The policy agenda for prevention and control of non-communicable diseases

Shanthi Mendis*

Chronic Disease Prevention and Management, World Health Organization, Geneva, Switzerland

Robust national policies and strategies developed and owned by national authorities are fundamental for prevention and control of non-communicable diseases (NCDs). The objective of this paper is to address broad policy areas in respect of NCD prevention and control from a public health perspective, with a special focus on low- and middle-income countries (LMIC). The paper is a condensation of current World Health Organization (WHO) reports in this field supported by relevant literature obtained from a Medline search for the period 2000–2010. There is a strong evidence base that underpins the NCD policy agenda. National NCD policies can make a substantive impact on public health in LMIC if they are geared to addressing primary prevention and equity of health systems. National NCD policies help to catalyse, and coherently integrate regulatory, legislative and multisectoral actions across health and other health relevant sectors. Such multisectoral action is integral for creation of conducive environments to support healthy behaviours. There is agreement that health systems need reconfiguration to ensure equitable access to essential NCD interventions. Although the magnitude of the NCD burden is high and is growing in LMIC, international development assistance to address the burden remains negligible. How exactly gaps in formulation, and implementation of NCD policies can be addressed when there are severe limitations in human resource capacity, financial resources and competing health priorities in LMIC is not clear. Context-specific research is required to address implementation gaps in NCD policy, as policy development and implementation are driven by political realities and cultural specificities. Research is also needed to develop innovative approaches for revenue generation for prevention and control of NCDs.

Keywords: non-communicable diseases/policies/evidence/public sector/prevention/inequalities

Accepted: October 4, 2010
Introduction

Non-communicable diseases (NCDs) account for 60% of the global mortality. The other 40% of deaths are due to communicable diseases, maternal and child illnesses and violence and injuries. Of the 35 million deaths attributable to NCDs annually, about 80% are in low- and middle-income countries (LMIC) and 26% are premature deaths. From 2006 to 2015, deaths due to NCDs are expected to increase by 17%, while deaths from infectious diseases, nutritional deficiencies, and maternal and perinatal conditions combined are projected to decline by 3%.

The major NCDs (cardiovascular disease, cancer, diabetes and chronic respiratory disease) share common behavioural risk factors (tobacco, unhealthy diet, physical inactivity and the harmful use of alcohol) and provide common pathways for prevention. Majority of diseases defined as NCDs are not caused directly by infectious agents. Cervical cancer and rheumatic heart disease are exceptions. The potential for prevention of NCDs range from 30% for cancer to 75% for cardiovascular disease and is neglected in the majority of countries.

This paper addresses broad policy areas in respect of NCD prevention and control with a special focus on LMIC. It presents an overview of the current understanding, status of development and implementation of NCD policies from the perspective of the leading global public health agency: the World Health Organization (WHO).

Sources of data

The paper is a condensation of current WHO reports in this field supported by relevant literature obtained from a Medline search of the period 2000–2010. Several published and unpublished World Health Organization documents were key in developing the background and arguments.

What constitutes a national NCD policy framework?

Policies for prevention and control of NCDs need to address the unhealthy behaviours of people including tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol. These behaviours are influenced by economic growth, globalization and unplanned urbanization. Health education and counseling efforts of health professionals can improve health literacy and play an important role. However, changing the behaviour of people is challenging and cannot be
accomplished by health education alone. An enabling policy environment is fundamental for sustaining healthy behaviour. This requires health to be a key consideration of sector-wide public policies in domains such as transport, agriculture, education, finance, social services and trade. Only such a supportive policy environment can provide people opportunities and affordable choices to adopt healthy behaviour in relation to diet, physical activity, tobacco and alcohol use.5,6

A NCD policy, particularly if embedded with the national health strategy can ensure policy coherence and facilitate collaboration and coordinated multisectoral action of relevant ministries outside the health sector.6–9 Complementary health-care policies need to provide the basis for early detection and treatment of risk factors and diseases, preferably through a primary health-care approach which can ensure equity.10

Policies to support regulatory, legislative and intersectoral action

For prevention of NCDs, people need to adopt healthy living choices. Knowledge, beliefs, attitudes and skills of people determine whether they adopt and maintain healthy behaviours. Counseling provided by health workers often plays an important role in educating patients, families and communities and motivating change of behaviour. In addition, behaviour change often requires conducive and supportive environments in which policies make healthy choices easy and affordable. Policies that support tobacco control, healthy nutrition, physical activity and prevention of harmful use of alcohol play a key role in NCD prevention and control and require multistakeholder efforts.5–8 Multisectoral policies have been effectively applied to ‘settings of everyday life’ in developed and developing countries.11–28

Although policy setting to protect the health of populations is primarily the business of the Ministries of Health, historically it has often been professional groups and non-governmental organizations that have had to cajole ministries into action. For example, in 1962, the Royal College of Physicians first called for radical policies to reduce the prevalence of smoking. Their successful advocacy efforts contributed to the early formulation and implementation of tobacco control policies in the UK.29 More recently, global and national non-governmental organizations have spearheaded advocacy campaigns that have stimulated government action to control salt in processed food.30
Health professionals need to have a thorough insight on the essential ingredients required at policy and programmatic levels for prevention and control of NCDs. They may play the role of NCD champions, advocates or educators in LMIC, they are often appointed to policy-making positions or as NCD focal points in the Ministries of Health. It is particularly important that they recognize the fact that detection of NCDs and treatment alone are grossly insufficient to reduce the NCD burden and that a comprehensive public health approach is required for this purpose. Practicing physicians can also make an important contribution to the implementation of the broad NCD policy agenda through evidence-based clinical practice, patient centred care and using opportunities in their practice to promote prevention at individual and family levels.

Tobacco control policies

If all countries implement and enforce six effective tobacco control policies, populations worldwide can be protected from morbidity and premature death caused by tobacco. These policies should be aimed at monitoring tobacco use, protection of people from tobacco smoke, support for tobacco cessation, warning the public about the dangers of tobacco, enforcing bans on tobacco advertising and raising taxes on tobacco products.

The WHO Framework Convention on Tobacco Control (WHO FCTC) represents a regulatory strategy to address factors that drive the global tobacco epidemic. These factors include global marketing, transnational tobacco advertising, trade liberalization and direct foreign investment and the international movement of contraband and counterfeit tobacco products. WHO FCTC asserts the importance of demand reduction strategies (price, tax and other measures, etc.) as well as supply issues (illicit trade, sales to minors, economically viable alternatives to tobacco, etc). The WHO FCTC has 168 signatories.

As a result of strong tobacco control policies, the prevalence rates of smoking in developed countries have declined significantly over the last 10 years. For example, Norway, which had strong tobacco control policies even before the FCTC was one of the first to ratify the FCTC. Norway has a complete ban on smoking in bars and restaurants and legal protection from exposure to tobacco smoke in workplaces. The age limit for buying tobacco is 18 years. Reducing tobacco use is mainly done through: (i) preventing the uptake supported by legislative measures, high prices of tobacco products, educational programmes in school and communication measures; (ii) smoking cessation supported through a quit line, counseling by health
personnel, tobacco cessation courses and access to nicotine replacement therapy.

In November 2009, the Council of the European Union adopted a recommendation calling on Member States to take legal action by 2012 to protect their citizens from exposure to tobacco smoke in public places. In 2009, Australia and Canada passed legislation to support various aspects of tobacco control. Several LMIC have also made progress in implementing tobacco control policies. They include Egypt, Brazil, Mauritius, Panama, Seychelles, South Africa, Thailand, Turkey and Uruguay among others.

**Nutrition policy**

There is strong evidence of the link between intake of trans fat, excessive salt consumption, low consumption of fruits and vegetables, high consumption of saturated fat and free sugars and NCDs. Three major processes are related to globalization: (i) production and trade of agricultural goods; (ii) foreign direct investment in food processing and retailing; and (iii) global food advertising and promotion. They are driving up the consumption of trans fat, salt, saturated fat and free sugars. Understanding these links between globalization and the diet transition can help policy-makers develop appropriate policies, for addressing the burden of NCDs.

At the individual level, healthy food preparation and consumption need to be guided through health education and counseling by health professionals. At the national level, complementary nutrition policies are required to ensure food content balance and quantity consumed. Such policies need to support infant feeding, provision of healthy meals in schools, labeling of food, responsible marketing of food and beverages to children, consumer education and capacity building of key personnel.

Strategies to reduce population-wide salt and trans fat intake have been shown to be cost-effective. Intake of trans fat and salt in developed countries are mainly through processed foods and people have little control over the intake. The average daily salt consumption in most populations exceeds recommendations from WHO/FAO of 5 g per day. Government leadership, multi-faceted actions including food reformulation, consumer education, food labeling as well as interaction and negotiation with food manufacturers and monitoring of impact have been shown to be fundamental to the success of ongoing salt reduction strategies. Policies for salt reduction have been successfully implemented in many developed countries including Australia, Belgium, Canada, Denmark, Finland, France, Ireland, Italy, Japan,
Netherlands, New Zealand, Norway, Singapore, Switzerland, the UK and the USA. In the European Union, there are efforts to implement a common salt reduction strategy across all Member States. In LMIC, salt in processed food contribute less to the daily salt intake. In these settings, health workers have an important role to play in educating patients and families on reducing the addition of salt during food preparation. Other countries, which are actively pursuing policies for reducing the consumption of salt, include Argentina, Barbados, Brazil, Bulgaria, Chile, China, Cyprus, Fiji, Hungary, Latvia, Lithuania, Malaysia, Poland, Portugal and Slovenia.

A few countries also have active initiatives to reduce industrially produced trans fat. In general, there is heightened political awareness regarding the health importance of salt and trans fatty acid reduction strategies worldwide.

Given the strong evidence confirming the benefit of reduction on salt and trans fat intake on health, multinational food industries have a social responsibility to harmonize the salt and trans fat contents of their products marketed in developed and developing countries according to the lowest threshold possible. In several States in the USA, restaurants are complying with these policies and even using Trans fat-free status as a marketing strategy. Uptake of such policies in LMIC need to be enhanced through: (i) exchange of information on lessons learned between countries; (ii) consumer education on health benefits and (iii) improving availability of healthier oil alternatives to replace partially hydrogenated fats in baking.

A diet high in fruits and vegetables is important for maintaining a healthy weight, and prevention of NCDs. In this respect, there are several key policy areas that can influence growers and retailers in getting fruits and vegetables from farms to consumers. In most developing countries, there are no policy incentives (e.g. agricultural subsidies) for growing and marketing of fruits and vegetables. Further, weak road infrastructure jeopardizes the transport and distribution of these perishable commodities from rural farms to urban markets.

Even in developed countries, stronger policies are needed to improve fruit and vegetable intake and surveys indicate that less than one-third of the population meet the recommendations for fruit and vegetable consumption. Food Policy Councils made up of many agencies and community organizations have been established in some developed countries to improve access of fruits and vegetables at the community and state levels. They provide a mechanism for government officials, health professionals, employers, food store owners, farmers, school staff and community members to work together on food and nutrition issues. These councils make recommendations about policies related to
farm to school programmes, community gardens, farmers markets and availability of fresh produce in supermarkets.\textsuperscript{54,55}

Policies to optimize women’s diet before and throughout pregnancy are critical for prevention of congenital heart disease, neural tube defects and other birth defects.\textsuperscript{41} In this respect, prevention policies that should receive the highest priority, which are endorsed by the World Health Assembly include the following:\textsuperscript{41}

- promotion of universal use of salt fortified with iodine to prevent iodine deficiency disorder;
- promotion of staple food fortified with folic acid and use of supplementary multivitamins with folic acid to prevent neural tube defects and other malformations.

Promoting the use of iodized salt should not result in excessive salt consumption. National policies need to ensure universal access to iodized salt. Carefully crafted messages should provide guidance to consume iodized salt only, while keeping the daily consumption of salt below recommended levels. This way conflict between reduction of the salt consumption and the consumption of iodized salt can be avoided.

Indoor air pollution is another neglected area that calls multisectoral action and consideration of principles of sustainable development in public health policy. Indoor cooking and heating with solid fuels result in indoor smoke-containing health damaging pollutants, which is an important aetiological factor for nearly 1.5 million deaths due to respiratory disease. The majority of those affected are from lower socioeconomic groups.\textsuperscript{1,2} National policies with respect to household energy sources need to take into consideration many cost-effective interventions available for mitigating the adverse health impact of indoor smoke.\textsuperscript{56} They include improved stoves for burning solid fuels more efficiently, structural measures to improve ventilation and alternate energy sources such as liquid petroleum gas, solar power and electricity. Although the public health gains of enacting policies in such areas are high, they are yet to become a central focus of development or policy-making in LMIC.

**Improve physical activity**

Due to inadequate physical activity and unhealthy diet, the incidence of obesity is increasing worldwide.\textsuperscript{5,6} Resulting diseases such as type 2 diabetes, cardiovascular diseases and certain forms of cancer are major contributors to the NCD epidemic.\textsuperscript{5,6}

In most developed countries, a mixture of policies are in place\textsuperscript{13–18} to ensure that physical environments support safe and active
commuting and for creating space for recreational activities including measures to:

- ensure that walking, cycling and physical activity are accessible to all age groups including children and the elderly,
- support school health programmes,
- improve sports, recreation and leisure facilities,
- improve safe spaces available for playing,
- promote active and safe transport.

Currently, urban planning policies in most LMIC do not facilitate active travel to work (walking, cycling) and leisure time physical activities. Current climate in urban settings of LMIC of heavy traffic, narrow roads, few cycle lanes, and no park areas are not conducive to physical activity and in fact pose health risks of accidents. However, in some major cities the amount of cycling to work and school has doubled in recent years due to health-sensitive transport policies creating safe cycling routes to schools and more possibilities for cycling.

Transport policies in LMIC need to be designed to promote the use of public transport and dissuade the use of private vehicles. Using public transport usually involves walking to and from bus stop or station, encouraging physical activity. Further such policies would help to reduce the health risk related to air pollution in major cities particularly in LMIC. Transport policies can also have an effect on social interaction within neighbourhoods and impact on social networking and social exclusion, which in turn impacts on health. A lack of suitable transport can also be a major factor in lower socioeconomic groups having fewer opportunities to access to health care.

Many LMIC have yet to focus attention on policies to promote physical activity and a healthy diet. A review of published policies related to the WHO Global Strategy on Diet, Physical Activity and Health in the African Region showed that only about two-thirds of countries had incorporated actions to promote healthy diets and/or physical activity in the national policy.

**Decrease harmful use of alcohol**

Harmful use of alcohol causes chronic liver disease and in addition negatively impacts on health outcomes of other major NCDs. The second global status report on alcohol published by WHO provides an update on the status, evidence and policies related to harmful use of alcohol.

In 2010, the World Health Assembly endorsed the Global Strategy to prevent harmful use of alcohol. The strategy provides policy options
and interventions in 10 target areas for consideration by Member States. The target areas include leadership; awareness and commitment; health services’ response; community action; drink–driving policies and countermeasures; availability of alcohol; marketing of alcoholic beverages; pricing policies; reducing the negative consequences of drinking and alcohol intoxication; reducing the public health impact of illicit alcohol and informally produced alcohol and monitoring and surveillance. Currently such policies to decrease harmful use of alcohol are weak worldwide.

**Health system policies for NCD prevention and control**

Sound health system policies are required to provide equitable care for NCDs. It is a challenge to provide universal access to all NCD interventions in the public sector when resources are limited. Health system policies need to ensure that in such settings at least a core set of cost-effective interventions are available to all, based on need. These include interventions: (i) to detect and treat individuals at high risk; (ii) for early treatment of manifest NCDs; (iii) and interventions for prevention of recurrences in those with established disease. Health system also needs to be configured to deal with both the acute and chronic manifestations of NCDs and equity should be a paramount concern in the delivery of NCD care.

Current medical treatment of NCDs in hospital settings make an increasing burden on health-care costs in all countries, and more attention could be given to prevention and palliative and community care of ageing populations to reduce health-care costs.

At present, there are many developing countries, which have a per capita expenditure on health that does not enable them to provide even basic NCD interventions in primary care. Low public sector availability of basic services drives patients to the private sector resulting in heavy out of pocket expenditure contributing to worsening of poverty levels.

Often, patients do not come for follow-up or adhere to treatment because of the high cost of care and succumb to NCD complications, e.g. strokes, heart attacks, diabetes amputations or renal failure. As most of these countries lack health insurance schemes and the out of pocket expenditure for health is high these illnesses result in catastrophic spending.

Further, frequent hospitalizations due to complications and disease exacerbations overwhelm already strained health-care budgets.

This state of affairs result from multifaceted weaknesses in governance, health-care workforce, health financing, access to basic
diagnostics and medicines, care coordination, medical information and referral systems.\textsuperscript{66,71,72} The success of NCD prevention and control programmes is dependent to a large extent on broader reform measures, which can address these constraints in the health systems. However, such reforms are complex to implement and the impact may take several years to be visible. Broad reforms are made even more difficult as there is a scarcity of evidence on what policies work in LMICs to improve financial and delivery arrangements for NCDs.

Several health systems approaches for strengthening governance, financial and delivery arrangements of NCD care have been identified.\textsuperscript{73,74} They include task shifting from doctors to nurses and lay providers and quality improvement strategies including those tailored to address identified barriers.\textsuperscript{73} Financial incentives to influence provider and patient behaviour have been shown to improve quality but have resulted in providers manipulating the system to maximize payments.\textsuperscript{73,75} User fees has been reported to reduce the use of both essential and non-essential health services. However, removal of user fees has had undesirable consequences, such as increased demands for unnecessary services that may outstrip the capacity of the system.\textsuperscript{73,75} Co-payment and cap policies have been shown to reduce drug use and expenditure but cause disease exacerbations resulting in increased use of health services thereby increasing the overall costs.\textsuperscript{76} While conditional cash transfers have been reported to increase utilization of preventive services, community-based health insurance has been shown to increase the uptake of health services.\textsuperscript{77}

A review of governance strategies for working with the private for-profit sector has reported that regulation, accreditation and franchising interventions had certain positive effects on the quality of services.\textsuperscript{78} A review that examined the substitution of nurse practitioners for doctors in primary care reported that care processes and patients outcomes are similar for both groups and that there was more patient satisfaction from nurse practitioners than from doctors.\textsuperscript{74} Suitable policies and strategies for delivery of NCD interventions need to be researched in different settings as their effectiveness is often context driven due to specificities in the training of nurses and doctors, differences in working conditions, patients populations and the organization of health care.

Given the rapidly rising burden of NCDs in LMIC, policies are needed to give immediate priority to the delivery of essential NCD interventions using integrated approaches to bring together resources, organization and delivery of services. Health system strengthening approaches that address the root causes of weak health systems should be reciprocal and complementary to these efforts.

Cost-effective interventions are available for prevention and control of NCDs, with the potential to reduce complications, disability and
premature deaths from major NCDs.\textsuperscript{66,79} In developed countries, launching NCD-specific responses within health systems have contributed considerably to declining NCD trends.\textsuperscript{80} Health systems in LMIC are not geared to provide universal access to all NCD interventions considered cost-effective in the context of high-income countries. Currently, even those NCD interventions that do not require sophisticated technology for implementation are not reaching the majority in LMIC.\textsuperscript{81}

In many LMIC with mixed health systems, non-governmental organizations and the private sector usefully contribute to service delivery. Policy development need to garner the strengths of these players by ensuring that they are appropriately engaged to contribute to these functions under the stewardship of the Ministries of Health\textsuperscript{5,6}.

\textit{Vaccination policies for prevention of NCDs}

Prevention of NCDs (cervical cancer and congenital heart disease) also require evidence-informed national immunization policies. Currently, 67 countries do not have national rubella immunization programmes, which can play a key role in the prevention of congenital heart disease and other birth defects.\textsuperscript{40} Vaccination against Hepatitis B and Human Papillloma virus have the potential to improve prevention of primary cancer of liver and cancer of cervix, respectively, worldwide. Current high cost of vaccines prevent them from been widely applied in LMIC, even though these infections are responsible for a significant proportion of cancers.\textsuperscript{4}

\textit{Policies for improving access to technologies and medicines}

NCDs require long-term care that often include multiple medications due to comorbidity. Poor access to essential technologies and medicines is another major health system constraint that make delivery of NCD interventions difficult. Although they are required for health systems in general, they are of particular importance for NCD care. Compared with most communicable diseases, diagnosis and management of NCDs require more resources because of the cost of diagnostics and the long-term needs for medicines. There are many causes for high prices, low availability and poor affordability of technologies and medicines. They include, low public sector availability; under-budgeting and inaccurate forecasting; inefficient procurement distribution; high private sector prices; high import costs and mark-ups and taxes and tariffs on medicines.\textsuperscript{82}

Many policy options exist to address the problems alluded to above. They include prioritized budget, i.e. target widespread access to a limited number of essential technologies and generic medicines required for a core set of essential NCD interventions; promotion of good-quality
products; improved procurement efficiency; adequate, equitable, and sustainable financing; separation of prescribing and dispensing of medicines; control of import, wholesale and/or retail mark-ups through regressive mark-up schemes; provision of tax exemptions for essential technologies and medicines and price regulation.\textsuperscript{72,82} There are country examples that demonstrate the effectiveness of policies to promote the use of generic medicines (preferential registration procedures, quality of generic products, generic substitution and incentives for the dispensing of generics, consumer education on availability and acceptability of generics) and provision of tax exemptions for medicines.\textsuperscript{82}

**Potential contribution of tax policies for revenue generation for health**

Lack of fair financing of health care is one of the major impediments to the provision of equitable NCD care in most LMIC.\textsuperscript{83} Lack of insurance cover with predominant out of pocket payments in LMIC, make treatment inaccessible for the majority. Broader reform measures are required to strengthen the resource base of public financing of health care through conventional and innovative means.

Examples of innovative revenue generation for NCDs exist. Tax on tobacco products and soft drinks have been successfully used to ease revenue shortfall for health, although governments face much opposition from the business community in the development and implementation of such policies.\textsuperscript{84–86}

The Thai Health Promotion Foundation for example is using tobacco tax mechanisms for tobacco control.\textsuperscript{85} Through this structure, there has been advancement of tobacco control activities with a decline in the number of smokers and sustainable funding for health promotion activities.

Mexico has a very high prevalence of obesity and diabetes due to high rates of consumption of processed food and multinational drink products. The per capita consumption of soft drinks is the highest anywhere in Latin America. Recently, Mexico outlined policies for new food and beverage taxes designed to offset declining revenues, while at the same time encouraging consumers to opt for healthier options.\textsuperscript{86} New policies will support taxes on soft drinks, increased duties on beer and removal of tax exemptions for food with high calories and low nutritional value.

**Formulation of public policy to address social justice and for reduction of social gradients of NCD**

Values, ethics and a human rights-based approach need to underpin the development of all public health policies including those that
address prevention and control of NCDs particularly in LMIC. These aspects have a greater likelihood of influencing the success of NCD prevention and control than of other health conditions because of the life-long nature and multifactorial aetiology of NCDs. A rights-based approach is the assertion that health is a right of every human being and not a commodity to be bought, sold or provided merely on a charitable basis. In this context human rights implications of health and non-health sector polices need to be scrutinized so that they are health promoting and not damaging to health, particularly to vulnerable groups in society, e.g. children, elderly, poor and migrants. Ingredients of a human rights-based approach to health are well recognized. Yet, in the area of NCDs many examples of human rights violations can be given. A few of them include (i) multinational companies making unethical profits selling health damaging products to minors and the illiterate; (ii) children with type 1 diabetes denied access to insulin; (iii) patients with advanced cancer undergoing undignified suffering due to lack of access to pain-relieving medicines; (iv) people developing NCD complications such as amputations, strokes and heart attacks because of lack of access to basic health interventions. Governments, development agencies, international organizations, the private sector and commercial entities have an obligation to shape appropriate public policies to alleviate such social injustice.

Access to health care cannot be left to free market forces and ability and willingness to pay but should be determined based on the need. Public Policies need to address issues of social justice, inadequate investment in health and suboptimal use of resources.

Stakeholders including clinicians and the public may not appreciate the need for public health approaches to ensure equity and social justice. Managing the aspirations and expectations of people and their demands for clinical care and setting public policy may clash with each other. Even if there is political will, there is a high political cost attached to taxation of foods and beverages, which therefore may not happen. Particularly when resources are limited, public policy formulation should set priorities and select interventions for implementation based on cost-effectiveness, impact, feasibility of implementation and reach. This way practices that are not cost-effective can be discontinued and be replaced with those that are cost-effective.

The social gradient in health refers to the fact that inequalities in population health status are related to inequalities in social status. Reduction of health inequalities related to NCDs and addressing the needs of all socioeconomic groups should be a central goal of public health policy. In order to achieve this goal, it is necessary to change the social distribution of health determinants, particularly the social distribution of resources and access to opportunities and
Mechanisms need to be established to ensure cross-sectoral cooperation to identify and rectify factors that increase vulnerability, exposure to risk and poor health outcomes of disadvantaged segments of the population. In relation to NCDs, such an approach needs to address:

(i) social inequalities in health-related behaviour, such as nutrition, physical activity, tobacco use and alcohol abuse;
(ii) social inequalities in access and utilization of health services;
(iii) social inequalities that contribute to inequalities in health, e.g. income, education, employment, childhood conditions, working environment, social exclusion.

There are good practice examples of reducing social gradients of NCD from developed countries. Most of them have invested a large portion of public expenditure on prevention and community and social matters (education, health service, social security and welfare, housing, religious, leisure and cultural services).

**Need for evidence informed policy-making and policy implementation**

Efforts to ensure utilization of data related to NCD risk factors, mortality and morbidity for policy formulation are key for tracking the NCD burden and evaluating the impact of programmes. These efforts need to go beyond a one-off survey to institutionalizing the surveillance and monitoring of NCDs within public health information systems, using standard methods. Many LMIC lack a central Institute of Public Health or a unit in the Ministry of Health, which could address this function in a sustainable fashion.

The capacity of Ministries of Health for policy development, implementation and evaluation is key for prevention and control of NCDs. Systematic synthesis of evidence and its input into the policy-making process is of fundamental importance. Consequences of haphazard policy decisions can be particularly damaging in LMIC. For example, the current policy in most LMIC of neglecting prevention and early detection of high-risk status in favour of treatment of NCDs and their complications have little population health impact and result in unnecessary costs, inefficient use of resources and damage to the health of the people.

There is a significant gap between what is known to maximize health outcomes in relation to NCDs and what is been delivered in practice. To address this gap, national polices should prioritize NCD research that is geared to making the biggest impact on public health and align
public research funding with these priorities. Special attention need to be given to research the capacity of systems in LMIC to implement NCD policies; interactions of competing interests groups, contextual barriers for using evidence to inform policy and determinants of policy diffusion.

In 2000, when the Global Strategy for NCD prevention and control was endorsed by the World Health Assembly, few LMIC had explicit national NCD policies. Since then, all WHO Regions have reported progress in supporting Ministries of Health in national policy development.\textsuperscript{94–99} Currently 121 WHO Member States have a written NCD policy that is at different stages of operationalization.\textsuperscript{94–102} The major challenge lies in transforming the written national policies into practical actions. In LMIC a written policy does not necessarily drive implementation. To facilitate effective implementation, priority setting as well as pragmatic strategies and tools are required. For example, implementation could be facilitated if there are tools available for identification of (i) the nature of constraints and barriers; (ii) factors that facilitate behaviour change of people and practice patterns of health-care professionals; (iii) pragmatic approaches to bring about the necessary organizational and systems changes; (iv) factors that motivate different stakeholders and (v) viable options and the costs and consequences of options.\textsuperscript{92,93}

Many LMIC countries are now seeking support to formulate and implement national NCD policies, plans and programmes.\textsuperscript{94–100} But such requests remain largely unanswered by the international development agencies, mainly because NCDs (with the exception of cervical cancer) are not included in the framework of the Millennium Development Goals.\textsuperscript{103} Although NCDs are a major public health issue in LMIC, they do not get the attention that they deserve due to lack of awareness of political leaders, misconception (e.g. mistaken belief that there are no feasible solutions for NCDs) and competing priorities. In this respect, the UN resolution\textsuperscript{104} on ‘Prevention and Control of Non-communicable Diseases’, adopted by Member States in May 2010, expressing their unanimous agreement on the urgent need to combat NCDs is timely and decisive. The resolution calls for the convening of a High-Level Meeting of the United Nations General Assembly in September 2011, with the participation of Heads of State and Government. The resolution also links the addressing of NCDs to the achievement of the Millennium Development Goals, underscoring both the health and developmental consequences of NCDs. This is a key milestone in the history of NCD prevention and control. It will bring NCDs into the centre of the global health arena and hopefully provide much needed resources and political commitment to move the NCD policy agenda forward in LMIC.
Conclusions

Most NCDs have long incubation periods and require long-haul policy actions to bring about change. The long incubation periods also provide windows of opportunity for control of metabolic risk factors of NCDs (obesity, hypertension, hyperlipidemia) and prevention of complications of NCDs (e.g. heart attacks, strokes, heart failure, blindness, diabetic amputations and end stage renal disease).

The policy agenda for NCD prevention and control is informed by a strong evidence base. There is agreement that policy action needs to: (i) encompass public policies related to non-health sectors, (ii) shift the distribution of NCD risk factors in the population while addressing their social gradients and (iii) ensure equitable delivery of evidence-based prevention and curative interventions. There is also agreement on the content of the policies required to bring about the above changes through system and environmental changes and regulatory and legislative mechanisms.

Research is required to investigate how strategies, which have been effective in advancing the NCD policy agenda in developed countries, such as decentralization of activities, co-responsibility of stakeholders for implementation and mainstreaming NCDs in the development agenda should be adapted to the context of LMIC.

Disclaimer

The views expressed in the document by the author are solely the responsibility of the author. This document is not a formal publication of the World Health Organization (WHO).

References

43 Hawkes C. Uneven dietary development: linking the policies and processes of globalization with the nutrition transition, obesity and diet-related chronic diseases. *Global Health* 2006;2:4.

S. Mendis
83 Hsiao WC. Why is a systemic view of health financing necessary? Health Aff (Millwood) 2007;26:950–61.
