predominant morbidities in the country were infectious diseases, and maternal and child health. However, Sri Lanka has successfully overcome these health issues, largely as a result of the provision of free universal public health services through a network of government health

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<sup>1</sup> Engelgau, M. et. al., (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.

<sup>2</sup> Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years, and bear children in accordance with current age-specific fertility rates.

<sup>3</sup> WHO (2009), "World Health Statistics 2009," World Health Organization, Geneva.

<sup>4</sup> WHO (2012), "World Health Statistics 2012," World Health Organization, Geneva.

<sup>5</sup> *Ibid.*

<sup>6</sup> DCS, "Population and Housing Data 2012 (Provisional): Population by Sex and Age."

<sup>7</sup> Engelgau, M. et. al., (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.

<sup>8</sup> *Ibid.*

institutions. At present, chronic NCDs have become the leading causes of mortality, morbidity, and disability,<sup>9</sup> accounting for almost 90 per cent of Sri Lanka's disease burden.<sup>10</sup>

### 13.2 Chronic NCDs and Risk Factors

As defined by the WHO, NCDs include cardiovascular disease (CVD), diabetes, cancer, asthma/Chronic Obstructive Pulmonary Disease (COPD), injuries, and mental health. Indeed, NCDs have become the leading causes of death globally. In 2008, of a total 57 million global deaths, almost two-thirds were due to NCDs.<sup>11</sup> The rapid increase in NCDs has occurred due to universal factors such as fast ageing populations, unplanned urbanization, globalization, and unhealthy lifestyles. In addition to the above factors, a set of country-oriented causes such as exposure to under-nutrition early in life, and improvement of economic status, have also influenced changes in a country's morbidity pattern from communicable diseases to NCDs.

Improvement to a country's economic status – i.e., per capita income growth that accompanies a transformation from a lower middle-income to an upper middle income country – can bring about significant life style changes. People may have less leisure time due to priorities given to their economic activities, and as a result could pay less attention to their physical and mental health. In order to cut down on time consuming activities, it can lead to greater consumption of fast foods that contain harmful fat and sugar, using vehicles for transport rather than walking, engaging in sedentary types of entertainment (such as television, video games,

etc.), and using electric appliances for household chores. These lifestyles changes can lead to the increase of the risk factors of NCDs among all age groups.

NCDs by definition are very broad. However, four types of major chronic diseases – CVD, diabetes, asthma/COPD, and cancer – are identified as major leading causes of sickness and death nationally, and globally.<sup>12</sup> In addition, other chronic diseases such as chronic kidney disease, thalassaemia, and liver disease, have also become substantial contributors to the disease burden.

As major causes, four modifiable (behavioural) risk factors – unhealthy diet, tobacco use, lack of exercise, and harmful alcohol use – are identified for NCD morbidity and mortality.<sup>13</sup> In turn, these behavioural risk factors affect the rise of another set of risk factors: metabolic risk factors such as overweight/obesity, raised blood pressure, raised blood sugar, and raised blood cholesterol (hyper-lipidaemia). In addition, other risk factors such as infections, stress, and air pollution, are also contributors to the increase in NCDs. Importantly, socio-economic determinants – poverty, urbanization, illiteracy, globalization, and population ageing – are the foremost elements influencing the types of risk factors mentioned above. A report by WHO/SEARO (2011) argues that NCDs and their drivers are similar to an iceberg; the large and unseen portion represents the drivers of NCDs, while the small, visible part that is above water represents the different chronic diseases. Accordingly, these risk factors are known as shared factors among all the NCDs mentioned above (Figure 13.1).

<sup>9</sup> Ministry of Health (2010), "The National Policy and Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases," Ministry of Health, Colombo.

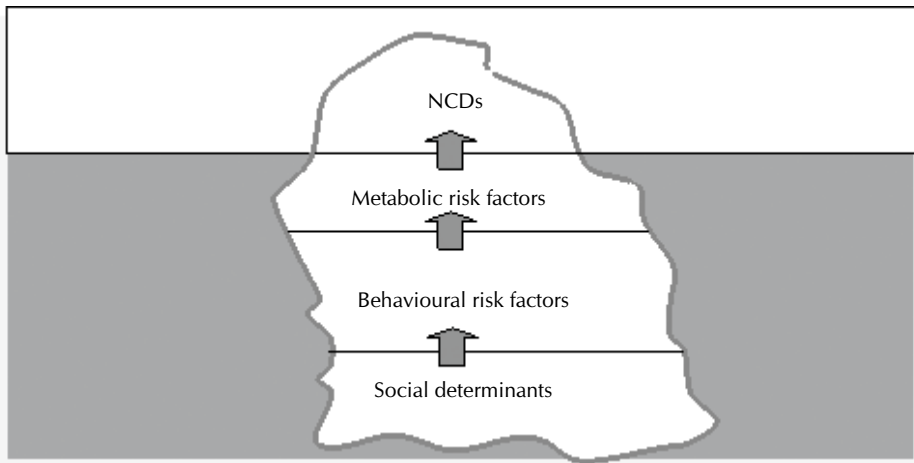
<sup>10</sup> Engelgau, M. et al. (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.

<sup>11</sup> WHO (2011), "Global Status Report on Non-Communicable Diseases 2010," WHO, Geneva.

<sup>12</sup> WHO/SEARO (2011), "Non-Communicable Diseases in the Southeast Asia Region: Situation and Response," WHO, Geneva.

<sup>13</sup> *Ibid.*

**Figure 13.1**  
**Chronic NCDs and their Risk Factors**



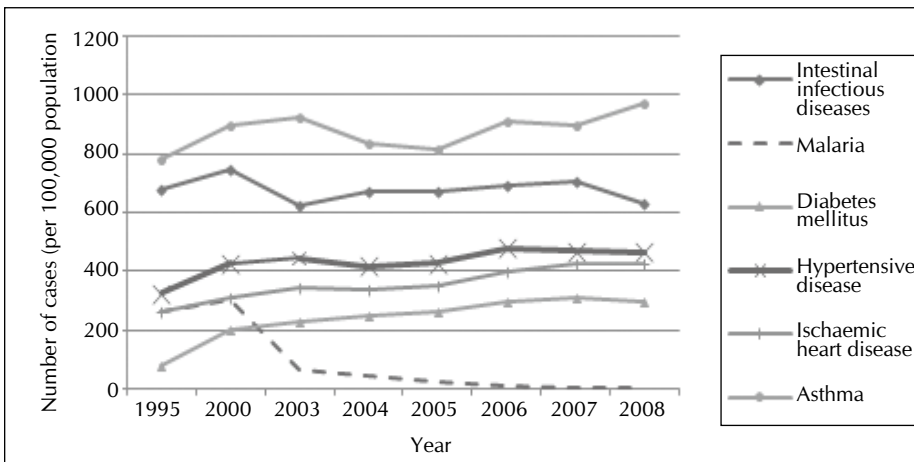
Source: WHO/SEARO (2011), “Non-Communicable Diseases in the Southeast Asia Region: Situation and Response,” WHO, Geneva.

**13.3 NCD Morbidity and Mortality**

Currently, in terms of Sri Lanka's disease burden,<sup>14</sup> NCDs (including injuries) account for 85 per cent, while the rest of the burden

(15 per cent) is represented by other diseases – maternal and child health, infectious diseases, and nutritional issues.<sup>15</sup> This is a result of the morbidity pattern having com-

**Figure 13.2**  
**Trends in Hospitalization by Selected Disease Groups, 1995 – 2008**



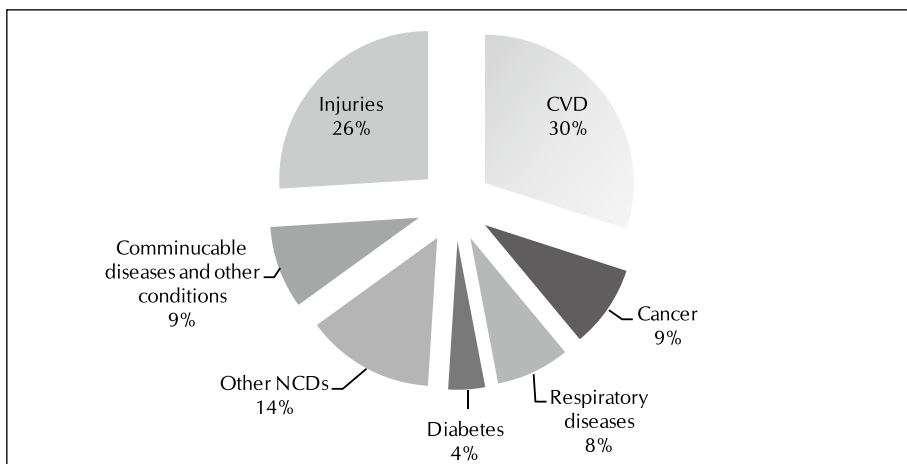
Note: Jaffna, Killinochchi, Mullaitivu and Ampara Districts are excluded in the 1995 data.

Source: Ministry of Health (2008), Annual Health Bulletin.

<sup>14</sup> Disease burden refers to the proportion of forgone Disability Adjusted Life Years (DALYs) – this method measures the number of years lost to disability and premature mortality.

<sup>15</sup> Engelgau, M. et al. (2010), “Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action,” World Bank, Washington, D.C.

**Figure 13.3**  
**Percentage of Total Mortality by Cause, 2008**



Source: WHO (2011), "NCD Country Profiles," [http://www.who.int/nmh/countries/lka\\_en.pdf](http://www.who.int/nmh/countries/lka_en.pdf), accessed on 10th April 2013.

pletely transformed from communicable diseases to NCDs over the years. For instance, indoor morbidities due to cancers in 1990 was at 142.1 cases per 100,000 population, and almost doubled to 329 cases per 100,000 population in 2007. Moreover, Figure 13.2 provides further evidence that the numbers hospitalized due to infectious diseases declined drastically, while hospitalization due to other chronic diseases has seen a steady increase.

Of all deaths in Sri Lanka, 65 per cent are due to NCDs.<sup>16</sup> The rest comprise of 26 per cent due to injuries, and 9 per cent due to communicable diseases, maternal, perinatal, and nutrition conditions. The breakdown of all NCD deaths by cause is shown in Figure 13.3.

Compared to developed countries, Sri Lanka's age standardized mortality rates for all NCDs

are higher by 20-50 per cent.<sup>17</sup> Further, Sri Lanka's NCD prevalence is substantial when compared to countries in the South, and East Asian region. Sri Lanka is placed third in the ranking in terms of NCD mortality, while the first and second highest rates are to be found in the Maldives (79 per cent), and Thailand (71 per cent), respectively.<sup>18</sup> When considering the mortality trends in selected NCDs and infectious diseases, a drastic hike in NCD mortality is evident, while mortality due to infectious diseases has gradually decreased from 1995 to 2008 (Table 13.1).

The distribution of the NCD burden varies across the population because of differing socio-economic conditions. According to population projections for Sri Lanka, the proportion of the population between 60 and 69 years will increase from 5.3 per cent in 2000 to 12.2 per cent in 2040.<sup>19</sup> The prevalence of NCDs increases with ageing, and

<sup>16</sup> WHO (2011), "NCD Country Profiles" ([http://www.who.int/nmh/countries/lka\\_en.pdf](http://www.who.int/nmh/countries/lka_en.pdf) — Last accessed on 10<sup>th</sup> April 2013).

<sup>17</sup> Engelgau, M. *et al.* (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C. The age-standardized mortality rate is a weighted average of the age-specific mortality rates per 100,000 persons, where the weights are the proportions of persons in the corresponding age groups of the WHO standard population.

<sup>18</sup> WHO/SEARO (2011), "Non-Communicable Diseases in the Southeast Asia Region: Situation and Response," WHO, Geneva.

<sup>19</sup> Engelgau, M. *et al.* (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.

**Table 13.1**  
**Trends in Hospital Deaths by Selected Causes (Per 100,000 population)**  
**1995 – 2008**

Disease	1995 <sup>a</sup>	2000	2003	2004	2005	2006	2007	2008
Intestinal infectious diseases	1.0	1.0	0.6	0.9	2.2	0.4	0.4	0.4
Malaria	0.2	0.6	0.1	0.1	0.0	0.0	-	-
Diabetes Mellitus	3.8	3.7	2.9	2.5	3.4	3.0	2.7	2.9
Hypertensive disease	3.1	3.3	2.9	2.7	3.6	3.0	2.9	2.8
Asthma	3.7	4.4	3.6	4.3	4.3	3.8	3.6	4.1
Ischaemic heart disease	16.8	18.6	18.8	19.2	19.1	20.7	22.7	22.1

Note: a. Excludes: Jaffna, Killinochchi, Mullaitivu and Ampara Districts.

Source: Ministry of Health, Annual Health Bulletin 2008.

therefore, this age group is more vulnerable. There is also a significant difference in NCD morbidity and mortality by gender, as well as by age. NCD deaths for all causes by gender in 2008 were 66,765 for males, and 51,140 for females.<sup>20</sup> Particularly, the prevalence of CVD – which is the leading cause of NCD deaths in Sri Lanka – is higher for males than females. In addition, the proportion of indoor morbidity due to Ischaemic heart disease (IHD) for males in 2008 was 52.9 per cent, while the same indicator for females was 44.3 per cent.<sup>21</sup> Further, Sri Lanka's mortality rates due to hypertension, IHD, diabetes, and cancer, are substantially higher for those in the age groups of 50 years and above. Therefore, premature deaths and disability mostly occur in the working age, and near retirement age groups of people.

In addition, globalization, unplanned urbanization, and improvement of economic status are also major drivers for increasing the risk factors of NCDs. On the one hand, behavioural risk factors are associated with increasing metabolic risk factors. Particularly, global health risk estimates shows that the

behavioural risk factors are responsible for 80 per cent of CVD. On the other hand, both behavioural and metabolic risk factors are attributed to an increase in the number of chronic diseases. For example, raised blood pressure (as a metabolic risk factor) is attributable to the highest number of deaths in the South Asian and East Asian region at 9.4 per cent,<sup>22</sup> and globally at 13 per cent.<sup>23</sup> Moreover, contrary to popular opinion, the correlation between economic status and NCD prevalence depicts a complex pattern. The fact that most chronic NCDs are concentrated among the poorest groups in high and middle-income countries, is well known. However, Sri Lanka's situation is different. Here, the people in the richest quintile are more vulnerable to death due to IHD, while the deaths due to asthma occur mostly in the poorest group.<sup>24</sup>

### 13.4 Economic Impact: Loss of Productivity and Health Care Costs

The economic consequences of the NCD burden are massive at both micro and macro levels. Premature deaths and disability early in life causes a loss of productivity, which

<sup>20</sup> <http://apps.who.int/gho/data/node.main.A860?lang=en> (Last access on the 9th May 2013).

<sup>21</sup> Ministry of Health, "Annual Health Bulletin 2008."

<sup>22</sup> WHO/SEARO (2011), "Non-Communicable Diseases in the Southeast Asia Region: Situation and Response," WHO, Geneva.

<sup>23</sup> WHO (2012), "World Health Statistics 2012."

<sup>24</sup> Engelgau, M. et. al., (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.

impacts harmfully on labour supply, capital accumulation, and national income. Total loss of output in the world over the next two decades due to five selected NCDs – cancer, mental illness, cardiovascular disease, diabetes, and chronic respiratory disease – is estimated to amount to almost US\$ 47 trillion, which is equivalent to about 5 per cent of global GDP in 2010.<sup>25</sup> Further, each year, the economic burden due to NCDs is expected to push 100 million people globally into poverty. Moreover, the estimates show that each 10 per cent increase in NCDs will cause a decrease of 0.5 per cent in annual economic growth.

In addition to this, total health expenditure due to the NCD burden is escalating all over the world, because NCDs need long term treatment and care, owing to the nature of the chronic condition. Consequently, the burden of providing universal care for cure and prevention for the rising number of cases of NCDs has become a primary priority for the health sector agenda at a national level, besides placing a significant strain on individual households. The government, at a national level, has to finance a rising cost burden to strengthen public health facilities, including the provision of adequate essential medicines and laboratory facilities, etc., within a limited fiscal space. At the same time, when public facilities are inadequate, individual families have to pay for their health care needs (particularly on NCDs) out of pocket. It is well known that health care treatment for NCDs like diabetes, cardiovascular diseases, asthma, etc., is extremely expensive. It is of particular concern given that those who are in lower socio-economic settings are more vulnerable to sickness. There-

fore, this excessive burden on household income can force them towards catastrophic spending, and consequent impoverishment. Even more devastating is the fact that a vicious circle between NCDs and poverty is embedded, particularly in low and middle income countries. The reality of the cost of NCDs can be further elaborated by the fact that total global health spending in 2009 was US\$ 5.1 trillion, which is significantly higher than the entire combined annual GDP of US\$ 1 trillion of low income countries.<sup>26</sup>

### **13.5 Sri Lanka's Health Sector Capacities and Limitations for Addressing Emerging Issues on NCDs**

The Ministry of Health has taken the first step by enforcing a policy on NCD prevention and control, called the 'National Policy and Strategic Framework for Prevention and Control of Chronic NCDs, 2010'. The objective of the policy is "to reduce premature mortality due to chronic NCDs by 2 per cent annually over the next 10 years," and mitigate risk factors through wide public service facilities in terms of curative, preventive, and promotion care.<sup>27</sup> However, the effectiveness of actions being taken is debatable. First, the imbalance in resource mobilization is the main cause of the many obstacles in the system. NCDs are largely managed by secondary and tertiary level facilities, most of which are located in urban areas. Second, due to the absence of a referral system, patients seek care often at higher level facilities. As a result, these facilities become overcrowded, and in turn, lower level facilities are idle. In terms of cost-effectiveness, the higher usage of high level facilities creates a larger burden on health expenditure, since the unit cost for high level facilities is prin-

<sup>25</sup> Bloom, D.E. *et al.*, (2011), "The Global Economic Burden of Noncommunicable Diseases" Geneva: World Economic Forum, Geneva.

<sup>26</sup> *Ibid.*

<sup>27</sup> Ministry of Health (2010), "The National Policy and Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases 2010," Ministry of Health.

cipally higher than that of lower level facilities.<sup>28</sup> The limited availability of essential medicine and diagnostic testing for prevention and control of NCDs at secondary and primary level facilities, is an area where urgent attention is yet to be given.

Another prerequisite organ of the system is a good health information system, because the availability of reliable and up-to-date information is essential to develop health policies and planning in a country. However, Sri Lanka is lagging behind in the routine collection of key information on variables such as newer morbidities, and patient characteristics, etc.

There is a disparity in spending on NCDs between the government and private sector, which shifts the burden to the patients. Of total health expenditure, the private sector accounts for more than 50 per cent each year.<sup>29</sup> The major source of private sector finance is OOPE, accounting for 89 per cent in 2009. As a percentage of total health expenditure, OOPE was 45 per cent in the same year.

This number is made up primarily of patients who seek out-patient care, and buy medicines for NCDs such as diabetes, asthma, and IHD, at private hospitals. Another notable characteristic of spending on NCDs is that patients tend to go to public facilities to seek care for conditions like cancer, because of the high cost involved and the severity of the condition. For instance, of total expenditure on asthma in 2005, the private sector spent 56.6 per cent, while the proportion of expenditure for cancers by the government was 91.9 per cent.<sup>30</sup> However, increasing

OOPE in the country can lead to greater inequality in health and social conditions.

### 13.6 Policy Options and Action

Primarily, government health policies and actions need to give urgent attention to reduce the NCD risk factor prevalence, while screening health camps, and providing treatments to those who are at risk and already having NCDs. Toward this, two major policy options and actions – within the Ministry of Health and beyond – need to be taken into consideration. Mobilizing available resources within the Ministry of Health for curative, preventive, and promotion of NCD care effectively is vital. To accomplish this, two basic conditions need to be fulfilled. Firstly, a live health information system is critical, for instance, to analyze the epidemiological patterns at the moment, as well as a forecast for the future. Though a health information system is available in the Ministry, regular surveys or the routine management of a data base of patients' illnesses is absent. Therefore, enforcing a robust health information system in the country will benefit the whole system, to mitigate a variety of systemic issues.

Secondly, keeping the health facilities at public hospitals, particularly primary and secondary level care units, fully equipped in terms of trained human resources, drugs, and diagnostic testing facilities, is essential. It can be argued that the lack/slow supply of essential medicines currently existing at public hospital occurs due to the unavailability of a pharmaceutical management system in the country. Further, enforcing a referral system helps to manage the imbalance of ser-

<sup>28</sup> De Silva, A. et. al., (2005), "Review of Costing Studies," National Commission on Macroeconomics of Health, Ministry of Health.

<sup>29</sup> IPS (2012), *Sri Lanka National Health Accounts 2005-2009*, Institute of Policy Studies of Sri Lanka, Colombo.

<sup>30</sup> Engelgau, M. et. al., (2010), "Prevention and Control of Selected Chronic NCDs in Sri Lanka: Policy Options and Action," World Bank, Washington, D.C.



vices utilization between lower facilities and higher level facilities.

Once these conditions discussed above are met, a proper procurement system together with a robust health information system, and a referral system can enhance the efficacy of health planning and implementation for NCD prevention and management in the country.

In terms of action beyond the health sector, policies and actions taken in other sectors also have an influence on health. A variety of socio-economic factors – gender, education, poverty, working conditions, etc. – are contributing to the rise in chronic diseases across the country. Empirical evidence shows

that the prevalence of risk factors would continue to push more people into poverty – a condition which is expected to rise. Therefore, an integrated policy and action plan within the health sector, with the partnership of other sectors, such as health, labour, environment, trade, etc., is needed to mitigate the prevalence of behavioural risk factors and metabolic risk factors of NCDs.

All in all, policies and actions to mitigate the burden due to NCDs within the health sector are vital. Particular attention should be paid by the Ministry of Health to beginning an inter-sectoral action plan on health, along with other ministries.