



World Health  
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REGIONAL OFFICE FOR Europe

# Measurement and targets

## Final report of the Task Group on Measurement and Targets

Review of social determinants of health and  
the health divide in the WHO European Region







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Review of social determinants of health and  
the health divide in the WHO European Region

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# Executive summary

## Background and objectives

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Data on the distribution of health, risk factors and determinants within and between populations are crucial to monitor inequities and inequalities in health. Monitoring differentials between population subgroups across a range of different domains of health is essential to assess the scale of the problem, identify vulnerable groups, set targets and evaluate policies. This report summarizes the work of the cross-cutting Task Group on Measurement and Targets. The terms of reference of the group included the following: to review the key indicators of health status

and principal dimensions of social determinants of health; sources of data on health outcomes and their social determinants in the WHO European Region; overview of the availability (and, where possible, the quality) of specific data on health outcomes and social determinants across the WHO European Region; make recommendations for future data collection regarding both health outcomes and measures of social determinants of health; and reviewing the recommendations made by other task groups.

## Availability of data for monitoring of health inequalities

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Across the WHO European Region, the availability and quality of various types of data vary considerably. Regarding health outcomes, mortality-based indicators (such as all-cause mortality, cause-specific mortality, infant and child mortality and life expectancy) are available in all countries, although the completeness and coding of the causes of death may vary. Indicators of non-fatal health conditions and risk factors, although highly desirable, are less widely available, depending on the existence of representative sample health surveys or functional systems of population health registries, neither of which are available in some European countries.

Data on social determinants of health and socioeconomic stratifiers are often retrieved from routine statistical data collection and, where available, from health surveys (the report lists the most important surveys). However, in many countries routine data do not allow linkage with other health or mortality data other than at the aggregate geographical level. In addition to these quantitative data, approaches based on health needs assessment, rapid appraisal and qualitative and consensus-building techniques have been increasingly used in the policy formulation process.

## Setting targets

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Data are essential to set targets (goals) for improvement, both at the level of outcome (such as mortality) and process (such as increasing expenditure or introducing legislation). The Health 2020 target-setting process adopted the SMART criteria, which

stipulates that targets should be specific, measurable, achievable, relevant and timely. Targets can be both qualitative and quantitative, but they need to be measurable; this requires adequate data.

## Barriers to monitoring social determinants and health inequalities

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The primary challenge to setting targets and monitoring progress on social inequalities in health and, more broadly, social determinants of health, within and between countries in the WHO European Region, is the lack of reliable and standardized data, especially in countries in central and eastern Europe and the former USSR. Other issues, with various degrees of

importance in different parts of the Region, include: lack of data that allow linked analyses of mortality (numerator data are linked with the denominator using individual identifiers); restricted access to existing data because of legal or bureaucratic barriers; lack of national funding; and insufficient capacity and expertise to analyse and interpret data.

## Recommendations

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The Task Group has made several recommendations.

First, it is essential to maintain and improve routine data collection and to ensure that at least basic socioeconomic data are collected. WHO, in collaboration with partners, including the EU and OECD, can define a minimum set of variables to be collected. Such data should allow monitoring of both social determinants of health (operating at different stages of the life-course) and of social differences in health outcomes and should allow meaningful comparisons both between countries and within countries.

Second, there should be regular periodic analyses and reports assessing trends in social determinants of health and changes in inequalities over time. If data on individual-level measures of social position are not available, analyses could use area-level data.

Third, even in the absence of a WHO-recommended minimal dataset, countries should not discontinue collecting data allowing assessment of health inequalities if such data are currently collected. For example, some countries in the Region have recently

removed information on educational status from death certificates. At present, it is no longer possible to assess educational differences in mortality in these countries.

Fourth, while at present mortality data are more likely to be available for monitoring of inequalities, we encourage the adoption of a standardized national health survey protocol (such as the European Health Interview Survey) in all countries in the Region. We also encourage careful consideration of sample sizes for national health surveys, so that the surveys have sufficient statistical power not only for assessment of current social differentials but also for monitoring of changes in social differentials in health over time (identifying interaction between time and social stratifiers).

Finally, there should be investment in, and encouragement for, building the capacity for monitoring of social determinants and health inequalities. Especially in the eastern parts of the WHO European Region, expertise in social epidemiology and statistical methods should be developed by providing training and international links.



# 1 Introduction

## 1.1 Introduction

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The regular measurement of health outcomes at the population level provides the information needed to distribute resources and to plan health-related interventions. Monitoring health outcomes between various population groups – at the subpopulation level – is necessary to ensure that the benefits of interventions are fairly distributed to promote a long and healthy life for all.

Monitoring health and risk factors at the level of whole populations is important but is not sufficient. In accordance with the recommendations of the Commission on Social Determinants of Health (2008a), the World Health Assembly advanced health equity as a priority by passing a resolution on reducing health inequities through action on the social determinants of health (World Health Assembly, 2009). It is not only the health of whole populations that matters – data on the distribution of health, risk factors

and determinants within populations are crucial to monitor inequities and inequalities in these indicators. Monitoring trend differentials between population subgroups across a range of different domains of health is a substantial exercise. There is no consensus as to what is the best measure of health inequalities, and the result of a monitoring programme will be affected by the choice of the measures and the extent to which consistent, timely and accurate data for population subgroups are available.

To identify and address health inequities in the Member States of the WHO European Region, the WHO Regional Office for Europe commissioned a review of social determinants of health and the health divide in the WHO European Region to strengthen efforts (Jakab, 2010). This report summarizes the work of the cross-cutting Task Group on Measurement and Targets.

## 1.2 Terms of reference for the Task Group and expected outcomes

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Any targets are meaningful only if there is some way of measuring progress that is directly relevant to the responsible agency and wider stakeholders. However, there are large differences between the countries in the WHO European Region in the availability and quality of data on health outcomes, common proximal risk factors and on their (more distant) social determinants. The overall focus of this report is on the availability of data that would make setting targets and assessing progress feasible, especially in countries with less well developed data collection and reporting systems. Nevertheless, there are also challenges in countries with better developed systems, such as declining response rates in surveys.

More specifically, the Task Group set out to do the following tasks:

- to propose a grid of the key indicators of health status and principal dimensions of social determinants of health to serve as guidance for the following;
- to provide an overview of availability, sources and usefulness of data on health outcomes and their social determinants in the WHO European Region, including both routinely collected data reported to WHO, the European Union (EU) and other international organizations and ad hoc studies with internationally comparable methods;
- to identify gaps and make recommendations for future data collection regarding both health outcomes and measures of social determinants of health; and
- to review the reports by specific topic groups and to assess the appropriateness and quality of the data used in the reports of topic groups, the quality of evidence reviewed by the reports, how the evidence is evaluated, the appropriateness of the conclusions and recommendations and to ensure that the proposed targets are appropriate, given the availability (or lack) of suitable data.



### 1.3 Report structure

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The report has the following structure. In the second section, we describe the potential indicators of health status, risk factors and socioeconomic factors that can serve for monitoring of socioeconomic inequalities between and within countries. In the third section, we review the sources and availability of data in the WHO European Region. In the fourth section, we discuss the uses of existing data, including

analysis and reporting and barriers to using them. In the fifth section, we make recommendations as to new data collection that would enhance considerably the monitoring capacity in the European Region. Finally, we review the recommendations of specific task groups and discuss the linkage with other task-setting efforts underway in the WHO European Region.

## 2 Key indicators of health and social inequalities

### 2.1 Commonly used indicators

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Health status, social inequalities and social determinants may not always be measured directly; several indicators have therefore been proposed in different areas of public health. There are many lists of health indicators, including standard lists of global indicators (such as the WHO Global Health Observatory (GHO) and the WHO Global Burden of Disease (GBD); Millennium Development Goals (MDG) and Sustainable Development Goals (SDG); indicators for the European (or mostly European) Region, such as WHO European Health for All (WHO-HFA), European Community Health Indicators (ECHI), OECD Health Data and Eurostat indicators of the health and long-term care strand. There is already substantial harmonization between these indicators and their meta-data, and links will further be strengthened between the United Nations, WHO, Eurostat, the OECD and other international organizations involved in health information. Survey programmes include Demographic and Health Surveys (DHS), UNICEF's Multiple Indicator Cluster Surveys (MICS), WHO's World Health Survey (WHS) and the World Bank's Living Standards Measurement Study (LSMS). More localized studies such as the European Union Statistics on Income and Living Conditions (EU-SILC) and European Social Survey (ESS) also generate standard health indicators and meta-data that are becoming increasingly harmonized. Annex 1 provides links to the list of health indicator sources.

Table 1 summarizes the most commonly used indicators of health status, lifestyle risk factors and social and psychosocial risk factors that may be useful in studying and monitoring of social inequalities of health.

Each of these indicators was further classified into three categories in terms of their priority and feasibility for monitoring health inequalities – first, those of the highest priority; second, those that are desirable but unlikely to be widely available; and finally, those that may be promising but are currently unavailable in most countries and/or insufficiently validated. Sections 4 and 5 of this report revisit the issue of priority or desirability. Indicators of socioeconomic status are both indicators per se but are also commonly used as stratifiers for health outcomes (used to assess the extent of social inequalities in health).

Mortality-based indicators (all-cause mortality, cause-specific mortality, infant and child mortality and life expectancy) have always been the most common, mainly because they are available for the whole population and often at the subnational level by age and sex only in all countries with functioning vital registration systems and because they largely represent objective events. Indicators of nonfatal health conditions and risk factors, although highly desirable, depend on the availability of representative sample health surveys or functional systems of population health registries, neither of which are available in many European countries. Data on socioeconomic factors (and less so on psychosocial factors) are often available from routine statistical data collection (and from health surveys); however, routine data typically do not allow linkage with other health or mortality data other than at the aggregate geographical level, and even in this case the aggregation may be at a relatively high geographical level.

**Table 1**

**List of potential key indicators of health, socioeconomic disadvantage and wider social determinants of health**

|                                       | Priority  | Desirable  | Less widely used and/or recent   |
|---------------------------------------|---|--|--|
| <b>Health</b>                         | Total mortality<br>Cause-specific mortality<br>Perinatal and maternal mortality<br>Self-rated health<br>Hypertension<br>Obesity<br>Birth weight<br>Functional outcomes (activities of daily living and instrumental activities of daily living)<br>Reproductive health<br>Mental health | Cause-specific morbidity<br>Survival (cardiovascular events, cancer)<br>Metabolic syndrome<br>Medication use<br>Other objective functional measures<br>Cognitive functioning<br>Child growth<br>Sensory functions<br>Dental health indicators  | Novel risk factors or biomarkers (C-reactive protein, vitamins)                              |
| <b>Behaviour and risk factors</b>     | Smoking<br>Alcohol consumption<br>Substance use<br>Physical activity<br>Diet and indicator food consumption<br>Health-care use  | Detailed information on:<br>Drinking patterns<br>Nutrient intake<br>Blood lipids<br>Anthropometry  | Biological risk factors<br>Genetic factors (as effect modifiers)                             |
| <b>Socioeconomic and psychosocial</b> | Education<br>Marital status or living arrangements<br>Occupational class<br>Economic activity<br>Real income<br>Income distribution<br>Ethnicity or migrant status<br>Area-based deprivation  | Material assets and amenities (such as car and house ownership)<br>Crowding<br>Life-course socioeconomic status indicators<br>Social capital<br>Social networks<br>Social exclusion and participation<br>Control and related measures<br>Welfare regime<br>Receipt of benefits<br>Family size and number of children<br>Quality of the local environment | Self-assessed deprivation<br>Self-assessed economic satisfaction<br>Self-assessed well-being |



## 2.2 Socioeconomic stratifiers at the aggregate versus individual level

The wider social determinants of health and health behaviour comprise many factors, including living conditions (such as housing), employment and working conditions, income, education and access to social protection and health care. Evidence is emerging that social determinants act cumulatively across the life-course, and measuring socioeconomic conditions at only one stage of life is likely to be insufficient, suggesting the need for panel or longitudinal data sources.

Assessing the distribution of health outcomes by at least some of these factors requires tabulating health data by social indicators (stratifiers). Social stratifiers, also referred to as disparity domains or population segments, are commonly defined by their socioeconomic or demographic attributes. The distribution of outcomes by these stratifiers, either at an aggregate (geographical) level or at an individual level, is sometimes used to assess the scale of social inequalities in health between or within countries.

For example, in an aggregate-level analysis, differences in a health indicator or input, such as the proportion of adults consulting health-care personnel in the past year, may be presented by country or a geographical region

within a country. The district may be used as the unit of analysis, and an outcome variable (such as the prevalence of diabetes in the district) may be regressed on the proportion of non-white adults in the same district. A good example of such analyses and very useful tools for assessing social inequalities is the European atlases of social inequalities (WHO Regional Office for Europe, 2015a). However, care must be taken to avoid the ecological fallacy, attributing any geographical differences to individual-level ones. Further, differences between geographical units may have causes other than social determinants.

In an individual-level analysis, by contrast, an individual-level database could be used to assess health outcomes (such as tuberculosis (TB) symptoms or not, a dichotomous outcome, say, from a preventive screening initiative). If this database could be linked to data on income or education (as is possible in several European countries with highly developed statistical systems), TB symptoms could be tabulated by the level of individual income or education. Control variables may be added to the model, for example, to control for individual sex and age. Another common example of individual-level analysis is the use

**Table 2**  
**Commonly used socioeconomic and demographic stratifiers used to analyse health inequalities**

| Socioeconomic attributes   | Demographic attributes |
|--|------------------------|
| Income, wealth status and poverty status (often assessed at the household level) | Geographical location  |
| Education  | Place of residence     |
| Occupational class   | Race or ethnicity      |
| Economic activity  | Proportion widowed     |
| Family composition and social support  | Age                    |

of individual-level surveys, such as the European Health Interview Survey, to relate health and social characteristics, such as smoking or drinking, with educational achievement.

Table 2 shows some of the more commonly included stratifiers, but for each country the available variables vary depending on policy priorities and the availability of data for measuring them comparably over time and across population segments.

Except for age and sex, the measurement of each stratifier needs to be operationalized and, for comparison between different sources of data, harmonized. For some measures, such as poverty, there are numerous measurement approaches. For example, poverty may be measured in absolute terms to set a comparable standard of measurement across time and between populations; or poverty may be measured relative to the social context, which enables the comparison of income (pre- or post-tax) or wealth of one group relative to that of another group but without comparability across time. For monitoring the EU Member States, Eurostat uses a relative measure that defines the at-risk poverty rate using a cut-off point of 60% of the mean (or median) equivalized income, a measure of relative poverty. The at-risk poverty rate in EU countries is measured using data from the EU Statistics on Income and Living Condition (EU-SILC) survey population. Another measure for monitoring poverty in Europe, the index of material deprivation, has been developed based on data from 26 countries with EU-SILC (Whelan et al., 2008). The three dimensions of deprivation

used to construct the index include consumption, household facilities and neighbourhood environment. The index is intended to shed light on the structure, distribution and consequences of material deprivation at the national and EU levels.

In 11 of the countries in the eastern part of the WHO European Region with a Demographic and Health Survey, a relative wealth index is calculated to measure disparities (Rutstein & Johnson, 2004), although this set does not include the Russian Federation. The United States, in contrast, uses a measure of poverty based on the proportion of income spent on food, and the World Bank uses an absolute level of income of US\$ 1 per day.

Income information may also be obtained directly from censuses in some countries or from administrative registries such as for Finland. The differences between methods and different data sources can be substantial (Penttilä & Nordberg, 1996). Directly comparing poverty and deprivation are difficult, and the results depend on whether poverty is defined absolutely or relatively. It is crucial that suitable data have been and will continue to be available in a consistent form and that standard definitions and methods be applied where possible. It may be that different indicators such as real GNP per capita may be more useful for monitoring cross-national comparability, whereas relative ones may be more appropriate within countries. If changes are made to improve cross-national comparability, these may reduce comparability across time within a country.

### 3 Data sources and availability in the WHO European Region

The main data sources for monitoring key health indicators include vital registration systems, censuses and national surveys (Table 3). For social determinants, many data are available at the national or subnational level or from other national statistics (economic and social indicators), but for some areas (such as governance, sustainability or community cohesion) ad hoc studies may be required (such as analysis of policy documents).

The preferred source of data depends on the level of analysis. For analysis by geographical level, the source of data may be data from a census, civil registry or sample survey (if the sample design generates acceptably robust estimates at the subnational level).

Health outcomes may also be analysed at the individual level, and this approach allows for a more powerful causal analysis because more observations (cases) are available compared with aggregated data and the ecological fallacy is eliminated. Individual-level data may often be combined with area-level data within a multilevel model framework.

Except for nonfatal outcomes, the civil registration system clearly has the best capacity (assuming satisfactory quality and coverage). However, these systems are designed primarily for administrative purpose, so their ability to provide detailed information on differences, such as the socioeconomic variables of Table 2, is limited.

**Table 3**  
Contributions of alternative approaches for monitoring key population health indicators

| Measure                           | Potential for monitoring | Civil registration system | Population census    | National household survey |
|-----------------------------------|--------------------------|---------------------------|----------------------|---------------------------|
| Reproductive health and fertility | National level           | Yes                       | Limited <sup>a</sup> | Yes                       |
|                                   | Differentials            | Yes                       | Limited <sup>a</sup> | Limited                   |
| Child mortality                   | National level           | Yes                       | Yes <sup>b</sup>     | Yes                       |
|                                   | Differentials            | Yes                       | Yes <sup>b</sup>     | Limited                   |
| Adult mortality                   | National level           | Yes                       | Maybe <sup>a,c</sup> | Weak                      |
|                                   | Differentials            | Yes                       | Maybe <sup>a,c</sup> | No                        |
| Cause of death                    | National level           | Yes                       | No <sup>d</sup>      | No or weak <sup>e</sup>   |
|                                   | Differentials            | Yes                       | No <sup>d</sup>      | No <sup>e</sup>           |
| Non-fatal outcomes                | National level           | No                        | No                   | Yes                       |
|                                   | Differentials            | No                        | No                   | Limited                   |

Source: adapted from Hill et al. (2007).

<sup>a</sup> With assessment and possible adjustment; the methods do not always work.

<sup>b</sup> For a recent period by indirect methods.

<sup>c</sup> Depending on whether individual linkage is possible.

<sup>d</sup> Methods measuring parental survival or sibling history not used in the WHO European Region.

<sup>e</sup> Using the verbal autopsy method.

National population surveys are strong on measuring nonfatal outcomes and risk factors and thus complement the information from the vital registration system. Surveys are clearly useful for identifying differences in levels between subgroups and/or for identifying national-level changes sometimes requiring aggregating data from several years. In some cases, large surveys have been used to detect changes over time when the changes and groups involved were large (such as smoking inequalities among women in the 1990s). However, the degree of precision required for monitoring subgroup differences

in targets means that they usually cannot be reliably tracked with typical sample survey sizes. Nevertheless, regular surveys are one of the few data sources on health inequalities available to document change over time.

The data from censuses are the weakest for monitoring health indicators, but censuses provides important geographical and social stratifiers, the denominators for people at risk and possibly sampling frames for surveys. In some countries, census data may be linked with vital registries and possibly other data to provide both more detailed and robust estimates.

### 3.1 Vital registration

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Information on the distribution of births, deaths and causes of death is fundamental in monitoring regional health and population changes. A well functioning civil registration system produces a complete enumeration of vital events at the regional and local levels and is therefore important for monitoring of some types of health inequalities. A series of articles in *The Lancet* in 2007, “Who counts?”, serves to highlight the importance of civil registration systems – as permanent, compulsory, continuous and universal reporting systems – as the best source of vital statistics (AbouZahr et al., 2007; Hill et al., 2007; Mahapatra et al., 2007; Setel et al., 2007). Virtually all of the mortality indicators, but not nonfatal outcomes, use vital registration data directly for monitoring. Vital registration data may be analysed without additional data, such as cause-specific distributions of death (cause-specific death as the numerator and total number of deaths in a specific age and sex category as the denominator) or infant mortality (the total number of infant deaths as the numerator and the total number of live births as the denominator).

However, the quality of socioeconomic stratifiers, when available, is likely to be low since such information is typically not a high priority in such systems. Most mortality indicators, such as age- and sex-specific

mortality rates and life expectancy by region, use vital registration, with estimates for the number of people at risk (denominator). These are usually obtained from the census or updates to the most recent census together with migration estimates, which are often problematic, especially at the subnational level.

The extent to which these mortality rates may be subjected to equity analysis depends on whether the same stratifiers are collected in vital registration and in the census. However, there are several caveats to such analyses. First, the information in the census may not correspond with the mortality data, and second, using the numerator and the denominator from separate sources, while a logical approach in theory, can lead to biased results (see Section 4).

Data on deaths, including cause of death by age and sex, are submitted to WHO annually, and the information is freely available online. OECD and EU countries also collect these data annually and have harmonized their reporting periods with WHO to reduce the reporting burden on countries (World Health Organization, 2015a; WHO Regional Office for Europe, 2015b, c).

The potential for monitoring disparities in mortality outcomes with vital registration data, where appropriate stratifiers are available,



requires that accurate data be collected, which may be problematic to establish unless reporting is largely complete (close to 100% coverage) and unbiased. One of the issues complicating a Europe-wide monitoring system is the differences in the completeness of mortality registration between countries; the estimated completeness of death registration is close to 100% in western European countries but lower in some but not all countries in the eastern part of the WHO European Region. Regarding the potential biases, it should be established, usually from specialists in the country who are most familiar with coverage issues, whether unreported deaths are disproportionately high among specific population groups (such as Roma, unemployed people, remote areas

or religious sects). If such data are reported, the issue of potential bias should be documented and, if the data are used, a correction made for the analysis (also clearly documented).

The accuracy of cause of death reporting also needs to be established (Mahapatra et al., 2007; Mathers et al., 2005). WHO has recently developed useful tools that can be used to assess the quality of data from vital registration systems (AbouZahr et al., 2010; World Health Organization, 2015b). In addition, the national burden of disease toolkit (World Health Organization, 2015c) provides numerous templates to assess accuracy and completeness as well as to calculate various measures of burden of disease (World Health Organization, 2015c).

### 3.2 Population census

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A census, a complete enumeration of the population, provides a rich source of demographic and socioeconomic data for the entire population at the national and subnational levels once every 10 years or so. The census also provides a cost-effective opportunity to collect data for estimating fertility and mortality rates at the national and subnational levels. Since the latest census data is usually some years out of date, estimates should be updated regularly by an official body, to disseminate updated age and sex structure estimates that can be used as denominators (number of people at risk), mainly for geographically based inequity analyses.

Many countries in Europe now use an alternative to the traditional, direct enumeration to conduct a census. For example, continuously updated population registries were being used in 2011 in 20 of 27 EU countries (Valente, 2010). Six countries take their census solely based on information in population registries (Austria, Denmark, Finland, the Netherlands, Norway and Sweden); the others using

population registries complement data in registries with further information from enumeration or from surveys. Although most countries in the eastern part of the European Region as well as Ireland, Luxembourg, Portugal and the United Kingdom continue to conduct the traditional census enumeration every 10 years, there is a trend towards moving to registry-based methods.

Linking census data and other data at an aggregate level such as geographical area, either for estimating rates or for analysing relationships between summary measures (such as from administrative data on breast examination coverage with the median salary), requires that the data sets relate to the same geographical unit in the same district. The same applies for other subpopulation analyses such as occupational group. The census enumeration area is commonly the smallest territorial unit and is often used as a primary or secondary sampling unit in probabilistic samples for household surveys, and it can also serve as the smallest geographical unit at which health and social characteristics can be linked (using aggregate data).

### 3.3 Other routine data

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Other routinely collected data are available at the country level (such as economic parameters, social statistics and education data). Regarding health, potentially valuable routinely collected information includes the hospital discharge data, some of which are available via WHO, such as the European Health for All database (WHO Regional Office for Europe, 2015b).

For cross-national comparisons, there are several international datasets of indicators of development such as the World DataBank (World Bank, 2015), which consists of more than 1000 series, and the United Nations (2015) set of social indicators. The best known set is the annual United Nations Development Programme (2015) Human Development Index (HDI). The HDI combines information on income, adult literacy and

school enrolment and has associated indicators sets such as the Gender Empowerment Measure (GEM), the Gender-related Development Index (GDI) and the Human Poverty Index (HPI). Such data are readily available over time in internationally comparable form, but they are not published at the subnational level.

The availability of subnational data will vary from country to country, but it is important that data be available using common geographical and socioeconomic classifications so the maximum information can be obtained. The WHO European Equity in Health project, for example, provides atlases of several conditions and socioeconomic parameters at the national and subnational levels (WHO Regional Office for Europe, 2015d).

### 3.4 National surveys

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Surveys are an increasingly important source of data on population health and social inequalities in health, especially on outcomes and socioeconomic stratifiers that are not captured in national vital registration systems (O'Donnell, 2009). Unfortunately, many European countries do not have reliable specialized national health surveys, mainly because of the high cost and logistical requirements of conducting such studies. In addition, repeated comparable surveys are required to monitor changes over time and to assess the effects of policies.

There are other challenges and biases related to collecting and analysing these types of data. A questionnaire instrument that will produce valid and reliable estimates is one challenge. Even responses to basic questions on self-reported health vary substantially across population subgroups and countries, making meaningful comparisons difficult. Another challenge is to design a nationally representative sample that provides valid data at the subnational level and/or for population segments. This is difficult, partly because response rates are rapidly declining all over Europe. For example, in the ongoing study on global ageing and adult health (World Health

Organization, 2015d) conducting surveys of the older population in Finland and Spain, the response rates are between 45% and 60%. This is not atypical of other risk-factor surveys conducted recently in these countries. With almost half the subjects invited not participating, substantial selection bias is very likely. Especially for behaviour perceived as socially undesirable (heavy drinking, substance misuse and smoking), surveys are likely to underestimate the real prevalence, because of both reporting bias (responders often underreport such behaviour) and selection bias (the people engaged in high-risk behaviour are less likely to participate). Similarly, the most marginalized groups (materially deprived, low education, unemployed people and homeless people) are underrepresented in such surveys, and this may bias the extent of social inequalities. For biomarker data, response rates are considerably lower; in the Health Survey for England, response rates for a fasting blood sample were less than 10% in some ethnic groups.

As mentioned above, national population health surveys are most useful for monitoring inequalities in nonfatal health outcomes or in risk factors such as differential

patterns of smoking. However, depending on the purpose of the study, the characteristics of the chosen indicator and the size of the sample, a given indicator may or may not be measurable with acceptable precision at the subnational level or/and for population segments since changes over time rather than absolute levels will be of special interest. When even a large survey is broken down into age-, sex- and education-specific strata, the numbers of events in each of the strata may be too small for robust trend analysis.

The main focus of this report is on monitoring health inequalities. For this purpose, well conducted cross-sectional studies in representative samples are sufficient. However, for formulating policy, understanding the causal associations and causal chains is also important. For such aetiological purposes, longitudinal studies with repeated measurements of the same individuals are often needed. There are some such large nationally representative studies

in Europe (such as SHARE, ELSA and ECHP), but these studies are much less common and not available in many countries of the WHO European Region.

Annex 1 provides a list and brief description of multi-country survey projects in European countries. In addition to these projects, there are numerous national or regional health surveys that have been conducted in many European countries that are not included in this list (such as regional health surveys conducted regularly in Spain). There are further surveys that do not have health as the primary focus, but may contribute limited health-related information or, more likely, conditions within population segments, such as regular income or household budget surveys. A convenient resource to check for other non-health surveys is the International Household Survey Network central survey catalogue (<http://surveynetwork.org/home/?q=activities/catalog/surveys>).

### 3.5 Non-quantitative and ad hoc assessments

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The main data sources for monitoring of key health indicators (vital registration system, census and national surveys) are often not sufficient for health planning, especially at the local levels. Traditional quantitative and aggregated data do not include community input (opinion and attitude) and participation. During the past two decades, programmes such as the WHO European Healthy Cities Network (WHO Regional Office for Europe, 2015e) suggested that health needs assessment had to be reoriented from pure monitoring towards identifying and solving community health problems and encouraged using applied research for such. The introduction of qualitative and consensus-building techniques in the policy formulation process can improve mutual understanding and collaboration among policy stakeholders: politicians, administration, public health professionals and communities.

Partnership with communities (to which much lip service is often paid) is crucial for more efficient practices in assessing health needs. Community input will help to develop better understanding of existing problems and their determinants and to assist in assessing the

adequacy of existing health resources established (put in place) to address health needs. During the past two decades, various types of participatory, subgroup-oriented, qualitative methods have been developed, but they remain underused.

A good example is the rapid appraisal to assess community health needs used by the Croatian Healthy Cities Network. This method combined three information sources: (1) the existing quantitative health indicators, (2) participants' essays and (3) participant observations. Combined with a two-day consensus conference, this approach enables cities:

- to assess health in the city and serve as the base for creating the city health profile;
- to select priority areas for the healthy city project;
- to establish the working groups on priority areas; and
- building on the previous steps, to contribute to the development of a city action plan for health.

The advantages of this method are that it is rapid (can be done in a very short time), inexpensive, scientific, sensitive, participatory (involving all major interest parties: politicians, experts and citizens) and able to produce immediate action and to sustain gained benefits.

From 1996 to 2011, the rapid appraisal was applied in 12 Croatian cities. The method provided a scientifically based account of health in each city and identified targets for the future by using health-related measures and citizens' observations about the community, its problems and potential. The academic credibility of the described method was strengthened by establishing strict selection rules for participants and panels and by the process of triangulation of information sources (essays, observations and collected quantitative indicators) and researchers (experts of different backgrounds: public health, epidemiology and medical information science).

Rapid appraisal can also be used in assessing the effect of an intervention in a short period of time (within a time frame of 1–5 years from the beginning of the intervention) by measuring several aspects of success:

- effect on the political environment (macroenvironment) – assessment of the achieved degree of change in the political environment;

- effect on a project user – an individual, a group, a community, within the meaning of empowering users and influencing health;
- effect on a project manager – an organization or institution: an association or group (microenvironment); and
- monitoring the effectiveness of the implementation process of an intervention.

A naturalistic approach, purposeful and chain sampling, key informant techniques and policy analysis have also been introduced into health needs assessment. One of the advantages is that it can provide the views of the hard-to-reach or underserved segments of the population. Qualitative data collected through interviews, observation or focus groups provide a rich and detailed description, emphasizing the context in which the experience occurs and enabling insight into and deep understanding of a process, which is not possible by using other methods.

An important benefit from the use of qualitative analytical approaches and participatory methods is greater participation in planning and managing the resources for health from the municipal and regional level to the national level. The combined use of both qualitative and quantitative methods is particularly useful, because qualitative analysis provides a corrective mechanism in formulating health policy.

## 4 Recommendations for using existing data

An important challenge to setting targets and monitoring progress on social inequalities in health and, more broadly, social determinants of health, within and between countries in the WHO European Region is a lack of reliable and standardized data, especially in countries

in the eastern part of the Region. In addition to lack of availability of reliable data, there is also the issue of the variable capacity to analyse and interpret the existing information across the Region.

### 4.1 Improve or maintain routine data collection systems

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As described in previous sections, vital registration systems vary greatly between countries. The completeness of death registration may vary from as low as 75% to 100%, and the consistency of cause-of-death coding may also vary substantially. Equally important is the variation between countries in linking the health-related indicators with socioeconomic stratifiers. In most countries, some aggregate-level linkage of health-related outcomes and other data is possible at the geographical level but less commonly with non-geographical stratifiers (such as using information on education from death certificates in the numerator and educational data from censuses in the denominator). Individual-level linkage of health-related or socioeconomic characteristics at the individual level (such as education or unemployment by ethnicity) from various sources is not possible in many countries.

It is important to ensure that at least some socioeconomic stratifiers (such as education) be available in different types of data collection (vital registration and census) in a consistent form for each country to ensure that at least minimal sets of comparable analyses of social inequalities in health can be done in a many countries as possible without compromising the ability to make a valid trend comparison within the country. It is crucial that countries that currently collect some socioeconomic stratifiers as part of vital registration (such as education on death certificates) not discontinue this practice. For example, in Latvia and the Russian Federation, the question about education was omitted from death records; as a consequence, using this key source to monitor educational inequality in these countries in the future will be impossible.

### 4.2 Plethora of data but lack of systematic analysis and reporting

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In contrast, countries in some parts of the European Region may have too many data. For example, most of the indicator lists mentioned in Section 3 have about 100 indicators. Cross-country comparisons of these indicators are certainly valuable to identify disparities between countries at the national level, but monitoring most of these indicators from an equity perspective is not realistic, particularly within each country. On the other hand, comprehensive indicators that combine mortality and morbidity indicators in a single outcome, such as disability-adjusted life-years or disability-free life expectancy, often do not have a clear link to changes in risk factors or to policy initiatives.

Similarly, the increasing number of surveys does not necessarily add to or improve the evidence base. Conducting a nationally representative survey is a complex operation, and even with a good design, the survey could still produce data of low quality if the execution is not adequate or if people refuse to participate.

Therefore, one of the first steps in systematically monitoring health equity is to set priorities and select a reduced set of operational indicators (operational means the ability to analyse health indicators by geographical or socioeconomic stratifiers). The choice of equity indicators depends on

different aspects such as methodological quality, data availability, added burden if new or altered data collection is needed and the political importance of the indicator topic. Where survey data are used, the following should be considered (Commission on Social Determinants of Health, 2008b):

- representativeness – based on a probabilistic sample designed to be statistically representative of the population segment of interest;
- statistical power – the sample is sufficiently large to obtain health outcomes with

acceptable precision for the population segment and to monitor trends over time;

- data quality and methods – the questionnaire instrument and fieldwork facilitates reliable and valid results;
- consistency and comparability of data collection – the method of data collection allows for comparisons over time and across areas or countries;
- georeferencing – necessary for data linking with other sources at subnational levels; and
- the frequency with which surveys are conducted – at least every five years, depending on the indicator being measured.

### 4.3 Linked versus unlinked data

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In many countries in the WHO European Region, studies of sociodemographic and socioeconomic inequalities in health have to rely in part on cross-sectional census-unlinked data; “unlinked” means that information on socioeconomic status was provided separately for the numerator (mortality records) and denominator (census). Despite extensive use of unlinked data in studies on social inequalities in mortality in the absence of alternatives, there has been a consensus that these findings may be biased (Kunst et al., 1998, 2004; Lévy & Vallin, 1981; Shkolnikov et al., 2007; Vallin, 1980). The bias originates from a discrepancy between the sources of establishing numerator (death records) and denominator (census records); hence the term numerator–denominator bias. The numerator–denominator bias occurs because the information provided by individuals in the (mainly statistically driven) census may differ substantially from the corresponding information provided after death by a proxy informant via (mainly administratively driven) registration.

This bias may cause substantial distortions in social group-specific mortality estimates based on unlinked data that can lead to misleading estimates of the magnitude (or even direction) of social inequality in mortality (Kunst et al., 1998, 2004; Vallin, 1980).

An in-depth matching study comparing death and census record data on education in Lithuania found very significant misreporting

of education in death records for both men and women (Shkolnikov et al., 2007). The reporting bias originated from both overstatement and understatement of education in death records, leading to substantial overstatement of inequality in mortality by education in the census-unlinked data.

Among socioeconomic variables, occupation is probably the most commonly used indicator. Significant misreporting of occupation in death records, compared with census, has been reported from many countries – England and Wales, the United States and France. Similar bias has been reported for studies of ethnic differences in mortality from several countries. A recent study in Lithuania, for example, found that mortality rate ratios in unlinked data showed mortality in the Russian and “other” groups to be lower than in Lithuanians, whereas the census-linked data led to opposite results (Jasilionis et al., 2011).

Biased data will not necessarily produce biased estimates of change as long as the bias remains constant, but care needs to be exercised. Data quality studies suggest that numerator–denominator bias in unlinked data by occupation may take different directions and affect the estimates of the magnitude of inequality in different ways (Kunst et al., 1998; Leinsalu et al., 2009). For example, the numerator–denominator bias tended to result in underestimation of the mortality differential by occupation in France, whereas it

was responsible for overestimation of the same differential in England & Wales (Kunst et al., 1998). Kunst et al. (2004) also demonstrated how deficiencies in unlinked data may lead to wrong conclusions about the directions of trends in mortality inequality by occupation.

In summary, the evidence is consistent in the finding that the numerator–denominator bias affects the estimates of mortality differentials

by various socioeconomic stratifiers. The direction of the bias is not always identical, but the bottom line is that unlinked data may provide imprecise and potential misleading estimates of the magnitude and possibly trends in inequalities. It is therefore desirable to use, where possible, linked data. The Eurothine project provides useful information on countries where such data are available.

## 4.4 Barriers to monitoring social determinants and health inequalities

The primary barrier to analysing and monitoring health inequalities and social determinants of health in the WHO European Region is the availability of data. Each country has at least some data (such as at the geographical level) but, given the diversity of the WHO European Region, the types of available data differ considerably.

However, even when data exist, there are several secondary barriers to their effective use. In general, some of the issues described below are more pertinent in the eastern part of the Region (Bobak, 2009).

First, access to data for nongovernmental bodies is often restricted while government institutions may not have the capacity to analyse data on inequalities. This can arise for two reasons. First, in some countries aggregate (geographical) data are not being made available. This is probably related to the fact that assessing and monitoring inequalities in health and social determinants of health is not perceived as important, often because there is no tradition for this. Second, for data protection reasons, data containing individual identifiers that allow linkage between registries (such as population and cancer registries) are virtually inaccessible in some countries. Some of the reasons relate to data protection and confidentiality laws (although legislation alone may not be the primary issue, as linkage studies are routinely done in Scandinavian countries without any problems).

Second, especially in the countries in the eastern part of the Region, there is lack of national funding and, occasionally, dependence on international funders to conduct health surveys, including studies of determinants of health and health inequalities.

Although many such studies are extremely valuable, this also means that these studies are usually not coordinated within countries because the funding is often short-term and from an outside entity. Funding from donors or outside research groups often requires focus on particular research topics that drive the sample and questionnaire design and the timing, resulting in survey information that may be either duplicated or not comparable with other surveys. In addition, disproportionate investment in survey information risks not putting enough attention and investment into strengthening routine data sources, such as civil registration, administrative data from health facilities and surveillance systems and developing population registries.

Finally, an important barrier to monitoring social inequalities in health in some countries is the lack of research infrastructure and expertise, especially in some of the countries in the eastern part of the Region. The research base in demography, epidemiology, sociology and related disciplines is often small, and few researchers have experience with designing population-based studies. A major issue is insufficient expertise in statistical analysis of health-related data, even if data exist. Developing local research capacity through international collaboration and formal and informal training is an important prerequisite for studying and monitoring social determinants of health.

However, as health inequalities emerge as an important topic, some countries may perceive the need to monitor these inequalities, and these secondary barriers will be removed.

## 5 Recommendations for future data collection

As described above, both target setting and monitoring require measurable indicators of health, health behaviour, biological risk factors, socioeconomic and psychosocial factors and wider social determinants. In many countries, data on a wide set

of indicators are already being collected, often periodically. In many other countries, however, data are often not available or not reliable. It is mainly this second group of countries that needs guidance.

### 5.1 Ensure a minimal set of variables

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It is unrealistic to expect that countries with sparse data would be able to collect data on very long lists of indicators. A more limited but more focused list of measurements is likely to be more successful, both for routine data collections and for health surveys.

Regarding vital statistics, in addition to ensuring completeness and reliability of cause-of-death ascertainment, it is essential that the data be collected in a way that allows classification by (1) geographical unit and (2) at least some socioeconomic stratifier, such as occupation or education. It is equally important that data on numerators (censuses and population registries) can be broken down by the same geographical and socioeconomic code.

Regarding health surveys, expanding existing survey programmes conducted periodically in large parts of Europe (EHIS in particular, but potentially also EHES, SILC, SHARE etc.) to the countries in the eastern part of the Region would be extremely valuable, since this would provide information directly comparable across countries. It would be equally valuable if a consensus can be reached on a minimal set of measurements (health, risk factors, social determinants) that can be included in new or ad hoc surveys.

An important issue is access to data; it is highly desirable that data be available to the public or, at least, to institutions responsible for monitoring health inequality.

### 5.2 Encourage individual-data linkage

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The association between health and social determinants is sometimes assessed at the ecological (aggregate) level, an approach prone to ecological fallacy. Unlinked data are also often used but, as shown above, this approach can lead to the numerator–denominator bias and produce unreliable results. Since most (not all) European

countries have individual ID numbers, linking data at the individual level should be technically possible in large parts of the Region. In some instances, the main obstacle is data protection legislation, a problem that can be solved. In other instances, data collection may need to be expanded to include the individual ID number.





### 5.3 Multinational surveys (expansion towards non-EU countries)

Multinational surveys are conducted regularly in countries in the western part of the Region; these are mostly lacking in the eastern part of the Region. This is compounded by the fact that these countries also often lack the infrastructure to collect high-quality routine data. Demographic and Health Surveys and Multiple Indicator Cluster Surveys are carried out at certain intervals but usually restrict themselves to specific causes of mortality and morbidity.

A potential option that merits further exploration is the surveys conducted regularly (at times annually) by Gallup International. Gallup's World Poll conducts self-reported health and well-being surveys in almost all countries of the world, and its infrastructure may be used for the purpose of collecting new information in specific areas. The WHO Regional Office for Europe has opened discussions with Gallup Europe to explore this possibility further.

## 6 Target setting

A target can be defined as a desired goal. The desired goal is health improvement at the outcome level, and outcome targets would be drafted in these terms of, for example, reductions in mortality or morbidity. In addition, where improvements in health at the outcome level can be linked to processes or outputs, with adequate scientific evidence, targets can legitimately be drafted in input, process or output terms, including increases in public health expenditure or introduction of legislation fostering public health.

In thinking about the role of targets, some consideration needs to be given to the principles of performance measurement and accountability. In the case of a European study, this discussion is complicated, since in this case accountability can only be collectively to and between Member States. If citizens collectively are the ultimate principal in a complex accountability chain, we should ask how well the policy and the systems serve these citizens.

### 6.1 Use of indicators and targets

**The use of indicators.** One of the difficulties is finding the appropriate mix of indicators that can validly and reliably reflect progress towards strategic goals. In health policy, the time lags between policy interventions and their impact on health status as well as the difficulties of attributing an impact to specific policy interventions have usually encouraged the use of process or output indicators over outcome indicators.

The coherence of process, output and outcome indicators lie at the centre of measuring progress towards the targets. All need to be measured as long as the causal link cannot be ascertained. All need to evolve in a dynamic fashion as the link is being tested: for example, when process indicators improve, is there an improvement in outcome indicators that can be identified with the action?

**The use of targets.** Historically in the European Region, targets were first suggested as part of the first common health policy: the European strategy for attaining Health for All. The European strategy called for formulating specific regional targets to support the implementation of the strategy. Aptly described as a “wonderful blend of today’s realities and tomorrow’s dreams”, 38 specific regional targets were adopted at the thirty-fourth session of the WHO Regional Committee for Europe in Copenhagen in September 1984 together with 65 regional indicators to monitor and assess progress. The European Health for All policy and targets

were updated in 1991 and the Regional Committee adopted a renewed policy, Health21: health for all in the 21st century, in 1998.

More generally, targets have been associated with reductionist views of system behaviour and performance as well as with mechanisms of hierarchical thinking and control. However, the present literature on health systems increasingly considers these as complex systems characterized by complexity and uncertainty, and targets may contribute to improve the clarity of expectations, motivate performance and improve accountability in this context.

Targets should be adaptable and dynamically assessed, in the context that policy implementation is a heuristic process that is never definitively completed. A crucial theoretical consideration concerns the availability of data. All targets for health depend for their utility on the availability of comparable data of reasonable quality and reliability. In practice, this is often a key constraint. This consideration needs to be kept clearly in mind for the Health 2020 targets, either for European regional or country use. However, experience in the European Region has shown that setting targets and indicators can be a huge motivating factor in countries collecting and incorporating in their routine information systems the necessary data to inform public health policy even where such data did not exist in the past.

There are some positive elements in assessing the utility of targets. These can be summarized as follows.

- Targets, such as the Millennium Development Goals or Sustainable Development Goals, can be very successful in raising awareness and facilitating political and organizational support.
- Targets can reflect a scientific view on the future, in terms of achievable improvements in population health.
- Targets can provide a learning experience for stakeholders.
- Targets can be seen as a tool for strengthening accountability and communication.
- Targets can provide a map for partners.
- Targets can serve as a reference point for day-to-day action.
- Targets can provide motivation for action.

However, using targets also has some potential negative characteristics.

- Targets can be difficult to align with strategy.
- There is a risk that priority will be given to targets that can be measured easily (what can be measured gets done).
- Targets are liable to bureaucratic capture: elements of the organizational bureaucracy justify their existence in terms of a target, and every element wants one.
- Targets are subject to the law of diminishing returns: achieving the last few percentage points of a target may be very resource demanding.

- Targets may be associated with gaming: managing the target rather than the task.
- Targets may be seen as burdensome and demotivating if the targets are too many or too complex.
- Targets are often expressed in terms of averages, such as the Millennium Development Goals or Sustainable Development Goals, hiding distributive or equity issues that are fundamental for the review of social determinants of health.

Targets should be SMART:

- specific
- measurable
- achievable
- relevant
- timely.

Specific targets are more likely to be accomplished than general goals; hence targets must be clear and unambiguous. In order to arrive at measurable targets, concrete criteria for measuring progress must be established. For targets to be achievable, they must be realistic and set against a defined time scale. Targets are considered relevant when they represent objectives towards which the policy is able to work. Targets must be grounded in a time frame, preferably with deadlines, even if they are likely to be symbolic.

Every target should represent real progress and can be qualitative or quantitative. The SMART objectives should apply to both qualitative and quantitative targets. Targets can be set for inputs, processes, outputs as well as outcomes.

## 6.2 Target setting in Health 2020

A major target-setting initiative was taken in relation to the new European health policy, Health 2020. The European review of social determinants of health and the health divide provides the evidence base for and underpins Health 2020; it should therefore not duplicate but link with this target-setting effort. Targets for Health 2020 were developed in consultation with WHO Member States.

One of the main approaches characterizing Health 2020 is that of tackling the social determinants of health and inequalities in health. Recent reviews of the social determinants of health indicate the importance of focusing on early childhood development; hence consideration might be given to a target related to this. Given the importance of income and education

in relation to health inequalities, other options might include an increase in the proportion of households with income sufficient to support health and well-being or in the number of years of education.

A crucial aspect of the Health 2020 priorities is the health and well-being of the population of the European Region overall and the differences between and within countries (closing the gap). Possible target areas may include:

- creating a formal mechanism for addressing inequalities and reducing them, concerning both the health system and other sectors;

- reducing health inequalities in the Region – here two targets could be considered: one for reducing the gap between countries and one within countries;
- increasing health literacy; and
- downstream targets that could result from the above targets, including increases in healthy life expectancy or reductions in the burden of disease (such as in terms of disability-adjusted life-years and/or mortality) in European countries with large improvement in lower social classes.

### 6.3 Methods for setting targets

The technical methods used for setting targets and developing indicators vary according to the objectives to be attained. The evidence arising from the topic task groups may be subjected to the methods outlined below. These methods were used in the Health 2020 target-setting efforts.

One type of method is presented below in an extremely simplified way for illustrative purposes (for reasons of time pressure these are only illustrative). The targets shown in this section have been selected from noncommunicable diseases.

**The counterfactual method.** This method is based on comparing a biologically achievable or theoretical minimum with existing reality as described by available information. This was first introduced by Murray & Lopez (1999) as a taxonomy of counterfactual exposure distributions that assist with mapping policy implementation options. These include distributions that correspond to a theoretical minimum, a plausible minimum, a feasible minimum and a cost-effective minimum of any risk factor or target described. In terms of risk factors and the resulting burden of disease, this method takes account of the fact that a certain burden of disease will be unavoidable, no matter how favourable the environment.

An illustration is given below using premature mortality from cardiovascular disease, which could be a target for noncommunicable diseases (using premature mortality is purely

for illustrative purposes and may not be appropriate, since it excludes older people as an important vulnerable group). The target content can be formulated in different ways.

- Cardiovascular disease mortality in the European Region reduced by at least x% by 2020, with the largest reductions achieved in countries with the currently highest rates.
- Cardiovascular disease mortality in the European Region reduced to the current average for the EU15 (the 15 EU members before 2004) or other average. This would immediately become a quantified target, as it would state that the European Region average should decline from 111 per 100 000 population in 2010 to at least 98 per 100 000 population in 2020.

The indicator for this target could be the standardized death rates from cardiovascular disease per 100 000 population in the age group 0–64 years. Fig. 1 shows the standardized death rates from premature cardiovascular disease of all countries in the European Region. It also shows the average rates for the EU12 (the 12 EU members joining in 2004–2007), the EU15 and Commonwealth of Independent States (CIS) countries.<sup>1</sup> Achieving a standardized death rate of zero would be a theoretical but not physiological plausible minimum rate.

<sup>1</sup> A country group used by WHO for statistical purposes comprising CIS Member States Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan and Uzbekistan, Associate States Turkmenistan and Ukraine and former Member State Georgia.

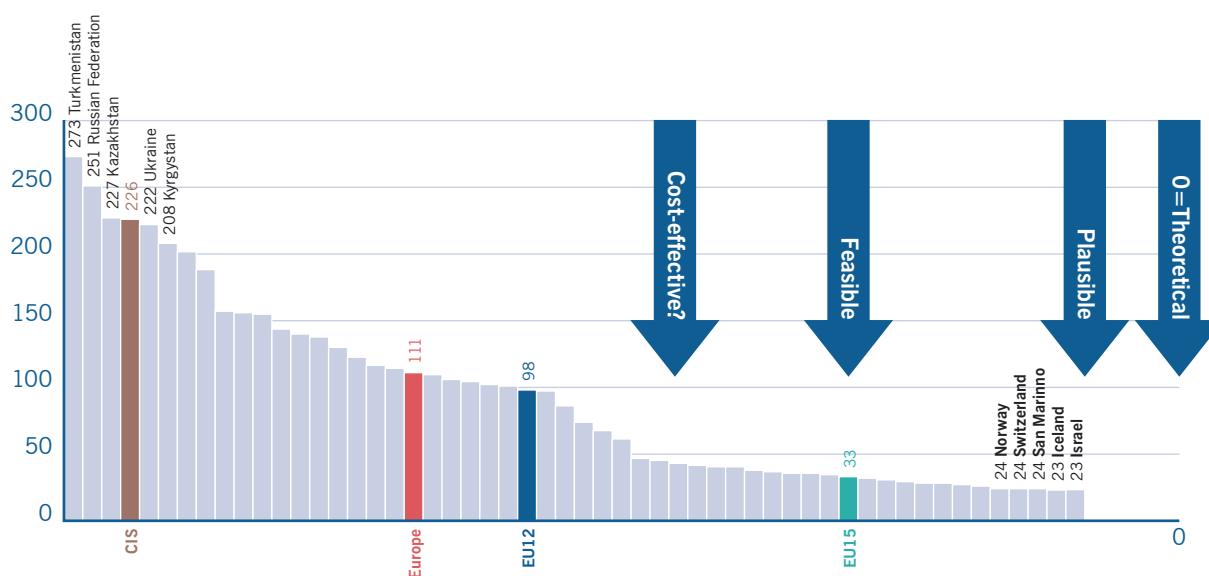
It could be argued that, given the right environment and conditions, all countries in Europe should be able to attain the lowest rate (in this case, the rates of Israel), since it is already a biological reality, hence plausible. Alternatively, it could be argued that countries with the highest rates should be able to attain the average of either the whole region, EU12, EU15 or CIS countries as definitely a feasible minimum. Debating a cost-effective minimum requires further information from intervention studies. The standard (the counterfactual) against which progress will be compared and the target will be set would be chosen through expert opinion, consensus or other methods (described further below).

The difference between the highest-rate and the lowest-rate country in Fig. 1 is more than 10-fold (assuming deaths are consistently coded). The difference between the highest rate and the EU12 average, for example, is 2.5-fold. Depending on which rate is used as the counterfactual or target rate, the percentage reduction of the target would vary. Alternatively, the positive reverse of mortality or life expectancy can be used; the highest life expectancy in the Region can be used as counterfactual for regional comparisons, thus describing health rather than mortality.

Quantifying this sensibly requires further steps. These are outlined below. Numerous factors determine the differences in rates, but an important one is overall mortality: low rates of cause-specific mortality may only reflect high rates of competing mortality from other avoidable causes.

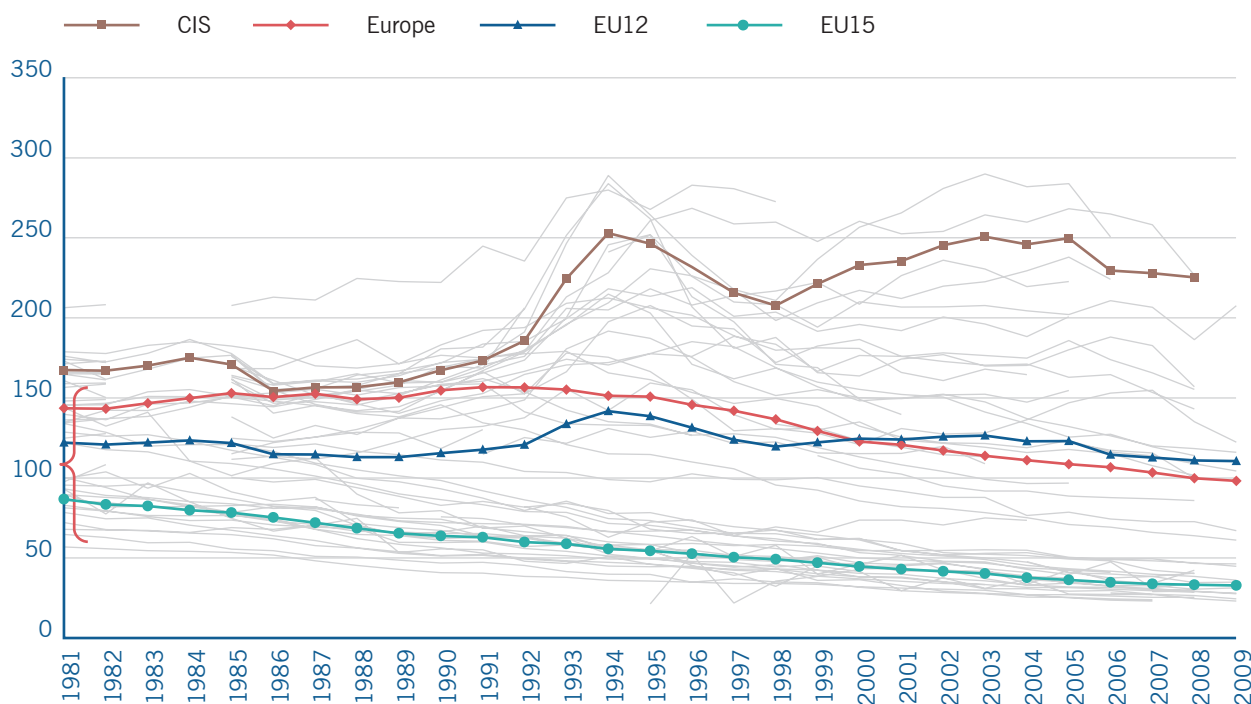
**Trend analysis.** Another illustration in cardiovascular disease mortality demonstrates how trends in rates can be used to arrive at a target, this time in inequalities. Fig. 2 shows how premature mortality from cardiovascular disease has changed over time in the European Region. It demonstrates, among other things, that the differences in rates between different parts of the Region have increased over time, especially in the past 20 years. This may lead to the formulation of a target of reducing the inequalities in cardiovascular disease mortality within the European Region by x%. The indicator would be the proportional difference in cardiovascular disease mortality between the countries with the highest and the lowest rates. Alternatively, the target could be to reduce the differential of cardiovascular disease mortality between CIS countries and the EU average by x%, but many options are available.

**Fig. 1**  
Standardized death rates per 100 000 population for cardiovascular disease in both sexes aged 0–64 years, latest available year



Source: WHO European Health for All database.

**Fig. 2**  
Standardized death rates per 100 000 population (0–64 years old) from cardiovascular diseases in both sexes, 1981–2009



Source: WHO European Health for All database.

Assessing whether a quantified target is realistic requires further analysis. This would include examining correlations using predictor variables, especially those that are prone to interventions, or analysing quintiles, examining the countries within the top quintile for commonalities. This requires more detailed knowledge of the effectiveness of interventions to directly reduce either risk factors or determinants or disease.

Such an analysis would examine the commonalities of countries or regions with the highest and the lowest rates (further detail on this method is available on request).

**Other methods.** This section is not exhaustive and does not list all available methods but briefly outlines two other approaches that can be used for refining target setting in the areas described above (the burden of noncommunicable diseases).

- **Pooling of intervention studies.** Studies examining and quantifying the effect of interventions (including cost-effectiveness) from various countries in the European Region can be pooled and the percentage reduction of the outcome (caused by the intervention) can be used to quantify the

target. These are important, since they link directly with policy options.

*Theoretical example.* Aggressive use of statins and certain health system improvements have reduced cardiovascular disease mortality by 5% in some countries; hence the target could be a 5% reduction in mortality rates from premature cardiovascular disease.

- **Comparative risk assessment.** Studies can examine and quantify the effect of risk factors on disease and predicting the development of the burden of disease based on predictions with changes in the determinants over time. There is plenty of literature on this subject, especially from Europe.

*Theoretical example.* Reducing tobacco consumption has affected cardiovascular disease mortality, with reduction of 10% in some countries; hence the target could be a 10% reduction in mortality rates from premature cardiovascular disease.

For the purpose of Health 2020, WHO and a specially formed working group have used a mix of these methods to arrive at the short-list for country consultation.

# Overall recommendations of the task group

## 7.1 Recommendations on setting targets for topic task groups

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Topic task groups have produced a wide range of recommendations, but many are not easily translated into measurable targets. Most recommendations have been inspirational, and others have not been formulated in sufficient detail to enable specific and measurable targets.

In Section 5, we described the target setting in the new European health policy, Health

2020. The policy includes two high-level targets per area in addition to potential subtargets. For each target and subtarget, an indicator has been identified that must not only be measurable but also data or information must be available, and social determinants of health are an important part of the policy and its targets.

## 7.2 Recommendations on monitoring health inequalities

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Our task group has made several recommendations regarding data collection and monitoring in the WHO European Region.

First, it is essential to maintain and improve routine data collections and to ensure that at least basic socioeconomic data are collected. WHO, in collaboration with EU, can define a minimum set of variables to be collected in a standardized way. Such data should allow monitoring of both social determinants of health (operating at different stages of the life course) and of social differentials in health outcomes and should allow meaningful comparisons both between countries and within countries.

Second, there should be regular periodic analysis and reports assessing trends in social determinants of health and changes in inequalities over time. Where data on individual level measures of social position are not available, analyses could use area-level data.

Third, even in the absence of a centrally recommended minimal dataset, countries should not discontinue collecting data enabling assessment of health inequalities,

if such data are currently collected. For example, some countries in the Region have recently removed information on educational status from death certificates. Assessing educational differentials in mortality in these countries is no longer possible.

Fourth, although mortality data are more likely to be available for monitoring inequalities, we encourage all countries in the Region to adopt a standardized national health survey protocol (such as the European Health Interview Survey). We also encourage countries to carefully consider sample sizes for national health surveys, so that the surveys have sufficient statistical power not only for assessing current social differentials but also for monitoring changes in social differentials in health over time (studying interaction between time and social stratifiers).

Finally, building the capacity for monitoring social determinants and health inequalities should be invested in and encouraged. Especially in the eastern part of the WHO European Region, expertise in social epidemiology and statistical methods should be developed by providing training and international links.

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# Annex 1

## Multicountry national survey projects

### **Demographic and Health Surveys.<sup>a</sup>**

Since 1984, the Demographic and Health Surveys programme of the United States Agency for International Development has collected, analysed and disseminated and representative data on population, health, HIV and nutrition through more than 260 surveys in more than 90 countries (<http://measuredhs.com>).

### **English Longitudinal Study of Ageing.**

The English Longitudinal Study of Ageing is the first study in the United Kingdom to study the full range of topics necessary to understand the economic, social, mental and health elements of the ageing process. The aim, targeting a population of people older than 50 years, is to explore the unfolding dynamic relationships between health, functioning, social networks and economic position (<http://www.ifs.org.uk/elsa>).

### **European Health Examination Survey.<sup>a</sup>**

A representative survey including core measurements such as height, weight, waist circumference, blood pressure, total and HDL-cholesterol, fasting glucose or HbA1c. It complements the European Health Interview Survey. The first national health examination survey in Europe was carried out in the late 1950s and early 1960s. The number of surveys increased from the 1970s to the 1990s, and since 2000 there has been an increasing number of new national health examination surveys (<http://www.ehes.info/index.html>).

### **European Health Interview Survey.<sup>a</sup>**

The European Health Interview Survey was developed between 2003 and 2006. It comprises four modules on health status, health care, determinants of health and background variables. A new regulation on Community statistics on public health and health and safety at work (EC) No 1338/2008 was signed by the European Parliament and the Council on 16 December 2008. This regulation is the framework for the European Health Interview Survey data collection.

Within the context of this framework regulation, a specific Implementing measure for wave II will be developed ([http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/en/hlth\\_ehis\\_esms.htm](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/hlth_ehis_esms.htm)).

### **European Health Risk Monitoring.<sup>a</sup>**

The project aims to develop indicators and measures for coordinated, standardized national population risk factor surveys. Such surveys are intended to gather information on major chronic disease risk factors, related behaviour and determinants to serve and evaluate disease prevention and health promotion efforts in individual countries and at the European level (<http://www.ktl.fi/publications/ehrm/product1/title.htm>).

### **EU – Statistics on Income and Living Conditions.<sup>a</sup>**

This is a multi-purpose survey with income and social inclusion as a core. It contains a small module on health, including three questions on general health status and four questions on the unmet needs of health care. The results of the main indicators from this survey are available in the Eurostat database ([http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/en/hlth\\_status\\_silc\\_esms.htm](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/en/hlth_status_silc_esms.htm)).

### **Generations and Gender Surveys.<sup>a</sup>**

These are part of the Generations and Gender Programme of the United Nations Economic Commission for Europe, which are panel surveys of a representative sample of the 18- to 79-year-old resident population in 19 countries. The survey collects information on gender relationships, household composition and housing, residential mobility, public and private transfers, social networks, education, health, contraception and infertility. Health questions include self-reported health, well-being, locus of control and receipt and provision of care (<http://www.ggp-i.org>).

### **Global Ageing and Adult Health.**

Longitudinal survey on health and ageing among people 50 years and older in the Russian Federation (and several other non-European countries) (<http://www.who.int/healthinfo/systems/sage/en/index.html>).

### **Household Living Conditions Survey.<sup>a</sup>**

The Living Standards Measurement Study is a research project initiated in 1980. It is a response to a perceived need for policy-relevant data that would allow policy-makers to move beyond simply measuring rates of unemployment, poverty and health-care use, for example, to understanding the determinants of these observed social sector outcomes. The programme is designed to assist policy-makers in their efforts to identify how policies could be designed and improved to positively affect outcomes in health, education, economic activities, housing and utilities, etc. (<http://iresearch.worldbank.org/lsms/lsmssurveyFinder.html>)

### **Multinational monitoring of trends and determinants in cardiovascular disease (MONICA).**

This was a 10-year project conducted during the 1990s to monitor trends in cardiovascular diseases around the world and to relate these to risk factor changes in the population over a 10-year period (<http://www.ktl.fi/monica>).

### **Multiple Indicator Cluster Survey.<sup>a</sup>**

UNICEF implements this survey every five years to assess the situation of women and children. The surveys contain demographic information but not necessarily health information (<http://www.childinfo.org/mics.html>).

### **New Democracy Barometer surveys in eastern Europe.**

The Center for the Study of Public Policy at University of Aberdeen conducted over 100 surveys in post-communist countries since 1991, throughout the 1990s ([http://www.abdn.ac.uk/cspp/catalog13\\_0.shtml](http://www.abdn.ac.uk/cspp/catalog13_0.shtml)).

### **Reproductive Health Survey.**

From the 1980s until the present, the United States Centers for Disease Control and Prevention, under the MEASURE CDC project, has assisted countries throughout the world in developing, implementing and analysing national reproductive health surveys that provide population-based data about reproductive health indicators. Countries use data from these surveys to evaluate programmes and interventions, assess reproductive health status and develop policy (<http://www.cdc.gov/reproductivehealth/surveys/SurveyCountries.htm>).

### **Survey of Health, Ageing and Retirement in Europe.**

Various research companies in the European research community conduct this 2-year panel survey targeting individuals aged 50 years and older. It provides data on health, socioeconomic status and social and family networks of more than 45 000 individuals. As such, it responds to a communication by the European Commission advocating “[examining] the possibility of establishing, in co-operation with Member States, a European Longitudinal Ageing Survey” (<http://www.share-project.org>).

### **World Health Survey.<sup>a</sup>**

WHO compiles baseline information on the health of populations and on the outcomes associated with the investment in health systems and baseline evidence on how health systems are currently functioning. It provides the potential to monitor inputs, functions and outcomes (<http://www.who.int/healthinfo/survey/en>).

<sup>a</sup> Ongoing survey programmes that measure aspects of health: they are usually nationally representative with comparable data over years and between countries.



## The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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# Measurement and targets

## Final report of the Task Group on Measurement and Targets

Review of social determinants of health and  
the health divide in the WHO European Region

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