

## Methodological concerns and recommendations on policy consequences of the World Health Report 2000

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### Introduction

The authors of the WHO's World Health Report 2000<sup>1</sup> have placed on the WHO agenda a commitment to the laudable goals of assessing health systems, monitoring inequalities in health, and achieving equity in health-care financing. Their proposition that health services should be responsive to people's expectations is a welcome one. While these commitments should be sustained, we believe that the approaches taken toward these ends in the World Health Report are seriously flawed. We aim to suggest changes to the approach in the World Health Report to ensure that measurement strategies supporting public health policy throughout the world are scientifically sound, socially responsible, and practical.

Both the conceptual basis and methodological approaches to the World Health Report composite index of health system goal attainment and its individual components, and the indices of health system performance, have major problems. Data needed to calculate four of the five component measures for overall goal attainment were absent for 70–89% of countries, but this was not acknowledged in the report. Because all the measures are new, and imputed values for the 70–89% of countries without data were based on new methods involving multiple non-standard assumptions, readers deserve to know the underlying assumptions, methods, and key limitations, which were not adequately acknowledged. The measures of health inequalities and fair financing do not seem conceptually sound or useful to guide policy; of particular concern are some ethical aspects of the methodology for both these measures, whose implications for social policy

are cause for concern. The use of the composite indices for guiding policy is not evident, mainly because of the opacity of the component measures.

In response to criticisms of the report from member states, the WHO Executive Board on Jan 19, 2001, recognised the need to establish a technical consultation process that would obtain input from member states and a small advisory group for the cross-country assessments of health systems ([www.who.org](http://www.who.org), accessed May 15, 2001); we do not know what steps have been taken in that process. *The Lancet* published an article by Navarro in November, 2000,<sup>2</sup> that analysed the World Health Report, focusing mainly on a series of important policy concerns. Little attention was given to methodological discussion. We therefore focus on the methodological and related conceptual issues of the report, in the hope of making an additional, constructive contribution to a thorough process of consultation that must now be opened up by WHO.

### Areas of concern

#### Data availability

Data were unavailable for 133 (70%) of 191 countries to construct the index of health inequality (inequality in child survival); in 161 (84%) of 191 countries to construct the two measures of responsiveness; and in 170 (89%) of 191 countries to construct the index reflecting fairness in households' financial contribution; yet this was inadequately acknowledged. We were unable to find out how many countries lacked data to calculate disability-adjusted life years (DALYs) and disability-adjusted life expectancy (DALE). Since the imputed data in the report's tables 5, 6, and 7 were used to construct the index of health system goal attainment presented in the report's tables 1 and 9, the data requisite for the latter index are missing for most countries. The methods and underlying assumptions used to input values for countries that did not have essential data are not adequately specified; to the extent that these methods and assumptions are described in the report or the technical references (not all of which are available), some seem to have serious problems. The imputed values in the report are not comparable to standard projections, such as annual estimates of per capita income or population size. Unlike such standard projections, the report uses values that are not based on data directly observed every few years and did not use well-documented, validated methods that have withstood peer review. It is important to recognise this factor so as to avoid misinterpretations.

We recommend that future World Health Reports avoid using estimates other than those based on methods that have withstood appropriate peer review. If estimates are used, there must be transparency regarding estimation

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methods and underlying assumptions, and clear and explicit acknowledgment that estimates were used and that conclusions based on them must be cautious.

#### *Key informants and methods for determining responsiveness*

Key informants provided the judgments used to rank the countries on health-system responsiveness overall and on inequality in responsiveness. Although there were 1791 informants from 35 countries,<sup>3,4</sup> 191 countries were scored and ranked in the comparisons and the report describes “a survey of nearly 2000 key informants in selected countries,” without calling attention to the serious limitation of having data from only 35 countries to rank 191.<sup>1</sup>

Our study of the technical documents has shown that the informants were exclusively professionals who work in health; half were WHO staff and many were people who accessed the WHO homepage, presumably for other reasons, and were then invited to fill out a questionnaire. The sample selection criteria could have had a major effect on the findings,<sup>2,5</sup> but we could find no mention of this limitation. Serious concerns about bias due to non-representative sampling of key informants (eg, regarding health state valuations and disability weights) have also been widespread in relation to DALYs,<sup>6</sup> a key measure in the report. Although we understand that there may be plans to try to correct this in the future, to the best of our knowledge this problem affects all of the information on DALYs and the closely related measure, DALE, but was not acknowledged in the report. We recommend that in the future there be a systematic process of choosing criteria for selecting key informants and respondents, as well as the questions to be asked, with input from member states and from experts in systems assessment. We recommend that for all measures, procedures for estimating values for countries without the requisite data be appropriately peer reviewed and revised accordingly; that such procedures be clearly described along with the associated limitations; and that reported data which are based on estimates be clearly highlighted in a manner that will ensure that readers are aware of the nature of that information. However, it is noteworthy that estimates do not seem appropriate for the issues involved in responsiveness.

#### *Health distribution and inequalities*

In the report, health inequalities are represented by a measure that reflects the size of differences in health status across ungrouped individuals but does not involve any comparisons between social groups. However, assessment of how health is differentially distributed among specified groups within the population, as well as of the average level of health for the population viewed as a whole, is essential to guide efforts to improve equity. If the goal is greater equity, distributional differences should be related to identifiable subpopulation characteristics; this is the prerequisite for policy and programme efforts to target subpopulations at greatest risk because of underlying disadvantages.<sup>7,8</sup> Therefore, it is surprising and of concern that the report does not consider subpopulation characteristics. Moreover, it is difficult to ascertain how the report's measure of inequalities could be used to inform policy. Contrary to the impression that many readers undoubtedly have, the report's index of inequalities is not a measure of socioeconomic inequalities in health—ie, disparities in health according to disparities in wealth; our analyses<sup>9</sup> show that the World Health Report's index correlates poorly with accepted measures of the socioeconomic inequalities in health,<sup>10</sup> which are essential to assess equity.<sup>11</sup>

### **Methodological concerns**

Data were unavailable to calculate measures reported for 70–89% of countries.

Although key informants came from only 35 countries, 191 countries were ranked on health-system responsiveness; informants were not representative even of the 35 countries.

The measure of health inequalities does not reflect concerns about equity.

The measure of fair financing does not reflect a conceptually sound or socially responsible view of fairness and does not differentiate among countries.

Important methodological limitations and controversies are not acknowledged.

26 of the 32 cited methodological references are non-peer-reviewed internal WHO documents and only two of the 32 references are by authors other than those of the World Health Report 2000.

The measures of health status have been widely criticised for their problematic implications for equity and under-valuing the lives of disabled people.

The multicomponent indices are problematic conceptually and methodologically; they are not useful to guide policy, in part because of the opacity of their component measures.

Primary health care is declared a failure without examining adequate evidence, apparently based on the authors' ideological position.

These methodological issues are not only matters of technical and scientific concern, but are profoundly political and likely to have major social consequences.

Like the other issues in this paper, this concern is not of merely theoretical significance. There would be serious practical consequences of adopting the WHO reports authors' proposition regarding measurement of health inequalities. For example, if countries were to adopt the report's approach, they would not routinely examine whether the gap in child mortality between the poor and the better-off within their national borders is diminishing, stagnating, or increasing over time in relation to policies. Member states and the public-health community should be aware that the authors' technical papers<sup>12,13</sup> make it clear that they believe policy decisions should not be guided by information on systematic differences in health between social groups, for example, between the rich and the poor or between historically disadvantaged ethnic groups and more-advantaged groups. They thus reject the importance of measuring equity, by any meaningful definition of that concept, which intrinsically requires making comparisons between more and less advantaged social groups. Indeed, one of the cited technical papers from the World Health Report essentially argues that ill health within socially disadvantaged groups should not be of greater concern—presumably to WHO or health ministries—than ill health among the advantaged.<sup>12</sup> This viewpoint has troubling ethical and social policy implications, which are mirrored to some extent in the treatment of “fair financing” in the report.

Equity is not the absence of all disparities; it is the absence of systematic disparities between social groups that have greater and lesser degrees of underlying social advantage because of such factors as wealth, sex, race and ethnicity, or urban and rural residence, for example.<sup>9</sup> Policy makers need information on health inequalities

between different social groups. Furthermore, unless its meaning and practical use are shown, further work on the measure of health inequalities used in the WHO report should be supported by academic research grants from appropriate bodies, not by member state or donor contributions to WHO.

#### *Fair financing*

The World Health Report (page 36) defines health-care financing as “perfectly fair” if all households pay the same fraction of their non-food spending on health services. The authors express the questionable view that it would be “unfair if rich households pay more as a share of their capacity [than poor households]” since “simply by paying the same fraction as poor households, they would be subsidizing those with lower capacity to pay.” Following this line of reasoning would mean that countries such as the UK and other western European countries, which finance national health services through progressive taxation, are being unfair to richer households; we would hope that this is not the position of WHO.

According to the report’s definition of fair financing, it would be “perfectly fair” if two households with annual incomes (after food expenses) of US\$500 and \$100 000, respectively, both spend 10% of their household incomes (after excluding food costs) on health care. However, the household with an income of \$500 per year does not have money remaining after paying for necessities such as housing, clean water, sanitation, clothing, and direct and indirect expenses to educate children; hence, the poor household will forgo another necessity to pay the 10%. Worse, the poor household might even be forced to sell productive assets, which will jeopardise the household’s future livelihood and indirectly its future health. By contrast, the affluent household pays its 10% out of discretionary funds that would otherwise go toward luxuries or new savings and investments. Although this situation is certainly less regressive than the situation now widely prevalent globally, in which the poor pay a higher proportion than the affluent, few would call such a situation “perfectly fair”, and we believe that the WHO should not be promoting this view.

Furthermore, the World Health Report’s measure of fair financing is likely to substantially underestimate unfairness in financing because there is no consideration of use of services in relation to need. Poor households often use health care less than affluent households because of insufficient funds to purchase insurance or pay out-of-pocket or unaffordable time costs (especially when care is inaccessible in rural areas); thus, the unfairness of their burden of payment will be counted as spuriously low by the report’s indicator. Furthermore, affluent households may use more discretionary services,<sup>2</sup> making their expenditures incomparable with those of poor households and further underestimating lack of fairness in financing of essential health care. The report acknowledges (in box 2.3 on page 38) that the fair financing index does not take into account the constrained use of health care by people who cannot afford it, but argues that this is not problematic because its index relates only to fairness in sharing the burden of funding the health system and that fairness in health-service use relative to need is reflected by the index of health inequalities.

There are a number of objections to this argument. First and foremost, an index of fairness in financing must consider use relative to need; otherwise the index does not reflect fairness in the distribution of resources. Second, health-care interventions and health-status outcomes do

not have a simple one-to-one link, such that the latter can represent access to and use of the former. Third, the report’s measure of health inequalities is not meaningful in practical terms and does not reflect equity concerns.

The report’s index of fairness in financing runs from zero (extreme inequality) to one (perfect equality). Of the 191 WHO member states, no fewer than 147 score 0.9 or above on this index, whereas the highest ranked country (Colombia) scores 0.992 and the lowest ranked country scores just below 0.5. If nothing else, this result, showing little discrimination between countries and reflecting poorly the health-system inequities of many countries, should suggest the practical limitations of that index.

We recommend that the ideas underlying the calculation of fairness in financing, and their policy implications, be carefully examined in open international debate, including input from recognised experts on equity from the fields of health policy, ethics, and health-care financing; this debate must clarify but not be restricted to technical concerns. As in the case of the index of health inequalities, it would be more relevant for humane social policy if the financing index reflected the differential financing burden of the poor compared with the better-off (as illustrated well in the World Health Report [figure 2.5<sup>1</sup>] for a few countries). This poor/rich differential is a meaningful and standard way of reflecting inequities in the burden of health-care financing in policy-relevant terms,<sup>14,15</sup> and is informative provided it is accompanied by consideration of measures of differential health service use.

#### *Methodological limitations and controversies*

We have provided examples to illustrate the absence or inadequacy of acknowledgment in the report of key limitations and controversies about methods that are crucial for readers to interpret the findings properly. There were some countries for which no data were available on any of the component measures; these countries thus were scored and ranked based entirely on imputed data. Although a technical paper by the report’s authors stated that “neither the rank or score of overall system attainment was sensitive to the variation in the choice of weights,”<sup>16</sup> one of us (JV) recalculated the composite index of attainment using the actual, unrounded weights obtained in the survey (as reported by the report’s authors in a technical paper) and compared this with the values for that index obtained by the authors, who had rounded their survey results to the nearest one-eighth in creating the weights they used in the WHO report. After recalculation, half the countries moved up or down by up to five positions in the ranking, indicating that the rank on attainment is indeed sensitive to minor variations in the weights (data available on request).

Methodological limitations and controversies are expected in new fields of endeavor; assessment of health systems is such a field. However, researchers are expected to disclose important limitations and controversies about their data or methods. Understandably, a WHO public report must be different from an academic publication; less attention can be devoted to methodological issues, and language must be as non-technical as possible. However, other agencies whose primary audience also is the public and policy makers, rather than academia, have issued documents that contain clear and straightforward statements regarding technical limitations.<sup>17</sup> In addition to adopting such a practice, future World Health Reports should obtain significant input from experts from the member states and recognised international experts on the relevant topics and methods; those experts should have

adequate opportunity to review the methods, data, and interpretation before publication of the report and in time for revisions to be made. Further, whenever methods are introduced that are substantially new and that use non-standard techniques, there should be adequate discussion in appropriate public forums. Such an approach is even more imperative where interpretation of the data is likely to have a major effect on individually identified countries; this was the case with the World Health Report 2000, in which countries were scored and ranked on the indices in a public report with extensive press coverage.

#### *Use of relevant publications*

Scientifically credible data collection and analysis methods usually rely heavily on previously published work in the relevant literature; this provides greater confidence in the soundness and robustness of measures and analytic methods. In the World Health Report 2000, only two of the 32 references cited in the statistical annex (the methods section) are by authors other than its own, and 26 of the 32 citations are in non-peer reviewed internal WHO documents. In future such reports, we recommend more appropriate use of published and peer-reviewed work.

#### *Controversies about the measures of health status*

DALYs and DALE are presented in the World Health Report as though they are universally accepted indicators, when in fact these measures have been widely criticised on important conceptual and methodological grounds<sup>6,18-23</sup> as well as on lack of practicality for decision makers.<sup>24</sup> Particular concerns have been expressed about the adverse consequences for the poor of allocating health resources according to these measures.<sup>6,20,25</sup> Moreover, notwithstanding the report's claims of ease of understanding and calculation, the data demands of the metric and complex calculations involved render the method out of reach of many less-developed countries. Accordingly, estimates of DALYs and DALE for a number of nations for which information on life expectancy, disease prevalence, and disease severity are unavailable necessarily raise significant concerns about the reliability of the summary measures of population health that are instrumental in the World Health Report 2000 assessment of health-system performance.

Several critics also have contended that the manner in which component weights are assigned to certain diseases (in order to calculate the summary measures) is ethically problematic in that they make implicit judgments about the worth of lives of individuals with disabilities in a manner that diminishes the value of those lives.<sup>6, 22, 23, 26</sup> If summary measures of population health are to be used in estimating burden of disease for purposes of resource allocation within nations, the methodology needs further development through open discussions; as in the case of the other concerns expressed in this paper, such methodological discussions must consider policy consequences and include explicit discussion of social values and assumptions. Additionally, decision makers need to be better informed of the uncertainty within the estimates, particularly their instability in relation to reasonable alternative assumptions. They should also be alerted to the implications of using these measures for prioritising programmes that might increase the aggregate health of the population at the expense of neglecting specific subpopulations, such as the poor, whose overall needs are greater because of underlying social and economic disadvantage. Given the World Health Report's explicit discussion of the use of DALE and DALYs for cost-effectiveness analyses, this controversial area<sup>27,28</sup>

deserves considerably more scrutiny than apparent in the report's discussion and use of these measures.

#### *Concerns about the multi-component indices*

As listed in annex table 1 of the WHO report, the report ranks countries on nine different measures. Earlier we have discussed problems with the measures of (1) health level, (2) health distribution (inequalities), (3) level of responsiveness and (5) fairness in financing health care; the same shortcomings of (2) the measure of health inequalities/distribution apply to (4) the measure of distribution (ie, inequalities) of responsiveness. Of the remaining four measures, three are multi-component measures, requiring information on multiple disparate parameters; these are the measures of (6) overall health system goal attainment, (8) performance on level of health, and (9) overall health system performance. The seventh measure is a standard indicator, health expenditures per capita, which we will not discuss.

It is difficult to see how to use the composite index of health system goal attainment to guide policy. Each of the five component measures, reflecting the conceptually distinct issues of health status, fairness of health-care financing, perceived responsiveness of health services, and inequalities in the distribution of both health and responsiveness, is complex and difficult to understand, in addition to having important conceptual and methodological problems. The lack of transparency and intuitive meaningfulness is compounded by the combination of these elements into a single measure.

The two indices of health-system performance, although not composed of as many disparate elements as the index of health system goal attainment, are similarly complex and lacking in transparency. Each is based on multiple complex assumptions that are not examined in the World Health Report 2000, some of them—such as the maximum and minimum DALE, and maximum and minimum health system goal attainment—appearing arbitrary.

The World Health Report indices are not comparable to the United Nations Development Programme's Human Development Index (HDI), which is composed of three widely used and well understood indicators (gross domestic product [GDP] per capita, literacy and schooling rates, and life expectancy).<sup>17</sup> These indicators are available for most countries using data obtained, based on imperfect but standard and validated methods that have withstood review by peers at various agencies. Despite the relative simplicity of the HDI, the index is presented with a concise but clear and straightforward explanation, alerting the readers to potential limitations;<sup>17</sup> this explicit and easily understandable acknowledgment of limitations should provide a model for future World Health Reports.

We also have concerns about important aspects of health systems that are not reflected in the World Health Report 2000 indicators. As discussed, any assessment of health-system performance must reflect social inequalities in health, in health care, and in health-care financing. The report must reflect use of health care, a crucial indicator of access, also not directly represented in the report's indicators for reasons (page 24) that do not seem conceptually sound. Ideally, the performance of vital public-health functions in addition to health care would also be more directly reflected, such as activities regulating food, water, drug safety, and sanitation, and environmental, occupational, and housing conditions relevant to health; WHO should promote the development of appropriate measures in this category. An assessment of health-system performance also should offer some

guidance to policy-makers about considering the role played by other powerful influences on health,<sup>5</sup> such as income, employment, food supply, housing, and educational attainment, as they interpret their countries' rankings on levels of health attainment or health-system performance. When making use of measures of health status to assess health-system performance, further consideration is needed not only of the powerful effect of non-health-system factors on health that is documented so extensively in the literature,<sup>29-34</sup> but also of the long latency period between exposure to a given factor—eg, health services—and life expectancy and many other health outcomes.

WHO should convene a task force, including experts in various aspects of health-system functioning and outcome measurement, to discuss: whether WHO should invest further resources in pursuing development of composite indices of health-system performance at this time, or whether WHO should concentrate instead on developing specific, valid, meaningful measures of a limited number of aspects of health-systems performance and which specific aspects should be pursued, either individually or as components of a composite.

#### *The policy context of these measurement issues*

The introduction of the new measures of health-system attainment and performance in the World Health Report 2000 is accompanied by important shifts in WHO policy. The long-held policy of primary health care, with its rallying cry of "Health for All" that has inspired two generations of health workers around the globe, is relegated in the World Health Report to a second generation of health-system reforms, now superseded by third generation reforms with a market orientation. The failures of primary health care are ascribed to internal weaknesses of policy design, specifically to neglect of factors influencing health-care demand, interpreted primarily as neglecting the private sector and market mechanisms. There is no mention of the external environment in which attempts to implement primary health care were made. There is no recognition of the cataclysmic effect on public health systems in less-developed countries of the global economic recession of the 1980s and the application of policies stressing privatisation and decreased public spending in that decade and the next, which resulted in rising poverty and under-funding of health services in many less-developed countries, to the point of near-collapse in the poorest countries.<sup>35-39</sup>

Primary health care seems to have been declared a failure without examination of adequate evidence; hard evidence is scant given inadequate investment in rigorous studies, despite the availability of instruments to measure at least some components—for example, health-care services.<sup>40</sup> We recommend that WHO carry out systematic studies of degrees and forms of implementing different aspects of primary health care, using conceptually and technically sound, measurable criteria, and assessing both the barriers that have been placed in the way of its implementation in different countries and potential strategies for addressing those barriers. The essence of the primary health care vision still seems relevant, and a continuing source of practical guidance to many health workers throughout the world. Abandonment of the Health For All vision would be an unfortunate and unjustified step backward for WHO, one that would be demoralising to many and would result in a significant loss of prestige for the organisation globally. Viewed in the context of the World Health Report 2000, we believe that

the treatment of primary health care reflects not only a flawed historical analysis, but the authors' ideological position against what they view as a too active role for government in public welfare and specifically in protecting the vulnerable. The member states must decide this issue through open debate focused on social policy and underlying values.

## **Conclusion**

The positive contribution of the World Health Report 2000 is its stimulation of fresh thinking about a range of issues relevant to measuring health-system performance. The goals to improve average levels of health as well as distribution of health in populations, and to monitor progress toward these goals, are sound ones. Our comments are offered in the hope that they will help WHO, guided by its member states, to move ahead with an open process of conceptualisation, measurement, and documentation in studying health systems that can serve as a sound basis for policy, planning, and advocacy in the search for health and equity; unfortunately, the World Health Report 2000 does not provide such a basis. As researchers, our recommendations have largely focused on methodological concerns. However, we firmly believe that a strong and sustained response will be needed not only from the research community but from advocates for health and development globally, and particularly from the member states to whom WHO must be accountable. We hope that this paper helps to clarify key concerns on several serious issues related to the methodology of the report. Although we have focused on methodological concerns, these issues are not simply matters of technical and scientific concern, but are profoundly political and likely to have major social consequences.

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