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on the Measurement of Health Status
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Session 1 – Invited paper

**HEALTH AS A MULTI-DIMENSIONAL CONSTRUCT
AND CROSS-POPULATION COMPARABILITY***

Submitted by the Task Force on Health Status

Preface – This document is still a work in progress. While there is agreement amongst the Task Force on its general content, there are still a number of specific points and nuances where further work is needed. Comments and suggestions from the Meeting will be most useful.

1. At the joint UNECE/WHO/Eurostat Meeting on the Measurement of Health Status held in Geneva, 24-26 May 2004, a broad consensus was reached that there are a number of classes of indicators that need to be measured to provide a full statistical picture of population health. These include broad social determinants and risk factors, health status, health interventions, participation in society, and well being, taking account of sociodemographic characteristics. The main recommendation from the meeting was that a Task Force (TF) should be set up to focus on the development of a common instrument to measure health states in their multiple dimensions or domains. Health states of individuals are understood to be one of the components of health status, along with morbidity (diseases and injuries) and mortality risks (see below). A Steering Group on Health Status (SG) was also established at the meeting to guide the work and plan a subsequent international meeting.

2. The meeting of the Steering Group on Health Status (SG) in December 2004 agreed that the main goal of the TF was to develop proposals for a health state interview instrument based on

* This paper is Part 1 of 3 papers prepared by the Task Force on Health Status for this meeting. The Task Force consists of representatives from the following countries and international organizations: Australia, Belgium, Canada, Estonia, Hungary, Italy, Netherlands, Norway, Spain, United Kingdom, USA, Eurostat, UNECE, and WHO.

an agreed set of domains and questions to be reviewed at the next meeting in 2005. The SG thought it would be useful to ask the TF first to articulate the arguments supporting the consensus reached at the May meeting. Then, the work of the TF, would start from the principles that:

- The focus is on measurement of health states of individuals in surveys;
- Health state measurement needs a multi-dimensional approach (i.e. a focus on a core set of domains of functioning rather than on a single global question); and
- The focus of measurement is on an individual's capacity to function in each domain.

3. The main work of the Task Force is on development of a common instrument to measure health states of individuals in the context of an interview survey. An important objective is to maximise the cross-individual and cross-population comparability of results from use of the instrument. In relation to this requirement, and to support the development process itself, it is important to have a clear conceptual framework for the definition and measurement of health states with clear, unambiguous and operationalizable definitions of what they are intended to measure. This draft articulates the reasoning to support the agreements reached at the May 2004 joint meeting of UNECE/WHO/EUROSTAT for conceptualization of health states and health state measurement.

I. Distinction between health status and health states

4. There was a broad consensus at the May 2004 joint meeting that there are a number of classes of indicators that need to be measured to provide a full statistical picture of population health. The focus of this taskforce on the measurement of health states is an attempt to improve the consistency and comparability of the range of health state measurement instruments already in wide use in national and cross-national health interview surveys. Health interview surveys can, of course, include modules on other aspects of health status, on determinants of health status and the welfare consequences of health. But those topics are not the focus of this effort.

5. This first section clarifies the distinction between health status and health states in the context of other major health-related concepts, as those terms were used at the May 2004 joint meeting. The terms 'health status' and 'health state' were distinguished in the May 2004 meeting report, although it noted the difficulty of finding comparable terms in other languages. There was some discussion of replacing the term 'health states' by 'functioning' or 'functioning and feeling'. However, the use of the term functioning is also problematic because it has already been used in some conceptual schemes to distinguish body functioning (impairments) from activity limitations, both of which are included in the term 'health states'. Rather than attempt to find new English-language terms to distinguish health states and health status as defined here, it was thought more appropriate to clearly define these terms and allow users of other languages to find or develop appropriate and clear terminology in their languages.

6. There is considerable confusion and variation regarding the way in which the term "health status" is used. For the purposes of the work of the TF, Figure 1 sets out the main categories of statistical indicators that typically are considered in discussion of the measurement of individual and population health status. The arrows give a general indication of major causal relationships; though they are certainly not exhaustive.

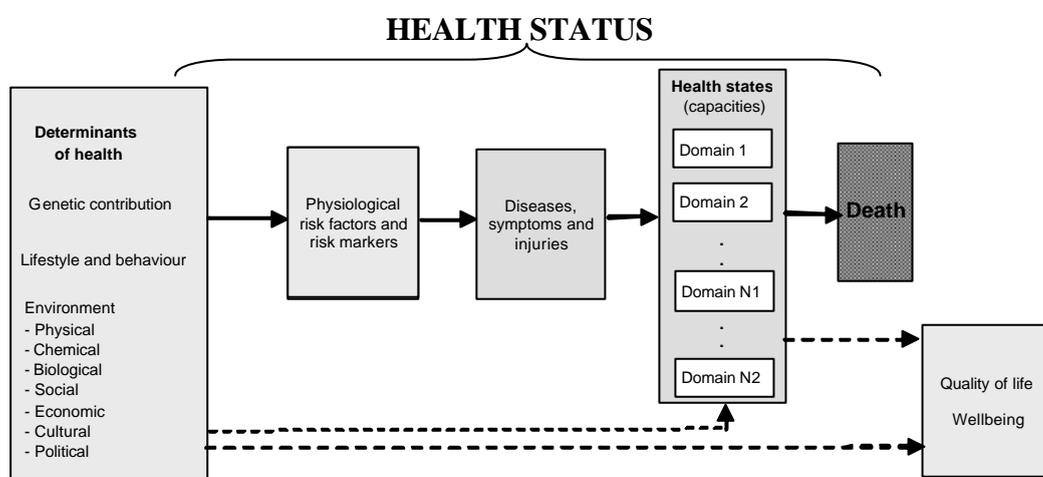
7. Figure 1 makes several clear distinctions. First, determinants of health are separate from health states. This is essential from an analytical point of view, in order that data can be collected in a way that allow the strength of association between a determinant of health and health states

can be assessed empirically. Correspondingly, health states and health status are clearly distinguished from overall well-being and quality of life. While there is no doubt that health status is a major factor determining well-being, it is not the only one.

8. Under the general heading of health status, four categories or groups of measures are usefully distinguished in Figure 1. From a clinical point of view, there is no question that physiological markers like blood pressure and cholesterol levels are important aspects of health status. However, these can be normal or at abnormal levels with no necessary relationship to the other three categories shown as components of health status in Figure 1 – namely disease, health state, and mortality risk. The scope of health status shown in Figure 1 is illustrative, not prescriptive. This paper does not attempt to define the scope of health status, or specify whether behavioural and more distal risk factors should be included in health status or excluded.

9. The key distinction drawn in Figure 1 for the work of the TF is that of “health state”. Health states are not diseases or risk factors; nor do they refer to well-being generally or to aspects of participating in society. The term health state is intended to refer to an individual’s levels of functioning within a set of health domains. The scope and definition of these domains is discussed in more detail in Sections II and III, but we simply note at this point that such domains would include impairments in body functions and structures such as vision, cognition and pain, and also domains of more complex human tasks such as mobility, communication or self-care.

Figure 1. A simplified conceptual framework for health determinants, health states and health status.

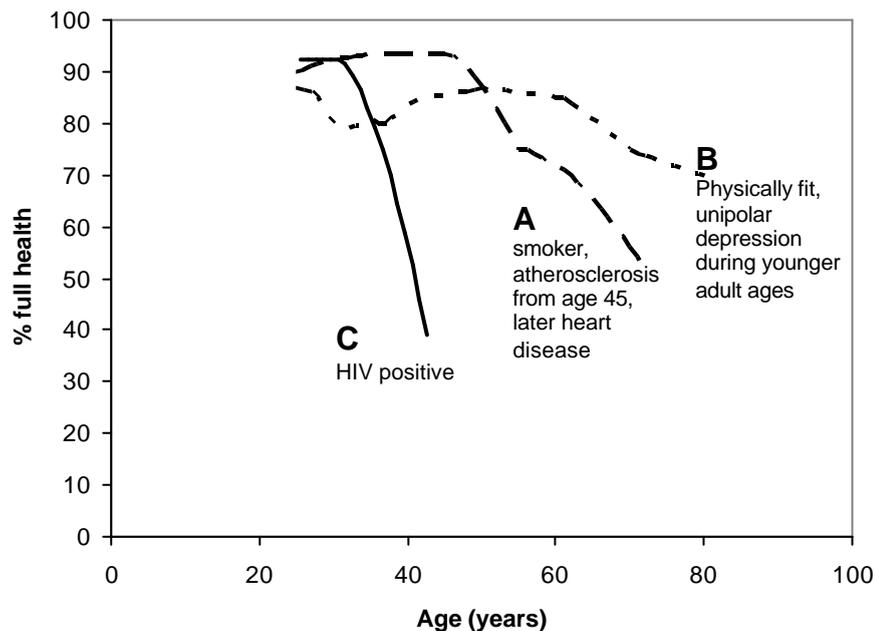


10. Figure 1 makes implicit reference to two major classification systems developed by WHO – the International Classification of Disease (ICD) and the International Classification of Functioning, Disability and Health (ICF). The ICD is essentially included in full in the “diseases” category, and hence also in classification of causes of death. However, the role of the ICF is more complex, as discussed in Section III below. In principle, the full set of domains included in the health states box map to ICF categories or sets of categories, though some ICF categories may be considered to be part of health status rather than health state. A standard survey instrument for health states will need to include only a small number of carefully chosen and obviously important (from a health perspective) domains like physical mobility, vision, cognition and pain. This is discussed further in Section II below.

11. One major simplification in Figure 1 is that there is no indication of time. For many people, prognosis is an important part of health status. We typically include, when answering the question, “how are you?”, not only comments about how we function today, but also how we’ve been, and how we expect to be. More formally, we can choose to conceptualize “health”, in terms of the comparison of the health of two individuals, in terms of health states “right now”, current and future health states (prognosis), or the complete realized history of health over the individuals’ lifetimes. However, from a statistical measurement point of view, and for a wide range of analytical purposes, it is essential to distinguish history and prognosis, from health states “right now”.

12. Figure 2 illustrates this point by showing the trajectories of the health states for three individuals, A, B and C, over time, from age 25 when all three individuals have similar health states. A is clearly healthier than B at age 45, even though A does not live as long as B, and suffers a longer period of poorer health than B at later ages. C has died before age 45. Even though a clinician might have been able to predict with high probability the future trajectories of the individuals, showing that A would have a significantly poorer prognosis than B, the key point is that at age 45, the ages of the individuals “today” when we are conducting a health survey, A indeed is in a better health state than B, and our data should show this.

Figure 2. An example of health state trajectories for 3 individuals age 25.



13. Of course, a more accurate depiction of the individual health state trajectories shown in Figure 2 would have to take account of the fact that we do not yet know the future. At best, we can make some very rough estimates of the future course of the health states of individuals, based for example on their risk factors (e.g. smoking) and diagnoses (e.g. HIV-positive, atherosclerosis or depression). Thus, instead of sharply defined lines in Figure 2 for ages after 45, the graphs should really show widening bands of uncertainty. Thus, the health state trajectories shown in Figure 2 might better be referred to as health expectancies, albeit at the individual level.

14. Two other issues are raised, at least implicitly, by Figure 2. One is what precisely is measured on the vertical axis. If the figure is intended to show the overall level of health for each individual across the multiple domains defining the health state, then the axis must plot an overall summary index of health state. Alternately, a multidimensional figure could be envisaged, in which individual trajectories are vectors defined by n numbers, where n is the number of domains comprising the health state description. At this stage, Figure 2 can be taken as illustrative, focusing on the distinction between health states at point in time and health state trajectories. There is also broad interest in summary measures or indices of health state and health status. The May 2004 meeting discussed the question of summary indices and agreed that, while they are very important, and that possible subsequent work to develop such indices should not be precluded, it was not part of the objective of the current effort to develop such indices.

15. The second implicit question is how to move from describing (and ranking) the health states of individuals to statements about whether or not one population is healthier than another, or whether the health of a given population has changed over time. This too is a fundamental question, and one on which there is a considerable range of views. The comparison of the health of populations involves choices on the time perspective and on the components of health status included. Examples of summary measures developed to compare health of populations include the DALY (disability-adjusted life years) indicator, and HALE (health-adjusted life expectancy). Both the DALY and the period HALE combine information on health states and mortality risks using a current point-in-time perspective. Again, the May 2004 meeting concluded that this question is beyond the purview of the TF. At the same time, it was clearly recognized that at the foundation of both DALYs and HALE is data from a representative sample of the population on health states as defined in Figure 1, where these data are either explicitly or implicitly used to estimate a series of individual health state trajectories like those shown in Figure 2. Thus, the work of the TF in developing a consensus on the measurement of health states is fundamental not only for the standardized profiling of the health of different populations, but also for subsequent development of summary indices of population health.

II. Multi-dimensional approach to health state description

16. During the last three decades, there has been general acceptance of an approach to describing health states and disability of individuals in terms of multiple domains of health, and in developing self-report instruments that seek information on each of these domains. The first standardized health state measurement instruments generally focused on capturing the most severe states, particularly among older age groups and individuals living in long-term care institutions. Measures, such as the Activities of Daily Living (ADLs), emphasized performance in different areas, for example, eating, getting in and out of bed, getting around in the home, and dressing, bathing or using the toilet. The levels of performance in these areas were considered to be proximate descriptions of the severity of health states – requiring assistance in these basic activities indicated a poor health state.

17. Many of the ADL measures have also been used to measure capacity as well as performance, ie whether people **can** wash themselves, **can** dress themselves, **can** toilet themselves. They have also been used to ask about what people **do**. Some questionnaires include capacity and performance measures.

18. These early instruments were enlarged to include more complex activities in relation to household and societal roles, and included questions covering Instrumental Activities of Daily

Living (IADLs), such as heavy housework; light housework; laundry; shopping for groceries; getting around outside the home; travelling; managing money; taking medicine; and telephoning. Typically, ADL questions are relevant to health states associated with more severe limitations because of their focus on basic physical and cognitive functions, while IADL questions provide more sensitive discrimination at less severe levels.

19. However, as IADL questions are based on normative roles and activities, the responses are more prone to cultural and gender biases, both within and across populations. As a result, IADL questions may be so environment-dependent that making comparisons across populations is meaningless. A focus on ADLs measuring capacity reduces this problem, although fundamental problems remain in the comparability of self-reported ADL measures

20. The second wave of health state measurement instruments were developed with clinical and general populations in mind, and combined self-assessment on different domains of health and of capacity and/or performance in different activities and roles. Standardized instruments that have been used internationally by multiple research groups include the Quality of Well-Being Scale,; the McMaster Health Index (including the Health Utilities Index Mark 3), the Sickness Impact Profile, the Nottingham Health Profile, EuroQol Quality of Life Scale, Short-Form 36 Health Survey, the WHO Disability Assessment Schedule-II or WHODAS-II, the WHO World Health Survey health status module, and the modules explored in the US-Canadian joint health interview survey instrument.

21. Some of these instruments are too complex or lengthy to allow for the routine collection of health state information for whole populations in health system encounters, and in some cases, even in many cross-sectional or longitudinal population surveys with limited time budgets. For example, the widely used SF-36 takes around 6-10 minutes to complete, and this is at the limits of acceptability for inclusion in large national health surveys. The recent efforts to develop health state modules by the EuroQol and WHO World Health Survey have focused on a relatively small number of health domains (5 to 8) with one or at most two questions per domain, and with 5 response categories.

22. In the process to reach a consensus on some basic measures, various dimensions to be included in the measurement were discussed at the meeting in May 2004 and the domains used in existing programmes and surveys, such as the WHO World Health Survey, the Eurostat Health Interview Survey, and the joint USA-Canada survey, were reviewed and compared. Participants expressed support to include domains related to physical, cognitive, and sensory functioning. Other domains related to psychological functioning, pain/discomfort, affect/anxiety, vitality/fatigue, interpersonal relationships and social functioning were also discussed for their relevance.

23. For both classificatory and measurement purposes, it is essential to organize these functions in intuitive and convenient domains of health. The WHO definition of health notes that health is a multi-dimensional concept that encompasses functioning in different domains. There are potentially three sets of domains that can be specified in order to describe health and contribute to a health state description:

- Core domains of health that almost all people agree upon as important to the direct measurement of health – this is essential in order to measure intuitive notions of health;
- Additional domains of health that most people agree are direct measures of health, but that may or may not provide important information additional to the core domains; and

- Other domains that are related to health and serve as good proximate measures of health – those that are indirect measures of health states.

24. Criteria for choice of health domains are discussed in Working Paper No. 2.

25. In Section 5 below, we distinguish between health and the consequences or impacts of a state of health on well-being or other aspects of the life of an individual, especially if these are mediated through the physical or social environment. While this distinction is critical for conceptual clarity, we note that in some instances the best or only *measurable* phenomena pertaining to levels on some domains may in fact be consequences that are outside the realm of health, a consideration that needs to be kept in mind when operationalizing domains of health. Thus, among the domains chosen in a standard instrument, some of the domains may not be seen strictly as components of health, but may serve as useful proxy indicators for hard to measure health domains in a parsimonious measurement instrument.

III. ICF as the framework for measuring health status

26. The World Health Assembly endorsed, in 2001, a revised International Classification of Functioning, Disability and Health (ICF), as a successor to the 1980 International Classification of Impairment, Disability and Handicap (ICIDH). There was considerable controversy surrounding the details of this classification system. However, there was broad acceptance of some key ideas in the overall conceptual framework as outlined in the introductory chapter, especially as an improvement over that of the ICIDH.

27. The ICF is a framework as well as a very detailed hierarchical classification and check list of health-related items. By aiming to understand health and health-related states, it is a useful tool to help guide development of detailed health status assessment tools in a range of health care settings. The ICF's chief value for the work of the TF lies in its conceptual basis which draws attention to the broad range of items/topics that might be taken into account when one tries to identify a set of domains for inclusion in a health state measurement instrument. The ICF can provide a conceptual underpinning, which will be useful for interpreting the measures of health state developed by the TF within a broader context.

28. However, it is recognised that ICF does not itself (yet) provide a definition of 'health status'. Moreover, it is recognized that the ICF does not represent the broad concept of health status (as in Figure 1) in its entirety.

29. In addition, the concept and measurement of 'health state', which is the aim of the current project, may use different domains, draw on domains, sub-domains and items at varying levels in the ICF hierarchy, and in the end use a very small subset of the classified items listed in the ICF. One reason is that the ICF does not in itself provide guidance on the choice of a parsimonious set of domains for a standard health state measurement instrument, nor is its hierarchical structure organized in such a way that selecting only the top level (i.e. first digit) items would necessarily result in a small set of domains appropriate for the task at hand.

30. Another consideration is that the ICF is unclear regarding the distinction between activity and participation. This was the area of greatest discussion and debate in the period just before its adoption by the World Health Assembly. The ICF as adopted is clearly a compromise and was understood to be an interim step in this area. The key question was whether, and if so how, activities and participation were to be distinguished. One of the main advances of the ICF over

the predecessor ICIDH was the recognition that the former notion of handicap needed to be understood as resulting jointly from individual characteristics and the barriers and facilitators of the individuals' social and physical environment. One view is that the activity area of the ICF should focus as tightly as possible on items or areas of functioning that are not confounded with an individual's environment, while participation should focus on areas where the character of the environment is important. Another view is that activity and participation are separate concepts that can be classified for a given item or area of functioning.

31. Finally, the ICF does not provide guidance on how to construct population health survey questions that elicit information on functioning within the health domains.

32. The ICF consists of two major components that can be used to describe health states. One component focuses on the body and groups body functions and structures according to different body systems. The second component focuses on the person and society, and includes various domains of activity and participation. Significant deviations or loss of body function or structure are referred to by the ICF as impairments. We note that the ICF uses the term "domain to refer to these two major components", whereas the term "health domain" is used here to refer to smaller and more coherent subsets of body functions, and activities and participation.

33. The ICF conceptualizes functioning in activity/participation domains in two major ways: in terms of *capacity* and *performance*. These are discussed further in Section IV. For the purposes of the Taskforce, and to maximise consistency with the ICF, the May 2004 meeting agreed that both components of the ICF (impairments and activity/participation) should form the starting point and framework for choice of a parsimonious set of domains for a standard health state measurement instrument.

34. The parsimonious set of domains chosen for a health state instrument will use a subset of domains listed in the ICF or appropriate combinations of such domains. The criteria for such choice are discussed in Working paper 2.

IV. What is it that should be measured for a given health state?

35. To operationalize the measurement of health states of individuals, we need to be able to obtain a series of values (at the minimum, ordered categorical values) indicating levels of function in domains such as physical mobility, cognition, pain, hearing and seeing. But what is it that we should measure in a domain of health?

36. The ICF defines two constructs, *capacity* and *performance*, which can be observed, reported or measured for tasks or actions in any given domain. To the extent that performance reflects environmental barriers, which can and do vary with time, social or physical setting, and as individual circumstances change, it is probably not congruent with most notions of health. Thus, if a person cannot climb flights of stairs in their usual environment because they are too steep, most people would not say their health state had changed if the stairs were modified to be less steep. This is consistent with the notion of health as an attribute of individuals rather than environments (though these may be causal for health states). It is the notion of capacity that corresponds more closely to the common-sense interpretation of health.

37. It should be noted that the capacity and performance constructs apply across all activity/participation domains, including emotional and mental domains, not just physical domains. While performance in emotional and mental domains may be easier to measure, in

principle capacity can also be measured for these domains. Capacity and performance differ only in the choice of environment(s) in which assessed. So asking an individual (or observing) affect in a standard environment (which might exclude major bereavement, job loss, destruction of one's home, etc.) gets at capacity.

38. The Joint UNECE/WHO/Eurostat Meeting in May 2004 agreed to focus on impairments, and capacity in domains of activity/participation. This would substantially eliminate the confounding effects of different social and physical environments; it would enable more objective measures providing questions; and therefore would allow better comparability at international level. This is in line with the framing of questions in all the major extant health state measurement instruments.

39. Having identified capacity as the preferred construct, is it necessary to specify the normative external environment in which capacity is contextualized? No current multidimensional health instrument clearly addresses this issue, though some questionnaires include the context in the question to some extent: walking on the level; seeing large print, carrying a bag weighing 5 kilos. Some also specifically address the question of whether difficulty should be assessed with or without aids, such as glasses. These represent attempts at defining a standard environment in order to elicit information on capacity.

40. When considering interview questions concerning difficulty within a given domain, such as mobility, which do not specify an environment, it is unclear whether respondents are considering their current environment, a general facilitating environment consonant with their experience of a range of environments encountered in daily life or are focusing primarily on the activity itself. It is likely, for example, that when asked whether they have difficulty climbing stairs, respondents who live in an environment without stairs, would still consider their capacity to climb a flight of stairs, perhaps from experience or extrapolation from activities that they do undertake that involve the same component parts.

41. In practice, for population-level surveys, the distinction may be not important for many domains, since the general population encounters a range of domains, including reasonably facilitating ones that would correspond to likely definitions of capacity. Most respondents are also likely to think of their performance in a range of such domains when answering questions. Thus, a question "How much difficulty do you have recognising a face across the street" is most likely to be answered by the respondent thinking of their capacity in reasonable lighting and clear air, not on a foggy night. In addition, the more basic the activity being studied, the less important the environment will tend to be.

42. To the extent that it is important to further clarify this issue, the most appropriate approach would be pilot tests and cognitive debriefing to identify what environments and constructs people have in mind, and the effects on this of question framing options.

43. Secondly, even if it turns out not to be important to add qualifying phrases to questions to guide responses, it is useful in terms of question design and wording, and maximising comparability across languages and cultures, to have clearly agreed on what, in-principle, the construct to be measured is.

44. Each scope of each domain must be sufficiently coherent and specific to allow capacity in that domain to be quantified along a unidimensional scale. Such a scale may be observable or latent, and ordinal or cardinal. This is important for two reasons:

- To maximise comparability of question responses (on a capacity scale) across population groups and cultures, it is important not to mix two or more different "functions" to which different groups may give different weights when assessing difficulty. Thus for example if a vision domain included visual acuity and colour blindness in a single domain, it would be difficult to compare levels of visual capacity across cultures that valued colour blindness and acuity differently and
- To facilitate the measurement of health state valuations (discussed below) using the same set of domains.

45. We have thus far been discussing conceptualizations of levels within a single domain of health. More complicated conceptually is the problem of comparing overall level of health associated with multi-dimensional health states, i.e. of answering the question is health state A healthier than health state B. If we imagine that an individual's health may be described in terms of a vector of levels on the set of domains that constitute health, we refer to judgements about the overall health level (or amount of health or ill-health) associated with this health state as *health state valuations*. There are different views on the desirability of summarizing health states using health state valuations, and the Joint UNECE/WHO/Eurostat Meeting in 2004 saw no need to reach a single view on this. However, the meeting agreed that the choice of domains and instrument design should be done in a way, which does not preclude the possibility of developing and applying health state valuations.

46. Health state valuations are measured on a cardinal scale that ranges from zero (for a state equivalent to death) to unity (for a state of ideal health). The mapping between multiple domains of health and health state valuations reflects the relative weights that individuals place on different domains of health, which may include complex interactions between levels on various domains. At this stage, we need do no more than recognize that a health state valuation provides a scalar cardinal index of the overall level of health associated with a multidimensional health state, defined in terms of a set of numbers quantifying capacity on each domain scale (e.g. level of physical mobility, level of vision, level of pain and level of cognition). In this conceptualization, health state valuations pertain strictly to the components of health, not to broader sets of components of well-being, or the contribution of health to well-being.

47. The decision to focus on ordinal or cardinal scales of capacity in each health domain may be perceived as taking a "medical model" approach to the conceptualisation of health by restricting attention to "loss of health" rather than positive aspects of health. Also, health states as described so far may appear to neglect the famous 1948 WHO Constitution definition, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." There are several responses to these legitimate concerns.

48. First, and as indicated in Figure 1 above, there is no presumption that the health state assessment, which is the focus of the TF, encompasses the entirety of health status. Other aspects of health such as "positive health", may also be encompassed by "health status".

49. Second, laudable as it is, the original WHO definition of health as "a state of complete physical, mental and social well-being" verges on being indistinguishable from overall well-being and quality of life. This has several disadvantages. One is that it makes it impossible to identify non-health factors – such as political freedom, and the range of consumption possibilities afforded by an individual's income and the goods and services on offer (both via the market and as public goods) – as determinants of overall well-being. Another is that it raises concerns about

the mandate of health ministries in relation to parts of government with responsibilities for other major determinants of overall well-being.

50. Third, there is some possibility to extend the spectrum or range of responses within each domain of health state. For example, a domain like physical mobility could have as its highest level, “fully able to get around”. Alternatively, this level of capacity could be treated as intermediate, with one or more levels of even better physical mobility explicitly identified, for example “able to engage in vigorous physical activity”. Such an extension of the healthier end of the spectrum would correspond to an identification of “positive health” with excellence or talent

51. Fourth and finally, there is a quite different conception of positive health, one that must rely on a different approach to measurement. This is the notion of positive health as resilience, immunity from health problems, or ability to cope. In this case, and unlike the “talent” conception of positive health, measurement cannot be simply the extension in the positive direction of an already identified dimension of health state, measured at a point in time.

52. Fundamentally, resilience is a dynamic concept – the capacity of an organism to maintain homeostasis or good functioning notwithstanding various assaults and the vicissitudes of life experience. In turn, the only way to observe positive health defined as resilience is by repeated measures of health state over time. An organism or person would be defined as resilient, or having positive health in this sense, if they were repeatedly in a very good point-in-time health state. The internationally standardized parsimonious health state measurement which is the objective of the TF is entirely consistent with and supportive of positive health in this sense. The challenge is not so much the construction of the health state measures. Rather, it lies with the collection of the data. What is needed, in this conception of positive health, is longitudinal rather than cross-sectional (or repeated cross sectional) surveys. Indeed, analogous to the famous Framingham study, which provided fundamental data on the risk factors for heart disease, such longitudinal health state data would provide the foundations for elucidating the risk factors for “chronic good health”, or positive health in the sense of resilience.

V. Distinguishing health states from determinants and consequences

53. Traditionally, population health information systems have focussed on the prevalence and incidence of disease conditions or morbidity (conventionally defined in terms of the ICD), and the causes and risk factors associated with these health conditions. Additionally, information has been regularly gathered about the causes of death amongst populations. This epidemiological or biomedical information taken together is intended to provide estimates of the extent of health (or ill-health) in a population. However, health states need to be understood separately from diagnosis or disease states in that the same diagnosis may be associated with very different levels of health in different individuals or in the same individual at different points in the course of the disease. Information beyond diagnosis is critical to understanding levels of health at the individual and population levels.

54. In terms of the distinction between health states and health status in Figure 1 above, information on risk factors and disease status, while they are of interest to inform broader assessments of a population’s health and for other purposes (intervention planning, service use, etc.), are not seen as part of the description of health states per se. For example, if two people have the same capacities on all important health state domains, and one has been diagnosed as

having Type II diabetes, and the other not, the disease diagnosis does not alter the equality of their *current* health states. While the diabetes diagnosis certainly has implications for expected differences in future health states and for future mortality risks, it should not modify the assessment of current point-in-time health states.

55. Analogously, broader notions of well-being or quality of life also need to be kept separate from health status. Health status is one of many determinants of quality of life. Clearly, health systems focus on improvements in health status, and not on all interventions to improve quality of life or well-being.

56. This conceptualisation preserves the spirit of the WHO Constitution definition: rather than equating health with diseases or diagnostic categories, it recognizes a causal chain through which risk factors and environmental factors are determinants of diseases, and diseases and environmental factors in turn are determinants of health states. Using a parsimonious but comprehensive set of domains as the basis for descriptions of health states allows detailed data collection on key components of individual health and provides a basis for describing and measuring health states, and for carrying out causal analysis of determinants of those states, including risk factors and environmental factors. It is worth reiterating that this conceptualization of health is clearly narrower than the concept of well-being, while distinct from and complementary to definitions of health that concerns bio-medically defined disease diagnoses.

57. Concerns that health state descriptions should include determinants are based on category confusion: that an outcome measurement must include all important determinants of the outcome in the outcome measure itself. It is sometimes argued that exclusion of such determinants is implying that these determinants have little to do with the outcome. In fact, there is no such implication. Scientific analysis will inform us regarding the important determinants of the outcome as long as the measurements of the latter are not confounded with the factors under investigation. In order to identify and measure the associations of population health states with the various determinants of health, it is necessary to measure determinants and states independently. If the outcome measure directly includes information on a determinant, it is no longer possible to ask questions about the association. Thus, the traditional 'health outcome measures' of epidemiology - risk rates or ratios for death due to a disease - do not in themselves imply that attention is restricted to pathology or treatment interventions, or that mortality has little to do with social determinants.

58. Concern is sometimes expressed that the exclusion of health determinants from the proposed conceptualization of health states will direct people's attention to treatment interventions rather than primary prevention interventions or rehabilitative or adaptive interventions, and to pathology rather than broader social and environmental determinants. Given that the proposed definition of health states focuses explicitly on the states rather than their determinants, whether broad socio-economic determinants or more proximal risk factors such as cholesterol and blood pressure or specific diseases or injuries, or facilitators and barriers in the physical and social environments, it does not privilege interventions that act at any particular part of the overall web of causality. The relationship of the full range of determinants to health states is amenable to empirical study, as long as the measurement of the determinants is not incorporated into or confounded with the measurement of the health states.

VI. Health states are attributes of individuals

59. The Joint UNECE/WHO/Eurostat Meeting considered the focus of health state measurement – in particular whether it should be on the individual or also on the factors outside the individual, and concluded that the focus should be on measuring functioning of individuals in health domains (however chosen or defined). Other health-related measures that are not attributes of individuals (such as environmental factors) were agreed to be valuable and necessary information, and possible causal determinants of health states; but they are not part of a person's health state per se.

60. Health state refers to states of functioning and composites of such functioning states that are, essentially and primarily, attributes of individuals. To be considered in a healthy state, a person must exhibit at least typical efficiency in carrying out tasks in a set of domains agreed to be important for health (see below) and, implicitly, in the normal range of environments encountered by people in everyday life. The fact that environments, whether physical or social, play a causal role in health states does not mean that health states are not attributes of individuals. Any more than does the fact that socioeconomic environments play a causal role in determining individual incomes, along with individual factors, mean that individual income is not an attribute of the individual.

61. In order to construct population-level statistics on health states and health status, it is necessary to start with attributes of individuals that can be aggregated across individuals to provide group-level summary indicators involving sums, means or other distributional parameters. Things, which are not attributes of individuals cannot be aggregated in this way. Examples of such non-individual quantities could include quantities that relate to sets of people, but not to individuals in the set. For example, "democratic government" is a property of a national or subnational system of institutions and social norms, not an attribute of individuals per se.

62. Both the ICF constructs of *performance* and *capacity* are attributes of individuals, not of environments or collective properties of groups. They can thus, in principle, be measured at individual level in health interview surveys, providing quantities that can be aggregated to describe populations. As discussed above, capacity has been chosen as the preferred construct for the measurement of health states of individuals.
