World Health Organization

SECOND WHO DISCUSSION PAPER
(Version dated 22 March 2012)

A COMPREHENSIVE GLOBAL MONITORING FRAMEWORK INCLUDING INDICATORS AND A SET OF VOLUNTARY GLOBAL TARGETS FOR THE PREVENTION AND CONTROL OF NONCOMMUNICABALE DISEASES

Introduction

Noncommunicable diseases (NCDs) are currently the leading global cause of death worldwide. In 2008 of the 57 million deaths that occurred globally, 36 million – almost two thirds – were due to NCDs, comprising mainly of cardiovascular diseases, cancers, diabetes and chronic lung diseases *(1)*. The combined burden of these diseases is rapidly increasing in lower income countries. About one fourth of the global NCD-related deaths occur before the age of 60 *(2)*.

A large proportion of NCDs are preventable. They share modifiable behavioural risk factors such as tobacco use, unhealthy diet, lack of physical activity, and the harmful use of alcohol. These risk factors lead to overweight and obesity, raised blood pressure, and raised cholesterol. If no action is taken, over the next three decades, the cost of NCD burden will amount to trillions of dollars of lost resources *(3)*. Feasible and cost-effective interventions to reduce the burden and impact of NCDs exist, and sustained action to prevent risk factors and improve health care can avert millions of preventable premature deaths *(4)*.

The Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases *(5)* addresses key components: surveillance, prevention, and health care. Surveillance aims to monitor NCDs, and to analyse their social, economic, behavioural and political determinants in order to provide guidance for policy, legislative and financial measures.

The importance of surveillance and monitoring of progress made in the prevention and control of NCDs, was emphasized during the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases, which was held from 19 to 20 September 2011 in New York, United States of America. Resolution 66/2 on the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases *(6)* was adopted by the General Assembly on 19 September 2011. It calls upon WHO, before the end of 2012, to:

i. develop a comprehensive global monitoring framework, including a set of indicators, capable of application across regional and country settings, including through multisectoral process, to monitor trends and to assess progress made in the implementation of national strategies and plans on NCDs;

ii. prepare recommendations for a set of voluntary global targets for the prevention and control of NCDs.

The Political Declaration also urges Member States to consider the development of national targets and indicators, based on national situations, building on guidance provided by WHO.

This second discussion paper puts forward a comprehensive monitoring framework, including a set of indicators and targets, which encompass country and global components. The framework is underpinned by a set of general principles, building on experiences gained from the monitoring of other global initiatives for health and development, such as the Millennium Development Goals (MDGs) and the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS.

Process

The development of the global monitoring framework, including a set of indicators and voluntary targets is based on a consultative process, building on the position on NCD surveillance as described in the Global Status Report on Noncommunicable Diseases 2010. In January 2011, WHO established a Technical Working Group to develop an NCD framework and indicators with selected targets. The development process to date is as follows:

1. Recommendations of the Technical Working Group on targets to monitor progress in reducing the NCD burden were posted on the WHO website in July 2011 for a web-based consultation. Nineteen Member States submitted comments.
2. The first discussion paper outlines a comprehensive global monitoring framework and the technical background for developing a set of voluntary global targets.
3. Between December 2011 and the end of February 2012, WHO conducted a web-based consultation with Member States. Twenty-one Member States submitted comments.
4. An informal dialogue with relevant NGOs was held on 15 December 2011, and a face to face consultation with Member States and UN agencies was held on 9 January 2012. The aim of the consultation was to seek further inputs from Member States.
5. Feedback from Member States guided the development of the second draft discussion paper on a global monitoring framework and indicators, and recommendations for a set of voluntary global targets.

Feedback received from Member States requests the WHO Secretariat to: provide additional details on the criteria used for selecting proposed targets and indicators; describe the link between the global monitoring framework and its indicators, and targets; provide the methods for the modelling that underpinned the target setting

processes; strengthen the equity dimension of the targets and indicators; provide more detail on the achievability of the global targets and indicators; and to provide a description of the relationship between global targets and indicators and any national target setting process.

Member States also raised concerns on suitability of some of the suggested targets and indicators, while highlighting gaps, such as indicators and/or targets related to physical inactivity, additional dietary risk factors, access to medicines and diagnostics. A detailed summary of Member States' feedback from the consultative processes will be made available on the WHO website.

Current and future roles and responsibilities for WHO described in this paper are in line with Member States discussions on the WHO reform, including recent deliberations around categories for priority setting and programme discussions.

Global monitoring framework

A global monitoring framework should represent consensus among Member States on the purpose, methods, roles and responsibilities. The framework should include a small set of time-bound indicators with targets. The NCD monitoring framework, and its indicators, should provide an important platform for political support to integrate NCDs into national health and development planning, and monitoring processes.

A global monitoring framework should be broad and include the main elements of accountability, which have been defined as a cyclical process of monitoring, review and action.[1] This cyclical process is equally relevant at the country and global level, including data collection and analysis to monitor progress, feeding the results into broad based reviews with participation of all relevant stakeholders, and translating the review conclusions into action. Country review processes should lead to improved operational plans, which are part and parcel of national health strategies. These processes provide the data for a similar global process of monitoring – which not only includes country data, but also data on resource flows, independent reviews –, and global actions.

A set of general principles can be defined as:

1. *Indicators and targets*: the global monitoring framework should comprise of a set of core indicators, some with targets. Indicators and targets are selected based on a set criteria. Monitoring of progress should be based on global standards. Country adaptations should be made based on country-specific issues, such as previous experience with interventions and risk factor trends or epidemiological circumstances.

2. *Equity*: the monitoring of core indicators should be done by key dimensions of equity including gender, age, and socioeconomic status. The monitoring of progress should also include key social determinants such as income level, education and relevant country-specific stratifiers.

---

[1] Commission on Information and Accountability for Women's and Children's Health. Keeping promises, measuring results. WHO, Geneva. 2011.

3. *Capacity for monitoring*: the existence of country capacity to collect, compile, analyse and communicate key NCD-related data is critical. Institutional capacity strengthening should be an integral part of country NCD surveillance systems, as a vital public health function. International collaboration is required to ensure that low- and middle-income countries can monitor trends and determinants. A significant increase in financial and technical support is necessary for health information system strengthening to address data gaps, acknowledging that many countries will continue to face a double burden of noncommunicable and communicable diseases.

4. *Integrated approach*: NCD surveillance should be integrated into the national health information system, including causes of death, household surveys, facility assessments, as well as health facility and administrative reporting systems. Similarly, NCD progress monitoring should be well integrated into country accountability processes, and become a significant component of the monitoring of the implementation of national health and development strategies that are discussed at national reviews, such as annual health sector reviews. Multi-sector platforms such as the International Health Partnership should be considered along with NCD-specific monitoring platforms.

5. *Alignment with existing efforts*: there needs to be a link with the existing efforts to monitor progress such as those under the WHO Framework Convention on Tobacco Control (FCTC), and those at the regional level.

6. *Global coordination and reporting*: Global partners should closely work together to minimize duplication and fragmentation. WHO should play a leadership role in the implementation of the global monitoring framework. Because of the multisectoral nature of NCD prevention and control, it is desirable that progress is also reviewed at the UN General Assembly.

Monitoring at the country level

NCD surveillance is the ongoing systematic collection and analysis of data to provide appropriate information regarding a country's NCD disease burden, the population groups at risk, estimates of NCD mortality, morbidity, risk factors and determinants, coupled with the ability to track health outcomes and risk factor trends over time. Surveillance is critical to providing the information needed for policy and programme development, and to supporting the monitoring and evaluation of the progress made in implementing policies and programmes.

Countries require data to inform effective responses to the rise in deaths and disabilities from NCDs. Currently, many countries have little usable mortality data and weak NCD surveillance. Improving country-level surveillance and monitoring should be a top priority in the fight against NCDs.

Table 1: Examples of a framework for national NCD surveillance

Outcomes
- Mortality: NCD-specific mortality.
- Morbidity: Cancer incidence and type.

Exposures
- Behavioural risk factors: tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diet.
- Physiological and metabolic risk factors: raised blood pressure, overweight/obesity, raised blood glucose, and raised cholesterol.
- Social determinants: e.g. educational level, household income, access to health care.

Health system[2] response
- Interventions and health system capacity: infrastructure, policies and plans, access to key health-care interventions and treatments, partnerships.

Source: Global Status Report on Noncommunicable Diseases, 2010.

Table 1 provides a framework for a national NCD surveillance scheme. The three major components of NCD surveillance are; a) monitoring outcomes (morbidity and disease-specific mortality); b) monitoring exposures (risk factors); and c) assessing health system capacity and response, which also includes national capacity to prevent NCDs, in terms of policies and plans, infrastructure, human resources and access to essential health care including medicines.

Monitoring outcomes: mortality and morbidity

Adult mortality is one informative way to measure the extent of the NCD epidemic, and to plan and target effective programmes for NCD control. All-cause and cause-specific death rates, particularly deaths before age 60 or 70, are key NCD indicators. High-quality mortality data can only be generated by long-term investment in civil registration and vital statistics systems.

Only a third of the global population lives in an area where more than 90% of births and deaths are registered. Currently, only 38 countries have high quality cause of death data, 81 countries have lower quality cause of death data, and 74 countries lack such data altogether. There are some encouraging signs of increased awareness of the need for better vital statistics among decision-makers and use of information technology holds the promise of overcoming some persistent obstacles. Strengthening NCD surveillance should link with and strengthen those efforts. National initiatives to strengthen vital registration systems, and cause-specific mortality statistics, are a key priority. These should include strengthening cause of death certification and coding, using the International Classification of Diseases, as well as the use of interim measures such as widespread application of verbal autopsy.

Accurate information on morbidity, e.g. cancer and diabetes, is important for policy and programme development. This is particularly the case for cancer where data

[2] Health system is used here in this context to mean "all organizations, people, and actions whose primary intent is to promote, restore, or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities" (*World Health Report 2000: health systems: improving performance*. Geneva, World Health Organization, 2000)

on the incidence and type of cancer are essential for planning cancer control programmes. The diversity of cancer types in different countries highlights the need for cancer control activities to fully consider cancer patterns and available resources, given that different cancers may be variably amenable to primary prevention, early detection, screening and treatment. In lower-resource settings, hospital-based registries can be an important step towards the establishment of population-based cancer registries (PBCR). However, only PBCRs provide an unbiased description of the cancer patterns and trends in defined catchment populations.

Monitoring exposures

Monitoring of risk factors should be the mainstay of national NCD surveillance in most countries. Data on behavioural and metabolic risk factors are obtained from national health interview or health examination surveys, either addressing a specific topic (e.g. tobacco) or multiple factors. Data on social determinants, which can then be used to further understand risk factor patterns, are also often obtained from these sources.

Given the major public health significance of NCDs and their risk factors, each country should have at least one health examination survey, including interview and biological and clinical data collection, every five years.

Monitoring national health system response

The monitoring of the national response and country capacity includes a number of input, output and coverage indicators. National systems of health accounts should aim to include, as much as possible, tracking of resources for NCD prevention and control. Monitoring infrastructure and human resource capacity is important. Monitoring should also aim to cover response in other sectors, as prevention requires a multisectoral approach. The availability and affordability of basic diagnostics and essential medicines requires good facility data, while the monitoring of access to and coverage of case detection and treatment measures is often done through household surveys. Assessing individual country capacity and health-system responses to address NCDs, and measuring their progress over time, are major components of the reporting requirements stated in Objective 6 of the 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases. The use of such data in country review processes is critical.

Global monitoring

Objectives of a global monitoring framework

Global monitoring serves to raise awareness and reinforce political commitment for a stronger and coordinated global action involving all key stakeholders. Global monitoring frameworks can be an effective tool for advocacy and resource mobilization for countries and the international development community. Global Standards can serve as incentives for progress in attaining the desired targets.

The framework, including its set of indicators, provides internationally comparable assessments of the status of NCD trends over time, and helps to benchmark the situation in individual countries against others in the same region, or in the same

development category. It identifies areas where strengthened action and more support maybe needed.

Key elements of a sustainable global monitoring framework

Reaching consensus on a global monitoring framework and an appropriate and limited set of indicators and targets is challenging. Selection of targets and indicators should, therefore, be made against clear criteria. WHO will monitor progress for all indicators using its ongoing interaction with countries, and work on multi-country survey programmes. In the context of the global monitoring framework, countries will also be asked to report on progress towards the targets for the small set of indicators at five year intervals, even though local adaptations of targets may be needed, based on the specific country situation. Such adaptations may include a national target which is set to reflect what might be achievable in a specific country based on their unique historical performance and current level of exposure and what is reasonably expected over a 15 year period of intensified action. In this regard, some countries may set a national target that is consistent with, but not necessarily the same as, the global target. Such adapted targets may be more or less ambitious than the global target.

As with national monitoring and evaluation systems, emphasis on equity issues is key. Measuring and addressing inequities is central to the global struggle against NCDs and is often at the heart of political debate. Any global monitoring framework should set targets and indicators that aim to reduce inequities and take the key social determinants into account. The global reporting system should give ample attention to disaggregated data for the indicators to be able to ascertain trends in inequality.

International collaboration in strengthening the capacity of low- and middle-income countries in data collection, analysis, and reporting is an important element of a global monitoring framework.

High-level political commitment, cooperation between governments and various parts of the UN system, and the international development community will be expected to provide technical support to help countries in reinforcing surveillance and monitoring functions. Major gaps in data and capacity will need to be addressed through coordinated global support.

Experience from past and current global monitoring schemes

The monitoring of progress of past and current United Nations health, and other initiatives such as the MDGs and the UNGASS declaration on HIV/AIDS, shows that the most successful models use a harmonized set of indicators and are focused on health outcomes and impact. Target setting is an important component. Short time frames are usually not successful, as it takes some time before real country progress is made. A further lag is created by measurement issues. The more successful global monitoring efforts have been accompanied by investments to address critical data gaps in low- and middle-income countries.

All major global initiatives report to a United Nations agency or the General Assembly, and are mostly supported by interagency expert review mechanisms at the global level. These mechanisms are comprised of technical experts from academic and research institutions from all over the world.

Millennium Development Goals (MDGs) focus mainly on developing countries, whereas a monitoring framework for NCDs is a universal need, and is essential for countries at different stages of development.

Governance, Secretariat, and tools

The Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases recognizes the leading role of WHO, as the primary specialized agency for health, including its roles and functions in addressing NCDs. However, progress on monitoring may potentially be reviewed in future discussions on NCDs at the United Nations General Assembly, and in related monitoring processes within the United Nations system.[3]

WHO Secretariat provides support for the development of the global monitoring framework. An interagency group, advised by an independent technical advisory group, will be established and the group will play a key role in assessing progress. A full report of progress will be produced during each global monitoring round, and data will be disseminated through the Global Health Observatory and through periodic WHO global status reports on noncommunicable diseases.

Set of key indicators and targets within the global monitoring framework

A global monitoring scheme needs to be based on a small set of indicators and voluntary targets, which can be supported by a larger number of tracer indicators for which major improvements are considered critical to achieve significant progress in addressing the NCD epidemic.

The selection of indicators and targets was guided by five criteria described below. The indicators with the highest level of adherence to the five criteria were considered most suitable for target setting.

1. High epidemiological and public health relevance.
2. Coherence with major strategies, notably the priorities of the Global Strategy for the Prevention and Control of NCD and its Action Plan, the Political Declaration, and the WHO framework for health systems priorities to monitor exposures, outcomes, and health systems response.
3. Availability of evidence-based effective and feasible public health interventions.
4. Evidence of achievability at the country level, including in low- and middle-income countries.
5. Existence of unambiguous data collection instruments and potential to set a baseline and monitor changes over time.

A comprehensive monitoring system needs to include relevant outcomes (mortality and morbidity), exposures (risk factors), and health system capacity and response – with emphasis on the priorities included in the Political Declaration. WHO has developed a set of indicators for NCD surveillance, covering these areas (Table 2).

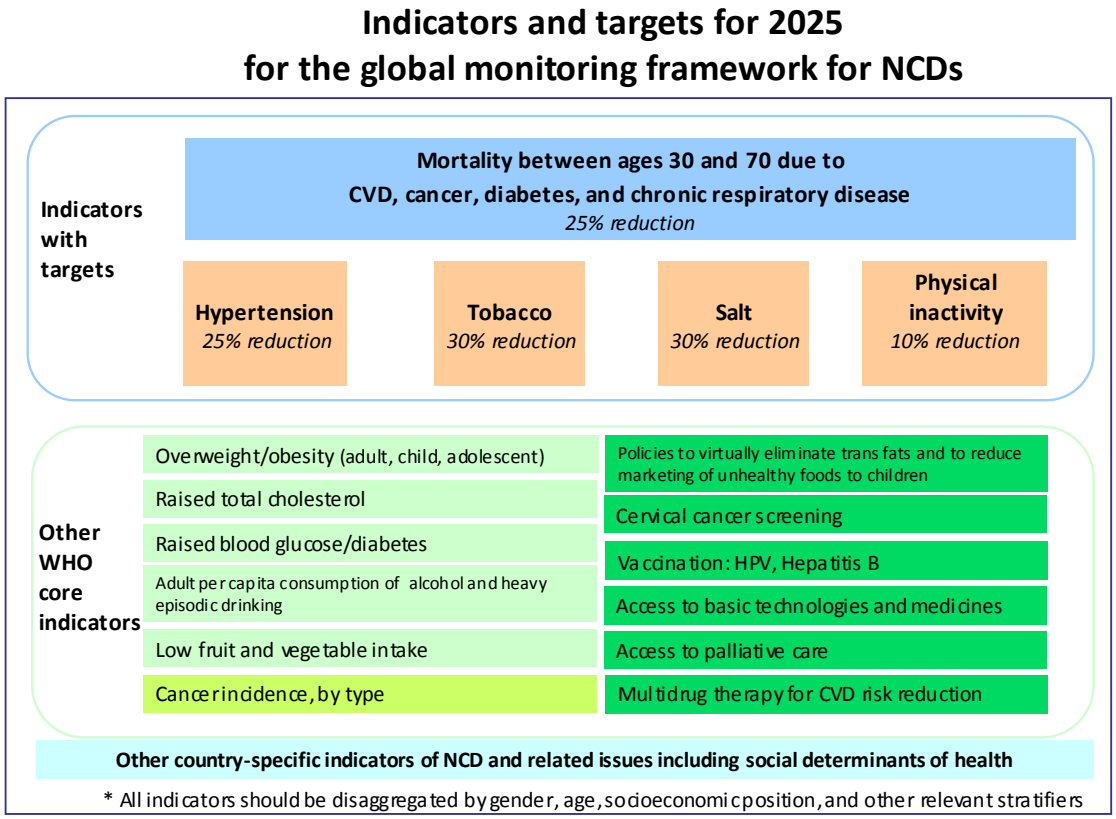
[3] The Political Declaration requests the United Nations Secretary-General, in collaboration with Member States, WHO and other UN agencies to present to the United Nations General Assembly, at the sixty-eighth session, a report on the progress achieved in realizing the commitments made in the Political Declaration, in preparation for a comprehensive review and assessment in 2014 of the progress achieved in the prevention and control of noncommunicable diseases.

The majority of these indicators are candidates for targets and were evaluated using the five criteria.

In addition to the indicators with targets, the global monitoring framework identifies a series of additional WHO core indicators, which do not meet all criteria but which are considered to have a major impact on reducing NCDs. Finally, countries are likely to add other indicators to monitor progress in their national strategy for the prevention and control of NCDs, taking into account their country-specific situation. Considerations include current intervention coverage levels, geographic priorities, key sub-population monitoring, and use of available local data for local planning.

Figure 1 summarizes the two groups of indicators. Central in the global monitoring framework is a small set of five indicators and targets for global monitoring. The mortality target is highly dependent on the extent to which the four risk factor targets will be met, along with progress on the other core indicators. The targets are explained in greater detail in the next section and Annex 1. The second group of indicators cover a broader array of conditions, risk factors, and interventions and have been selected based primarily on public health relevance and measurability as specified in the selection criteria. There are no recommended global targets for these indicators.

Figure 1: Indicators and targets for the global monitoring framework for NCDs.



Legend: blue = outcome target/indicator; orange = exposure target/indicator; light green = exposure indicator: lime green = outcome indicators: mid green = health systems response indicators.

WHO recommended core indicators for NCD surveillance within the global monitoring framework

Table 2 presents the full set of indicators recommended by WHO for global monitoring of progress towards reducing NCDs. These indicators cover the areas outlined in the global monitoring framework – outcomes, exposures and health systems response. Five of these are selected for global target setting, based on their strong adherence to the criteria discussed previously.

Table 2: Core indicators for NCD surveillance

Outcomes:

- Unconditional probability of death between ages 30 and 70 years from cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases (target).
- Cancer incidence, by type of cancer.

Exposures:

- Age-standardized prevalence of current tobacco smoking among persons aged 15+ years (target).
- Age-standardized prevalence of insufficiently active adults aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent) (%) (target).
- Age-standardized mean adult (aged 18+ years) population intake of dietary sodium chloride per day (%) (target).
- Age-standardized prevalence of adult (aged 18+ years) population consuming less than five total servings (400 grams) of fruit and vegetables per day.
- Adult per capita consumption in litres of pure alcohol (recorded and unrecorded).
- Age-standardized prevalence of heavy drinking occasions among adults aged 18+ years (%).
- Age-standardized prevalence of raised blood pressure among adults aged 18+ years (defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥90 mmHg or on medication for raised blood pressure (%) (target).
- Age-standardized prevalence of raised blood glucose/diabetes among adults (defined as fasting plasma glucose value ≥ 7.0 mmol/L (126 mg/ dl) or on medication for raised blood glucose) (%).
- Age-standarized prevalence of overweight and obesity in adults aged 18+ years, children and adolescents (defined as body mass index greater than 25 kg/ m^2 for overweight or 30kg/m^2 for obesity or for children and adolescents according to the WHO Growth Reference and WHO Growth Reference Standard) (%).
- Age-standardized prevalence of raised total cholesterol among adults aged 18+ years (defined as total cholesterol ≥ 5.0 mmol/l or 190mg/dl).

National Health Systems Response:

- Adoption of national policies that eliminate partially hydrogenated vegetable oils (PHVO) in the food supply.
- Policies to reduce the impact on children of marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt.
- Multidrug therapy (including glycaemic control) for people aged 30+ years with a 10 year risk of heart attack or stroke ≥ 30%, or existing cardiovascular disease.
- Prevalence of women between ages 30-49 screened for cervical cancer at least once.
- Vaccination against infectious cancers: Human Papillomavirus (HPV) and Hepatitis B.
- Availability of generic essential NCD medicines in both public and private facilities.
- Availability of selected essential basic diagnostics (blood glucose and blood pressure measuring devices) for NCD screening in both public and private facilities.
- Access to palliative care assessed by morphine-equivalent consumption of strong opioid analgesics (excluding methadone) per death from cancer.

Recommendations for a set of voluntary global targets and indicators

Table 3 presents a set of voluntary global targets, as outlined in Paragraph 62 of the Political Declaration. The first target is a mortality target. The other five global targets are for risk factors that met all criteria, allowing a reduction target to be set for 2025. Achievement of these targets by 2025 should represent major progress in reducing NCDs and their risk factors. The targets were established following scientific review of the current situation and trends, and a critical assessment of feasibility. Where possible, the performance of the top 10% countries in the past decades was used to set a target. The baseline to be used for all targets is 2010. Age-standardized baselines for 2010 for all targets will be established by WHO, based on existing available data and estimation methods to fill data gaps, such as those described in the WHO Global Status Report on Noncommunicable Diseases 2010.[4] Interim targets for 2015 and 2020 will be set. The targets are presented in terms of relative reductions between 2010 and 2025.

Table 3: Voluntary Global Targets (with indicators and data sources)

	Outcome targets	Indicator	Data Source(s)
1	**Mortality from NCDs** 25% relative reduction in overall mortality from cardiovascular disease[5], cancer, diabetes, or chronic respiratory disease	Unconditional probability of dying between ages 30-70 from, cardiovascular disease, cancer, diabetes, or chronic respiratory disease	Civil registration system, with medical certification of cause of death, or survey with verbal autopsy
2	**Blood pressure/hypertension** 25% relative reduction in prevalence of raised blood pressure[6]	Age-standardized prevalence of raised blood pressure among persons aged 18+ years	National survey (with measurement)
3	**Tobacco smoking** 30% relative reduction in prevalence of current tobacco smoking	Age-standardized prevalence of current tobacco smoking among persons aged 15+ years	National survey
4	**Dietary salt[7] intake** 30% relative reduction in mean adult (aged 18+) population intake of salt, with aim of achieving recommended level of less than 5 grams per day	Age-standardized mean adult (aged 18+) population intake of salt per day	National survey (with measurement)
5	**Physical inactivity** 10% relative reduction in prevalence of insufficient physical activity[8] in adults aged 18+ years	Age-standardized prevalence of insufficient physical activity in adults aged 18+ years.	National survey

[4] Mortality and prevalence targets are age-standardized to discount any effect on mortality or prevalence based on different age distributions across populations and over time, and future reporting against all indicators will be age-standardized. Without this standardization it would be unclear if differences in rates or prevalence were due to age or other factors.

[5] Cardiovascular disease includes coronary heart disease (heart attack), cerebrovascular disease (stroke), peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure

[6] Raised blood pressure is defined as systolic blood pressure ≥ 140 and/or diastolic blood pressure ≥ 90

[7] For the purpose of this target, the term salt refers to sodium chloride and 5 grams of salt is approximately 2g of sodium

[8] Insufficient physical activity is defined as less than 150 minutes of moderate intensity physical activity per week or its equivalent.

The number of targets has been limited to a small number. This limited number will provide a foundation for global surveillance needs with special emphasis on ensuring feasibility of application across regional and country settings. Paragraph 63 of the Political Declaration of the High Level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases urges Member States to use the global targets as the basis for setting feasible national targets to assess the progress they are making in prevention and control of NCDs and their risk factors and determinants, and which will also contribute to the attainment of these global targets. As discussed earlier, these national targets may be set to reflect existing levels of exposure and performance in countries.

Measurement implications

Global assessment of the progress in terms of exposure and health outcome indicators will be conducted every five years (2015, 2020), using the 2010 data as the baseline.

To monitor progress a robust monitoring system is needed. Not all countries have available the spectrum or quality of surveillance resources needed to fully monitor NCD reduction efforts. The global, regional, and national community must explore means to increase national capacity for the development of appropriate surveillance systems as a core public health function. For this reason, we do not recommend lower quality substitute methods for measuring progress.

Main components of the surveillance system required for monitoring progress towards the targets and indicators include:

- *Death registration, with a reliable cause of death*
  High-quality mortality data can best be generated by long-term investment in civil registration. Recording all deaths and their cause on a country level is a critical requirement. Only about two thirds of countries have vital registration systems that capture the total number of deaths reasonably well. Accurate reporting of the cause-of-death on the death certificate is a challenge, even in high-income countries. In these countries, the majority of deaths are not counted and national initiatives to strengthen vital registration systems and cause-specific mortality should be a priority. In settings with poorly functioning registration systems, special efforts are needed until birth and death registration systems are sufficiently strengthened. Local demographic surveillance studies and sample registration systems can help estimate the level of adult mortality. In settings where many deaths are not attended by a physician, alternate methods, such as verbal autopsy, may be used to complement data collected from death certificates until vital registration systems are adequately strengthened.

- *National surveys, with physical and biochemical measurement*
  All countries will need to collect data from the general population through representative national household surveys conducted at least once every five years. Information is collected through interviews, physical measurement, and biological testing. A survey that includes an interview and physical and biochemical measurement is called a health examination survey – the WHO STEPwise approach to Surveillance (STEPS) is the most globally adopted example of this type of survey for NCDs in a large number of low-and middle-income countries, as are a number of

other nationally coordinated surveys in high-income countries. Due to limited resources and challenges related to consent in minors to participate in health examination studies, the majority of low- and middle-income countries restrict surveys to adults. For this reason, risk factor data, other than for tobacco, to support indicator development and target setting are most robust in populations aged 18+.

- *Policy reviews*
  Policy indicators require a regular, systematic, and independent assessment to judge whether the policies are in place, implemented, and enforced.

In addition, to monitor country capacity to respond to NCDs, WHO will continue to conduct periodic assessments of the major components of national capacity in all Member States. Such assessments were carried out in 2000–2001, 2005 and again in 2010. The 2010 assessment can be used as baseline.[9] A further assessment is planned for 2013.

The capacity assessment examines the public health infrastructure available to deal with NCDs; the status of NCD-relevant policies, strategies, action plans and programmes; the existence of health information systems, surveillance activities and surveys; access to essential health-care services including early detection, treatment and care for NCDs; and the existence of partnerships and collaborations related to NCD prevention and control.

As mentioned before, many countries will require technical and financial support to improve NCD surveillance and will require the support of global partners. Addressing data gaps and capacity building is needed to strengthen risk factors monitoring and death certification by cause.

Reporting and review

Measurement against progress towards the targets and indicators will be reviewed every five years, in 2015, 2020 and 2025. The intermediate targets are based on linear progress towards the 2025 targets. Reporting must balance country ownership and application, with comparability and transparency so that lessons can be shared and progress measured. This will require close coordination of country reporting with global analyses. The responsibility for compiling and interpreting data and additional analyses lies with WHO, supported by an expert group of independent institutions. The reports will be presented and discussed at the World Health Assembly and the UN General Assembly.

[9] Report of the 2010 global survey on assessment of national capacity for NCD prevention and control.

References

1) Alwan A et al. Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries. *The Lancet*, 2010, 376:1861-1868.

2) *Global status report on noncommunicable diseases 2010.* Geneva, World Health Organization, 2011.

3)Bloom, D. E et al. *The Global Economic Burden on Non-communicable Diseases. Geneva*. World Economic Forum, 2011

4) *Scaling up action against noncommunicable disease: How much will it cost?* Geneva, World Health Organization, 2011

5) *2008 - 2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases.* Geneva, World Health Organization, 2008.

6) *Declaration of First Global Ministerial Conference on Healthy Lifestyles and Noncommunicable Disease Control*, Moscow, 28-29 April 2011, URL: http://www.who.int/nmh/events/moscow_ncds_2011/conference_documents/moscow_declaration_en.pdf

ANNEX 1: Detailed description of targets to be achieved by 2025

Annex 1 provides the basis for the development of a set of voluntary global targets on noncommunicable diseases, based on Paragraph 62 of the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. It also presents a full description of each proposed 2025 target, indicator, rationale for target selection, data sources and measurement issues. The targets are discussed in detail below.

1. Mortality from NCDs

Target: 25 per cent relative reduction in overall mortality from cardiovascular disease, cancer, diabetes, or chronic respiratory disease.

Indicator: Unconditional probability of dying between ages 30-70 from, cardiovascular disease, cancer, diabetes, or chronic respiratory disease.

Public health relevance: Of the 57 million global deaths in 2008, 36 million (63%) of these were due to noncommunicable diseases. Nearly 80% of these NCD deaths occurred in low- and middle-income countries (29 million deaths). The leading causes of NCD deaths in 2008 were cardiovascular diseases (17 million deaths, or 48% of all NCD deaths), cancers (7.6 million, or 13 % of all NCD deaths), and respiratory diseases, including asthma and chronic obstructive pulmonary disease (4.2 million). Diabetes caused another 1.3 million deaths.

Indicator choice: This indicator is calculated from age-specific death rates for the combined four cause categories (typically in terms of 5-year age groups 30-34,…, 65-69). A life table method allows calculation of the risk of death between exact ages 30 and 70 from any of these causes, in the absence of other causes of death. This form of indicator was chosen to exclude confounding across countries or over time due to differences or changes in mortality rates for other competing causes and to control for differences in population age structure.

The lower age limit for the indicator of 30 years represents the point in the life cycle where the mortality risk for the four selected chronic diseases starts to rise in most populations from very low levels at younger ages. The upper limit of 70 years was chosen for two reasons:

(a) to identify an age range in which these chronic disease deaths can truly be considered premature deaths in almost all regions of the world. Table 1 shows estimated regional life expectancies at age 30 for the year 2009; in all regions except the African Region, the average expected age at death for 30 year olds already exceeds 70 years;

(b) estimation of cause-specific death rates becomes increasingly uncertain at older ages because of increasing proportions of deaths coded to ill-defined causes, increasing levels of co-morbidity, and increasing rates of age mis-statement in mortality and population data sources.

Target setting: The proposed target for a 25% relative reduction over the 15 year period 2010 - 2025 was based on an analysis of the historically achieved trends in the indicator

in recent decades. To set this target, we analysed data from 81 Member States with at least 15 years of vital registration data between 1980-2010 that passed quality criteria on completeness and cause-of-death assignment. We calculated the average annual rate of decline in the unconditional probability of dying from the four causes between ages 30 and 70 (both sexes combined) for each country from the available data within this 30 year time period and computed the top 24th percentile for the 81 countries. On the conservative assumption that the other Member States without such high-quality historical data would all fall below this level, this percentile corresponds to the 10th percentile for all Member States, and corresponds to an annual average decline of the order of 2% per year. The target for the 15-year period 2010-2025 was thus set at a 25% relative reduction (2% annual reduction compounded for 15 years).

Annex Table 1. Estimated regional life expectancies and probability of dying between exact ages 30 and 70 in year 2009

	Life expectancy at age 30 (years)	Expected age at death	Probability of dying (%) between exact ages 30 and 70
High income countries	51.0	81.0	18
Low- and middle-income countries			
African Region	35.5	65.5	54
Region of the Americas	47.2	77.2	26
Eastern Mediterranean Region	42.5	72.5	36
European Region	42.0	72.0	39
South East Asia Region	41.5	71.5	39
Western Pacific Region	45.9	75.9	27

Source: WHO life tables for year 2009 (World Health Statistics 2011).

Baseline data availability, measurement issues and requirements: Only about two thirds of countries have vital registration systems which record deaths with sufficient completeness to allow estimation of all-cause death rates. In addition, significant accuracy problems exist for detailed cause-specific certification and coding in a large number of countries. For this reason, the proposed indicator and target relate to the combined mortality risk of the four major NCD groups that cause death. This avoids the need to deal with variability in coding practices for diabetes and cardiovascular diseases in particular. Countries with good quality cause-of-death data from a complete registration system may wish to establish more detailed national targets for specific NCD causes.

National initiatives to strengthen vital registration systems and cause-specific mortality are a key priority for many countries. Physicians must be trained on the importance of completing death certificates. In settings where many deaths are not attended by a physician, alternate methods, such as verbal autopsy, may be used to complement data collected from death certificates. The global goal of high-quality mortality data will require long-term investment in civil registration.

Achievability: The historic experience of best performing countries over the period 1980-2010 has shown that very substantial declines in NCD death rates can be achieved, and that the proposed target is achievable. Known best buys for prevention and treatment interventions can result in very large reductions in death rates for the four major disease groups. For example:

(a) WHO has estimated that the five leading behavioural and dietary risks - high body mass index, low fruit and vegetable intake, physical inactivity, tobacco use and alcohol use - are responsible for 30% of cancer deaths *(1)*.

(b) WHO has estimated that eight risk factors – alcohol use, tobacco use, high blood pressure, high body mass index, high cholesterol, high blood glucose, low fruit and vegetable intake, and physical inactivity – account for 61% of cardiovascular deaths *(2)*. Additional mortality reductions are feasible through targeted health service interventions for people with high cardiovascular risk and for patients who have experienced an acute cardiovascular disease event.

(c) Around 60% of adult-onset diabetes can be prevented through life style modifications *(3)* and additional mortality reductions can be achieved through diagnosis and treatment.

(d) Around 60% of chronic respiratory disease deaths are attributable to tobacco smoking or exposure to indoor smoke from solid fuel fires *(2)*.

2. Raised blood pressure/hypertension

Target: 25 per cent relative reduction in the prevalence of raised blood pressure (defined as ≥ 140 and/or diastolic blood pressure ≥90).

Indicator: Age-standardized prevalence of raised blood pressure (defined as ≥ 140 and/or diastolic blood pressure ≥90) among persons aged 18+ years.

Public health relevance: Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths *(2)*. This accounts for 57 million disability adjusted life years (DALYS) or 3.7% of total DALYS. Raised blood pressure is a major risk factor for coronary heart disease and ischemic as well as hemorrhagic stroke *(2)*. Globally, the overall prevalence of raised blood pressure in those aged 25 and over was 40% in 2008 *(4)*.

Target setting: The percent decline proposed is based on historic experience from 1980-2010 in the relative reductions achieved by the top 10th percentile of countries.

Baseline data availability, measurement issues and requirements: A significant number of countries, including many low- and middle-income countries have collected data on measured blood pressure, through nationally representative surveys such as WHO STEPS. Blood pressure must be measured, not self-reported. Sampling methods must ensure that estimates are nationally representative. Data collected utilizing WHO STEPS or similar health interview\examination surveys protocols. Suggested frequency is every 5 years.

3. Tobacco smoking

Target: 30 per cent relative reduction in prevalence of current tobacco smoking

Indicator: Age-standardized prevalence of current tobacco smoking among persons aged 15+ years

This target to be achieved through full implementation of the WHO Framework Convention on Tobacco Control (WHO FCTC), and in particular demand reduction measures at the highest level for tobacco product tax, large pictorial health warning labels, comprehensive smoke-free legislation, and bans on all forms of tobacco advertising, promotion and sponsorship.

Public health relevance: Risks to health from tobacco use result from direct consumption of both smokeless and smoking tobacco and from exposure to second-hand smoke *(5)*. There is no proven safe level of tobacco use. All current (daily and occasional) users of tobacco are at risk of a variety of poor health outcomes across the life course, and for NCDs in adulthood. Almost six million people die from tobacco use each year, accounting for 6% of all female and 12% of all male deaths in the world *(2)*. Of these deaths, 600,000 are attributable to second-hand smoke exposure among non-smokers *(5)* and more than 5 million to direct tobacco smoking *(2)*. Tobacco use (smoking and smokeless) is estimated to cause about 71% of lung cancer deaths, 50% of oral cancer deaths, 42% of chronic respiratory disease and nearly 12% of ischaemic heart disease deaths *(2)*.

Target setting: Although tobacco interventions must address issues associated with both smokeless and smoking tobacco, a target for tobacco smoking can at this time be realistically set for smoking tobacco only because of the greater availability time trend data for smoking tobacco that allows for more meaningful trend analysis and hence target setting. "Tobacco smoking" includes any smoked form of tobacco.

The percent decline proposed was based on reductions in prevalence of smoking demonstrated as being achievable by some high and middle-income countries that had implemented strong tobacco programs. Using data from the WHO Report on the Global Tobacco Epidemic, trends in tobacco smoking prevalence rates were analysed for those Member States that had achieved implementation of selected demand reduction measures at the highest level. This analysis indicated that these high and middle-income countries had achieved around a 1% absolute annual reduction in tobacco smoking prevalence. This achievement was translated into a 30% relative reduction by 2025 which is therefore deemed to be feasible and achievable.

Baseline data availability, measurement issues and requirements: Under WHO FCTC Article 20, countries must establish a national system for the epidemiological surveillance of tobacco consumption and maintain updated data from surveillance programmes. WHO under the aegis of the Global Tobacco Surveillance System has developed a set of tobacco indicators and associated questions that can be used globally in all surveys. These indicators are currently included in WHO tobacco specific surveys such as the Global Youth Tobacco Survey and the Global Adult Tobacco Survey, and in multi-risk factor NCD surveys such as the WHO STEPwise survey. Member States with their own health risk behaviour surveys should consider use of the set of standardised questions for adaptation to their own questionnaires to enable generation of these indicators.

Although all countries collect data on smoking tobacco, not all collect data on smokeless tobacco. In addition to countries where consumption of smokeless tobacco is already a substantial problem, all countries are encouraged to include monitoring the prevalence of smokeless tobacco as the tobacco industry is increasingly marketing smokeless tobacco worldwide. The up-to-now global focus on monitoring smoking tobacco is based on the fact that the quality and quantity over time of smoking tobacco data are much more complete than for smokeless tobacco. In 2008, global adult tobacco prevalence for current smoking was 22% across both sexes (36% for males and 8% for females). The suggested frequency for data collection is at least once every five years for both youth and adults.

For policy implementation, 90% of all Member States are currently parties to the WHO FCTC, and have agreed to implement selected demand reduction and other policies of the WHO FCTC. A measurement system is already in place for monitoring progress with anti-tobacco policies and parties to the WHO FCTC report on the implementation of the treaty according to Article 21. Monitoring progress towards this target at least every 5 years would be required and will be incorporated into interim monitoring reports.

4: Dietary salt intake

Target: 30 per cent relative reduction in mean population intake of salt, with the aim of achieving a target of less than 5 grams per day (approximately 2g sodium).

Indicator: Age-standardized mean population intake of salt per day in grams in adults aged 18+ years.

This target is to be achieved by implementation of salt reduction interventions including mass media campaigns to inform and empower consumers to make informed choices and reduced salt content in processed foods through product reformulation.

Public health relevance: The amount of dietary salt (sodium chloride) consumed is an important determinant of blood pressure levels and of hypertension and overall cardiovascular risk *(6)*. A salt intake of less than 5 grams (approximately 2g sodium) per person per day is recommended by WHO for the prevention of cardiovascular diseases, the leading cause of death globally *(7)*. However, data from various countries indicate that most populations are consuming much more salt than this *(8)*. In many high income countries, approximately 75% of salt in the diet comes from processed foods and meals prepared outside the home. In many low- and middle-income countries, most sodium consumption comes from salt added at home in cooking and at the table or through condiments such as fish sauce and soy sauce. Decreasing dietary salt intake from the current global levels of 9 - 12 grams per day to the recommended level of less than 5 grams per day would have a major impact on blood pressure and cardiovascular disease, averting up to 2.5 million deaths due to heart attacks and stroke worldwide each year *(9)*. Evidence supports salt reduction strategies as a best buy in the prevention of noncommunicable diseases. This has been demonstrated in countries with salt reduction initiatives, such as Finland, Ireland, Japan and the United Kingdom - all of which have demonstrated some positive, measurable results.

Target setting: Less than 5 grams per day in adults aged 18+ is the established WHO recommendation for the prevention of cardiovascular disease. The percent decline proposed is also based on the WHO recommendation for the prevention of cardiovascular disease that states that all individuals should be strongly encouraged to reduce daily salt intake by at least one third.

Baseline data availability, measurement issues and requirements: A limited number of countries have implemented salt reduction strategies and data from these countries (eg: Finland, United Kingdom) have shown that over a period of 7 - 10 years mean population intake of salt per day can be reduced by up to 30%.

There is substantial work and regional collaboration currently underway towards the development of monitoring mechanisms, including in low- and middle-income countries. Salt intake may be estimated through 24-hour urine collection. The WHO STEPs survey is currently developing a module on dietary sodium intake that will incorporate both questions to assess sources of sodium, and urine collection, which will facilitate the reporting against this indicator in the future.

5. Physical inactivity

Target: 10 per cent relative reduction in prevalence of insufficiently physically active adults

Indicator: Age-standardized prevalence of insufficient physical activity in adults aged 18+ years.

Public health relevance: Insufficient physical activity is the 4th leading risk factor for mortality. Approximately 3.2 million deaths and 32.1 million DALYs (representing about 2.1% of global DALYs) each year are attributable to insufficient physical activity *(2)*. People who are insufficiently physically active have a 20% to 30% increased risk of all-cause mortality compared to those who engage in at least 30 minutes of moderate intensity physical activity most days of the week *(10)*. In 2008 it is estimated that 31.3% of persons aged 15+ were insufficiently active (males 28.2% and females 34.4%).

Target setting: The percent decline proposed is based on reductions in prevalence of insufficiently physically active adults demonstrated as being achievable by countries that had implemented effective and feasible public health interventions aimed at promoting physical activity in adults. Country level examples include both high-income and middle-income countries. Canada has the longest history of national level action on physical inactivity and data show from 1981 to 2002 the participation rates increased from 21% to 42% showing a 21% percentage point increase over this period. In Brazil, data monitoring physical activity show that between 2002 and 2008 a period of substantial increase in actions aimed at increasing physical activity across multiple settings led to a decline in the proportion of insufficiently active adults by 6%. Singapore and Thailand have shown similar effects. These examples show that the magnitude of change that can be achieved by national actions is of the order of 1% per year.

Baseline data availability, measurement issues and requirements: Data on physical activity patterns are collected utilizing the WHO STEPS or similar health risk behaviour surveys using the Global Physical Activity Questionnaire (GPAQ). Suggested frequency is every

3 -5 years. Surveys must capture physical activity across all domains of life including work/household, transport, and leisure time for the general population. Sampling methods must ensure that estimates are nationally representative.

References

1) Ott JJ et al. Global cancer incidence and mortality caused by behaviour and infection. *Journal of Public Health*, 2011, 33(2):223-33.

2) *Global health risks: mortality and burden of disease attributable to selected major risks.* Geneva, World Health Organization, 2009.

3) Tuomilehto J et al. Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *N.Engl.J.Med.* 2001;344:1343-50.

4) Danaei G et al. National, regional, and global trends in systolic blood pressure since 1980: systematic analysis of health examination surveys and epidemiological studies with 786 country-years and 5·4 million participants. *The Lancet*, 2011, 377.

5) Oberg et al. *Global estimate of the burden of disease from second hand smoke*. Geneva, World Health Organization, 2010.

6) *Creating an enabling environment for population-based salt reduction strategies*: *report of a joint technical meeting held by WHO and the Food Standards Agency, United Kingdom*. Geneva, World health Organization, 2010.

7) *Prevention of cardiovascular disease. Guidelines for assessment and management of cardiovascular risk*. Geneva, World Health Organization, 2007.

8) Brown IJ et al. Salt intakes around the world: implications for public health. *International Journal of Epidemiology*, 2009, 38:791-813.

9) He FJ, MacGregor GA. A comprehensive review on salt and health and current experience of worldwide salt reduction programmes. *Journal of Human Hypertension*, 2009, 23:363-384.

10) *Global recommendations on physical activity for health*. Geneva, World Health Organization, 2010.

Disclaimer