PROMOTING EQUITY IN HEALTH THROUGH RESEARCH AND UNDERSTANDING

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ABSTRACT

Developing strategies to reduce inequities in health requires an understanding of how inequities occur, determining the salient factors in their production, and deciding which ones are most amenable to change. The recognition of several principles regarding the manifestations and genesis of inequities can help to decide on strategies. In making decisions, it is important to consider whether the aim is to reduce disparities in the occurrence of ill health or to reduce disparities in the severity (including comorbidity, disability, dysfunction and fatality) of ill health. Evidence shows that the major impact on equity of health services, particularly regarding their potential to reduce severity, is attributable to the strength of primary care resources and services in communities and countries. Virtually every influence on the genesis of inequities is determined by the political context in which policy is made. The issue of health services is not different in this regard from other types of strategies.

There is no longer any doubt about the pervasive influence of social factors on health. Almost two centuries of descriptive research provides convincing evidence of associations between social structures and relationships and health status in all countries and in all societies; if there is anything new from more recent research, it is that the association is not limited to differences between the lowest social strata and other social strata. Rather, the association is noted throughout the social spectrum. That is, there is a social gradient in health such that, for many if not most manifestations of ill health, the lower the social stratum, the worse the health.

The challenge for the future is to understand why this is the case, to create a consensus that these inequalities are unnecessary and unacceptable, and to devise strategies that are both effective and possible. This paper will focus on the first of these aims, in a context that facilitates attention to the second and third aims.
I SETTING THE STAGE FOR UNDERSTANDING

In order to develop the basis for understanding the ‘causes’ of disparities in health associated with social phenomena, it is necessary to come to grips with several key issues: the definition of health, the definitions of inequity and equity in health, and a clear notion of plausible reasons why these inequities exist.

Definition of health

Health is a ‘contested concept’, in the sense that ‘there is no one clearly definable general use that can be set up as the standard use.’

The word is said to derive from the old English ‘haelth, related to Hal, derived from the Old English hael, meaning whole.’ In this sense, perhaps the most useful operational definition was provided in the Ottawa Charter, as follows: ‘Health is the extent to which an individual or group is able, on one hand, to realize aspirations and satisfy needs and, on the other hand, to cope with the interpersonal, social, biological, and physical environments. Health is therefore a resource for everyday life, not the objective of living; it is a positive concept embracing social and personal resources as well as physical and psychological capacities.’

Health can be represented, operationally, on the individual or population level.

On the individual level, health (in contrast to disease or mortality rates) is either the sum of many separate indicators weighted in an appropriate way, or as a summary measure that reflects the manifestations of the individual indicators. There is as yet no agreed-upon way to weight the various individual indicators. Summary measures, such as years of potential life lost or disability-adjusted life years (DALYS), or disability-adjusted life expectancies (DALES), may be reasonable approximations, although their limitations have been recognised.

Most common measurements of the concept of health are based on a reductionist biomedical model that regards ‘health’ as being the absence of any one of a wide range of anatomic, physiological, mental, or behavioural deviations from an unspecified ideal. Recent thinking about the measurement of health is more


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consistent with the notion of health as a characteristic of whole-
ness that takes into account not only specific diseases and dys-
functions, but also the added impact of co-morbidity and the
phenomena of vulnerability and resilience.4

Definitions of equity and inequity

Motivated by an interest in a definition that would facilitate the
development of tools to measure and monitor the extent of ine-
quities in health, the International Society for Equity in Health
(ISEqH) adopted the following definitions:

Equity in health: the absence of systematic and potentially
remediable differences in one or more aspects of health across
populations or population groups defined socially, economi-
cally, demographically, or geographically.
Inequity in health: systematic and potentially remediable dif-
ferences in one or more aspects of health across populations
or population groups defined socially, economically, demo-
 graphically, or geographically.5

Plausible explanations for inequities in health

The literature on social ‘determinants’ of health is replete with
descriptions of associations of various characteristics with various
manifestations of ill health, most commonly life expectancy, age-
adjusted mortality, or infant mortality. For the most part, existing
studies include only a select subset of possible types of influences,
reflecting the biases of researchers as to likely mechanisms char-
acterised as material, biological/genetic, social, or psychological.
Rarely are the different types of influences simultaneously
explored.

In the absence of an ability to manipulate possible ‘causes’
of equity in an experimental situation, it is necessary to rely on
plausible explanations in order to assess the likelihood that the
demonstrated association(s) are likely to be causally related to
health.6 Plausibility derives from conceptual models based on

cations for Health Information Systems. In Health Statistics in the 21st Century:
Implications for Health Policy and Practice. D.J. Friedman, E.L. Hunter & R.G.
5 B. Starfield. Basic Concepts in Population Health and Health Care. J.
6 R. Thisted. Are there Social Determinants of Health and Disease? Persp.
both theory and empirical evidence that, while not conclusive, fit with the theory. There are many such models of determinants of health. Well-cited ones have been published by Evans and Stoddart,7 and Diderichsen et al.8 Figure 1 represents a model based on current evidence of pathways from distal influences to more proximate ones.

The first point to be made about this diagram is that ‘health’ is split into incidence and severity. That is, one aspect of health has to do with the presence of compromise in health and the other has to do with the severity of those compromises. The impact of influences may differ according to which aspect of health is being assessed. For example, one type of influence (such as the material condition of crowded housing) may mainly affect vulnerability to illness (such as infectious diseases) whereas compromises in healthcare received may primarily influence the severity of existing conditions. The implications of such a realisation are profound, in that studies of the relative impact of various types of influences will depend heavily on the measure of health that is used. Controversies over the relative importance of social factors versus medical care rarely consider the type of health measure that is used; social factors are more likely to be related to vulnerability (and hence occurrence) whereas health system factors, which can be therapeutic when applied properly, will more heavily influence severity of manifestations of ill health.

In this diagram, which depicts the categories of influence on an individual’s health, the most proximate determinants are those related to socio-economic, biological, and genetic characteristics. These are heavily modified, however, by the situations that influence the expression of the individual traits. Physiological traits that are transient (such as illnesses or injuries), material resources to which the individual has access for purposes of supporting life’s needs (such as food and shelter), social resources (such as relationships with others, involvement in social events, or ability to influence controllable events), chronic stress (such as from racism or classism), and health services received, all influence the way in which an individual’s innate characteristics operate.


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"Health" has two aspects: occurrence (incidence) and intensity (severity).

Figure 1. Influences on Health: Individual Level

Shading represents degree to which characteristics are measured at the ecological level (lighter colour) or at the individual level aggregated to community.
Somewhat more distal to factors operating at the individual level are factors operating at the level of the community in which individuals reside and work. Exposures in the physical environment (e.g., noise, pollution, weather conditions), material resources (e.g., food market, schools, banks, transportation), social resources (e.g., community centres, playgrounds, parks, crime), psychosocial characteristics (e.g., institutionalised racism), and health system characteristics (e.g., availability of healthcare resources, distribution of type of healthcare resources, financial barriers to access of healthcare resources), all influence health (such as with contaminated water systems) by interacting with other community characteristics (thus compounding effects), and indirectly via their effect on influences on the individual level.

Most indirectly, but still influential, are societal characteristics which determine policy that directly influences community characteristics (e.g., health policies related to organisation and financing of services, policies to regulate industrial wastes, and tax policies that influence income distribution and the formation of social strata).

Figure 2 differs from Figure 1 in being directed at population health rather than individual health. A population diagram is necessary for assessment and monitoring equity in health, which involves distribution of health in the population, to determine whether variations are systematic or not. Typical measures of population health are low birth weight ratios, premature mortality rates, infant mortality rates, age-adjusted mortality rates, and life expectancy. As is the case with health measures at the individual level, population measures of health reflect both incidence of health compromises and severity of health compromises. Low birth weight is a measure of occurrence; death rates and life expectancy are severity measures. As severity measures such as death rates also depend on incidence of health compromises in the population, differences in death rates (or life expectancy) reflect the full range of types of influences. Medical care, except to the extent to which it engages in prevention of the occurrence of condition (such as by immunisations), will more heavily influence measures reflecting severity. Assessments of population health, while also influenced by characteristics at the individual level (as represented by dashed lines in Figure 2), will be more heavily influenced by characteristics at the community and policy levels. Thus, the political context and aspects of specific types of policies will be highly salient in influencing population health levels, as will be shown below.
Dashed lines indicate the existence of pathways through individual-level characteristics that most proximally influence health.

Shading represents degree to which characteristics are measured at the ecological level (lighter colour) or at the individual level aggregated to community.

*‘Health’ has two aspects: occurrence (incidence) and intensity (severity).

Figure 2. Influences on Health: Population Level
Paying attention to information about pathways of effect provides the basis for much more informed policy to reduce inequities. For example, a study in the 27 units that comprise Brazil found that income inequality lost its association with life expectancy when GDP per capita and illiteracy rates were included in the analysis. Thus, income inequality appears to be just one of the factors in the pathway to more influential material resources, in particular, general level of education. From the viewpoint of practicality, this is a salient finding, as improving education is almost certainly more feasible than is a major redistribution of income.

Similarly, in Canada, income inequality is not independently associated with self-reported health in non-poor neighbourhoods where material resources appear to be more available even to the poor families who live there. In relatively deprived neighbourhoods, income inequality is associated with poorer reported health than residence in a more income-equitable area, presumably because areas in which average income is low cannot command similar resources.

The context is also critical in evaluating the relative importance of the interacting influences in the model. For example, a study in Sweden showed that the salience of income inequality depends on the community’s level of material resources. In poor communities, the degree of income inequality was of relatively small importance for self-rated health, whereas its association with self-rated health was more salient in communities where basic material needs were presumably at a level to assure that basic needs were met.

**II CONSIDERATIONS IN DEVELOPING POLICIES TO IMPROVE EQUITY IN HEALTH**

Several studies provide the basis for influencing the development and implementation of policy.

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1. Variability in health across political jurisdictions (within countries) is greater among the lower socio-economic classes. Thus, the policies of some areas are more effective in reducing inequities than the policies of other areas.

2. Educational attainment is most related to those influences on health that require knowledge. That is, improving overall levels of education will decrease inequity in those aspects of health that are particularly related to preventive activities at the individual level.

3. Individualised interventions directed at changing the behaviour of individuals are less successful in improving equity in health because they are less successful in relatively deprived populations than in more advantaged populations. Thus, population-oriented approaches that do not require changes in initiatives taken by individuals are more efficient where they are a possible alternative.

4. Across the age span, the weakest association between income and health is in old age. Social disadvantage is damaging at any stage in life but is especially harmful when experienced early in life. Thus, other things being equal, priority should be given to effective interventions at younger ages.

5. The magnitude of socio-economic differences in health not only varies within each society over time but also varies between societies. For example, socio-economic inequalities in mortality appear to be larger in northern than in southern European countries. This might be due to a varying socio-

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economic gradient in ischemic heart disease.\textsuperscript{17} Thus, the existence of disease-specific disparities, along with the prevalence of the disease (and, hence, its importance in the population) provides important clues about the genesis of disease and its distribution in the population.

6. The level of geographic aggregation influences the extent to which income inequalities exist.\textsuperscript{18} That is, the choice of the level of analysis (country, state, county, urban versus rural, census tract, block level) will influence the conclusions about the distribution of ill health. Moreover, the impact of contextual influences (such as the impact of health policies) will vary depending on the geographic unit.

7. Evidence concerning the impact on health of the affluent living in deprived areas is conflicting.\textsuperscript{19} The extent to which the health of the more advantaged is influenced will affect the strength of the consensus for or against policy changes to decrease inequity.

8. Improving average health is not necessarily associated with increased equity,\textsuperscript{20} thus raising an ethical issue that must be dealt with in policy decisions.

9. Improvement in equity in health, as measured by decreased absolute differences, may appear as increases in relative differences.\textsuperscript{21} Thus, the extent to which goals are met depends on how they are stated – as percentages or absolute reductions.

10. Increases or decreases in inequity in health, although manifested by both relative and absolute changes, may have little


\textsuperscript{21} A. Wagstaff, \textit{op. cit.} note 20.
practical impact because the frequency of the problem that demonstrates inequity is rare in the population.  

Thus, specific targets for rare problems, even if achieved, will not affect overall differences in equity in the population.

11. People at the lower levels of income not only have more illnesses; they also have more co-morbidity. Differences in health between poor and less poor populations are greater for severity than for incidence, at least in some countries. This has important implications for strategies to reduce inequity. Health services preferentially affect severity (including mortality) from illness rather than occurrence of illnesses. From the viewpoint of equity, effective health services directed at early detection and prevention of progression are likely to have a considerable impact in reducing disparities in severity of illness, whereas interventions outside the health sector are likely to have relatively greater impact on the occurrence (incidence or prevalence) of illness.

12. As most interventions initially reach those of higher socio-economic status and only later affect the poorer segments of society, there may be early increases in inequity for morbidity and mortality indicators. However, specially designed and targeted programmes can improve equity when properly designed.

13. Equity of access to primary care (family medicine) services has been achieved in some countries (as demonstrated in Canada, the Netherlands, and Scandinavian countries, as well as in the elderly population in the US as a result of Medicare), but inequity of access to specialty services is prevalent everywhere it has been studied. The impact of these differences in

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health is not yet clear; in the few places it has been examined with regard to mortality, both in total as well as for specific conditions, the effect of greater specialist supply is positive with regard to performance of procedures and interventions, and is positive for mortality (i.e., greater age and cause specific mortality with higher specialist to population ratios), but the literature on health gains from specialty care for non-lethal health conditions is sparse. There is evidence, however, that preventive care delivered in specialty practice is inequitable in that it is available preferentially to the more socio-economically advantaged, at least in Belgium, where the study was conducted.

These considerations have clear policy ramifications. Although trade-offs between improving equity and improving average health may have to be made, the areas in which inequities in health exist are primarily in common manifestations of ill health. As a result, improving equity will improve average health. Second, interventions directed at societal and policy changes are likely to have more impact than interventions directed at individuals. Third, there is a clear role for appropriate health services in reducing inequities in health, especially (although not exclusively) through reducing the severity of illness and co-morbidity in deprived population subgroups.


III STRATEGIES FOR REDUCING INEQUITIES

Strategies to reduce gaps in health levels across population groups defined by social class, ethnicity, or other socio-demographic characteristics have historically taken the form of demonstration projects directed at the most deprived stratum of society. Setting health in the more general context of development, Taylor-Ide and Taylor\textsuperscript{30} reviewed experiences in a variety of developing countries and provided evidence of both successes and failures in Peru, Kerala state (India), Curitiba (Brazil), White Mountain Apache area (Arizona, USA), Gadchirole (India), Narangwal (India), and Bangladesh (Matlab). The necessary conditions for success included, at least, a three-way partnership among the community, political leaders, and outside experts; the collection and analysis of local data for assessment and monitoring; and a community work plan. Other characteristics of critical importance in most of the areas were the involvement of women in the community, the development of a transportation network (in Curitiba), water and sanitation management, and agricultural development. In most areas, the development of sustained and successful community health centres followed from inter-sectoral projects, and were associated with marked reduction in, for example, low birth weight ratios and deaths from gastroenteritis. In some areas, however, actions of the national government sabotaged the local areas.

In industrialised countries, strategies directed at reducing social inequities have been implemented in very different ways, principally by targeting interventions at particularly vulnerable individuals rather than by broad public programmes. For example, the Netherlands (which has been a leader in drawing attention to social differences in health) implemented a series of demonstrations based on prior evidence of the association of various influences in the pathway to health: material, occupational, psychological, and social. Most were attempts to indirectly improve health by modifying its antecedents. None of the evaluations (at least as of the time of the report of the Health Research and Development Council in 2001\textsuperscript{31}) assessed resulting health, and none compared changes in the disadvantaged groups with those in more advantaged groups.


A wide variety of studies in both developing and industrialised countries demonstrate the specific contributions of carefully designed policies towards health services.

From the vantage of developing countries, investments in primary care produce more equity than investments in the health system in general. For example, Castro-Leal and colleagues\textsuperscript{32} have shown that the highest 20% of the population receives well over twice as much benefit from overall health services investment than the lowest 20% (30% versus 12%). For primary care investments, however, the rich-poor benefit ratio is much lower (23% versus 15%).

The equity-enhancing effect of a stronger primary care orientation is also evident from recent studies in at least one highly inequitable (and highly specialised) industrialised country: the US.

1. State-level total mortality from 1985–1995 declined overall. A higher number of primary care physicians per 10000 population was associated with lower mortality, with an increasing, latent effect over the time period. An increase in one primary care doctor per 10000 population was associated with a reduction of 1.44 deaths per 10000 population; time-series studies increase this effect to 34 per 100000, a 4% reduction in total mortality. The association between socio-economic characteristics at the state level (percent of population that is African-American, percent of population that is metropolitan, percentage unemployed, and percentage with completed high school education) was greatly reduced when primary care physician supply was included, and the association with primary care was greater in the African-American population than in the white population. The former finding suggests either a reduction in disparities in health resulting from greater primary care resources or a confounding between primary care policies of the state and other state welfare policies. The latter finding (the greater impact on a minority population), however, is clearer evidence of reductions in social disparities in health resulting from better primary care resources.\textsuperscript{33}


\textsuperscript{33} L. Shi, B. Starfield, R. Politzer & J. Xu. Primary Care Physicians and Mortality in the US. Submitted for publication, 2003.
2. Both absolute and relative differences in low birth-weight between the whole population and the African American population are lower in populations enrolled in health centres, which require the provision of good primary care, than in the population as a whole.\(^{34}\) This is clear evidence that, for a common health problem, reductions in inequity can occur by both reducing the magnitude of the differences as well as by proportional differences.

3. People receiving care in publicly-supported health centres experience poorer levels of healthy life than do general populations, undoubtedly because their patients are of lower socio-economic status and more likely to be from disadvantaged minority groups. Federally funded health centres have to meet criteria for adequate primary care; empirical evidence indicates that they do provide better quality primary care than other forms of practice organisations in the US.\(^{35}\) Despite the overall higher morbidity (as compared with the general population), there are no differences in experienced levels of health between the white and the African American patients receiving care in health centres. In the general population, in contrast, the white population experiences significantly greater healthy life than either the African-American or Latino populations.\(^{36}\)

4. Although health centres’ poor patients experience significantly less healthy lives than the non-poor in health centres, the difference is narrower than the difference between poor and non-poor persons in the general population. The same is the case for uninsured patients or patients with Medicaid coverage compared with the privately insured.\(^{37}\)

5. Using people with private health insurance (in the US) as the standard, uninsured people and people with Medicaid insurance have significantly fewer years of healthy life. However, there is no difference in years of healthy life among those with Medicaid or no insurance, compared with people with insurance, among community health centre users.\(^{38}\)


\(^{37}\) Ibid.

\(^{38}\) Ibid.
6. The percentage of people reporting fair or poor health depends both on the supply of primary care physicians as well as the extent of income inequality. In areas with moderate income inequality, those areas with low primary care resources have an increase (compared with the median) of 16% of people reporting fair or poor health; areas with high income inequality have a 33% increase if the supply of primary care resources is low.39

7. Lower stroke mortality (compared with the mean) in the 50 US states is sensitive to the supply of primary care physicians. In states with high income inequality, there is a 2.3% decrease in mortality if primary care physician supply is high, but a 1.1% increase if primary care physician supply is low.40 On average, an increase of one primary care doctor per 10 000 population (about a 15% increase in current average levels) reduces the stroke death rate of 1.5 deaths per 10 000 population.41 To the extent that risk factors for stroke mortality (smoking, hypertension, and obesity) are more prevalent in areas with higher income inequality,42 and that all of these are amenable to primary care management,43 enhanced primary care would contribute to efforts to reduce or eliminate many disparities in health across population subgroups.

8. Reduction in post-neonatal mortality in the 50 US states is also sensitive to primary care physician supply. In states with high income inequality and high primary care physician supply, there is a decrease of 17.1% (over the median) where primary care physician supply is high, but a decrease of 6.9% in states where the primary care physician supply is low.44 The beneficial effects of access to high quality healthcare and development of specific healthcare packages for lower socio-economic

40 Ibid.
44 Starfield, op. cit. note 39.
groups has been shown in other industrialised countries as well. In the Netherlands, where there is universal financial access to health services, there is no evidence that further increasing use of services by disadvantaged population subgroups improves their health. However, there is evidence that the largely equal access to essential healthcare services was responsible for trends toward lower perinatal mortality in both higher and lower socio-economic groups between 1860 and 1985. The declines in numbers of perinatal deaths were approximately parallel until the third decade of the 20th century; thereafter, and especially between 1950 and 1980, the number of deaths declined faster in the lower SES groups than in the higher SES groups, so that both the relative differences as well as the absolute differences between the low and the high SES groups narrowed. The same phenomenon is the case for infant mortality.

In England and Wales, the differences in numbers of deaths in both males and females from tuberculosis and pneumonia between the high and low SES groups decreased markedly between 1931 and 1961, although the relative differences in rates increased. The same was true for maternal mortality, but for neonatal mortality the absolute differences declined markedly whereas the rate ratio increased only very slightly.

Thus, in addition to evidence, both across as well as within countries, that a strong primary care orientation improves overall health, there is also evidence that it improves equity in health.

IV CHALLENGES TO IMPROVING EQUITY IN HEALTH

The first challenge is to attain clarity in the conceptualisation of health. Most studies of inequity in health focus on particular dis-

46 Ibid.
47 Ibid.
eases; studies of overall health (including but not limited to perceived health) are uncommon. Approaches such as those taken by the World Health Organization foster a disease focus by attributing years of disability adjusted life years to specific diseases. Such an approach fails to take account of a very salient characteristic of ill health, particularly in the disadvantaged. Disease is not distributed randomly in the population. Rather, it clusters so that people who already experience significant morbidity are more likely to experience other morbidity than is the case of people without morbidity. Thus, a disease-oriented approach does not adequately represent the distribution of disease burden in the population.

The second challenge is to clearly delineate health goals and to clearly distinguish occurrence of ill health from severity of ill health. Countries apparently differ in the extent to which the differences across SES groups are manifested primarily in incidence or in severity of ill health. In the Netherlands, the difference is primarily in incidence, suggesting a major role for non-health system determinants of health and/or a more proactive primary prevention effort within the health services system. In the US, in contrast, the difference (at least in childhood) is more marked in the case of severity, suggesting a highly salient effect of differences in access to high quality primary care health services in that country.

The third challenge is to attain clarity in the conceptualisation of influences on the health of individuals and of populations and sub-populations, and to distinguish those with a predominant impact on occurrence from those with a primary impact on severity.

Because health is a product of many types of previous and current exposures superimposed on genetic predispositions, achieving equity in health is ultimately a political process based on a commitment to social justice rather than to ‘survival of the


52 Gwatkin, op. cit. note 24.
fittest.’ It involves an inter-sectoral approach involving many if not all of a society’s policies, including those directed at the physical and social environment, economic policy, and educational policy.\textsuperscript{54}

The relationship between policy and practice is clear. An international comparison of primary care in thirteen OECD nations showed clearly that the orientation of national health policy (as reflected by nine characteristics addressing the training and development of physicians as well as financing and organisation of health services) is highly related to the way in which services are delivered in practice settings. Countries with health policies more conducive to primary care practice achieve better quality of primary care practice.\textsuperscript{55} An increasing number of studies are showing the importance of political orientation to at least some aspects of health.\textsuperscript{56} It is certain that policies derive from political orientation; this realisation undoubtedly accounts for the wide differences in both average levels of health as well as inequities in health in different countries, both in the developing as well as the industrialised world.

Whereas some may debate whether a focus on primary care is more justifiable than a focus on hospital and specialist services, the evidence cited herein falls clearly on the side of primary care. Moreover, the World Health Organization is moving towards reaffirming a focus on primary care, as evidenced by the World Health Assembly’s request\textsuperscript{57} to consider the issue and report back in May 2004.

**CONCLUSIONS**

Efforts to develop interventions to improve equity in the distribution of health can be made more effective and efficient when informed by well-conceptualised and well-conducted investigative strategies. There is considerable evidence that the organisation of health services, particularly when based on a strong primary care infrastructure, enhances equity in health more effectively and efficiently than other health sector approaches. Co-ordinated strategies to build the basis for such health services, both in and

\textsuperscript{54} Acheson, op. cit. note 20.
\textsuperscript{55} Starfield & Shi, op. cit. note 48.
of themselves as well as part of inter-sectoral strategies, can be confidently expected to lead to better and more equitably distributed health of populations.

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