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Original article

Comparative evaluation of indicators for gender equity and health

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Summary

Objectives: This paper reports on a comparative evaluation of indicators that are in use, or proposed for use, by leading international organizations to assess their adequacy for the purpose of monitoring key issues related to gender, equity and health.
Methods: A comprehensive health information framework was developed on a generic framework by the ISO (2001) to use for the analysis of gender equity within mainstream health systems. A sample of 1095 indicators used by key international organizations were mapped to this framework and assessed for technical quality and gender sensitivity.
Results: The evaluation found deficiencies in the indicators currently in use, from the viewpoint of both technical quality and underlying conceptual bases, as well as in their coverage of the framework, and especially in relation to health system performance.
Conclusions: Routine administrative reporting offered large numbers of indicators but these did not allow for monitoring of gender equity and health. The paper concludes that there is merit in developing a core set of leading indicators that can be used for comparisons across peer countries and communities.

Keywords: Health – Indicator – Gender – Equity – Monitoring system.

Performance measurement has become a common feature of health organizations at national and international levels, and the importance of developing and using appropriate indicators has been of concern to the series of international meetings organized by the WHO Kobe Centre (WKC) on women and health and welfare systems. The first of these meetings resulted in the Awaji Declaration (WKC 2000) which outlined principles for reforming the health and welfare system by shifting focus from health care policy to healthy public policy; from access to services to access to health; from institutions to integrated services delivery; from provider-driven care to client and community-centred care; and from narrow indicators of morbidity and efficiency to broader indicators of equity and well-being.

The Canberra Communiqué (WKC 2001) outlined a range of strategies to effect reform, including building women's leadership and capacity in data collection and analysis for action. It called for public health and health services data to be disaggregated by sex, and for collection design and analysis to 'identify gender differences in experiences, impacts, causes and responses to health needs' (WKC 2001).

The Kobe Action Plan, (WKC 2002) operationalised the Communiqué and identified the comparative evaluation of indicators of gender equity, gender equality and health used by international agencies as an immediate priority. The work described here is part of this project.

Box 1 Definitions

Gender – the cultural, social, temporal and political constructions of men and women, girls and boys.

Gender indicators – measure the status of women against some 'normative' standard or reference group (e.g. men) and should be able to measure changes in women's status and roles over time.

Equity – the equally fair treatment of women and men, including recognition that women and men have different needs, preferences and interests and that equality of outcomes may necessitate different treatment.

Indicators are important for raising awareness of issues and improving the evidence base for decision-making. They should identify current and future issues that need to receive priority attention, contribute to better health system accountability, and to improvements in health system performance

and responsiveness. There is, however, a need to strengthen capacity at all levels to implement systems for monitoring gender equity in health. This involves having the right data, having quality data and having a social process that reviews that data.

We aimed to contribute to that process through evaluating indicators that are in use, or proposed for use, by leading international organizations for the monitoring of key issues related to women and health and welfare systems. The overall aims are to improve the gender-sensitivity (including gender disaggregation and gender specificity) of current data; identify priority indicators for monitoring health systems; and recommend ways to address the inadequacies of current systems for indicator collection and reporting.

Methods

A systematic literature search of electronic databases and the Wide World Web for the ten-year period 1992–2002 produced 70 documents that were extensively annotated. These works included a number of conceptual frameworks that were reviewed in terms of selecting a base framework to structure the analysis of indicators.

Building on adaptations to a generic framework (ISO 2001), a comprehensive 'health information framework' was developed and 'engendered' to incorporate a broader view of health from a gender aware perspective (see Fig. 1), based on critiques from the literature. Criteria for the selection or development of priority or 'leading' health indicators were also developed.

A total of 1095 indicators were selected from the routine and special reporting, and indicators proposed for reporting, by international organizations such as the Organisation for Economic Cooperation and Development (OECD), United Nations (UN) bodies such as the UN Development Programme, and the World Health Organization (WHO). Routine reporting from which indicators were drawn included *OECD health data* (OECD 2002), the *Millennium development goals* (UNSD 2002), and *The world health report* (WHO 2000; WHO 2002). Special reports, emphasising gender or gender relations, included *Progress of the world's women* (UNIFEM 2000) and *The world's women* (UNSD 2000). Proposed indicators identified through a review of international conventions included those of the Economic Commission for Latin America and the Caribbean (1999). Indicators were selected to provide a representative range that was manageable and informative (see Tab. 1).

Gender-sensitive indicators capture gender-related changes in society over time relative to an explicit norm (e.g. women to men) (Beck 1999). Indicators were evaluated for their technical quality and gender sensitivity using criteria based on the work of Beck (1999) that assessed whether indicators:

- were reported by disaggregations (sex, age, ethnicity, socioeconomic group);
- were reported over time;
- included comparators (e.g. compared males to females, or females in one country to females in another country);
- resulted from a participatory development process; and
- were accompanied by a gender analysis and related questions.

The selected indicators were mapped to the health information framework to identify gaps and deficiencies. The usefulness of indicators for monitoring gender equity and health was also assessed.

Table 1 Indicators evaluated

Indicators by reporting status	No.
Routine reports	833
Special reports	146
Proposed indicators	116
Total	**1095**

Results

Key issues identified in the literature

The calls at WKC meetings for further work on indicators of gender equity and health reflect the concerns expressed in the international literature: that the majority of health-related indicators focus on mortality, illness and disease rather than health and well-being; seldom report information on a sex-disaggregated basis; and assume gender neutrality (i.e. are gender-blind) (Licuanan 1999; Eckermann 2000; Abdool & Vissandjée 2001). Sex-specific health indicators on females focus almost exclusively on women's reproductive health status and service use during their childbearing years (Pittman & Hartigan 1996; Malhotra & Mehra 1999; Nayar 2002). There are few sex-specific indicators on males (AbouZahr & Vaughn 2000).

Conceptual frameworks defining health, and social concepts like gender relations and equity, determine the measures and indicators developed. Mainstream frameworks for defining health assume gender neutrality, resulting in women either being left out altogether, or 'added in' as an after-thought, rather than gender and gender relations being developed as a central unit of analysis (OECD 1998; Beck 1999; UNIFEM 2000). Traditional health-related indicators assume an androgynous

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body and do not take into account the differences between the sexes, and most rely on biomedical definitions of health and illness (Eckermann 2000).

Using existing data and indicators that have not been examined for their gender bias results in the creation of statistical pictures that do not accurately reflect gender (in)equity. Existing indicators do not adequately describe the situation of women or gender relations, do not accurately measure women's economic contribution, women's work, the poverty of women, intra-household distribution of resources, violence against females, or issues affecting the girl child (Baunach 2001; Cantillon & Nolan 2001; Kim 2002). Examples include definitions of employment, which include only paid employment, overlooking women's unpaid work; and, the non-counting of women's deaths in some countries where women die in disproportionate numbers to men (referred to as 'missing women') (Beck 1999; Wieringa 1999; UNDP 2002).

As achieving gender equity is a process, process indicators would enable a better understanding of the strategies that contribute most effectively to women's empowerment and the achievement of gender equity, however, the majority of indicators used by international organizations focus on outcomes (Kabeer 1999; Drengsted-Nielsen & Luige 2000; Baume et al. 2000; Malhotra et al. 2002).

Although significant work has been undertaken to develop frameworks that include different indicator types (e. g. enabling, input, and process indicators) for monitoring the declarations from the world conferences on women (ECLAC 1999; Licuanan 1999; Abdullah 2000; UNIFEM 2000; Kim 2002), more work is needed to define, operationalise, and measure the rights of women. Some international conventions do not include timetables for realisation of goals or standards, while others outlaw discrimination but do not specify that equalising the status of men and women should not occur at the expense of reducing the standard of living (Beck 1999; UNIFEM 2000). More public participation is needed in defining the issues to be measured, and the ways in which they should be measured and monitored (Beck 1999; Licuanan 1999; Gomez 2000).

Developing a health information framework

The conceptual frameworks reviewed predominantly emphasised either determinants of health (especially upstream determinants), gender and gender relations (specifically the position of women in society) (Weiringa 1999; Abdullah 2000; Abdool & Vissandjée 2001; Moss 2002), or mainstream health information (ISO 2001, OECD 2002) including health system performance (WHO 2000, Hurst & Jee-Hughes 2001).

Specialised frameworks from the gender and health literature offered important conceptual models for research purposes, but were limited in their examination of mainstream health statistics and system performance. We decided that the most suitable course of action to advance advocacy within mainstream health systems was to: (1) adopt a mainstream framework, and (2) 'engender the mainstream' by adapting the framework to incorporate gender aware perspectives on health.

The *Health indicators conceptual framework* (ISO 2001) was selected for further development, as it is based on a population and determinants of health approach, reflecting the view that health is determined by 'a complex interaction of factors' and not 'solely by medical care' (ISO 2001). It also includes a focus on health system performance.

The health information framework has four tiers. The first tier describes the population's health while the other tiers describe different areas affecting health. Each tier contains multiple dimensions (see Fig. 1).

The framework definitions, tiers, dimensions and topics were revised to incorporate gender aware views of health, drawing on the literature discussed above and national health performance frameworks (CIHI 2002; NHPC 2001). Important adaptations included: a structured focus on equity, addition of a household factors dimension as a determinant of health, and bundling the health system performance dimensions into three: accessibility (including affordability), effectiveness and cost.

Major criticisms of this type of framework are that it is not well suited to making links between elements or tiers, or at showing explicit relationships (e.g. cause and effect) (ISO 2001).

Comparative evaluation of selected indicators

The comparative evaluation (see tab. 2) found that:

- special reports had the most, while routine reports had the least, 'gendered' collections of indicators;
- most routine indicators, including basic health indicators such as infant mortality, were not reported disaggregated by sex or age, nor with a comparator or over time; although sex disaggregations were reported in indicators on life expectancy, education, workforce, and democracy;
- there were few age-disaggregated indicators and none that were disaggregated for ethnicity or socioeconomic groups;
- most sex-specific indicators described women, and were age-limited to women of reproductive age, or described reproductive outcomes (e. g. deliveries, births), while indicators on the health problems of females out of reproductive age (e. g. older women, girls) or pertaining to non-reproductive states (e. g. mental health) were largely missing;

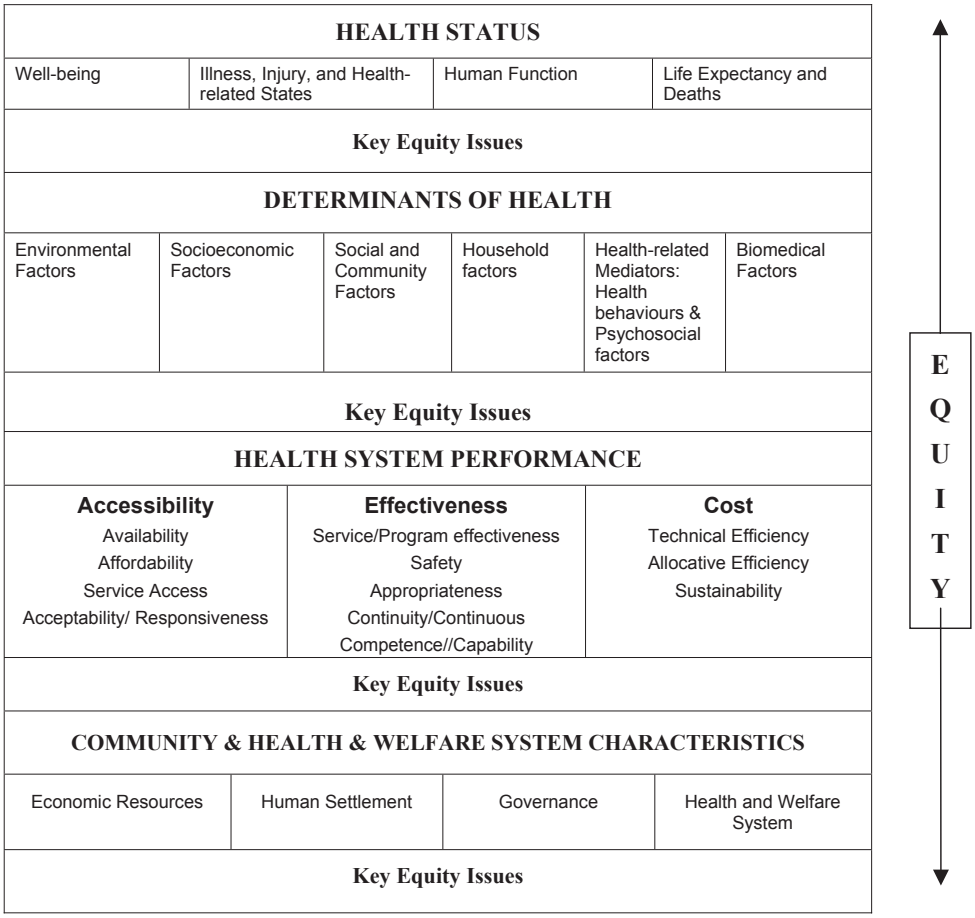

Figure 1 Health information framework

Table 2 Indicator reporting status

Beck criteria	Routine		Special		Proposed	
	No	%	No	%	No	%
sex-disaggregated	186	23	96	**66**	55	50
sex-specific	74	9	28	19	33	**30**
total sex-distinguished [a]	260	32	124	**85**	88	81
age-disaggregated	46	6	14	**10**	3	3
report over time	192	23	83	**57**	2	2
includes comparator	48	6	23	16	39	**39**
participatory development	1	0	0	0	0	0
gender analysis	1	0	12	**11**	n/a	

[a] total sex-distinguished = indicators that are sex-disaggregated (e.g. report males and females separately) + indicators that are sex-specific (e.g. report only females).

– indicators with comparators compared females to males (i.e. used the male as the norm), and most were found in only six topics (including literacy, education, employment); and
– few indicators included a time element that would allow the assessment of change over time.

Overall, indicators were more likely to be sex-disaggregated, or sex-specific (total shown as 'sex-distinguished' in Tab. 2) than they were to be age-disaggregated, to include a comparator, or to report over time.

Virtually no indicators were described as resulting from a participatory development process, and few incorporated a gender analysis. Gender-blind descriptions (e.g. 'people', 'adults', 'infants', 'victims') dominated routine reports.

Coverage of the health information framework by indicators

The majority of the selected international indicators were mapped to the contextual tier of the health information framework, community and health and welfare system characteris-

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Table 3 Health information framework coverage

Indicators by tier of framework	No.	%
Health status	266	*24*
Determinants of health	242	*22*
Health system performance	102	*9*
Community and health and welfare system characteristics	485	*44*

tics (see Tab. 3). Around a quarter were mapped to the health status, and determinants of health tiers, with less than a tenth mapped to health system performance.

Each tier of the health information framework (see Fig. 1) was examined in more detail.

– *Health status*: indicators on illness and injury, life expectancy and deaths dominated this tier. The dimensions of well-being, health-related states, and human function were poorly represented. While life expectancy was generally reported in sex-disaggregated form, most other indicators were not.
– *Determinants of health*: indicators on socioeconomic factors (e. g. education, income) dominated while there were few indicators on psychosocial, social, community or household factors.
– *Health system performance*: most of the small number of indicators were concentrated in the broad dimensions of accessibility and effectiveness with few in cost. Sex-specific indicators focused on women's reproductive health. There were few indicators outside of the hospital sector, and none reporting on gender sensitivity, gender acceptability, or gendered access to services and care. There were no indicators measuring the involvement of communities or volunteers in agencies and services, or the participation of women in service planning and management.
– *Community and health and welfare system*: indicators were focused on economic resources and human settlement dimensions; most described high level system inputs or measures (e. g. health expenditure, gross domestic product) and were rarely sex-disaggregated.

The evaluation found deficiencies in indicators currently in use – in their technical quality, underlying conceptual bases and coverage across the tiers of the health information framework. The major limitation in the technical construction of the majority of routinely reported indicators was that they lacked sufficient specificity to contribute to gendered and equity analyses of health and healthcare systems. Information about health system performance in relation to gender equity and health was limited, indicating a major weakness at global and national levels.

The concept of health embodied in reported indicators was dominated by a biomedical orientation, with few indicators for health-related states and human function, while the picture of women provided by existing indicators was limited to their 'reproductive being'. The depiction of men was just as limited: only four sex-specific topics describing males were found (including urethritis, violence, and un/employment).

The availability of indicators related to socioeconomic determinants of health, in contrast to the limited information about household, social, community and psychosocial factors, suggests that women's status (e. g. literacy, education, employment) has received far more attention than other risk or protective factors for health.

The lack of gender-sensitive indicators for health system performance points to the absence of a participatory development process between those working on gender equity, and those working on health sector reform. As women comprise the majority of health service consumers, carers, healthcare workers, and citizens (in most countries), they engage with the health system in varied ways (Lin 2001). Improving indicators for monitoring health system performance is an agenda receiving insufficient attention from a gender perspective.

Discussion

This review of indicators from key international agencies covered 1095 indicators, but this does not represent the full number or range of indicators in use. The dilemma is the extent to which existing indicators should be improved upon, or new and more sensitive indicators developed, including those that better reflect men's health and the health of girls and boys.

Routine administrative reporting offered little to allow monitoring of gender equity and health. The strengths of currently used indicators, especially those using international standards (e. g. mortality and morbidity), lie in their histories of use as comparative data to assess trends over time across different countries. Current information systems and infrastructure continue to perpetuate existing foci for data collection and reporting of internationally agreed indicators while alternative propositions are debated. There is, thus, clearly a need to improve the adequacy of current indicators as well as to develop new types of indicators. The challenge is to retain comparability while developing standard indicators that provide more complex information including gender-sensitive and equity-sensitive perspectives.

The large number of indicators raises questions about who uses them, and whether greater application in advocacy and policy-making requires a smaller list that is tracked over time. Is there merit in considering a core set of indicators that are

relevant globally, or that can be used for comparisons across peer countries and communities?

While most countries have a plethora of indicators, the problem is how to choose an appropriate set. The concept of 'leading health indicators' offers a helpful way of selecting indicators that can inform action. The term can be used to denote a group of indicators that point to underlying or upstream issues that are common for a range of health problems, suggest current issues that require priority attention, act as alerts or early warnings for future problems, or are predictive of other problems.

The Institute of Medicine committee convened to recommend leading health indicators to the Healthy People, 2010 (USA) initiative, defined criteria for selecting indicators of value for policy advocacy and practice change as (Chrvala and Bulger, 1999):

- *Worth measuring*
- *Can be measured for diverse populations*
- *Understood by people who need to act*
- *Information will galvanize action*
- *Actions that can lead to improvement are anticipated and feasible*
- *Measurement over time will reflect results of action.*

Leading indicators can include an array of measures, such as health-related quality-of-life, protective and health risk behaviours, social and environmental factors, access to key services, policy environment, etc. The WHO (2000) has offered possible indicators for measuring health system performance, and burden of disease (WHO 2002). Chrvala and Bulger (1999) proposed alternative sets of indicators, using the typologies of: health determinants and health outcomes, life course determinants, and prevention. A more comprehensive health information framework, such as that developed by this project, may be a better starting point for ensuring that various information domains are systematically considered, gender-sensitivity is improved for existing data, and informational gaps are filled. Measures of equity – including sex, age, ethnicity, and socioeconomic status – should also be specified from the outset.

Most of the US leading health indicators (e.g. physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behaviour, injury and violence, access to health care, immunization) reflect highly gendered patterns. They also reveal disparities across immigrant groups (Kandula et al. 2004), and may be a useful starting point for considering health issues amenable to action and for understanding the social determinants of health in developed countries. The selection of indicators should consider not only content, technical quality, and usefulness, but also include a range of indicator types useful for monitoring gender equity and health. The reporting style for indicators may also warrant review and revision, including measures such as: grouping countries into peers by socioeconomic or mortality levels (WHO 2002), or by important contextual variables (e.g. women's status in law (UNIFEM 2000)), and reporting time series data.

Table 4 Evaluative criteria for suites of indicators

Do	Don't
• Use multiple indicators.	• Rely on a single indicator.
• Use a range of different indicator types.	• Use only simple quantitative indicator types.
• Give preference to indicators that satisfy multiple Beck criteria; report sex-disaggregated indicators when sex-disaggregated data is available.	• Use indicators that do not satisfy Beck criteria; report gender-blind indicators that are not sex-disaggregated when sex-disaggregated data is available.
• Triangulate or cross-check the evidence provided in different indicator types (e.g. WHO World report on violence and health (Krug et al. 2002) chapter on youth violence).	• Rely on a single indicator as the only source of evidence (e.g. use the infant mortality rate to compare countries in isolation from other evidence and context).
• Give context (e.g. UNDP (2002) gives the context for world democracy before assessing female share).	• Remove from all context.
• Use more complex, more informative indicators (e.g. change in wage parity within a country between men and women over time).	• Use only simple measures in isolation (e.g. CO2 emissions without agency).
• Where there is great variation, prefer smaller units of analysis (areal, group, e.g. inter- and intra-regional variation, urban/rural women, older/younger men) – averages hide difference.	• Use only averages that hide variation (e.g. using unemployment rate when youth, female, or male long-term unemployment rates are available).
• Declare 'soft' judgments (e.g. conflicts of interest, financial and other influences, personal beliefs/biases,).	• Not disclose interests (personal, financial, political).
• Embed in gender analysis, sensitive to gender equity in heath, that raises related questions.	• Surround with neutral, de-gendered or gender-blind, 'objective', 'descriptive' text.
• Identify and refer 'hard' judgments to participatory development (e.g. community prioritization of government-funded medical treatments).	• Sidestep the identification and raising of 'hard' judgments, or allow them to be made in a limited domain (e.g. technical judgments about who to treat, how much to spend).

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The value of good quality and conceptually sound indicators, however, is limited if there is not an appropriate monitoring system. Such a system requires adequate infrastructure for collection and collation of valid and reliable data, and a social process through which the meaning/s of indicators are reviewed, implications for action are distilled, and decisions are taken to effect greater equity.

The assessment of indicators reported here did not identify an abundance of indicators that satisfied both the Beck (1999) criteria and those compiled for defining possible leading health indicators. Table 4 summarises suggested 'do's and don'ts' or evaluative criteria for suites of indicators addressing gender equity and health.

A way forward with the findings and observations from this project could be a participatory process of key stakeholders. An agreed core of leading health indicators and a systematic social process for their monitoring could be forged through consensus meetings, along with a shared vision of how global monitoring of gender equity and health will be undertaken.

Conclusion

Overall, this evaluation points to the apparent parallel universes inhabited by those working on health system performance and gender equity in health. It highlights the poor utility of collecting and reporting large numbers of indicators without a social process to monitor and decipher their meaning. The project demonstrates that a mainstream health information framework can be used as a basis for identifying shortfalls in data and indicator systems. While our emphasis on gender and equity revealed deficits, the framework structure was robust enough to adapt to cover them. Engendering adaptations can improve the utility of mainstream frameworks.

Questions remain about how to improve the current state of affairs. First and foremost, is the advocacy of gender equity in health better served by using a smaller list of indicators, like the leading health indicators? Secondly, can contexts and relational factors be incorporated into indicator systems? Finally, how well can indicators reflect different dimensions of equity?

A gender equity approach would focus on the role of gender relations in the production of vulnerability to ill health and disadvantage within health care systems, and on conditions promoting inequality in access and utilization of services (Standing 1997). Action on equity in health should result in minimizing avoidable disparities in health and its determinants.

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