Financing of NCD Prevention in LMICs: Mongolia Case Study

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Objective:

Prevention programs are increasingly seen as critical for tackling the rising burden of non-communicable diseases (NCDs), but tend to be under-prioritized and under-funded, particularly in low and middle income countries. The objective of this study is to estimate spending on NCD prevention in Mongolia and identify the enablers, challenges and dynamics underpinning population-level NCD prevention spending, with particular focus on tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity.

Methods:

Primary and secondary data collection was used to examine processes and organizational contexts that shape the formulation of policy and financial frameworks for NCD prevention. The methodology was categorized into three tiers; an academic literature review, scrutiny and analysis of official policy documents and budgetary data on health and NCDs, and in-depth stakeholder interviews with key government officials leading NCD programs. Government and government-routed donor spending on population level prevention was gauged to estimate NCD prevention spending. Where possible, impact of prevention programs on disease incidence and risk factors was gauged through available outcome indicators.

Results:

Mongolia allocated an estimated MNT 10.5 billion on NCD prevention and health promotion in 2017, out of which population-level NCD spending accounted for MNT 5.1 billion (just over 1% of overall government health spending). Enablers include tobacco taxation and regulation, earmarking unhealthy consumption through the Health Promotion Fund and strengthened salt intake policies. Challenges include excess allocations towards inpatient and specialist care, inadequate multi-sectoral action and stewardship for NCDs, food and beverage industry interference in policy and limited alcohol regulation and tax.

Conclusion:

Mongolia has made considerable progress in formulating policies for NCD prevention, but spending on NCD prevention still remains barely more than 1% of government health spending. Increased allocation of resources towards population-level NCD prevention can both help address the growing NCD burden and bring substantial economic benefits.

1. Introduction:

Mongolia is a democratic country of 3 million people with considerable natural and agricultural resources. The country has achieved impressive economic growth and health progress in recent years, with the average life expectancy increased to 69.57 years, with women living almost 10 years longer than men.[1] Mongolia has made strides in reducing infant, child and maternal mortality and has also improved nutrition among children. The country has also seen rapid progress against communicable/infectious diseases, maintaining its polio-free status, eliminating tetanus and achieving regional targets for hepatitis B control.

At the same time, Mongolia has experienced an epidemiological transition in recent decades, driven in part by rapid urbanization with over two thirds of the population living in cities. The country is faced with a growing non-communicable disease (NCD) problem. NCDs are now responsible for 64.3% of the disease burden and over85% of all deaths in the country. Most worryingly, there is a 30% probability of dying prematurely (i.e. between age of 30 and 70 years) from NCDs in Mongolia. NCDs like ischemic heart disease, cerebrovascular diseases, and liver cancer are among the top causes of premature death in the country.[1] Cardiovascular disease (CVD) alone accounts for 40% of all deaths in the country.[2] People are also living longer with chronic illness and the effects of NCDs such as diabetes, stroke and heart disease. Among countries in the Western Pacific Region, Mongolia has the seventh-highest burden of NCDs – and the toll is increasing.

Underlying this are trends in risky behaviours including high smoking prevalence; high intake of fats, sugars and calories in the diet; high levels of alcohol consumption; and low physical activity. Rapid aging of the population over the next few decades renders the need for action even more urgent: the share of elderly (those of age 65 and older) in Mongolia's population is projected to rise from 7% in around 2030 to 14% over a subsequent period of 25 years.[3] If left unaddressed, Mongolia's NCD crisis would lead to increased stress on the healthcare system and make the burden of caregiving economically unsustainable.

NCDs also incur high economic costs, given that poor health affects both labour productivity and the accumulation of capital within an economy. For individuals and governments, high spending on health can mean significant opportunity costs, including decreased investment in education, transportation projects, or other forms of human or physical capital that can produce long-run returns. Poor health also reduces productivity by permanently or temporarily removing individuals from formal or informal labour markets. When individuals die prematurely, the labour output that they would have produced in their remaining years is lost. In addition, individuals who suffer from a disease are more likely to miss days of work or to work at a reduced capacity while at work.

Guided by the Mongolia Sustainable Development Vision 2030 (MSDV), the country is striving by 2030 to be among the leading middle-income countries based on per capita income, with a diverse economy, ecological balance and democratic governance. The government is committed to improving the living environment and increasing life expectancy at birth to 78 years by 2030. The country has also set out clear NDC prevention and control objectives in its State Health Policy and Programme for the Prevention and Control of NCDs. These national goals are in line with and contribute to Mongolia's progress towards the United Nations Sustainable Development Goals (SDGs).

Limited availability and allocation of funds for financing NCD control and prevention are an important part of the reason for the continued persistence of chronic NCDs around the world. There is an established

tendency for governments to provide more funding for treatment than prevention, almost in inverse proportion to potential impact – that is, while prevention is clearly the best use of limited resources it is often easier to secure resources for treatment instead. This is also the case in Mongolia and will require evidence, will and innovation to address.

This study will investigate the dynamics of NCD prevention financing in Mongolia to identify the key lessons, challenges and barriers from Mongolia's experience with financing and implementing NCD prevention. It will do so by first examining the socio-economic and institutional context of NCDs in Mongolia and the region, outlining the key policy responses and interventions of the Mongolian government to the NCD crisis, and understanding how financing for NCD prevention is raised and spent, and what kind of economic, social, political and institutional barriers stand in its way. The key lessons and challenges emerging from Mongolia's experience will then be discussed and summarized, and a set of actionable outcomes and recommendations will be presented.

2. Methodology

The methodology for this assessment consisted of two parts: a review of academic and grey literature and budgetary data and data collection in the form of interviews with key informants. The study adopts the critical theory approach, which acknowledges reality as contextualized and shaped by various social, cultural, economic and political factors and sees the research process as a means to bring about change and transformation. In this study, the critical theory approach was employed to question existing frameworks, organizational hierarchies and red-tape, identify impediments arising from political, economic, systemic and bureaucratic, and largely regional and global contexts, before proceeding to present a set of actionable outcomes and recommendations.

Public financing was defined as resources allocated/mobilized indigenously (revenues) at the country level. This also includes the use of catalytic official development assistance as grants/loans and/or monies from philanthropic sources predicated on the understanding that these are meant to build country capacity and are a stop gap arrangement. This implies that funds from ODA loans and grants, as well as from philanthropic sources, need to go first into the government's resources. The World Bank definition of prevention was employed, as those preventative and "public health services … designed to enhance the health status of the population as distinct from the curative services which repair health dysfunction."

The investigators used a search strategy involving Medline, Google Scholar, Embase, JStor and Web of Knowledge, databases to identify peer-reviewed articles that examined NCD prevention and financing. In addition, the first 20 pages of Google searches were examined to identify articles from the grey literature. The main search terms were 'NCD', 'prevention', 'financing' and 'Mongolia'. Additional search terms related to the topic were: 'health promotion', 'non-communicable disease', and 'budget'. Additional search terms related to policy were: tax, legislation, ban, intervention, labelling, law, and standards. An additional search was also carried out for policies related to risk factors using the terms 'alcohol', 'tobacco', 'diet', 'nutrition', and 'physical activity'. Based on the information in the abstracts, those studies were selected for review that: a) were of an empirical nature; b) examined NCD prevention and its financing; and c) dated from late 20th century onward, when concerted policy efforts to counter NCDs began in the region.

The selected studies were reviewed and organized into categories of analysis that were refined based on the evidence emerging from the literature. Bibliographies of selected studies were also reviewed for

relevant literature to NCD or risk factor prevention policies. Later, a specific search was undertaken for broader literature, including policy frameworks on NCDs in Mongolia and the region.

The investigators then reached out to the governments and relevant departments/bodies to procure reports, budget plans, policy guidelines and similar material. This data was analysed thematically, to further refine research questions and thoroughly revise interview guides. At the end of the second tier, the investigators shortlisted potential participants to be recruited for in-depth interviews. These included key stakeholders such as officials from the Ministry of Health, Ministry of Finance, planning ministry or staff from the office of the head of state.

3. NCD burden in Mongolia

Ischemic heart disease, cerebrovascular diseases, liver cancer, cirrhosis and stomach cancer are among the top causes of death and premature death in Mongolia. Their contribution to mortality and premature mortality has also risen considerably since 2017; there is a one in three chance that a Mongolian will die before the age of 70 from one of the four major NCDs. The four major NCDs (cardiovascular disease, cancer, diabetes, and chronic obstructive pulmonary disease) now account for 61.5% of all deaths and 34.9% of disability-adjusted life-years (DALYs) lost in Mongolia.[4]

Over 40% of Mongolia's 21,739 deaths in 2015 were caused by heart disease, stroke, myocardial infarction, and other cardiovascular and circulatory diseases. This was followed by cancer with 19%, cirrhosis with 5.67% and diabetes with around 4%.[4] People are also living longer with chronic illness and the effects of non-communicable diseases (NCDs) such as diabetes, stroke and heart disease. In 2013, Mongolia spent an estimated 274.4 billion Tugrik (MNT) (US$ 180 million) on health services for the 4 NCDs, out of which out-of-pocket payments by citizens accounted for nearly 70%.[5]

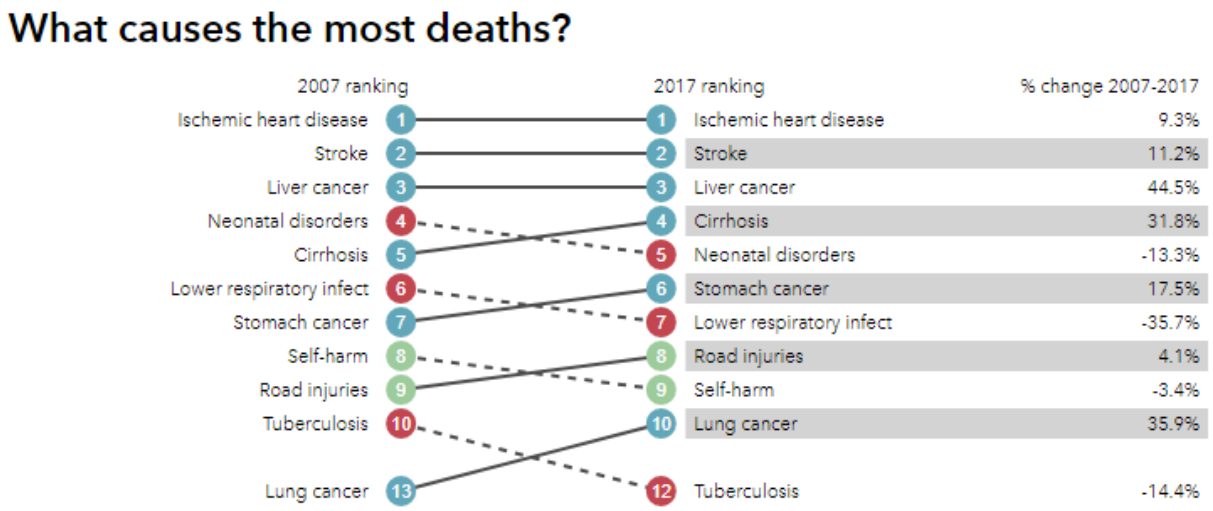

Figure 1 Top 10 causes of death in 2017 and percent change since 2007, Mongolia[4]

4. NCD risk factors in Mongolia

The NCD epidemic in Mongolia is driven by a series of behavioural, metabolic and environmental risk factors. Periodic NCD risk factor surveillance through WHO STEP wise approach to Surveillance (STEPs) surveys in Mongolia (2005, 2009, 2013) have shown that unhealthy lifestyle behaviours are increasing, despite several health promoting initiatives. Chief among these are unhealthy diets (particularly high salt consumption), hypertension, alcohol use, tobacco use, overweight/obesity driven in part by physical inactivity. While alcohol and tobacco use has not increased in the past decade between 2007-2017, their contribution to death and disability has increased by 29% and 17.9% respectively (Figure 2).It is unclear how much these risk factors have changed in significance after NCD prevention and health promotion efforts in recent years since Mongolia has not carried out a comprehensive STEPS survey on risk factors since 2013.

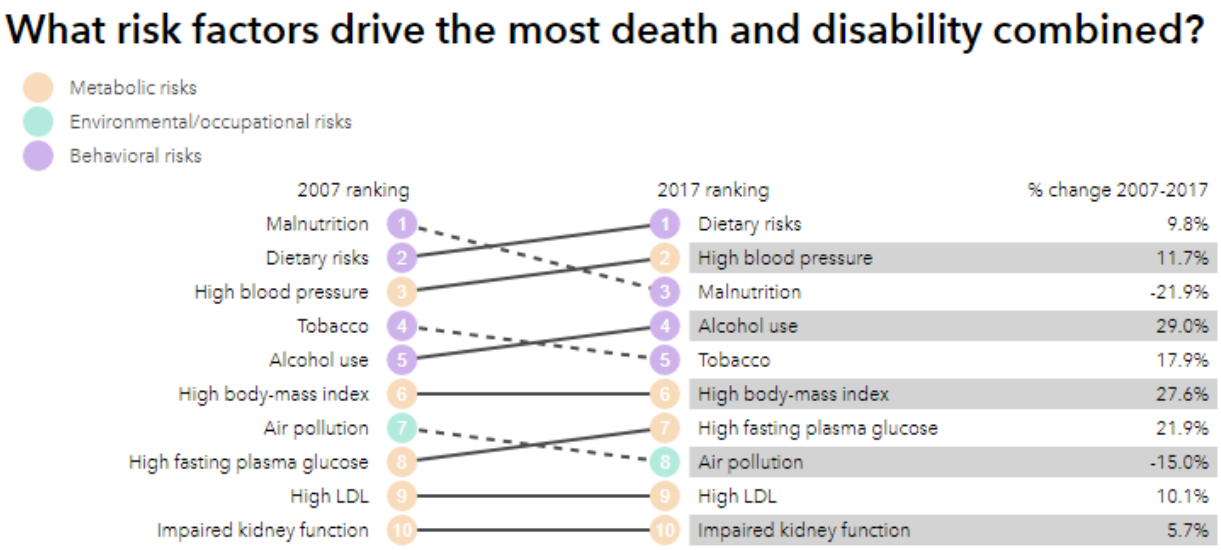

Figure 2 Top 10 risks contributing to DALYS in 2017 and percent change since 2007, Mongolia[4]

4.1. Tobacco use:

Tobacco use is very common in Mongolia. The last STEPS survey results (2013) showed that in Mongolia, 27.1% of the population smoke tobacco, with a significant gender disparity in tobacco use: 49.1% of men and 5.3% of women were current smokers. The vast majority of smokers (91.7%) smoke daily. Nearly one in two persons (42.9%) were exposed to second-hand smoke at home and one-in-three (35.6%) were exposed at work. Knowledge about the harmful consequences of tobacco use is quite common. The results are largely unchanged from the previous STEPS survey in 2009.[7]

4.2. Alcohol use:

Alcohol is ubiquitous in Mongolia. The density of alcohol vendors—one shop for every 270 people—is reported to be the highest in the world.[6]Heavy alcohol use is an entrenched element of celebrations, and social interaction with friends and family.

According to the last STEPS survey, current drinking or consumption of alcohol in the past 30 days was reported by 38.3% of all respondents or 48.8% of men and 24.1% of women. Three out of four males and

just over half of females are considered alcohol users, indicating that they have had a drink in the past year. The rate of alcohol consumption among users is high, and rising. Hard liquors are consumed at the highest rate (4.83 litres), followed by beer (1.86 litres) and wine (.207 litres). Among alcohol users, 37.5 percent of men consumed greater than or equal to six drinks3 in one sitting during the last month, compared to 9.7 percent of women.[7] Compared to the previous STEPS survey, alcohol consumption among the study population remained at similar levels, with no statistically significant difference.

Findings from a nationally representative survey of attitudes and knowledge about alcohol found significant differences in the use of alcohol among urban and rural individuals. While nearly one in three drinkers report having consumed alcohol before lunchtime, the practice is more prevalent in rural (25% of drinkers) than urban (16%) individuals.[8]

4.3. Unhealthy diet and salt consumption:

The average daily serving of fruit was 0.4, and the average daily serving of vegetables was 1.0, which is 3.6 servings less than WHO recommendations. The vast majority of the population (96.4%) consumed less than 5 servings of fruit and vegetables daily. Fruit and vegetable consumption in rural areas was half that of urban areas.[7]

Salt is the principal dietary risk in Mongolia, and is an important primary risk factor for CVD, the country's highest cause of mortality. On average, Mongolians consume about 11.1 grams of salt each day, and 83.2% of the population consumes more than the WHO recommendation of five grams of salt per day.[9] A 2013 salt intake survey in the population examined 300 food products and 200 meals common in the Mongolian diet and found that 75.4% of processed food products and 83.4% of meals are high in salt content.[10] The main sources of salt identified through the dietary survey were salted tea, sausage, smoked meat products, pickled vegetables, chips, traditional fast food (Buuz steamed dumpling, Khuushuur-fried dumpling), and Western fast food (burgers, hot dog and pizza), mayonnaise, spices, sauces, and canned meat products.

Consumption of salty tea alone makes up 46.2% of the total daily salt intake for Mongolians. The difference in average daily salt intake between those who consume salty tea every day and those who do not is about two grams.[9] Studies in Mongolia have confirmed that salt is a significant risk factor for Isolated Systolic Hypertension in the country.[10] However, knowledge of its health-effects is limited; about one in five Mongolians do not know of any specific problems caused by salt, while 44.9% are aware it can cause a kidney stone and 17.6% are aware of its link to arterial hypertension.[9]

4.4. Physical inactivity:

STEPS survey data indicate that 22.3% of the population was not meeting the minimum recommendation for physical activity and nearly 1 in 4 persons in urban areas were at increased risk for physical inactivity. Urban men were twice as likely to fall into the category of low physical activity as rural men, and urban women were twice as likely compared to their rural counterparts. The survey results revealed that nearly one-fifth (18.3%) of the population did not meet WHO physical activity recommendations for health, being engaged in moderate physical activity for less than 150 minutes per week, and 66.6% of the population were not engaged in vigorous physical activity. On average, the median time spent in physical activity per day was 105.7 minutes, indicating the needs for improving community-based approach for health promotion and physical activities.[7]

4.5. Obesity and metabolic risks:

The mean BMI of the study population was 25.9 kg/m2 and it was 25.3 kg/m2 in men and 26.6 kg/m2 in women, respectively. According to BMI risk assessment, 54.4% of the population was overweight or obese, and 19.7% was obese. The prevalence of overweight and obesity tended to increase with age and the proportion of overweight or obese women in all age groups was higher compared to their male counterparts.[7] Crude estimates from the 2013 STEPs survey show that 17.8 percent of Mongolians between ages 40-64 have a 10-year risk of a CVD event ≥ 30 percent. Isolating the top end of that age group, 30.5% of men and 27.7% of women ages 55-64 have CVD risk ≥ 30 percent.[7]

4.6. Hypertension:

The 2013 STEPS survey reported that 30.5% of men and 24.5% of women among people aged 15–64 years had hypertension.[7] Another survey in Mongolia reported that 12.7% of the participants were identified to have high risk for hypertension. Furthermore, a significant section of the population has low knowledge about hypertension; another study reported that 17.4% of the participants from across Mongolia had never heard the term “blood pressure,” and that this lack of knowledge was more common among younger participants and among men.[11]

5. Mongolian health system and financing context:

Mongolia has a mixed health system where healthcare is provided at three service levels; primary, secondary and tertiary. As of 2016, the health-care system consisted of 3500 state-owned, private and mixed organizations, including facilities manufacturing medicines and those delivering public health, medical, pharmaceutical, medical education, research and training services, in addition to 224 private hospitals and 1006 private clinics. The health sector employs 48,173 people – with 32.4 physicians, 37.2 nurses, and 24.5 other medical professionals and technical education staff per 10 000 people.[1] Geography is a major barrier preventing rural populations from accessing quality healthcare services -long distances to reach health facilities can delay access to services and increase overall costs.

The government budget accounts for 62.1% of health sector financing, followed by health insurance (over 24.9%), user fees (3.2%) and other sources (9.8%). Social health insurance has gradually increased to cover 90% of the population; however out-of-pocket (OOP) payments are still high, representing 42% of total health expenditure. The share of inpatient care covered by health insurance reduced from 66.3% in 2011 to 47.1% in 2016, reflecting a number of changes including expansion of insurance to cover outpatient services, high-cost treatments and diagnostics and rising medicine reimbursements. Nearly 60.8% of the budget is allocated to secondary- and tertiary-level hospitals, indicating a higher prioritization of non-primary healthcare.[1]

While OOP are still high, catastrophic expenditure and impoverishment due to health spending is low. The share of OOP health payments in total household expenditure declined from 3.2% in 2009 to 2.8% in 2012. Catastrophic health expenditure occurs when households spend 40% or more of their capacity to pay on the use of health services. The share of households incurring catastrophic health payments in Mongolia on average stood at 1.5% in 2010, 1.8% in 2011, and 0.9% in 2012, with richer households were likelier to incur catastrophic expenditures than poorer ones.[3]

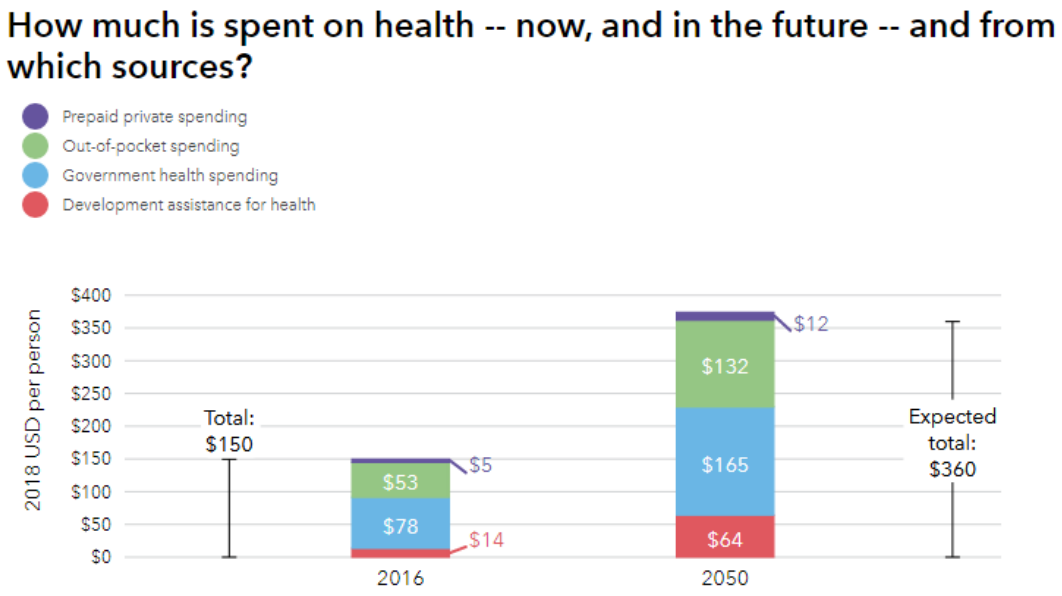

Figure 3Current and future (projected) sources of health expenditure in Vietnam (Source: IHME 2017)

Recurrent expenditures represent the bulk of total health expenditure, averaging about 85% in 2015-2016. At 38% in 2016, wages, salaries, and bonuses constitute the largest share of recurrent health expenditures incurred by the Mongolian government. Since 2012, current transfers increased significantly and in 2015 constituted the second highest share in recurrent spending (24%), followed by medicines and drugs (16%).[3]

While public spending on health increased over the last decade, it increased at a slower pace than overall government spending. Government health expenditure grew steadily between 2005 and 2016, by 7% per year in nominal terms and 9% per year in real terms. However, this growth is low when compared to growth in total government expenditure, which increased at an average rate of 14% per year in the same period. Government health spending as a proportion of total expenditure decreased from around 12% in 2000 to 8% in 2017 (Figure 4), suggesting public health spending has not kept pace with economic growth and fiscal expansion.

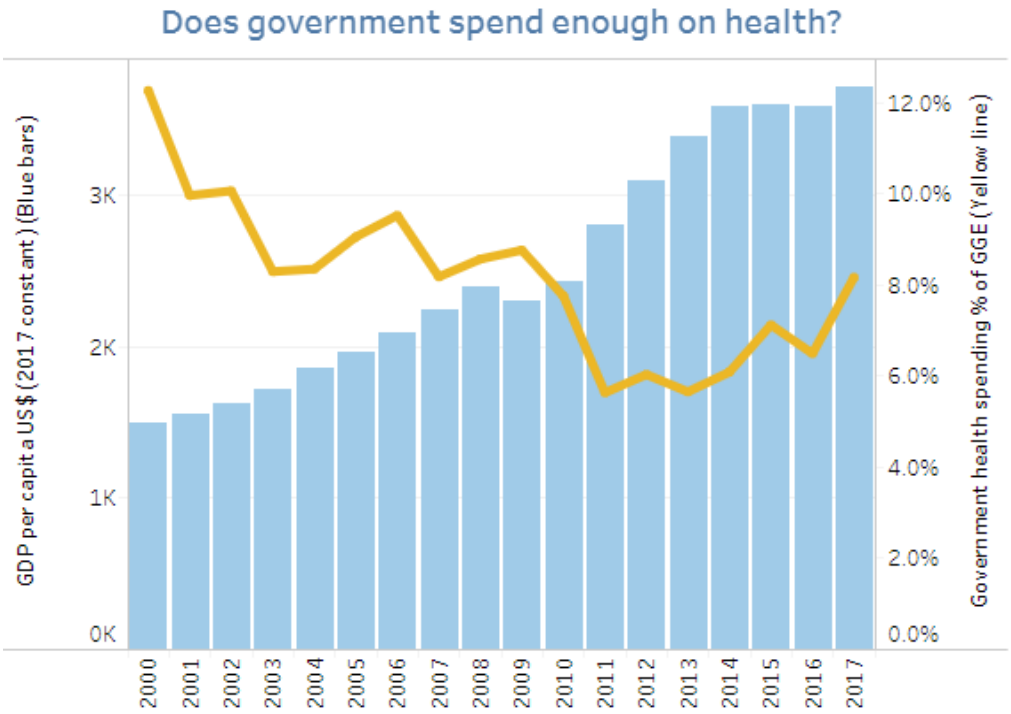

Figure 4 Health spending as % of government expenditure, Mongolia[12]

The number of state health facilities has not changed much in the last decade, although there has been a small increase at the secondary facilities and a small decline in tertiary facilities. Among state-owned health institutions in 2015, Mongolia had 13 tertiary-level hospitals and centres, 33 aimag/Regional Diagnostic and Treatment Centres(RDTCs) and district general hospitals/health centres, 6 rural general hospitals, 39 inter-soum hospitals and 291 soum and village health centers.3 In the meantime, the private sector has seen considerable expansion in its capacity to offer both inpatient and outpatient services. In the private sector, between 2005 and 2015, the number of hospitals grew from 160 to 224, and clinics from 523 to 1,006, while family health centres (FHCs) declined from 228 to 218. The number of beds in private sector hospital beds grew during this period from 1,982 to 5,262, and in 2015constituted about 24% of hospital beds available in the country.[3]

6. NCD Prevention in government policies and programs

Since the late 1990s, the Mongolian Government has been building its commitment and reorienting policies to address prevention and control of NCDs. Several national policies have been adopted to address NCDs, including the Programme on Prevention and Control of NCDs (2017 – 2021); the National Strategy for Reducing Tobacco Harm (2014 – 2020); the National Strategy on Health, Diet and Physical Activity (2010 – 2021); and the National Programme for Reducing Salt Intake (2015 – 2024).

The evidence suggests that a comprehensive national policy framework for the prevention and control of NCDs exists. For example, the State Public Health Policy 2001–2015 [21] resulted in the formation of the National Public Health Council to oversee planning, guidance, monitoring and evaluation of the implementation of national policies with the active involvement of sectors outside of health. Notably, there were strong policy commitments for involving all government sectors, including health, foreign affairs, justice, finance, education, food and agriculture, trade and industry, social welfare, labour,

construction and urban development, and defence, reflecting a whole-of-government and a whole-of-society response. However, according to officials interviewed, unstable coalition government, lack of political continuity and private sector influence led to NCDs falling off the policy radar for some time, before being re-prioritized in recent years.

The findings also suggest Mongolia, at national policy level, has followed an integrated approach to addressing NCD risk factors, and linking these to preventive measures that target the whole population and high-risk individuals. With respect to risk factors, tobacco and alcohol consumption were most commonly addressed. On tobacco in particular, Mongolia was considered to have made considerable progress towards achieving a healthy tobacco free region, according to a report on the compliance of Asia-Pacific countries with the obligations of the WHO Framework Convention on Tobacco Control.[13]

6.1. Western Pacific Regional Action Plan on NCDs:

While Mongolia was among the first lower middle-income country to launch NCD-specific programmes in the 1990s, the country's recent policy efforts for NCD have taken place in the context of regional efforts to combat NCDs in the Western Pacific. In 2014, the WHO Western Pacific Region adopted its Regional Action Plan for NCDs 2014-2020 to raise priority of NCDs prevention and control, strengthen national capacity, leadership, governance and multi-sectorial action, reduce modifiable risk factors for NCDs through health promoting environments, strengthen and orient health systems to address prevention and control of NCDs, promote and support national capacity for research and monitor the trends and determinants of NCDs and evaluate progress in prevention and control. Mongolia's subsequent programmes and objectives have been tied to regional WPRO objectives and targets.

6.2. National Programme on Prevention and Control of NCDs 2017-2021:

Mongolia's previous NCD program, the National Programme on Integrated Prevention and Control of NCDs 2006–2013, expired in 2013. For some years, political issues related to a coalition government, elections and private industry influence led to NCDs falling off the policy radar. The subsequent NCD programme, the National Programme on Prevention and Control of NCDs 2017-2021 was adopted by the new Mongolian government on 27 September 2017. The Programme is run by the Ministry of Health (MoHS) and its goal is to reduce the prevalence of predominant NCDs and their common risk factors with engagement of multilateral cooperation among organizations, communities, families and individuals and to strengthen the prevention, control, early detection and surveillance of diseases.

The objectives of the Programme are: 1) To reduce the prevalence of primary and intermediate risk factors of NCDs by enabling the environment for promoting health at organizations and entities, and by improving the knowledge and attitude of the people on healthy living; 2) To create the environment for reducing the morbidity and mortality by strengthening preventive measures for NCDs and comprehensive care services of early detection, diagnosis and treatment based on the participation of healthcare organizations and the provision of early and regular check-ups for NCD patients; 3) To establish and strengthen the open electronic system on NCDs registration, information, surveillance, monitoring and evaluation at national, local levels and other sectors, and to enhance the scientific and research activities on reducing NCDs and its risk factors; 4) To strengthen the participation and cooperation of local and international organizations, other social sector institutions, to improve the governance, leadership and capabilities of local and national organizations in order to prevent and control NCDs.

Prevention of NCDs by addressing risk factors is central to the Programme's approach. In its outcome indicators, the Programme expects to reduce the smoking rate among the population to 26%, overweight and obesity to 45.3%, reduce average salt intake among population aged 25-64 year old to 8.9 grams/day, reduce population with physical inactivity to 20.8%, and people who excessively consume alcohol to 9.6% by 2021.[14]

6.3. State Policy on Health 2017-2026:

The State Policy in Health (2017-2026), approved on 18 January 2017, identifies public health as one of eight key areas. The policy aims at the incorporation of Health-in-all policies (HiaP); food safety and promotion of healthy diet; public health education; screening for predominant diseases including NCDs; and limiting use of alcohol and tobacco.

The policy aims to 'incorporate and coordinate health issues in the policies of other sectors and create an implementation mechanism with integrated supervision to improve living and working conditions for the population in terms of health and safety'.[15] It aims to improve monitoring of domestic and imported food products for both food safety and healthy and proper eating. It emphasizes strengthening primary care and aims to increase the share of primary healthcare expenditures or the expenditures of the soum and family health centres in the total health expenditures. In terms of financing, the policy aims to increase total health financing to spend 12 percent of the general government total budget on health and at least 5 percent of GDP on health and keep out of pocket (OOP) payments to under 25% of health expenditure.[15]

6.4. Mongolia Health Promotion Foundation:

The Mongolian Health Promotion Foundation is among the key components of Mongolia's fight against NCDs. It was formed through the Tobacco Control Law 2005 and was launched in 2007. The purpose of the Foundation was to promote health and reduce exposure to health risks, including tobacco and alcohol and risk behaviours. Foundation has three main sources of funding: 1% of the excise tax on alcoholic beverages; 2% of the excise tax on tobacco and 2% of import and excise taxes on drugs. In 2013, the Foundation's budget was around 4.1 billion MNT (US$ 3 million). The key strategies of the HPF include information, education and public relations exercises, advocacy and surveillance activities for the prevention of NCDs, harmful use of alcohol and tobacco.

The Foundation's funding was abolished in 2015 as a result of inadequate political support for its continued financing through tobacco and alcohol taxes. After a new government was elected in 2016, the Health Promotion Fund was re-established on 15 March 2017. The focus areas of the fund include information, education and communication; advocacy and surveillance activities relevant to prevention of noncommunicable diseases; and harmful use of alcohol, and tobacco. The Foundation also supports the civil society-led Forum on Citizen's Participation and Ownership for Health that advocates for nationwide public awareness of blood pressure control, and health education on common health risk management.

6.5. Tobacco control policies:

A party to the WHO Framework Convention on Tobacco Control, Mongolia has a strong set of tobacco in place to reduce demand for tobacco products and protect the health of its population. In 2012, the parliament of Mongolia revised its existing law on tobacco control. The law incorporated tobacco policy in broader public health policy for the first time, including protection from the interests of the tobacco

industry. Among other things, the new law enlarged health warnings, banned cigarette sales in vending machines and over the internet, and banned smoking in all public places.

The law requires 50% of cigarette packages in Mongolia are required to be covered in health warnings that describe harmful health effects of tobacco. Advertising is banned on TV, radio and print media, as well as some but not all forms of indirect advertising. The law also forbids sales of tobacco products to and by people under 21 years of age and in packages of less than 20 cigarettes. The law also designated 2% of tobacco excise taxes for the Mongolians Health Promotion Foundation.[16]

Mongolia has also made progress on increasing excises taxes on tobacco. Up until 2017, excise tax on tobacco was set at 33.26% of retail price (about 2700 MNT) of the most popular cigarette brand. In March 2017, the newly elected government approved a 20% increase in tobacco excise taxes over three years, which would move the tax to about 1,077 MNT on the most sold brand, or about 40% of the retail price.[2]

6.6. Alcohol control policies:

Alcohol policy in Mongolia is less rigorous than tobacco policy. According to officials interviewed, this is because *"the domestic alcohol industry produces its own raw materials for beer and vodka, and has a big manufacturing base as compared to the tobacco industry, which imports most of its tobacco."* As much as 90% of the alcohol market is controlled by domestic producers and several reports suggest that industry interests, and connections between decision-makers (including Parliamentarians) and industry are preventing additional regulation around alcohol consumption.[17] [18]

Regardless, Mongolia saw some progress with the introduction of President Elbegdorj's Alcohol Free initiative in 2011, which worked with governmental and nongovernmental partners to increase public awareness and change the legal environment surrounding alcohol consumption. Since then, there has been widespread promotion of nondrinking parties, weddings and other social events that have traditionally included the consumption of alcohol. In December 2015, the Alcohol Control Law received its first amendments in 12 years. As per the amendments, alcohol sponsorship in culture, arts, sports, or other public events is prohibited.

An earlier National Programme on Prevention and Control of Alcohol ended in 2012; however, after a gap of five years, a new national program was promulgated in 2017, with an allocation of 100 million MNT over three years. Finally, in March 2017, the government approved a 20% increase in alcoholic beverages over three years similar to the increase for tobacco products.[19]

6.7. Salt reduction strategies:

In light of Mongolia's historically high levels of salt consumption, the government has been actively pursuing salt reduction strategies. Following an initial salt reduction consultation in 2011, the government began a pilot salt reduction initiative known as 'Pinch Salt Mongolia' in three food production factories to reduce salt intake among employees through training of staff on the negative health impact of salt and how to consume a healthy diet, and the provision of reduced salt food and meals through company canteens and workers' kitchens. The pilot led to both reduced salt intake (by 37% per meal) as well as higher knowledge about foods high in salt.[10]

The Ministry of Health also worked with the food industry to reduce salt content in bread and sausage products. In 2011, bread companies began reducing salt content of bread in 10 bread factories and bakeries declining by 1.6% on average. Similarly, in 2014, the sausage industry agreed to reduce the salt

content in three canned products by 10%. In addition, the media was used to increase public and professional awareness about the need to reduce salt in foods.[10] The Ministry of Health also conducts week-long mass-media information campaigns to promote knowledge and awareness about salt intake during each annual World Salt Awareness Week (ibid.).[2]

In 2014, Mongolia built on these nascent efforts with the adoption of a national salt reduction strategy that lays the groundwork for future policies. The strategy aims to decrease salt intake by 30% (from 2011-12 levels) by 2025. Building on the progress of intervention initiatives to date, the three strategic priorities of the strategy are to advance the social, economic and legal environment for salt reduction; to improve partnerships between government and relevant stakeholders, and to create an enabling environment to support consumers to make the right choices.[10] In addition to a reduction in salt intake across the population as a result of improved consumer attitudes and behaviours relating to salt and reduced salt levels in foods and meals, it is expected that the main outcomes of the strategy will be improved partnerships and inter-sector collaboration to re-enforce and monitor food supply. A mid-term evaluation of the national salt reduction strategy is expected to be carried out in 2020.

6.8. Healthy Cities:

The Mongolian government initiated a National Program on Healthy Cities, Districts, Workplaces and Schools in 2012. The Programme works closely with The Healthy City Network of Mongolia ("HCSC"), a non-profit organization focused on promoting a health-friendly environment for city dwellers in Mongolia. The network is composed of 18 member cities, and organizes capacity building activities for local government officials, implements health promoting model projects in cooperation with local governments and international urban development organizations, and engages in research to better improve quality of life in Mongolian urban areas. Examples of collaborative activities between local government officials and the Healthy City Network include public exercises, annual contests of health promoting organizations, healthy restaurant contests, and weight loss competitions.[20] In recent years, HCSC has engaged in knowledge sharing between foreign, national and local governments via international study tours and conferences and with domestic national and local partners via workshops and forums.

7. Spending on prevention:

For the last publicly available budgetary data on health spending on Mongolia (2017), the country spent 430 billion MNT on health, out of which 89.3 billion MNT (roughly 20%) were spent on NCDs. Overall health prevention spending by the Ministry of Health accounted for 59.7 billion MNT (13% of public health spending) and NCD prevention spending amounted to 10.5 billion MNT (2.5% of health spending and 12.3% of NCD spending). However, out of this, population-level NCD prevention spending by the Ministry of Health accounts for only 1 billion MNT (less than 0.25% of total health spending and 1.2% of NCD spending). When combined with the budget of the Health Promotion Foundation (4.1 million MNT) for the same year, this amounts to **total NCD population-level prevention spending of 5.1 billion MNT, which amounts to just over 1% of total health spending** and 5.7% of total NCD spending. Cardiovascular diseases account for the bulk of spending on NCDs (57.4 billion MNT), followed by cancer (16.1 billion MNT), COPD and asthma.

Figure 5 Public spending on health, NCDs and prevention in Mongolia (billion MNT)[21]

Type of health service	Health spending	NCD spending	NCD spending Financed from general revenue	NCD spending Financed from social insurance
Hospital services	**360.6**	**69.8**	**47.7**	**22.1**
- Inpatient hospital curative care	259.8	56.1	37.5	18.6
- Specialist outpatient care	100.8	13.7	10.2	3.5
Public health & prevention	**59.7**	**10.5**	**10.5**	**-**
- General outpatient care	39.1	9.2	9.2	-
- Immunization & health promotion	9.4	1.0	1.0	-
- Surveillance & disease control	11.2	0.3	0.3	-
Drug prescription	**9.7**	**4.8**	**-**	**4.8**
Health Promotion Foundation	**-**	**4.1**	**-**	**-**
Total spending	**430**	**89.3**	**58.3**	**26.9**

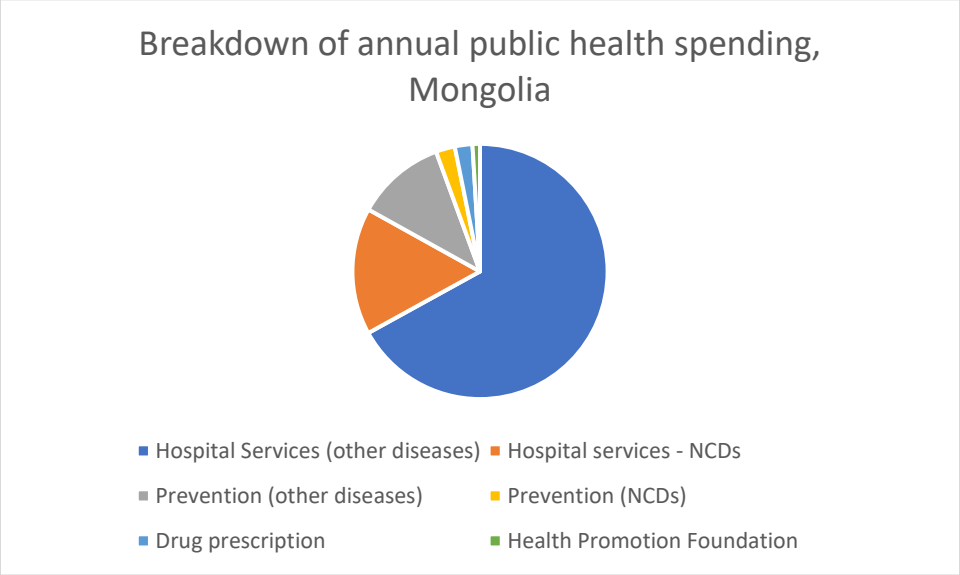

Figure 6 Breakdown of annual public health spending in Mongolia[21]

8. Discussion

The Government of Mongolia was one of the pioneers of concerted NCD-focused policy efforts among LMICs and led a timely and coordinated response to its emerging burden of NCDs since the 1990s. This has led to considerable successes in raising population awareness, addressing behavioural risks and re-

orienting the health system accordingly. The response has been led from senior levels and based on a population-health approach to address risk factors in tandem with some efforts at health-systems-strengthening from the primary care level. However, according to Mongolian health officials interviewed, *"impetus for reform stalled in the middle of the last decade owing to a combination of political and economic reasons."* Industry pressure has also complicated efforts to control consumption of tobacco, alcohol and salt. Both financing priorities and constellation of health services still do not appear to adequately reflect the high contribution of NCDs to the disease burden.

8.1. Ensuring NCD spending reflects the high disease burden:

Mongolia spends more on NCDs per capita than many other LMICs. In terms of proportion of GDP, its spending on NCDs is similar to that of higher-income countries.[22] However, as the data demonstrates, NCD shares in aggregate public-sector health spending in Mongolia are considerably smaller than the contribution of NCDs to the national disease burden: NCDs account for over 85% share of total deaths and 34.9% share of DALYs, yet only account for only 20% of health spending. The data further shows that public-sector NCD spending in Mongolia is overwhelmingly concentrated on inpatient care and specialist outpatient visits, with public health, preventive and health promotion activities accounting for a small share (less than 6% of total NCD spending). This suggests that most NCDs are being diagnosed late, leading to expensive specialized treatments (particularly for cardiovascular disease and cancers) instead of more cost-effective primary care services. There is considerable evidence pointing for a need to allocate a greater proportion of resources towards preventive care anchored at the primary level.

8.2. Strengthening primary care:

The quality of health services remains a concern in Mongolia, with significant variations across regions. Differentials in service quality cause patients to bypass primary care services in favour of higher-quality secondary or tertiary care and, those who can afford to, opt for overseas treatment over health care within the country.[3] A high share of admissions in tertiary and district hospitals is medically unnecessary or inappropriate. The high ratio of hospital beds to population described earlier also suggests that planning of health inputs continues to be hospital-centric.

Fragmented care, combined with low capacity at the primary care level, leads to under-diagnosis, delays in treatment, and a higher need for more expensive, acute care, especially in rural areas. Providers at various levels have no incentive to manage population health in a coordinated way.[3] According to health officials, "*there is a need for improved information linkages between hospitals and primary health care providers, including structured referral systems, patient discharge and handover mechanisms, and patient outreach."* Further, there is a need for horizontal integration across type of care, namely preventive, curative, and palliative.

To address the growing NCD problem, Mongolia needs to reorganize its health services, focusing on high-quality primary care, and increase health spending to support reform. The health system needs to transition to a new service delivery model that integrates preventive and curative services, modernizes the role of secondary and tertiary hospitals as providers of complex care, and deploys standardized local and national systems to measure and improve the quality of primary prevention and care and chronic disease management.

8.3. Strengthening and sustaining multi-sectoral action:

While there has been political commitment to and periodic evidence of collaborative action against NCDs across sectors in Mongolia (particularly at the subnational and city level), oversight and stewardship of policies at the national level has been hampered by changes in government. Officials interviewed say that high rates of turnover in key ministries has affected long term planning at the central level. Going forward, strengthening national multi-sectoral collaboration will be essential to ensure consensus on resource allocation for NCDs as well as mitigation of continued industry resistance to reform. Mongolian health officials interviewed point out that *"multi-sectoral action has been identified as a key priority in the National Programme on Prevention and Control of NCDS and the Public Health Council is in charge of leading this collaboration."* However, there is still lack of clarity over roles and responsibilities and the action being taken across government is primarily a MoH-led initiative, rather than being a whole-of-government-led development priority. There is a need for more robust multi-sectoral coordination and oversight mechanisms across government. A civil society forum attended by NGOs and UN agencies exists, but its function is largely information-sharing, which needs to be expanded to citizen oversight, coordination and joint action.

8.4. Reducing salt as a priority:

High salt intake remains one of Mongolia's most pressing risk factors with respect to its NCD burden. The government has recognized this and achieved impressive results in some of its targeted pilot initiatives, including a 37% reduction in salt intake as a result of the Pinch Salt intervention project and the 12% reduction in salt in the most popular bread sold in Mongolia, which are remarkable achievements in a relatively short time period.[10]

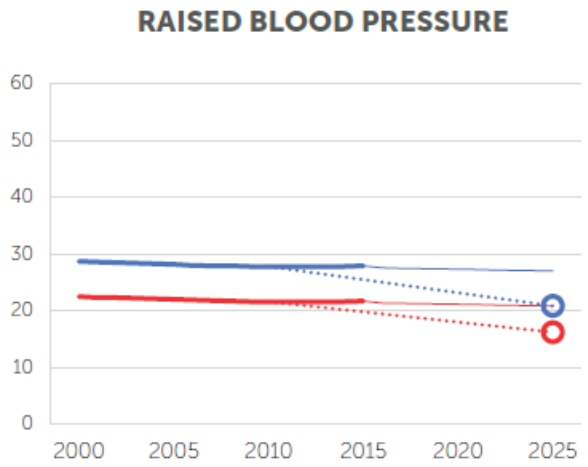

Figure 7 Prevalence of raised blood pressure in Sri Lanka[23]

Salt interventions have been identified by the UN Interagency Task Force on NCDs for Mongolia as having the highest return on investment: for every Tugrik invested the package of salt interventions, one can expect to see 16.9 Tugriks in return over a 15-year period.[2] To achieve substantive salt reduction, the government needs to continue to expand its pilot initiatives with salt reduction throughout the country. This needs to involve a wider engagement with industry in the reformulation of food products, especially producers of processed food (such as sausages, pickled vegetables, canned meats, sauces); adopting standards for front of pack nutrition labels; investing in education and communication to raise awareness

about the health risks of salt in a society accustomed to high levels of everyday usage; and implementing multi-component salt reduction strategies in community settings including schools, workplaces and hospitals.

8.5. Addressing obesity and diabetes:

As Mongolia undergoes an epidemiological transition, obesity and diabetes are both rising in prevalence and are likely to present significant health challenges in the coming years. Diabetes prevalence has crossed 10% for both men and women, while obesity prevalence is in excess of 20% of the population (Figure 7). However, there is still no operational action plan to reduce overweight/obesity. According to the Global Nutrition Report, Mongolia has shown limited progress towards achieving diet-related NCD targets and no progress towards achieving the target for obesity. Existing policies are child-focused, aimed at reducing the impact of marketing of foods and beverages high in saturated fats, trans fatty acids, free sugars, or salt on children. The government has not yet imposed a sugar-sweetened beverage (SSB) tax.[24] There is also no dedicated national awareness campaign to improve physical activity.

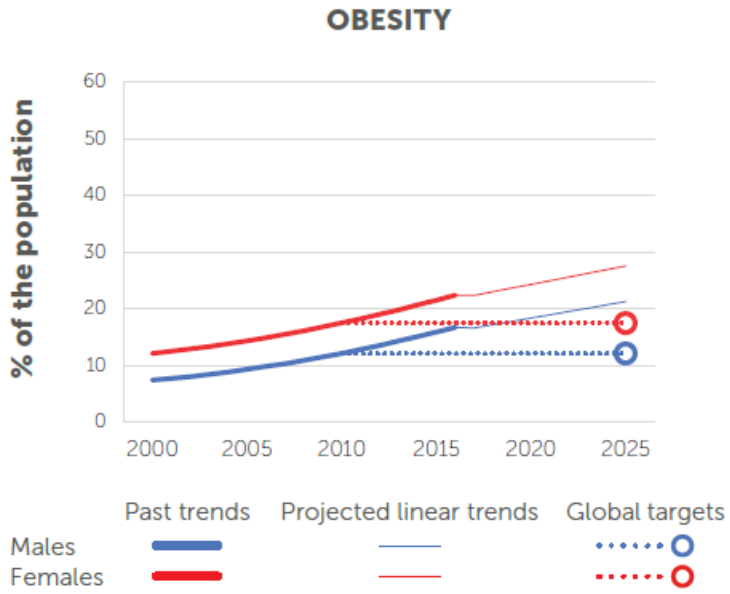

Figure 8: Obesity trends in Mongolia over time[23]

8.6. Strengthening the Health Promotion Fund:

Mongolia's Health Promotion Foundation is an excellent example of the use of taxation of unhealthy consumption to finance health promotion activities and it has been a bedrock of the country's NCD response thus far, particularly in the all-important area of information, education and communication programs. According to health officials, *"while political support for the Foundation lapsed in the middle of the last decade, it has now been reinstated with its earlier financing pool."* Research from around the world has demonstrated how taxes levied on smoking, alcohol and other forms of unhealthy consumption can improve long-term public health, while at the same time, create an important source of income and financing to prevent NCDs. Studies have also shown that, in the long run, investing in health promotion services has a significant role in reducing the costs of social insurance.[25] Increasing financial capacity in health promotion services, either through public funds or through social funds depending on the country

financing system, can lead to more effective prevention and a strengthened, autonomous and well-financed Mongolian Health Promotion Foundation will continue to be central to future NCD prevention efforts.

8.7. Consolidating gains in tobacco control:

Mongolia has made progress on limiting smoking in public places, advertising bans, restrictions on underage sale and increasing excise taxes on tobacco, which has led to a gradual decrease in tobacco smoking in recent years (see Figure 8). One of the major reasons for this progress has been the role played by the Women's Caucus in the Mongolian Parliament. The 2012 election resulted in a record number of women parliamentarians and led to the formation of a cross-party Women's Caucus. The first issue the Caucus worked on was the landmark amendment to the tobacco law, which had long been pushed for by the MoH but had been held up for years because of tobacco industry pressure.[18] This highlights the importance of both political stewardship for progress in NCD prevention as well as the effectiveness of women politicians, who have been shown to be relatively more resistant to industry interference.

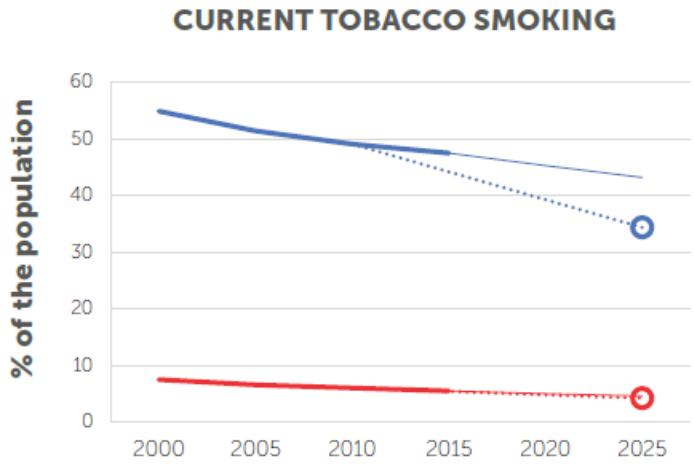

Figure 9 Current Tobacco Smoking in Mongolia[23]

Concerns linger about the possibility of progress being stalled or reversed by the interference of industry in the political process, particularly so when economic troubles abound. Several steps have been identified by WHO and MoH officials interviewed for continued progress on tobacco which could result in sustained decrease in use. These include legislation mandating plain packaging for all tobacco products; imposing and enforcing bans on indirect advertising; and building on the recent tobacco excise price increase through graduated tobacco tax increases of three percent per year to reach 70 percent of the retail price as envisioned by WHO-FCTC.

8.8. Strengthening and enforcing alcohol regulation and tax:

Alcohol control has been identified by the UNIATF as having the second-highest return on investment out of all NCD-related interventions- 13.6, meaning for every Tugrik invested in alcohol control, 13.6 will be generated over a 15 year period. In recent years, Mongolia has moved to address its problem with harmful use of alcohol through advertising restrictions on sponsorships, increased taxes and a new alcoholism prevention programme. There are some indicators to suggest at least extreme alcoholism is going down - according to an official study from 2018 alcohol consumption in Mongolia, the number of people treated

for alcohol-related issues in Umnugovi province decreased by five times between 2013 and 2018.[26] However, alcohol consumption per annum overall rose from 7 litres per capita in 2010 to 7.4 litres in 2016 (slightly higher than the WHO Western Pacific Region average of 7.3).[27]

There is still limited progress in comprehensive alcohol related regulations; there are still no direct marketing bans, or content or volume restrictions. There are also no regulations limiting the number or location of alcohol outlets and regulations to limit sales during certain days or hours is left to regional governments.**Error! Bookmark not defined.** Industry interference and high levels of social acceptance of alcohol use are cited by health officials as the main reasons for lack of progress.

Among the key priorities identified by WHO and UNIATF for the coming years include increased restrictions on the availability of alcohol through national policies that limit the number and location of alcohol outlets, and prohibit sales during certain days or hours; regulation of direct and indirect advertising of alcohol, and the volume and content of alcohol advertisements; enforcement of advertising law through the development of effective surveillance and deterrence systems; graduated alcohol tax increases that are reflective of the average excise tax (as a percent of retail price) of beer and wine in upper-middle-income-countries (UMIC): 25.86% and 30.3% respectively**Error! Bookmark not defined.**

8.9. Improving surveillance and information systems:

Information and surveillance constraints continue to hamper efforts to prevent NCDs and achieve integrated care. Surveillance data on NCD risk factors through the STEPS survey has not been carried out since 2013. Like in many other LMICs, NCD surveillance in Mongolia is hampered by weak surveillance structures, lack of comprehensive and standardized electronic medical records, inadequate alternate data sources and absence of unique identifiers to link different datasets.

There is no functional and effective electronic health (eHealth) system in the country which could greatly enhance the functionality and effectiveness of primary care systems by connecting providers to achieve horizontal and vertical integration, coordination, and continuity of information over time.3 eHealth systems enable successful communication between facilities and also provide health professionals and patients with the tools to more fully engage with the care process and improve care management and decision making.3 Hence, there is an urgent need to accelerate implementation of existing eHealth pilots in facilities across the country. Furthermore, there is a need for integrating private facilities in NCD surveillance systems and undertake a new population-based STEPS surveys to assess progress on risk factors.

9. Conclusion

Mongolia made substantive progress in improving the health, life expectancy and living standards of its citizens in recent decades. Beyond its success against infectious diseases and maternal and child health, it was among the first LMICs to undertake national level policymaking and planning for NCDs. Its policies thus far have been evidence-based, responsive and flexible and there has been an adaption of its health system to meet its contemporary disease burden. However, many challenges remain – NCDs continue to rise in contribution to mortality and morbidity, most risk factors continue to remain at similar levels despite mitigation strategies (though most also do not appear to be increasing), curative care continues to take up the bulk of health expenditure, secondary and tertiary care remains a principal healthcare

access point for patients, industry interference continues to limit stricter taxation and regulation and political support for prioritization of health promotion has not been consistent.

Mongolia has undergone an epidemiological transition to NCDs, which account for over 85% of mortality in the country; however, its spending priorities still do not adequately reflect this changed disease burden. NCDs still account for just around 20% of health spending and most NCD spending is still concentrated in inpatient care. NCD prevention occupies a small proportion (2.5%) and population-level NCD prevention an even smaller proportion (1%) of overall health spending. Given the significant role of the behavioural, metabolic and environmental risk factors in contributing to the NCD burden, it is essential that investment on population-level prevention is made that is commensurate with the returns and cost-savings that will result.

Secondary and tertiary facilities continue to be heavily prioritized in spending patterns in Mongolia, while primary care continues to be both under-prioritized and bypassed in terms of access to care. Mongolia has taken creditable steps to strengthen primary care in recent years which need to be continued to promote continuum of care and information linkages across primary, district and aimag facilities with a focus on prevention.

Multi-sectoral action features prominently in both previous and current NCD policies and strategies of the Mongolian government. The prior State Health Policy 2000-2014 established the Public Health Council as a coordinating body for public health action, including on NCDs. The National Programme on Prevention and Control of NCDs envisions multilateral cooperation among organizations, communities, families and individuals. The establishment of the Health Promotion Foundation also enabled collaboration with civil society for health promotion, including through the Citizen's Forum for Participation on Health. However, multi-sectoral action has not taken any institutional form and political change and discontinuity and industrial lobbying has at times limited the effectiveness of such action. There is a need for greater clarity over roles and responsibilities for coordination and action, constitutional and financial protection for health protection institutions like HPF and enabling of joint civil society action for NCD prevention.

High levels of salt consumption remains the principal dietary risk in the Mongolian diet, and is one of the main contributors to the high levels of CVD in the country. The UNIATF has identified salt reduction as the most cost-effective policy measure with the highest level of return on investment in prevention measures compared to other NCD interventions. The Mongolian government has achieved some success with pilot measures to reduce salt consumption in targeted areas. This needs to involve investment in surveillance and information/knowledge interventions (including through mass media), while engaging industry in salt reduction in processed foods. Other nutrition-related challenges include rising levels of diabetes and obesity, pointing to the need for focusing fiscal attention on sugar and policy action for reducing obesity.

Despite industry interference, Mongolia has made progress in tobacco regulation and taxation in recent years, with comprehensive advertising and marketing limits, bans on public smoking, restrictions on sales, large health warnings on packs, and increase in tobacco excise taxes to up to 40% of retail price. However, implementation gaps still remain for smoking policies and graduated excise taxes need to be increased and continued in line with inflation to function as effective price deterrents. While progress in alcohol has been slower, owing to stronger industry influence on policymaking, there have nonetheless been measures to restrict alcohol sponsorships, and an increase in taxation by 20%. However, excise tax on alcohol is still below recommended levels and marketing restrictions and sales timings have yet to be imposed at a national level for alcohol.

Both tobacco and alcohol represent important areas for both prevention of NCD risk factors as well as generation of financing for health promotion. In order to substantively reduce their consumption, higher excise taxes to WHO-recommended levels remain the key method for mitigating consumption. Further, the share of the Mongolian Health Promotion Foundation in excise taxes on tobacco and alcohol needs to be sustained and increased as an avenue for strengthened prevention financing, while also exploring the earmarking of other taxes on unhealthy consumption for this purposes – such as on sugar-sweetened beverages (SSBs).

Finally, strengthening surveillance and improving information systems for NCDs remains a key priority for future investment. While population-level surveillance was carried out much more regularly up till 2013, Mongolia has not carried out a STEPS survey for risk factors for 7 years now, which is sorely needed in order to be able to assess the efficacy of policies and plan for the future. This needs to be combined with e-health sentinel systems that integrate various levels of healthcare from the primary to the tertiary as well as the private sector, in order to improve communication, planning and decision-making for strengthened NCD prevention and care.

10. Recommendations:

1. Establish and operationalize dedicated institutions for multi=sectoral action on NCD prevention and control.
2. Prioritize primary level prevention, care and chronic disease management in terms of resource allocation within the health system.
3. Expand pilot salt-reduction initiatives and engage food industry for reformulating processed products (particularly for sausages, pickled vegetables, canned meats, sauces) and adopting front of pack labelling (FOPL).
4. Establish an evidence-based sugar-sweetened beverage tax to both reduce consumption of sugary drinks and earmark part of its revenue for health promotion.
5. Increase alcohol taxes in line with inflation and income increases, for up 26% of beer and 30% of wine.
6. Increase tobacco taxes to FCTC-recommended 70% of retail price through graduated tax increases of 3% per year.
7. Mandate plain packaging for all tobacco products and impose and enforce bans on indirect tobacco advertising.
8. Increase restrictions on alcohol availability, prohibit sales during certain hours, regulate and monitor alcohol advertising and enforce advertising law.
9. Initiate and allocate resources for national campaign for community-based physical activity ad healthy lifestyle promotion and ensure infrastructure for its implementation.
10. Support and increase fiscal resource pool for the Health Promotion Fund.
11. Connect providers across tiers and region through strengthening e-Health infrastructure to achieve horizontal and vertical integration, coordination, and continuity of information for NCDs.
12. Undertake comprehensive risk factor survey for NCDs to enable surveillance and evaluate policy approach.

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References:

[1] World Health Organization. Mongolia–WHO Country Cooperation Strategy 2017–2021. WPRO/2017/DPM/ 005, 2017.

[2] UN Interagency Taskforce on NCDs. The Investment Case for Noncommunicable Disease Prevention and Control in Mongolia: Return on Investment Analysis & Institutional Context Analysis. WHO/NMH/NMA/17.55, 2017

[3] World Bank, 2018. Mongolia: Growing without undue borrowing: Enhancing efficiency of spending and review. Public Expenditure Review. World Bank Group: Mongolia.

[4] Institute of Health Metrics and Evaluation (IHME). 2017. Retrieved from www.healthdata.org/Mongolia

[5] Dugee, Otgontuya et al. Who is bearing the financial burden of non-communicable diseases in Mongolia?Journalof Global Health. 2018 Jun; 8(1): 010415.

[6] L. Lim. "Widespread Alcohol Abuse Clouds Mongolia's Future," National Public Radio. 2009.

[7] World Health Organization. STEPS survey on the prevalence of noncommunicable disease and injury risk factors, Mongolia-2013 summary of findings. Ulaanbaatar, Mongolia: World Health Organization. 2014.

[8] A. R. Demaio, O. Dugee, M. de Courten, I. C. Bygbjerg, P. Enkhtuya, and D. W. Meyrowitsch. "Exploring knowledge, attitudes, and practices related to alcohol in Mongolia: a national population-based survey," BMC Public Health. 2013. Vol. 13, p. 178.

[9] Ministry of Health. "Salt intake of the population: Survey report, Mongolia," Government of Mongolia. 2013.

[10] Enkhtungalag, B, et al. Developing a national salt reduction strategy for Mongolia. Cardiovascular Diagnosis and Therapy. 2015. Jun;5(3):229-37. doi: 10.3978/j.issn.2223-3652.2015.04.11.

[11] Hikita, Naoko et al. Factors Associated with Hypertension Among Men in Darkhan-Uul Province, Mongolia: A Cross-Sectional Study. Asian Pac Isl Nurs J. 2020; 4(4): 151–158.

[12] WHO. "Global Health Expenditure Database, 2018." Geneva: WHO. 2018.

[13]Chimeddamba, Oyun, et al/ Noncommunicable disease prevention and control in Mongolia: a policy analysis, BMC public health. 2015. Vol. 15, Article Number : 660, pp. 1- 10.

[14] Government of Mongolia. Resolution No. 289: Adoption of the National Programme on the prevention and control of Non-Communicable diseases. Ulaanbaatar, Mongolia. 2017.

[15] Government of Mongolia. Resolution No. 24: Approve State Policy on Health. Ulaanbaatar, Mongolia. 2017.

[16]WHO FCTC. Mongolia – Comprehensive tobacco control legislation revised. 2013. Retrieved from <https://www.who.int/fctc/implementation/news/news_mon/en/>

[17] Armstrong, S and Tsogtbaatar, B. "The dual nature of alcohol use and abuse in Mongolia: reflections through policy," Asia Pac J Public Health. 2010. Vol. 22, no. 3 Suppl, p. 209S–215S.

[18] Ministry of Health; Millennium Challenge Corporation. “Supporting Mongolia’s Fight against Non-communicable disease: A five year project and its achievements.’ 2013.
[19] B. Erdenechimeg. “Tax rates on vehicle, alcoholic products and tobacco to increase,” GoGo Mongolia. 2017.
[20] Report of Mongolian Chapter of the Alliance for Healthy Cities. Healthy City Network of Mongolia. 2019.
[21] Otgontuya D et al. Audited annual expenditures of Ministry of Health facilities; Social Insurance General Office (SIGO) hospital claim and drug reimbursement records; and Ministry of Finance budget allocation records. 2017.
[22] Otgontuya D et al. Mongolia’s Public Spending On Noncommunicable Diseases Is Similar To The Spending Of Higher-Income Countries. Health Affairs. 2017. 36, NO. 5: 918–925.
[23] World Health Organization. Non-communicable disease country profiles: Mongolia. 2018.
[24] Global Nutrition Report. Country Nutrition Profiles: Mongolia. 2018.
[25]Javadinaseb, Hamideh et al. Sustainable financing of health promotion services in selected countries: Best experience for developing countries. Med J Islam Repub Iran. 2019; 33: 52.
[26]Tsoghuu, Uranchimeg. To Fight Mongolia’s Drinking Crisis, Recovering Alcoholics Offer a Lifeline. Global Press Journal. March 22, 2020.
[27]World Health Organization. Global status report on alcohol and health 2018. 2018.