HEALTH STATUS INDICATORS

The 'health indicator movement'

11. Although the search for 'objective' measures of the health status of a population has a long tradition in public health and demography (Hansluwka, 1985), it is essentially within the last two decades that the significant upsurge in interest has taken place. It may be useful here to distinguish between two different components of this trend:

a). firstly an emphasis on 'social' indicators including those which are related to health, for example life expectancy;

b). secondly an emphasis on 'health' indicators including those which closely reflect socio-economic conditions, for example nutritional status, as well as those concerned with the provision of health care; health **status** indicators are thus a sub-set of a wider group.

12. The origin of the field of social indicators appears to lie partly with the efforts to develop a system of 'social accounts' which would transcend the traditional measures of regional and national well-being by incorporating indicators of the 'quality of life' (Culyer, 1983). Much of this early work can be traced back to the 1950's to the United Nations and the efforts continue today with the UN Statistical Office's programme for building and refining a comprehensive framework for social statistics (Murnaghan, 1981)

13. Another active international group which has promoted the development of social indicators is the Organization for Economic Co-operation and Development (OECD), whose 'social indicator programme', launched in the early 1970's, includes health as one of the 'primary goal areas' in which there are 'fundamental social concerns ' (Jazairi, 1976; OECD, 1982). The recent initiatives taken by the OECD will be returned to in a later section (para. 57).

14. The important point here is to stress that the development of health status indicators cannot be credited solely to the efforts of a narrowly-defined health sector and, perhaps more importantly, that future progress undoubtedly lies in a broad inter-sectoral approach. It is now widely appreciated that health ministries in developing countries often have only sufficient funds and expertise to collect the bare minimum of health data. For many purposes, including impact evaluation, ministries will find it more cost-effective and efficient to collaborate with other sectors in information-gathering than to operate independently, as will become apparent in the following pages.

15. Recently, there has been a rapid convergence of the social and health indicator movements in terms of practice if not in theory. The pioneering work in the latter movement originated back in the 1930's with the Health Organization of the League of Nations publishing a comprehensive review of 'indices of health' (Stouman and Falk, 1936). However, it was in the early 1970's that a renewed interest emerged.

Patrick and Guttmacher (1983) suggest there are four principal reasons for this in the context of the **developed** countries:

a). the realization that death rates are no longer sensitive measures of health status, since they have declined to such a level that the margins for improvement are small and consequently the changes occurring difficult to detect;

b). the growing complexity of health care services and technology, with a need for new outcome indicators;

c). the rapid rise in health expenditure and the desire to examine the impact of cost-cutting exercises on the health status of the population;

d). the expanded role of government in health policy and in service provision with the need for health status measures to assist with resource allocation.

16. The impetus for the interest in health indicators in the developing countries has been somewhat different. Although there has been a similar concern to evaluate the cost-effectiveness of health programmes and a need to develop new outcome measures, this has largely been in the context of essentially simple, low-cost and appropriate technology and of planning from the 'bottom up' rather than 'top down' as part of the PHC approach. Similarly, in the developing countries there is little question of the continuing value of mortality rates and, as one author has stated, it would be difficult to think of more relevant and efficient measures of health status (Murnaghan, 1981).

17. One of the major initiators of the health indicator movement in the developing countries has been the adoption of PHC, following the Alma Ata Declaration of 1978, as the key to achieving the goal of 'Health for All by the Year 2000' (HFA/2000) (WHO, 1978). The World Health Organization, as the major proponent of this goal, has actively promoted the use of indicators as a means of monitoring progress at the national, regional and global levels (WHO, 1981a). This significant initiative will be discussed in further detail later (para. 61).

18. Having briefly considered the origins of the interest in health indicators, it is worth reflecting on some of the issues currently receiving attention.

19. Firstly, efforts to develop a single composite measure, or index, of the health status of a population have long been in evidence. The 'heyday' of these activities seems to have been in the 1970's with the most well-known of the mathematical approaches including Chiang and Cohen (1973), Fanshel and Bush (1970), Miller (1973), and Sullivan (1973). Such was the interest in this topic that the United States National Centre for Health Statistics set-up a Clearinghouse for Health Indexes in 1972 to promote the development of composite measures. This unit continues to publish, every quarter, useful Bibliographies on Health Indexes (US Department of Health and Human Services, 1973; Erickson, 1976). Although research continues in this field, there now appears to be a general sceptism both of the feasibility of combining mortality and morbidity in a single index and of the usefulness and policy relevance of doing so, more especially for the developing countries. Reviews of this field and its problems can be found in Elinson and Siegmann (1976), Jazairi (1976), and Culyer (1983).

20. Secondly, within the wider health indicator movement there appears to be a growing debate on the use of actual (patients) or potential (community) consumers of health care to provide self-assessments of health status which can be employed to construct indicators, or an index, for the population as well as for the individual (Bergner, et al, 1976; Ware, 1976). A related development has been the use of patient satisfaction as a means of evaluating the outcome of health care, as reviewed by Kelman (1976) and Holland (1983). These two issues should be seen as part of the general realization that the providers of health care are not necessarily an unbiased objective source of information for establishing the health status of the population.

21. Thirdly, a related topic at the centre of attention is the fundamental question of what Hansluwka (1985) refers to as the 'subject of measurement: ill-health vis positive health'. The emphasis in the development of health status indicators has originally been on the presence or absence of a diseased state. These traditional ill-health or negative health measures are based on mortality and morbidity. In recent years, however, there has been an increasing interest in the possibility of assessing optimum or positive health. Catford (1983) has reviewed this trend and stresses the importance of:

a). the emergence of the concept of health status as a continuum, from well-being to death;

b). new approaches to health care, including PHC, which involve the greater participation of the population in choices affecting their health;

c). more holistic attitudes towards health which allow for a broader range of influencing factors beyond the provision of preventive and curative services.

22. Finally, the current state of the health indicator movement is characterized by its diversity (Culyer, 1983) - some would say chaos. The literature is now vast and the contributions increasingly selective as workers try to grapple with the numerous conceptual and measurement-related problems. Some authors argue that many of the unsolved debates are symptomatic of the fundamental problem caused by the lack of operational definitions of health (Bice, 1976; Schroeder, 1983), as now to be discussed.

The controversial issue of definitions

23. Whilst there are undoubtedly 'diminishing returns' involved in most discussions of definitions, in the context of health indicators, the need to be explicit about the intended meaning of three key terms is particularly important. The concern here has been to be consistent with the consensus in the literature. However, a consensus is lacking in the case of the term 'health'. The discussion therefore introduces some of the grounds for disagreement, whilst taking comfort in Jazairi's (1976) claim that it is not important, at least in developing health indicators, to know what health 'really is'.

Health Indicators

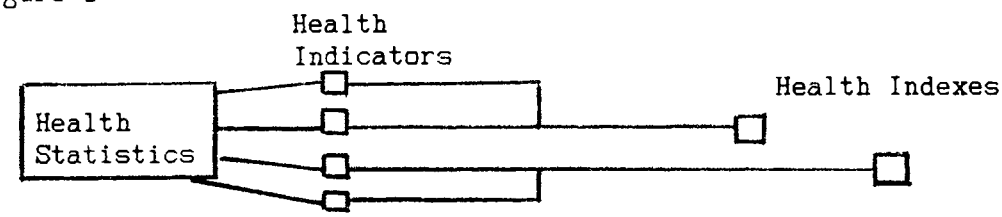
24. Clearly, the term 'indicator' can be used in a colloquial sense, often based on the dictionary definition - 'to indicate'. As Culyer (1983) points out, the idea of a health indicator is deceptively simple.

However, examination of the literature reveals the term being used to refer to measures of very different complexity and content, as seen in the 11 examples of definitions presented by Hansluwka (1985). This diversity can be largely related to the wide variety of purposes and uses for indicators.

25. It is important to point out here that confusion often arises from the use of the generic term 'health indicators' synonymously with 'health status indicators' - as an indication of the level of health or, more usually, the lack of it (see for example Culyer, 1983). On other occasions, a broader interpretation may be employed (see for example Bice, 1976). In the latter case, 'health indicators' may include all indicators which are related to health, such as those reflecting the health services (eg. number of persons per doctor), those reflecting influences on health (eg. percentage of households with treated water), as well as those more specifically indicating the health status of the population (eg. infant mortality rate). This broader definition is the one favoured in this report. Ultimately it is the context in which the word 'indicator' is used which helps to clarify its definition. Thus, for example, whilst WHO (1981a) adopts what at first appears as a simple exposition - 'indicators are variables which help to measure change' - this is more clearly understood in the context of the intended use of these indicators to monitor or evaluate progress in the HFA/2000 strategy.

26. The distinction between health **indicators** and health **indices** now seems to have reached a level of general agreement. Murnaghan (1981) has proposed a very useful schema to help clarify the 'semantic jungle':

Figure 1



Here health indicators are depicted as statistics selected from a larger pool because they have the power to summarize, to represent a larger body of unaggregated statistics, or to serve as indirect or proxy measures for information which is lacking. Although indicators tend to represent or summarize one class of data only (for instance, mortality or morbidity), a single indicator frequently has multiple uses. In contrast, indices often combine different types of data and represent more complex, multi-dimensional measures, often comprising several individual indicators. The major contributions to the development of these composite indices and the associated problems were mentioned previously (para. 19).

Health status indicators

27. A health status indicator may indicate a state of health, although more usually - as suggested above - it is intended to indicate changes in a state of health and therefore usually requires some quantitative element. Minimally the term is intended to convey information about more or less health (ie. positive or negative) in comparisons across individuals or groups (cross-sections), or of the same or similar individuals or groups through time (longitudinal or time-series) (Culyer, 1983). This introduces the role of health status indicators in

a static and dynamic capacity, and the important distinction between the individual and the aggregate levels. Thus, for example, low birth weight (LBW) is an individual attribute which can be used as an indicator of mortality risk; on the other hand, the percentage of LBW babies in a community is an indicator of the aggregate. Whilst the debate rages on whether the health status of the population is infact more or less than the sum of the health status of individuals (Holland, 1983; Schroeder, 1983), the major focus in both the literature and here is on the aggregate or population interpretation. It is at this latter level that the concept of health status or the level of health takes on a meaning in terms of normative values involving judgements of what is and what is not an acceptable state of health (Bice, 1976). This hinges on the debate surrounding the question 'what is health?'.

'Health'

28. It is hardly necessary to dwell on the definition of 'health' in a report intended for 'health' professionals. However, it is important to introduce those aspects of the debate which are relevant to the development of indicators.

29. The controversy over the definition of health goes back to the very origins of the concern for the 'well-being' of individuals and communities, and at times it seems as if a separate definition of 'health' has evolved with each new 'health' indicator. The great difficulty of conceptualizing 'health' is, however, generally agreed.. Definitions found in the literature reflect both the state of knowledge in the relevant sciences and the various so-called 'models' underlying these sciences (Schroeder, 1983). Thus, for example, the 'medical model' stresses health as the absence of disease and connotes a medical concept of abnormality in pathological function, with an associated set of symptoms and prognoses (Culyer, 1983).

30. Progress beyond this narrow medical model to a broader prevention-oriented sociological concept of health may be credited essentially to WHO. According to the Constitution of the WHO - 'health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. Schroeder (1983) claims that this definition had the very pragmatic purpose of proposing an ideal objective that countries with very different cultures, economic backgrounds and health systems could nevertheless use to guide their policy. However, other authors are less convinced of its purpose and feel that it has undoubtedly contributed to the controversy over 'health' ever since it was proposed back in 1946 (Bice, 1976; Nord-Larsen, 1983).

31. As regards the current discussion, the significance of broadening the concept of health in the tradition of the 'social model', lies in the implications this has for making comparisons. If, as Schaefer (1976) claims, definitions of health and illness are 'part and parcel of societies, cultures and epochs', then comparisons between social groups at one moment in time and within social groups across time will be confounded by any changes in the value judgement of the definer - be this those desiring 'health' or those providing it.

32. Finally, the idea that there is a single concept of health which may eventually be developed into a generally acceptable and operationally feasible definition does, at last, seem to be receiving widespread rejection. Hansluwka (1985) suggests there are four reasons for this rejection:

a). the vagueness of the concept;

b). the value judgement of the definer;

c). the multi-dimensionality of the phenomenon;

d). the impossibility of meaningful operationalization.

These issues have been discussed in detail elsewhere (Catford, 1983; Goldsmith, 1972; Jazairi, 1976; Mosse, 1983; Murnaghan, 1981; Schroeder, 1983).

Uses and users of health indicators

33. The essential first step in selecting an indicator is to know its intended uses and users. Table 1 shows the various dimensions which are important in the classification of uses and users.

34. The first dimension - stage of development of a country or area - emphazises an earlier point, namely that it is not realistic to conceive of a common set of indicators which are equally useful in all situations. The relevance and utility of specific indicators has been found to vary along the continuum of the less to the more developed countries, reflecting shifts in health and demographic patterns and the approaches and resources for health care (Siegmann, 1976). Thus for example, it was noted previously (para. 15), that for the developed countries death rates are no longer considered adequate outcome indicators, whilst in the developing countries, where high levels of mortality still prevail, these rates are particularly relevant.

35. The second dimension in the table, organizational level, draws attention to the variation in the focus of concern of users, with consequent implications for the content, scope, specificity and purpose of the indicator. The fundamental distinction between the aggregate and individual levels has already been mentioned (para. 27). This issue is one of the subjects of the edited volume by Holland, Ipsen and Kostrzewski (1979) and considered specifically in the paper by Cerkovnij and colleagues (1979).

36. The third way of classifying uses and users of indicators is in terms of the subject of primary interest - or the dependent variable. Thus, for example, a health planner may have need for an inpatient morbidity rate based on cases or episodes of the disease, whereas the primary interest and need of a public health worker may be for a community-based measure, such as the proportion of households with latrines.

37. Finally, Table 1 reveals the various functional activities carried out in connection with health policies and programmes, for which indicators may be relevant. There is an extensive literature on these activities which hardly needs to be emphasized here. Nord-Larsen (1983), for instance, discusses the needs of different activities for particular

TABLE 1

Important dimensions in the classification of uses and users of health indicators

Stage of development of a country or area

- Less developed
- Transitional
- Developed

Organizational level

- Individual/family
- Community
- District
- National
- World regional/international

Primary interest or dependent variable

- Disease cases or events
- Persons
- Health service organizations and programmes
- Environment

Functional activities

- Assessment/setting objectives and priorities
- Strategic planning
- Implementation/administration
- Monitoring/evaluation

(Adapted from Murnaghan, 1981)

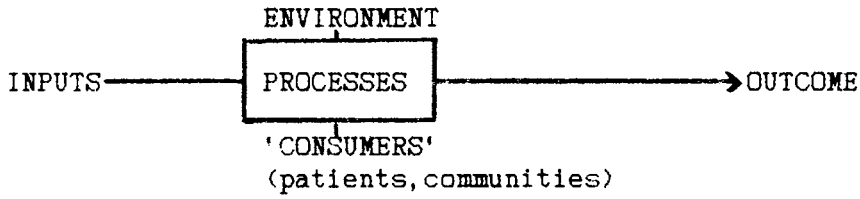
health status indicators. Murnaghan (1981) stresses the importance of feedback mechanisms, such that evaluation leads to reassessment of the situation, redefinition of objectives, redesign of programmes and so on. Clearly, the same indicators are unlikely to be equally necessary and sufficient for all the functions in Table 1. For instance, indicators of outcome, such as the maternal mortality rate, may be more useful at the time of establishing objectives and priorities and when impact is to be evaluated than at the intermediate stages when there is a need for input and operational indicators. This observation introduces some of the important distinctions between the 'types' of indicators as linked to their functional activities.

38. Table 2 gives some examples of the broad headings under which health indicators have been classified. Further examples are given in Hansluwka (1985). There are two issues in particular arising from Tables 1 and 2 which deserve comment.

39. Firstly, the purpose of all indicators is in some way linked to the prioritization, planning, implementation and evaluation of policies and programmes; there seems little point in measuring, for example, health status for its own sake (Uhde, 1983). These policies and programmes may or may not be directly attributed to the health sector. Moreover, some indicators will obviously be useful to several sectors, and this tends to be particularly true of health status indicators. Others, for example indicators of the quality or provision of health care, have greater relevance and utility specifically to the health sector.

40. Secondly, underlying these classifications of indicators and their functions is the conceptualization of health as the outcome of processes arising from the interaction of inputs, consumers (patients, communities) and the environmental context (physical, social, economic and political). This is depicted schematically below:

Figure 2



(Adapted from Culyer, 1983)

This 'cause-effect' model has both general and programme-specific relevance. In the former case, the inputs could be regarded, for instance, as the sum of the activities carried out as a consequence of government policies, with the national population representing the 'consumers' and their overall health status as the outcome. In the latter case, the input could, for example, comprise an ORT educational campaign, with the mothers of children under five representing the 'consumers' and a reduction in the prevalence of cases of severe dehydration in children as the outcome. Clearly, these are both rather simplistic examples. Nevertheless they do demonstrate an important point, namely that it is generally the processes which are the least understood, more especially in the general case, as depicted by the 'black box' in Figure 2. The relevance of specifying the linkages between inputs-processes-outcomes has been stressed by many authors (Martini et al, 1976; Mosley, 1985; Payne, 1985; Vallin and Lopez, 1985)

TABLE 2

Selected examples of broad categories of health indicators

I Source: Culyer, Lavers and Williams (1971).

1. 'State of health' indicators
2. 'Need for health' indicators
3. Effectiveness of health affecting indicators.

II Source: Hansluwka (1985).

1. Measures of health status;
   a) Mortality - survival
   b) Morbidity - disability
   c) Growth and development
   d) Social and economic productivity.

III Source: Jazairi (1976).

1. Health status;
   a) Length of life
   b) Healthfulness of life
2. Quality of health care
3. Social integration of the disabled.

IV Source: Murnaghan (1981).

1. Health status;
   a) Survival/length of life
   b) Healthfulness of life - diseases, disability, growth and development of children, social and economic conditions
2. Health services:
   a) Coverage
   b) Financing
   c) Effectiveness.

V Source: WHO (1981a).

1. Health policy
2. Provision of health care
3. Coverage of PHC
4. Health status indicators.

and some would argue represents one of the major challenges facing health research. Furthermore, a lack of understanding is not only apparent with regard to the processes but also in the actual and desired outcomes (Bice, 1976) and in the selection of measures which reflect these. As pointed out previously (para. 37), indicators of outcome tend to be most useful at the begining and the end of the health planning cycle, and it is their use in the evaluation of impact which is the centre of concern in this report.

Health status indicators and impact evaluation

41. Although the evaluation of health care is a relatively new field, there is a fast growing literature, a selection of which is referenced in the bibliography. This comparatively rapid development has led to a profusion of conflicting terminology and definitions. Holland's (1983) simple exposition provides a starting point for discussion:

> "The evaluation of health care can be defined as the formal determination of the effectiveness, efficiency and acceptability of a planned intervention in achieving stated objectives".

However, this clearly contains further terms which need some clarification:

a). effectiveness is a measure of the technical outcome in medical, psychological or social terms;

b). efficiency is an economic concept which refers to the costs of intervention relative to effectiveness;

c).acceptability refers to whether the intervention is professionally and/or socially satisfactory and adequate.

42. Although some writers may define these terms somewhat differently, it is the underlying concepts which are critical. Thus as regards 'evaluation' the important point is that it is essentially an activity relating results to targets and objectives (Goldacre and Griffin, 1983). The distinction between 'evaluation' and 'monitoring' is becoming increasingly blurred as the former is no longer regarded as an end in itself but rather part of a process which feeds back into the broader policy or programme planning cycle. Similarly, the distinction between 'effectiveness' and 'efficacy' is not always made explicit, even though it does draw attention to the important discrepancy between achievements under the normal working conditions of a programme - 'effectiveness', and achievements theoretically possible under carefully controlled 'ideal' circumstances (Culyer, 1983; Jazairi, 1976).

43. The literature reveals two basic approaches to evaluation, firstly in terms of the various activities - or operations - which constitute the programme, and secondly, in terms of the outcome. Although it is generally agreed that outcome evaluation is more difficult to perform than operational evaluation, it is also recognized that it is often more important (Holland, 1983). There are two levels of outcome evaluation which are usually distinguished (Nord-Larsen, 1983):

a). evaluation of specific health programmes related to specified diagnoses or other health problems;

b). evaluation of health strategies or of diverse programmes made-up of several activities, such as PHC, in relation to non-specific diseases.

Clearly the scope and nature of the objectives which these two levels of evaluation address are somewhat different which, in turn, has a number of implications for the selection of relevant outcome indicators.

44. The distinction has been made explicit by some authors in the use of the terms 'effectiveness' and 'impact'. Recent initiatives by WHO (1985a), for example, link the term 'health effectiveness' with the evaluation of particular interventions affecting disease-specific morbidity, mortality and/or disability, and 'health impact' with the evaluation of national strategies for achieving 'Health for All' which affect the overall health status of the population. More usually the terms impact and effectiveness seem to be used synonymously, yet still acknowledging the two levels at which outcome evaluation may be carried out. Related to this, the term 'outcome' is sometimes broken down into 'impacts' and 'effects', with the latter more directly attributable to a specific programme, whilst the former represent the outcomes of a wide variety of processes, some of which are related to specific programmes. This latter question of multi-causality will be returned to shortly. Further confusion of terms and meanings also arises from the use of the expression 'health programme' to describe both a composite of several activities - including preventive and curative services, and a more disease-specific intervention, such as leprosy control.

45. Indicators of outcome from more or less specific health 'programmes' are usually grouped into what has come to be known as the '5Ds' - death, disease, disability, discomfort and dissatisfaction (Holland, 1983). The earlier discussion has revealed the diversification of outcome measures beyond traditional mortality and morbidity rates and the decreasing relevance of the former to many developed countries. This raises the important issue of the changing utility of particular outcome indicators over time and between countries (Siegmann, 1976).

46. It has been argued that in the context of the developing countries, mortality and morbidity indicators can infact be used to serve two masters - to assess the health status of the general population as an indication of impact of the overall health strategy and to evaluate a specific health intervention (Bergner, et al ,1976). Thus Siegmann (1976), for example, has argued that mortality and morbidity rates are sufficiently sensitive to reveal a change in health status to sanitarian and medical care technology in the short run, as well as to explain it. Siegmann links this with the high prevalence of infectious and acute diseases in the developing countries which are amenable to intervention, and thus health status is a direct outcome of a population having or not having access to prevention and/or treatment.

47. However, the earlier discussion (para. 40) stressed that health outcomes are not only influenced by the 'inputs' of health services but also by 'environmental' conditions and by the characteristics of the 'consumers'. This raises the problem of multi-causality in outcome evaluation, which has been considered in detail by many authors (Holland, 1983; Payne, 1985; Vallin and Lopez, 1985) and has important implications for the selection of indicators. Thus, for example, many factors are known to influence the maternal mortality rate besides the provision of health services, and a change in this rate could be equally attributable to these other factors. Unless some allowance can be made for these additional influences during the collection of information or

during the analysis, this indicator will not be sufficiently specific for the purposes of, say, the evaluation of ante-natal services.

48. The need to be able to control for these alternative influences introduces one of the reasons for the comparative neglect of outcome evaluation, namely the complex methodologies which are often required to disentangle the contributory processes. In the case of evaluating the effectiveness of specific interventions, the situation may be simpler since they tend to focus on one, or a few, well-defined diagnoses, in a well-defined target population, normally of a small size, and therefore the possibility of using a control group as a basis for evaluation is more realistic (Nord-Larsen, 1983). In contrast, assessing the impact of an overall health strategy or composite programme is more problematic. The approach frequently adopted relies on a comparison of indicators constructed from information gathered 'before and after' the strategy or programme was implemented, or by looking at temporal trends. However, all these approaches beg the question of the time-lag before an impact may be detected by the most sensitive indicator. This is often a particular problem at the sub-national level and thus also for the evaluation of a key component of 'Health for All' strategies, namely the reduction of differentials within the population.

49. The selection of sensitive outcome indicators and the appropriate methodologies for evaluation is influenced by the availability of existing data and the mechanisms for its collection. As Murnaghan (1981) has emphasized

> "one rarely goes out and collects indicators per se; rather one derives them from data series capable of providing overall rates and ratios and sub-classifications by age, sex, socio-economic group, geographical area, and so on".

Thus, the designers and users of indicators must come to terms with the practical aspects of information systems. However, although there is clearly an advantage to selecting indicators which may be constructed from existing (historical) data or data which is or can be collected through the existing information system, especially in the developing countries where resources are limited, for the purposes of evaluating impact this may not always be possible or appropriate. This not only relates to the question of the quality, availability, and the degree of detail of the existing information and sources, but also the 'populations' on which they are based. Thus, for example, the morbidity rates derived from routine reporting at a health facility for, say, EPI target diseases, obviously reflect only a proportion of all the cases in the community and therefore are not a good basis for establishing the impact of EPI.

50. The general importance of mutually-supportive sources of information becomes immediately apparent with the evaluation of the impact of health programmes. Here there is a need for data not only for the construction of the outcome measures themselves, but also for their intepretation (Haro, 1979). For instance, utilization statistics are important in establishing the effective catchment population to which health facility data refer. Similarly, information is needed to confirm that the programme being assessed is functioning and being used at the intended level (WHO, 1983a).

51. The existing sources of information which may be used to construct health status indicators generally include the following:

a). censuses and vital registration

b). routine health services reporting

c). epidemiologically surveillance

d). disease registers.

Obviously the availability and reliability of these sources varies considerably between settings. In the context of the developing countries, a major advantage is that they are intended to gather information on a regular basis and for purposes other than just impact evaluation. Thus, in theory, they represent a relatively low-cost and efficient means for constructing health status indicators. Similarly, these sources may be adapted or added-to in order to meet the information requirements of particular measures. However, in practice, as the four country studies will shortly demonstrate, these sources make up a far from adequate information 'system' and the need for extensive revisions is widely felt throughout the developing countries.

52. An alternative source of information for the construction of health status indicators are sample surveys. These provide an opportunity to gather data for the specific purpose or of specific relevance to impact evaluation. Although sample surveys are not usually carried out routinely as part of the government's statistical system and therefore do not provide continuous information, efforts are being made to strengthen country capability in this area, as will be discussed in the next section. One of the major advantages of sample surveys as regards the evaluation of impact is the opportunity provided for the construction of population-based measures (Kelman, 1976). As mentioned above, the problem of selectivity in the data reported from health facilities is often the principal drawback to this source. It must, however, be remembered that health-interview surveys and health facilities provide somewhat different types of morbidity information - the former based on self-assessment by the interviewees and the latter on assessments made and reported by health workers. Equally surveys can provide person-based measures rather than just episode-based. However, efforts to routinely collect information from the community are now being made in many developing counties as an integral part of PHC. Examples of these initiatives will be provided in the four country studies. However prior to this, consideration is given to some of the international and regional activities focusing on health status indicators.