

Can health transition research improve health?



Research to support partnerships for public health

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Health improves through social, cultural and material change in three broad and interacting domains: improvements in health care, including personal preventive services; choices of healthier ways of living, choices which are collective as well as individual; and progress towards healthier environments, including safer and more supportive environments. Health transition research has contributed greatly to our understanding of each of these and how they interact.

The institutions and practitioners of public health constitute the main institutional system through which society organizes deliberately for better health. The main way in which health transition research might contribute to society's deliberate efforts to improve population health is through informing the practice of the public health workforce: policy makers, planners and practitioners.

How well does health transition research contribute to public health practice, including policy making, planning, and program and service delivery? How might health transition research contribute more effectively to public health practice?

The epistemological assumptions of the empiricist research tradition, and in particular the vision of a singular truth, limit the wider application of health transition insights in public health practice. The vision of singular truth translates, in the minds of many public health practitioners and policy-makers, to an assumption that their knowledge has a privileged and universal status, the closest approximation to the truth so far achieved. This assumption is an obstacle to building the partnerships which are so critical for the achievement of better health. It is possible to produce knowledge which is constructed in the world view of the citizens and practitioners whose decisions and actions will create the conditions for better health. Such research, more particularistic, more action oriented, might contribute to a more open approach to the building of partnerships in settings of public health practice.

Dispersed agency

Public health practice is not simply a matter of 'implementing' the insights of health transition research (and similar insights with respect to the biomedical determinants of health and ill-health). The levers of change to which health transition research points are largely beyond the direct control of public health authorities.

Progress in each of the three domains listed (services, choices and environments) is produced through the striving and the interplay of different sets of agents. Improvements in health care, including improvements in personal preventive services, are shaped in some degree by the policy makers of public health; however, they are mainly achieved by the managers and practitioners of the health care system interacting with the choices of consumers and carers procuring particular services. Choices of healthier ways of living

likewise are informed by a range of educational activities, including those of the public health system. However, they are largely shaped by the concerns and deliberations of individuals, families, community organizations and social movements, not necessarily theorized in terms of achieving better health. Public health advocacy may contribute to progress towards healthier environments but much of the drive for such progress comes from people concerned in other sectors of social enterprise (transport, economics, agriculture) interacting with the strivings of citizenship manifest at various different levels.

Public health practice involves building partnerships with the other social agents who contribute to shaping the conditions for better health; partnerships with the managers and practitioners of the personal health care system; with personnel of such sectors as transport, economics, housing, urban development, food and agriculture; and with citizens, as individuals, families, community organizations and social movements.

Complexity theory provides a useful language for speaking about 'dispersed agency'. Complexity theory invites us to speak of society as a complex adaptive system, constituted by autonomous but interactive agents, responsive to, but not controlled by, what is happening elsewhere in the system (Waldrop 1992). Much of the work of public health is collaboration with the dispersed agents who contribute to better health, in particular, with health care practitioners, with the 'other sectors' and with citizens.

Different and incommensurable world views

The strivings of citizens and of institutional members of the 'other sectors' are generally not conceived in terms of achieving better health. The strivings of citizens are more likely to be construed in terms of the betterment of family members (looking after my nephew, helping a family member cope with stress) or in terms of religious duty or the achievement of better working conditions. Such projects are more likely to be 'theorized' in terms of the well-being of family members, doing the 'right thing' and getting a 'fair go', than in terms of an abstract quality called 'health'. The strivings of those in the 'other sectors' are likewise conceived in discourses which are peculiar to those other sectors: business (making better products and making profits); politics (implementing policies and getting re-elected); transport (improving the movement of people and goods); education (preparing children for the responsibilities and challenges of adulthood).

Traditional public health teaching recognizes the importance of these partnerships, although somewhat ambivalently, in the slogans of 'intersectoral collaboration', 'reorienting health services' and 'community involvement'. The concept of intersectoral collaboration refers to the challenge of working with other sectors for policy outcomes and program initiatives which will 'make healthy choices easier choices' and 'create more supportive environments'. However, such activities are often spoken of in terms of 'intersectoral advocacy', suggesting an underlying predisposition to tell 'them' what they should do, rather than opening a field of collaboration.

The slogan 'reorienting health services' foreshadows a situation where the managers and practitioners of health care are more conscious of the population health implications of their work and more confident in working in ways which are more compatible with this perspective. However, the slogan itself, 'reorienting health services', also suggests our primary concern is to tell the health care providers what to do rather than develop a more reciprocal collaboration. The slogan of 'community involvement' points to the need to build partnerships with the communities whose health is at stake. However, it leaves unanswered the question 'involvement on whose terms?'. The goals of public health practitioners in relation to the communities about whose health they are concerned are more often represented in terms of 'achieving behaviour change' than building partnerships. In some cases the project is cast as building partnerships in order to achieve behaviour change.

Singular truth and unproblematized power

One of the important limitations on the effectiveness of the institutions of public health has been in the handling of these partnerships. Further, the epistemological practices of empiricist research, including much health transition research, actually contribute to the barriers to more effective collaboration. In particular, the assumption of singular truth and the unproblematized deployment of power in the prosecution of that truth is a major barrier to the building of partnerships.

In the empiricist tradition researchers discover 'objective' truths, or they strive towards such truths. The empiricist works to build a God's-eye view of reality, a view of the situation as it might be seen from 'the outside'. But what if there is no outside, what if we are indelibly present in the field of which we speak? This kind of empiricism is based in the positivist epistemology which has characterized modernity. There is a singular reality which is theoretically knowable; some knowledges come closer to this singular truth than others and scientific method is the best pathway so far discovered for moving towards such truth. In this schema knowledge is conceived as 'representing' reality, bearing a correspondence relationship to 'things' in the real world. The corollary, that knowledge is somehow not of the real world, is clearly absurd but it is an assumption that has been sustained by the successes of reductionist science and technology. The recursive paradox, of knowledge having a material presence in the field of which it speaks, has been widely recognized as paradox but not taken seriously as requiring any rethinking of the empiricist paradigm.

The burden of singular truth

The possession of singular truth based on best method constitutes a burden upon the public health professional, a handicap which sometimes prevents one from hearing the knowledges which are created within different life worlds. The burden of knowing what is best for other people is a great responsibility; if what they say is inconsistent with what we know is best for them we must discount it, albeit with 'great respect'. Having the power to override other people's judgements is often treated as an unremarkable correlate of knowing the truth, indeed it seems that it is the truth which has the power, not the possessor.

The World Bank (1993) has a view that it knows what is best for people in developing countries. It is a view that is based on a vision of singular truth pursued through best method. The Bank no doubt sees the power of its proselytising as deriving from the power of its analysis, of its truth. However, if we put aside the Bank's assumption of its privileged access to truth, we may see the operations of power more starkly. The truth claims of the Bank and the immense resources which it is able to draw upon to promote its truth may both be seen as instruments of power.

Post-structuralism

Post-structuralist theory involves a number of epistemological shifts; for an introduction see Rosenau 1992. The first of these shifts is a reconception of reality as constructed in language, rather than language simply mediating transparently the truth about reality (de Saussure 1983). The second move is a recognition of knowledge as constructed within discourse, as made up of statements within conversations (Foucault 1972). These statements are seen as emanating from particular positions and settings and contain within them the echoes of earlier discourses. Treating knowledge as constructed in discourse allows us to recognize the presence of knowledge (and the knower) in the field of which it speaks, in the same way as comment-in-action constitutes part of the action on which it comments.

The third shift concerns how we approach the task of integrating different kinds of knowledge in the process of analysing our situation and planning what we shall do. In the

positivist tradition this is conceived as a project of integrating different knowledges into a wider and more general truth: ultimately, the grand unified theory of everything. Post-structuralism, by contrast, reconceives this integration of knowledges as a process of drawing eclectically from a multiplicity of partial and overlapping stories on the grounds of their usefulness for our particular purpose in this particular situation (Lyotard 1984). The epistemological relativism of post-structuralism recasts truth claims as strategies of power rather than truth being a 'natural' adjudicator between competing perspectives. The clearer recognition of power in the field of negotiation suggests the need for closer concern with the conditions in which shared truth is negotiated.

Agency

The concept of 'agency', the quality of being an agent, is useful in this context. The term focuses our attention on who will decide to act, who will choose to act. Caldwell's (1986) emphasis on female autonomy and political participation on the low-cost road to better health identifies the agents whose decisions and actions create the conditions for better health as the Keralite farmers, fisherfolk and traders, including in particular the Keralite women. The knowledge of the World Bank (1993) on the other hand is structured around the perspectives and choices of the Bank, around the agency of the Bank. Knowledges which are constructed around the perspectives and choices of the Keralite grandmothers are absent from the Bank's account of how health improves.

It would contribute usefully to public health practice if more researchers were to orient their research practice around the collaborative creation of knowledges which will inform the practice of the different agents whose decisions and actions shape the conditions for better health. In particular such research should contribute to the development of knowledges which are structured around the agency of those communities whose health it is. Collaborative action research is a research tradition which is quite explicitly cast around this project (McTaggart 1991).

If the legitimacy of different knowledges cast in terms of the life worlds of different agents were more widely recognized, public health people might feel less obliged to shape their partnerships according to the constraints of singular correct truth. We might also be more reflexive about the operations of power in our own conversations if we were less tied to our assumptions of privileged access to truth.

Rather than leading with our analysis and recommendations (both shaped by truth) we might open our negotiations by presenting our selves, our purposes and our projects. The process of building partnerships for better health might then be reconceived as starting with a small core of shared purpose and creating wider circles of common ground through progressively more effective cycles of collaboration.

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Health transition research, health policy and human welfare

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McNicoll (1995: 334) concluded that future historians would be 'unlikely to compliment the analytical skills and policy acumen of the present generation of social scientists in the population field', who may well be blamed for the long delay in attaining health and economic well-being in large areas of the world, and even for the 'massive squandering of the earth's environmental inheritance that marks our time'.

While this may be unduly pessimistic, there are problems which prevent social science research in health from being more useful. There are conceptual and institutional barriers to more useful research in health; the concept of 'health' is itself vague, and research institutions cause researchers to put the welfare of their own field before the welfare of humanity.

It is difficult to define 'health' and therefore identify the change over time that constitutes the 'health transition'. Reisman (1993) observed:

Equality in health is important. Sadly, it is also ambiguous: different people have in mind different things even when they employ the same words and phrases. If, therefore, the policy-maker is to take equality in health as an appropriate policy objective, he will clearly have to make it his business to decide what it is, precisely, that he is being sent forth to make more equal (Reisman 1993: 14).

'Health' is a vague concept with many dimensions. Focusing on different dimensions leads to different views on what researchers should do to produce useful knowledge about health by gathering data, measuring change, and drawing policy implications.

Caldwell's perspective on health and the health transition usually focuses on how individuals behave within households or local communities (Caldwell 1990: xiii). This perspective makes the historical course of the health transition a function of changing behaviour at the household level; progress is made when efficacious behaviour, which prevents disease or restores health, gradually replaces behaviour which is less helpful. Such a perspective attributes great importance to the history of literacy and education (especially among women). It also makes ordinary men and women into agents of the health transition, which is one way to increase the probability that research will stay focused on what needs to be done to improve their welfare.

Radical political perspectives on health focus on how people feel about the degree of control they have over their lives in general, not simply how they behave in the home. To feel powerless is to be unhealthy irrespective of other considerations (Wildavsky 1977; Kleinman 1995: 13). Biomedical definitions of health shift the focus to doctors; thus the health transition becomes a function of the kind of medical care people get from the scientifically trained as opposed to folk practitioners.

Macro approaches do not focus on individuals' behaviour or feelings or the treatments offered them. Epidemiology measures morbidity and the control of infectious diseases. From

this perspective the health transition becomes the epidemiological transition, and agency is vested in scientists and health professionals, not ordinary people or even ordinary medicine (Omran 1971; Horton 1995). Alternatively, human agency gets lost in a welter of theoretical confusion (see Krieger 1994). Demographic approaches to health focus, not surprisingly, on mortality and its measurement, as if longer-lived populations automatically become healthier populations (see Stolnitz 1991: 204-205). Economics disputes this by measuring the increasing costs of health care as mortality falls (see Riley 1990). Cultural approaches to explaining epidemiological and economic data stress the fact that interpretation requires more than literal understanding of trends. Instead, it is necessary to put all health-related data in a social and institutional context which explains how it is produced in a bureaucratic society by the individuals seeking help and those offering it. The cultural perspective also stresses the importance of changing values and attitudes among claimants, as well as the increased resources available in the form of sickness benefits (Johansson 1991).

Macro-political approaches to explaining health trends stress the entire political and economic environment nations provide for their citizens. From this macro-level perspective the health transition has been declared an 'embarrassing myth' (Kleinman 1995: 13), because the current global political environment is marred by 100 armed conflicts, 40 million displaced persons, and many more trapped in hopeless rural poverty. 'Health' remains a fundamentally vague concept. In contrast 'death' has only one literal meaning which is why 'mortality transition' means something to all scientists, whereas 'health transition' does not. And each of these radically different approaches to conceptualizing health has radically different implications for policy makers and what they should do to ensure progress in health-related human welfare.

But most social scientists who study health are not encouraged to invest time in basic conceptualization and the problems this raises for research and policy (Krieger 1994). It is important to have good data, and the latest methods are even more important. Nevertheless, as long as empirical research begins with conceptualization (as it must), finding more data or using better methods will never dispel social science controversy about what the health transition is, or when it began, or the extent to which it is or is not continuing (Johansson 1992).

Institutions, incentives and health research

Most formal research is academic in nature and it takes place within a system of separate fields: medicine, demography, sociology, economics, political science, anthropology. Each of these fields adopts a different view of what complex concepts like health or welfare mean in measurable terms. Individual scientists are rewarded for becoming experts in a specialized field and for gathering data using standardized methods in a conventional way, and are subtly discouraged from, and possibly punished for, asking questions about basic concepts. Within any particular field, academics who wish to be well regarded by their colleagues quickly learn that questioning the basics is not the road to success and happiness. Practitioners-in-training are taught that the established perspective is the only legitimate one.

This implies that alternative perspectives on health from other fields are either wrong, intellectually marginal, or illusory. Even in an interdisciplinary setting, rival experts sometimes treat each other with reciprocal disdain, ridiculing the assumptions, methods and data used by alternative perspectives. The end-product of this free market in academically produced, field-specific knowledge is a number of oversimplified answers to very complex policy problems.

In theory, free markets are supposed to produce better products for potential consumers. But given the profound information asymmetry between experts and non-experts, doing more research does not necessarily mean producing more useful knowledge. The consumers of

specialized knowledge do not necessarily know what kind of information they need to solve some real-world problem, and they may not be able to impartially evaluate an oversimplified perspective that looks attractive. Since the debates between experts never seem to get resolved, uncertainty remains high among the less expert. In effect, policy makers are forced to choose between a range of oversimplified answers provided by competing experts. As consumers they tend to reduce their uncertainty by 'buying' the first explanation that seems to provide some all-purpose answer to a complex problem (Johansson 1994).

Academics and health professionals involved in the movement to improve child health are acutely aware that unregulated competition between researchers harms human welfare. Worthman (1995: 10) describes ethno-pediatricians as believing that 'programmatic efforts to improve outcomes for children have been hampered by conceptual polarities and bureaucratic exigencies' so that children's needs with respect to health are 'balkanized' among competing disciplines and agencies.

Making research serve human welfare

How can research be improved to serve human welfare more effectively than it serves the welfare of specific academic fields, and thus the experts who populate those fields? Scientific, institutional and ethical reforms are all equally necessary. Scientific reforms include refusing to treat complex, socially constructed systems as if they were just like much simpler, naturally constructed systems. The scientific foundations for studying complex systems are being laid in this generation, and a discussion of their methodological implications for the social sciences can be found elsewhere (Johansson, forthcoming). But accepting complexity is consistent with the idea that 'health' has no single definition because it is at once biological, medical and political, economic, social and cultural. Which aspect of health is most important for solving a particular problem depends on the context in which a health problem appears. Some are best approached from a biomedical perspective and others from a political, economic or cultural perspective, but no one perspective excludes the others. All expert perspectives are relevant in some way to some specifically identified problem.

The substitution of complexity and its methods does not mean the end of specialization, but it does mean the end of the unregulated competition between specialists. At present, interdisciplinary research generally does not accomplish much, because the experts invited to co-operate have more to gain from competing with one another than from working together. In a new environment genuine co-operation would be supported and rewarded, not covertly discouraged. But even in difficult institutional conditions, field-specific experts have the ethical option to do what they can to produce welfare-enhancing knowledge, even at some cost to themselves.

One of the steps to constructing anything is deciding what should be constructed or torn down. This negotiation of what health policy should accomplish must necessarily proceed in value-laden terms, because it is about what we should or should not want for our own and others' bodies and minds. This implies that improving research means improving the ethical awareness of researchers. Very probably, social scientists need formal ethical training as much as they need training in quantitative methods. In the end, empirical research must fit concepts, data and methods to the requirements of a particular problem, not contort the problem to fit the skills of a particular expert, or the strengths of a particular field.

Such a novel approach to health transition research obviously requires giving up the idea that there is a single definition of health, one type of data that is most relevant, and one set of methods suitable for analysis. It may even require giving up the idea that experts, and only experts, should have control over asking the questions and providing the answers. Although radical health reformers may have become too negative about the value of expert knowledge

and quantitative data, they are surely right to stress the inclusion of ordinary people in the health policy process (see Rohde, Chatterjee and Morley 1993).

Solutions which look good in theory quickly become bad solutions when they are imposed by experts on resentful or suspicious people; research will not lead to health improvement unless the dialogue over what should be done includes the people who are affected, as well as the researchers who generate the knowledge and the decision makers who apply it.

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Can health transition research improve health? Biological models versus community studies.

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The literature on the universal improvement in human survival and health encompasses a wider diversity of views than is the case with attempts to account for fertility reductions. This is curious given the general belief that postponing death is largely a biological issue faced by us all, whereas the decision on the number of children is a process in which human cultural diversity and choice play a larger role. This diversity arises in mortality studies because we are dealing with the deeply entrenched views of the medical profession as well as those stemming from the social sciences. In the latter field, the prevailing thesis is the relatively minor importance of medical factors, at least in the historical period. In addition, it is clear now that the order of importance of the determinants of improved child survival in early twentieth century Europe is different from that in developing countries today. For example, vaccines make a huge contribution to preventing deaths from infectious disease today and were unimportant in the historical period. This is an uncomfortable observation since it suggests that we are far from equal in the face of illness and premature death.

McKeown (1976, 1983) was among the first to seriously question the previously dominant explanation: that medical science and medical services were responsible for the improvement in mortality in Europe at the beginning of the twentieth century. His thesis—that the changing virulence of harmful organisms, increasing human resistance due to improved nutrition and a more sanitary urban environment contributed more to mortality improvements in medicine—has been widely accepted in both medical and social science circles. Szreter (1988) took him to task for not giving enough credit to factors such as municipal ordinances on crowding, living conditions and of course the general improvement in urban water supplies and sewage disposal systems. Woods, Watterson and Woodward (1988, 1989) provided a body of empirical evidence in support of the ‘healthy towns’ hypothesis, adding to this the effect of nineteenth century declines in fertility. To some extent, these broader efforts to account for child survival improvements were obscured by more biological frameworks such as those produced by Mosley and Chen (1984). In these, the key proximate determinants are nutrition, environmental contamination, injury, maternal factors and personal illness control. With these competing explanations and a huge body of seemingly contradictory empirical and theoretical work on the topic, the definitive history of the reasons for the rise in the expectancy of life at birth still remains to be written.

In 1993, the World Bank chose health as the subject of its *World Development Report*. In this influential volume, the factors responsible for improving health were subsumed into three broad categories: income growth, incorporating improvements in housing, improved nutrition and greater use of health care; medical technology, including better treatment systems as well as new drugs and vaccines; and public health measures such as the urban infrastructure, water, primary health care facilities as well as rising levels of education (World Bank, 1993: 34-36).

These are broad categories but they have the merit of being both comprehensive and capable of empirical evaluation. Indeed, the *World Development Report* contains some rough estimates of the contribution of each of these clusters of variables to mortality decline in Costa Rica, Egypt, Ivory Coast and Japan (p. 39). The surprising conclusion is that their proportional contributions are very different: two-thirds of the improvements from 1960 to 1987 being attributed to rising education in Ivory Coast, whereas in Egypt half of the

improvement is attributed to increase in per capita income. Is every case different or is there something wrong with our measurement tools?

One thing we are learning about health transitions is that mortality and sickness, like fertility, are socially circumscribed conditions subject to various interpretation in different contexts; see Blaxter (1990) on the variety of definitions of health and Sontag (1978) for an even more culturally-based interpretation of health. We have some societies in which stoicism in the face of illness is the norm and illness is a shameful condition, the Bambara of Mali being a good example. In other populations, such as our own, discussion of our maladies is socially more acceptable. Naturally, these different social definitions of illness lead to very different conclusions from morbidity surveys in different populations using the same survey instrument.

We can accept that broad social and economic development may well contribute more to good health than medicine, especially in countries where good medical services are in short supply. It is the next step which is proving most difficult. Are we prepared to go the final yard and argue that the diversity we observe in health and mortality levels is largely the result of household-level factors rather than the social and economic setting which surrounds these households? This must be the conclusion from studies which show the nearly universal positive association between child mortality and the education of parents. Clearly, the economic system has to be strong enough to produce schools and teachers but there remains the question of the acceptability of sending children, especially girls, to school in the first place and of keeping them there.

The evidence on the importance of certain household management arrangements for health and survival is now piling up. Last (1992) has some original ideas based on field work in Hausaland which bring out the importance of extreme experiences of individuals in shaping household strategies for dealing with health and disease. Rose (1992), an epidemiologist, stressed the key role of the tail of the distributions for understanding population-level changes in health and mortality. The work by Das Gupta (1990) on the clustering of deaths in certain families is well known. More recent work illustrating the confounding role of fertility on child survival by Zaba and David (1994) is important in understanding heterogeneity in child mortality at the level of the family. Castle (1992) has generated a mass of individual case studies which collectively demonstrate that the position of the women within the household is the key factor in the identification and treatment of illness. The argument has been broadened to contrast natal and marital obligations with the role of life cycle effects in determining the individual woman's status within the household (Adams and Castle 1994). Bledsoe, Hill and others conclude that in The Gambia, the health and survival of the children are of secondary importance to the demonstration of a wife's loyalty and commitment to her husband by getting pregnant at decent intervals and at times demanded by the husband and his kin (Bledsoe et al. 1994; Bledsoe and Hill 1994). These are only tiny samplings from the burgeoning literature on the role of household level factors in the mortality transition but they are seedlings from which new branches of theory will surely emerge.

The reason why new theory is needed is illustrated by the unsatisfactory nature of attempts to account for mortality decline and health improvements at the national level. The work by Pison and colleagues (1993, 1995) provides a good example of the frustrations of finding satisfactory explanations, even where data are quite rich, in non-experimental situations. Recent work by Hill and MacLeod in The Gambia and by Hill and Chen in Oman, using a variety of quite detailed information on mortality, health and some immediate co-variates, also point to the key information we lack.

We badly need reports from within communities and households about the nature of the changes taking place in attitudes and behaviour (Basu 1995). These will supplement the macro-level information on income growth, medical technology and public health (to use the

World Bank categories) in society at large. At present, we have one group insisting that only the results from randomized, double-blind, placebo-controlled trials are convincing and another whose standards of proof are quite different. Leaving aside the theoretical anthropologists whose goals are not 'explanation' in the usual scientific sense of the word, there are still fundamental disagreements amongst the remainder.

Much will depend on the nature of evidence and what each research school will accept as convincing proof (Hill, forthcoming). The randomized trial community does not have a monopoly on the truth. There is always a gap in the child mortality reductions we can realistically anticipate in true community-based interventions in developing countries when compared with reductions achieved by single-factor interventions in experimental conditions, usually with non-native technical and financial support.

The integration between the two levels of factors affecting health and welfare—the macro-economic, social and epidemiological versus the household level—seems to be the missing link at present. It is unfortunate that the two groups are divided by separate methodologies and to a certain extent, by different theories. But working out how to combine these several traditions must surely be the substance of the future research agenda for work on health transitions worldwide.

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Health transition research and the adoption of innovation

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If health transition (or any other) research is to improve health, it must at least be adopted by those in a position to make use of it. That is to say, it must first be adopted by those who make policy at either a governmental or local institutional level. But while adoption may be a necessary condition, it is not sufficient for health to be improved. That will depend upon implementation and, of course, whether the research was valid in the first place. In this brief contribution we shall deal only with the adoption process and draw from our own work examples of where adoption has occurred and (the more usual experience) where it has not.

Recasting the issue in this way, as a question about the adoption of research findings rather than about the ultimate impact of the research on measurable health outcomes, turns it into a question about the diffusion of innovation: what are the conditions under which new research will be adopted by organizations and/or individuals? For only after an innovation has been adopted does the next step, its measurable impact on a population, become relevant.

Classical diffusion theory dealt primarily with individuals — with farmers adopting hybrid seeds, doctors adopting a new antibiotic, and women adopting new contraceptive methods, for instance — not with organizations such as hospitals or health departments. Policy is made in organizations, however, and it is the adoption of innovations (research findings) in organizations on which we shall focus.

High and low-risk innovations

Innovations may be usefully classified as high and low-risk. Low-risk innovations are those which are compatible with the pre-existing values of an individual or organization, or with professional norms, and which are not highly visible to the public. High-risk innovations are none of these. Greer (1977: 505) has observed

that professional norms which reward innovation, coupled with a desire of professionals to achieve professional esteem, result in predictable adoption by professionals of low risk innovations. Innovations which depart from professional norms or promise to be disruptive to community or professional relationships are more difficult to predict.

In our early work on alcohol use and abuse among American Indians we observed that very different styles characterized the behaviour of Navajo and Hopi Indians. Navajos engaged in public peer-group drinking to enhance male group solidarity and feelings of personal power. Group pressures to drink were more influential than the unpleasant experience of drinking after the ingestion of disulfiram (Antabuse). Because this form of drinking was proper, Navajo men did not respond well to group confessionals such as Alcoholics Anonymous (AA) which emphasized the impropriety of the behaviour and implied that something is defective about the person who drinks in this manner.

Hopi drinking styles contrasted vividly with those of the Navajos and many other tribes. Outwardly the Hopi appeared sober, and problem drinkers were often found in off-reservation towns. Yet at the time of our work in the mid-1960s, Hopis had the highest mortality rates from alcoholic cirrhosis of all tribes for which we could obtain data. Drinking in the Hopi villages was steady, excessive, and secretive. Alcoholics Anonymous methods had notoriously poor results since public identification of the alcoholic led to ostracism and ultimate expulsion from the village.

We recommended that considerable support be given to research to identify different drinking styles and motivations and to the design of programs congenial to the needs of each tribe. We also suggested that several treatment modes be tested in each program and that an ongoing program evaluation procedure be instituted to determine which methods achieved the most success (Levy and Kunitz 1981: 66-67).

None of these recommendations was adopted. Alcohol abuse was treated as a unitary phenomenon with common causes wherever it was found. This view was inculcated in the training program for Indian alcoholism counsellors and was at the time the dominant professional paradigm. Moreover, evaluation was threatening, especially in a context where program funding was thought to be insecure, and where the providers of care were insecure in their new roles and unsure of themselves. In such conditions, a widely accepted professional paradigm provided much needed security. Clearly, our recommendations would have been a high-risk innovation, and it is not a surprise that they were not adopted.

More recently one of us has published data on the comparative life expectancies of indigenous peoples in the United States, Canada, New Zealand, and Australia (Kunitz 1994). Australian Aboriginal life expectancy is far lower than that of the indigenous peoples in the other countries, and it was suggested that the reason had to do in large part with the relatively weak role of the Commonwealth government in Aboriginal affairs, with the inadequacy of the health services provided to Aborigines, and with the instability of funding of Aboriginal medical programs (Kunitz and Brady, in press).

These observations have been used by Aboriginal health activists and others to support the assumption of greater responsibility for health by the Commonwealth government as well as the transfer of responsibility for health services from the Aboriginal and Torres Strait Islander Commission (ATSIC) to the Commonwealth Department of Human Services and

Health. In fact, shortly after the publication of these data, responsibility for Aboriginal health was transferred from ATSIC to the Department of Health.

The findings on life expectancy have been widely cited and their interpretation widely adopted. This happened because they were congruent with what many Aboriginal health activists and Commonwealth bureaucrats already believed; they were not threatening or high risk; and they merely gave support to activities already under way. That is to say, in this instance research findings were adopted because they were of a piece with what the professionals in the field already wanted to do. The research was not responsible for the institutional changes that have occurred.

Slack resources

Among the factors most often cited as required for the adoption of innovations in organizations are slack resources, 'resources not required for ongoing operations or pressing problems' (Greer 1977: 520). Clearly, even if an innovation is regarded as desirable by the professionals who control an organization, the absence of slack resources will make its adoption unlikely.

In a study of the health of elderly Navajo Indians, we observed that despite ideological statements concerning the existence of the extended family and its ability to care for elderly members, there were many elderly people who required institutional support, including residence in a nursing home or other extended care facility (Kunitz and Levy 1991). The Indian Health Service, a division of the US Public Health Service which provides health care to Indians, has had a history of providing primary, secondary, and tertiary care, but nursing home services have never been provided. To the extent that they are provided at all, they tend to be under the jurisdiction of states in which reservations are located, or of tribal governments. Nursing home beds are not widely available on Indian reservations, and payment mechanisms make it difficult to gain access to those that do exist.

Indian Health Service hospitals have relatively low occupancy rates, and we urged that some of the unused acute care beds be converted to extended care beds. The suggestion has never been implemented, not because the care of the elderly is not regarded as significant, and not because the IHS does not perceive a problem to exist, but because in the face of increasing budget constraints it is impossible to redirect funds from ongoing operations to new responsibilities, no matter how important they may be.

Political power

Organizations are not homogeneous, and within them there may be numerous centres both advocating and resisting change. In the late 1950s and early 1960s, shortly after responsibility for Indian health was transferred from the Bureau of Indian Affairs (within the Department of the Interior) to the US Public Health Service (within what was then the Department of Health, Education, and Welfare), the leadership of the Indian Health Service developed collaborative arrangements with several schools of public health to do applied research on a variety of ways to improve the health of Indian people. Two projects were located on the Navajo Reservation. One was the Cornell Many-Farms Project, the other was the Berkeley Health Education Project, of which one of us (Levy) was the staff anthropologist.

Both projects were concerned with training Navajos to assume increasing responsibility for delivering appropriate care within the Indian Health Service bureaucracy. After the training period was over, the new professionals were to be given jobs that would allow them to exercise and develop their new skills. The Cornell project trained Health Visitors, women and men qualified to provide both diagnostic and therapeutic services in patients' homes, often after consultation with a physician by two-way radio. The Berkeley project trained

Community Health Education Specialists and Health Education Aides, who understood both Navajo and Anglo-American conceptions of health and illness and were able to translate between them. After the Berkeley project came to an end, its work on problems of medical interpreting was used in a pilot Medical Interpreter Training School which recommended placing one trained medical interpreter in each hospital on the Navajo reservation.

In the event, the Health Visitors were never employed in the capacity for which they had been trained. Instead they were employed as Field Health Nursing Aides and Driver-Interpreters, the equivalents of licensed practical nurses (Adair and Deuschle 1970). The position of Medical Interpreter was never established and the one highly proficient interpreter from the pilot project was hired as a Health Education Aide (Kunitz and Levy, in press; Levy 1988). The health education aides and specialists were hired in these previously recognized civil service positions but were never encouraged to develop creative activities on their own. In each case it was resistance from established professionals, particularly public health nurses, which assured the failure of these innovations. The nurses felt threatened by the expertise and potential autonomy of the new workers and saw to it that they could never work in the semi-independent roles for which they had been trained.

Conclusions

In the settings in which we have worked it is common for researchers to be blamed for doing irrelevant work that is never translated into policies and practices. These few examples suggest that there are numerous impediments to the adoption by providers of the results of health care research relevant to their work, no matter how much researchers themselves may advocate for the utility of their findings. Indeed, we have given examples of only a few of the sources of resistance. High job mobility, genuine lack of interest in doing a better job, unwillingness to read material made available by researchers, a conviction that everything that needs to be known is already known: all play a role as well. Not least, if the researchers are white Americans or Europeans and those providing and benefiting from services are non-white and non-American or non-European, a whole additional dimension of race and anti-colonial resentment comes into play. The importance of these factors cannot be overestimated. Considering all the actual and potential sources of resistance to innovative research findings, the wonder is not that so few are adopted, but that so many are. When it does happen, as our experience suggests, it is not necessarily due to the power of the ideas or the elegance of the work, but because the research legitimates what the policy makers and providers of services wanted to do anyway.

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Does health transition research improve health?

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Whether health transition research can generate improvements in health depends on many factors, not least of which is the nature of the research findings themselves. If the findings can generate specific programmatic recommendations, then it is likely that health transition research can lead to improved health. But the effect of the research on health also depends on the application of the research results. They must be disseminated in ways that people understand, so that they can have the opportunity to change behaviour; or the findings must be integrated into programs of specific activities which are designed to improve health. Thus, from research to health requires at least two things: good research and good application. In the end, the connections may be blurred and indistinct, as the research finds its way into a multitude of programs or activities, so it may not be obvious that a particular research finding was involved in the chain of actions leading to improved health.

Then, too, whether health transition research makes a difference depends on the specific findings regarding the attitudinal, behavioural, or social contexts of improved health behaviour. Though we may seek clarity on these contexts, such clarity may elude even the best researchers. For years we have been trying to understand just why education has such a salubrious effect on life. There are many hypotheses: the content of schooling, the discipline of schooling, the mastery of reading and writing skills, the access to improved jobs and income, changes in self-control or self-esteem, changes in specific health-related behaviour. Researchers have been examining these hypotheses for years, and we are perhaps closer now to understanding the effect of education on health, namely that it is complex, and involves elements of each of the factors named above. But what have we done with these results? To affect health, findings on the attitudinal and behavioural consequences of education need to be reflected in decisions regarding educational reform and financing, and in programs to extend these educational benefits to more people; with a great deal of patience to await the changes in attitudes and behaviour. Also needed is a broad perspective on health and health programs, one which gives legitimate space to claims for health programs to include educational programs, and vice versa.

Thus, to affect health, health transition research needs to be conducted in an atmosphere of collaboration: collaboration between researchers and program decision-makers, between proponents of health, education, or other development programs, between the researchers and the communities seeking a change to health. Such collaborations do not spring into existence easily, but take years of work together to understand each other's perspectives and to develop enough trust to enable collaboration in planning and decision-making.

Over the last five years, a group of us in Mali have been working together to understand the population and health consequences of multi-sector community development projects. The collaboration, between the communities of Kolondieba, Save the Children (US), CERPOD (Sahel Institute), and Columbia University, has not been easy to nurse, given the different interests of each of the partners. The community would like to see the results of the

research faster, Save the Children would like to have more training and involvement of their staff in the research process, CERPOD would like to have cleaner demographic and health data, and Columbia would like to see more cross-linkages and qualitative studies. Despite these different attitudes, however, we are starting to see what is going on in the programs, which in turn helps guide the programs to have a stronger, positive effect on health. In the first couple of years, we identified problems in the health monitoring system that led to incorrect registration of migrations and of marriages, both with consequences for maintaining an accurate count of the population. We also learned that we needed to keep better records of program participation and activities if we were to link the program activities with health consequences. Steps were taken to correct both deficiencies in the monitoring system. Now, over five years into the collaboration, we are much better able to control for specific program interventions.

Data from the census conducted in 1993 five years after initiation of the Save the Children program show that the mothers who know how to read and write their names in Bambara, the local language, have had a lower child mortality rate (under five) than mothers who do not know how to read or write. Women who had no literacy skills had lost 25.8 per cent of their children born in the previous five years, whereas those who had some literacy skills in any language had lost only 18 per cent of their children. Aware that women's behaviour is also influenced by their family or community situation, we also looked at child mortality levels by family and community. Regression analyses of factors affecting the child mortality rate showed that women living in households with other literate individuals also have lower child mortality, even if they themselves do not know how to read. Further, women who live in villages with literacy programs also have lower child mortality levels, whether or not they can read or write. Women in villages with no Save the Children literacy programs had experienced the death of 25.4 per cent of their recent births, compared to 15.6 per cent for women living in villages where the literacy programs were started five years earlier.

When we began to observe these results, we conducted focus groups among women in the literacy programs in one of the pilot villages where these programs had been in operation for a couple of years. We learned that the women in the literacy course took notes of the presentations made by the village health worker. They said that when their children fell sick, they would go to their notes and see what they should do. Instead of watching their sick children helplessly, they felt able to care for them. When we talked with the women who were not in the course, we learned that they relied on the women in the literacy course for help. When their own children fell sick, they would go to ask one of the women in the literacy course for advice on what to do. Thus, the literacy course had facilitated learning of new health care behaviour, both among the women in the course and among their friends and family.

The impact of this research on the health transition had been expedited through program review and modification. Through regular feedback of monitoring and research results to the staff of Save the Children, the results have been used to further extend the effect of literacy courses on health. The literacy program has taken several steps to increase the health consequences identified with the results in the pilot village. First, the literacy program has explicitly incorporated health messages into the presentation of the Bambara alphabet and words. Second, the staff have developed a process to establish women-only literacy training centres, to enable more women to gain literacy skills. Third, they have developed a process to establish village schools, which are community-built and community-taught. At these schools, children learn to read along with health messages, and are encouraged to share these messages with their siblings and family. Fourth, the credit and literacy programs have established an explicit partnership, whereby women participating in the savings and loan program also have health education sessions.

We still do not understand exactly what the women do when they say they are following the notes from the village health worker. When we know more about the specific behaviour, we may be able to foster this behaviour explicitly through other programs, such as the credit program. What is most exciting, however, is that despite all the difficulties we have faced in keeping the research going, we all agree that the research is making a difference, that it is contributing to our understanding of how to mobilize for better health.

Can health transition research in Nigeria improve health ?

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The advent of the Church Missionary Society in Nigeria towards the end of the first half of the nineteenth century marked the beginning of modern scientific medicine (Schram 1971, 1980); and Western scientific medicine came as a further alternative to the several existing indigenous systems of medicine (Orley 1980). The establishment of colonial government, however, meant that most modern health care was provided by the government, the Christian medical missions, and a small proportion by independent private medical practice (Lucas, 1980).

The emergence of the African syncretic churches which possibly now account for nearly one-half of all Christians in southern Nigeria, led to the emergence of faith-healing Christian churches, thus providing three distinct sources of health care providers: modern medicine, traditional health care, and faith-healing, which are often sought concurrently and sequentially depending on the nature of illness.

The distribution of medical care and curative health services during the colonial era, as well as at independence, was uneven with heavy concentrations in the capital and in large urban centres to the detriment of the rural areas where most people live (Orubuloye and Caldwell 1975; Lucas 1980; Orubuloye and Oyeneye 1982). Most government hospitals during the colonial era and shortly after independence provided special facilities for civil servants and their families, while the Christian medical missions provided hospital and community care for the most needy; and their programs were sometimes linked to their more vigorous activities in education (Lucas 1980).

Government hospitals were generally free of charge for the civil servants and their families, while the Christian medical missions operated a flexible pricing policy for their members. Nevertheless, since 1946, health planning has featured prominently in all the National Development Plans in Nigeria. The various pre- and post-independence plans centred around the provision of adequate pure water for everyone; progressive building up of environmental hygiene; and the expansion of hospitals, maternity, and child welfare and dispensary services, coupled with rigorous campaigns of preventive medicine (Nigeria, 1940-56; 1962-68; 1970-74; 1975-80; 1981-85). In keeping with the philosophies adopted by the plans, modern health facilities were expanded and treatment at public health facilities was until 1984 free for those under 18 and all government workers and their families, and highly subsidized for the rest of the population.

The modern health system in rural Nigeria is largely a government one, with a health centre or small hospital in each local Local Government Area headquarters, staffed by at least one trained doctor as well as nurses and a compounder. In the nearest large town there is likely to be a larger government hospital as well as a number of private doctors and clinics (Orubuloye et al. 1991:197). Nearly all the major towns have at least a specialist hospital or a teaching hospital supported by grants from the federal or state governments. The prosperous

oil boom years which began shortly after the end of the Nigerian civil war in 1970 coincided with a rapid expansion in the health facilities, as well as in the educational and other social services. Every bed in government hospitals was filled, and there were long queues at the Outpatient departments. In this period there was a rapid decline in infant and childhood mortality associated primarily with the provision of health facilities and expansion in female education (Orubuloye and Caldwell 1975; Caldwell 1979).

Partly because of the existence of several systems of health care side by side, and the apparent uneven distribution of modern health facilities in Nigeria, much of the earlier social science health research in the 1970s and 1980s concentrated on health attitudes and the treatment systems adopted: modern medicine, traditional healers, home remedies or faith-healing churches; or on the degree of access to health facilities (Caldwell 1994). One of the earlier efforts was the research conducted in 1974 in southwest Nigeria on the effect of public health services on child mortality (Orubuloye 1974), which showed that, when modern health facilities were available, most people used them; and there were significant differences in child mortality by availability and use of health facilities, and education of mothers (Orubuloye and Caldwell 1975). Subsequent studies by Egunjobi (1983) in a northern part of Oyo, Stock (1983) in Hadejia in northern Nigeria, Okafor (1984) in rural Bendel state, and Adedoyin and Watts (1989) in an indigenous area of the city of Ilorin, confirmed the effects of accessibility and ability to pay as major determinants of greater use of modern health facilities and improvement in health conditions.

The determinants of pattern and degree of use of health services have also received some attention (Ademuwagun 1977:899); while the characteristics of patients of spiritual healing homes and traditional doctors, and the factors which influenced their choice of health care providers, were examined in response to their growing importance in the Nigerian health care system (Uyanga 1979). The cultural context of the decisions to use modern or traditional treatment also received a great deal of attention.

Various stages involved in health-seeking have also been examined (Igun 1979). In a study of the response of parents to childhood diseases in a Nigerian Yoruba community, Adetunji (1991) showed that mothers used alternative sources of health care rather than hospitals, clinics and maternity centres. The alternative sources were patent medicine stores where there were personal relationships between the clients and the shopkeepers, free consultation and flexible pricing. The study also showed that parents' location, access to good advisers, the perceived seriousness of the sickness and the religious beliefs of mothers were important determinants of their responses, while avoidance of blame was a major motivating force in parents' search for health care. The study was undertaken in late 1988 and early 1989, when the Structural Adjustment Program had been in place for about three years, and the effect on health treatment was gradually becoming apparent.

Nigerian society has changed from what it was during the oil boom years of the 1970s. The greatest changes have occurred in the area of health care. The charging for health services from 1984 is a major departure from the welfare philosophies of the colonial and post-independence eras. The collapse of high export prices for petroleum, which accounts for 95 per cent of the nation's gross national product, and the introduction of the economic structural adjustment to meet the difficulties created by the end of the oil boom are important changes in recent times. The Nigerian currency unit, the Naira, was worth US\$1 before the 1987 float, but has now sunk to about one US cent. The floating of the Naira compounded the economic problem and made health treatment compete with other personal and family costs as the cost of medicine rose sharply with other prices. In the first five years of the Structural Adjustment Program, 1986-1990, government allocation of resources to the health sector dwindled rapidly (Popoola 1993).

Health transition research in Nigeria

By 1991, when the Nigerian Health Transition Research Program began, most government hospitals were almost deserted; the number of people attending them dwindled rapidly, partly because of the expense of treatment caused by the imposition of charges and a move towards selling prescribed medicines at market prices, and partly because most government hospitals have been reduced to mere consulting clinics for lack of equipment and drugs. Many patients were attempting home cures or had turned to the traditional medical system or to the faith-healing churches (Orubuloye et al. 1991).

The Nigerian Health Transition studies undertaken between 1991 and 1994 have shown that the majority of mothers and their children suffered from a wide range of minor and often ill-defined complaints, and health care was sought from several types of health care provider concurrently and sequentially, and the various types of health care providers were seen as complementary rather than conflicting. Although many women sought treatment from modern health care providers at the onset of illness, a significant proportion used home or self treatment. The proportion using home treatment and faith healing was higher than that reported from any previous health-seeking studies in recent years.

Generally, there was the tendency for health-seekers to shift from one type of health-care system to another in the course of an illness, and there was a distinct difference in health seeking behaviour between urban and rural populations. Most respondents in the urban area moved from home or self treatment to hospital treatment as their illnesses progressed, while rural respondents tended to use a combination of hospital treatment, and medicine purchased from patent medicine stores or hawkers of modern medicine. Only a few respondents took their children back for treatment at the government hospital or private clinics after the first round of treatment. Most mothers failed to return because of the additional cost of treatment, so they resorted to home treatment with herbal preparations or medicine bought from chemists or hawkers. This has been a major source of complaint among the health care providers. Even when patients are given specific instructions to report back to the health care providers after a treatment regime, they hardly ever do so because of the additional costs that may be involved.

Perhaps the central findings from the research are the association between making decisions about treatment and paying for it, and the association between paying for treatment and the cost. When decisions were made by the women about their own treatment or that of their children, the women invariably paid for such treatment. However, when the cost was high, the husband paid a substantial part of it. There was a substantial delay in taking treatment decisions, mainly because of the cost, and foster-children were at a disadvantage.

Contrary to expectation and the existing body of knowledge on health-seeking behaviour in developing countries, the education of mothers appeared to exert little influence on their health-seeking behaviour. In nearly all the analyses of treatment behaviour and costs there was no significant difference between women with no formal schooling and those with some schooling. The present difficulties arising from the measures to redress the economic situation have probably had more effect on the educated mothers, who depended mainly on salaries or earnings from trading, and on their husbands' salaries and wages which were frequently in arrears for several months. Trading was at a low ebb, while farmers found it difficult to transport and sell their farm products. In addition, the real value of the earnings had declined, and was at variance with the costs of goods and services. The imposition of charges for government health and other social services, and a move toward selling prescribed medicines at market prices had created an extra burden on the educated mothers who were already accustomed to using modern health care providers. The burdens had become a matter for a great deal of discussion and complaint among women.

The Nigerian health transition studies were carried out at a time when the Structural Adjustment Program was firmly in place and its effect had become apparent in all aspects of life. Since the introduction of the program in 1986, the cost of treatment had risen excessively, and had become more difficult for many families to meet than had been the case for many decades. Certainly, the findings of the research have several implications for health improvement through the adoption of appropriate intervention strategies. We now know that an increasing number of health-seekers are changing to less efficient alternative systems of health care that provide free consultation and flexible pricing systems, while more families than before are carrying the burden of health care. The poor are increasingly finding it difficult to meet the high health costs.

The present state of the health care system and the poor responses to illness may have temporarily halted the improvements which had been achieved in morbidity and mortality before the introduction of SAP. There are now apprehensions of a general rise in the level of morbidity and infant and child mortality (Orubuloye, 1994): a major concern for many families and the health care providers.

Can health transition research improve health ?

Certainly, health transition research can lead to health improvement if intervention programs are broadly aimed at easing the burden created by the current economic difficulties. Possible intervention strategies are:

1. The establishment of a flexible pricing policy which will enable health seekers to pay for treatment in instalments, in cash or in kind. This policy will be consonant with the health care philosophy of the Christian medical missions, faith healing churches and traditional health care providers. The flexible pricing scheme has already been established through personal relationships between health-seekers and the owners of the medical stores in one Nigerian community (Adetunji 1991). Several private hospitals and clinics are already operating a flexible pricing system that enables the poor to use their services.

2. Community participation is an essential aspect of a good health care delivery system. Before the oil boom of the 1970s, several communities built and managed their own hospitals and clinics, as well as their educational institutions. These health institutions which were taken over by governments as the policy of free health services during the oil-boom era could be returned to the communities that originally owned them for their management, as has been done with Christian mission hospitals and clinics. The communities would set up appropriate, less complex, systems of managing the health institutions in their best interest. Community participation will guarantee easy access to health care and minimize the high level of bureaucratization of the government health system.

3. The third policy option is the setting up of a National Health Insurance Scheme. The federal government of Nigeria has recently announced a proposal to set up such a scheme as a complementary source of financing the existing health services. The scheme will make it mandatory for the public to pay a premium that will ensure that health services are readily available and acceptable. A fundamental problem for the government is that of people who do not earn salaries or wages from the private and public sectors of the economy. The majority of the most needy people are not in any wage employment that could facilitate a reliable check off system for financing the scheme. Given the low rate of success of other similar welfare schemes in Nigeria, such as the housing and transport schemes, it would require a high degree of dedication and political will for the program to have any desirable effect on the health care system.

4. The health care of disadvantaged groups such as foster-children could be managed through the enhancement of female education and the provision of employment opportunities

for mothers. These would guarantee women's greater autonomy, and ability to take treatment decisions on their own, and inevitably reduce the number of children available for fostering.

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Can health transition research improve health? Evidence from Sri Lanka¹

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In my work I have focused on understanding mortality and morbidity change in Sri Lanka through analysing what Caldwell calls the health transition, the social, cultural and behavioural determinants of health (for a more detailed discussion on Sri Lanka's health transition see Pieris 1994, 1995). I believe that this is an effective way of understanding health improvement in Sri Lanka and in general, and must be important for informing policy makers on how to improve health.

Health improvements this century in Sri Lanka have been dramatic. At the beginning of the century mortality levels were little better than those of its South Asian neighbours; now Sri Lanka's mortality levels are among the lowest in the developing world. Life expectancy has doubled since 1901 from around 35 years to over 70 years (ESCAP 1976; UNDP 1995). These impressive figures are despite Sri Lanka still being a comparatively poor country with an annual per capita income of about US\$ 560 (UNDP 1995).

There are several important lessons from Sri Lanka in how health transition research can inform health policy. The first is that social, cultural and behavioural factors are vital to the success of health intervention. Sri Lankans made effective use of the new health services, because they were culturally well disposed to using health treatment, having long sought to treat disease; the difference being that in the past they had used indigenous medicine, now they use modern medicine as well as indigenous services. Indigenous notions of treatment emphasized the need for appropriate and timely treatment. Sri Lankans' use of modern health

¹ This paper is based on the data from the Sri Lankan Demographic Change Project carried out during 1985-1987 as a collaborative project between the Department of Demography, the Australian National University and the Demographic Training and Research Unit, University of Colombo, Sri Lanka.

services did not mean that they understood and accepted the theoretical basis of Western medicine. They continued to hold indigenous notions of disease and illness causation but the indigenous belief system was able to accommodate and incorporate Western health services, to the point where most treatment involves Western medicine.

Behavioural factors were also important for the effective use of services provided by the new health systems. Women, as well as men, could take the initiative in seeking health services for their children; indeed a young mother would be regarded as derelict in her duty if she did not seek treatment for a sick child. A very important factor here is Sri Lanka's high levels of education which have had a surprisingly limited effect on cultural notions of illness and treatment but a major effect on health behaviour. Education appears to give people, particularly women, greater confidence in seeking health treatment and in using government services.

A second point that is demonstrated by the Sri Lankan case is the critical importance of the provision of effective health services that are easily accessible, affordable and, above all, which the community believes belongs to it. Even though Sri Lankans do not accept many of the notions underlying Western health they have been willing to use government health services because they recognize that the services are efficacious, and have the advantage over indigenous medical treatment of being quick: indigenous treatment was often a lengthy process. Services are provided even to the remotest areas. Services have always been free, or heavily subsidized, though government doctors are nowadays also allowed to provide private services. Finally, Sri Lankans accept the health services as their own, even though service providers are arrogant and uncommunicative particularly to poorer men and women. In field work it was found that even the poorest and least educated regularly used government health services. While government doctors may be perceived as rude, Sri Lankans retain a sense of control because they know that the services are theirs and they complain at once if the services are not adequately provided. Furthermore, they are able to change services, using private practitioners of Western medicine, and government and privately provided indigenous medicine.

An important point is that the provision of government health services has been driven by popular demand expressed through elected representatives. The creation of a comprehensive health system is linked to the introduction of internal self-rule in the early 1930s and independence in 1948. A consequence of this popular demand was that the government-funded services covered indigenous as well as Western medical practitioners. The causes of the popular interest in health were largely cultural and behavioural but they also reflected an early and largely successful instance of social engineering. The Donoughmore Commission, whose findings led to the introduction of self-rule, specifically recommended the implementation of universal franchise, stating that women were more sensitive to social issues including health (Government of Ceylon 1928).

What are the policy implications of health transition as applied to Sri Lanka? Sri Lanka demonstrates what can be achieved in a poor country through the provision of effective, efficient and equitable health services which emphasize the local supply of basic preventive and curative services. Its success has reflected the active interest and involvement of Sri Lankans for a host of reasons not all of which are replicable elsewhere, but should be harnessed when they exist. Where they do not, policy-makers should examine how similar outcomes can be brought about. For example, the Sri Lankan concept that health services belong to them has universal application though the means of bringing it about might differ. It indicates that political representativeness is a good thing though not all governments may be receptive to this message. A sense of ownership might also be brought about by greater community involvement in managing health services; Sri Lanka itself has not gone far in this respect, as health services tend to be run from the centre. A feeling of ownership has more to

do with the processes of democracy and a belief that good health is a universal right and its provision is a government obligation.

Similarly the ability of all family members including both men and women to seek health treatment has been critical in Sri Lanka. This has reflected historical social and behavioural factors deriving from the structure of the family, but has been augmented by high rates of female education. Other countries may lack Sri Lanka's historical basis for the involvement of all in the health seeking process but they should work to promote it, particularly by emphasizing such important factors as female education, and by designing their health systems to encourage the involvement of women.

One cautionary note should be made. There is increasing emphasis on the need to involve the private sector in health. While this has some benefits, perhaps in costs, certainly in offering greater choice and more responsive services, it can come at a price. As noted above, the success of Sri Lanka's health system has been based on the acceptance of the concept that health is a right of all and that governments have a responsibility in ensuring it. While better-off Sri Lankans do use private health services as an important and often preferred option, the poor are mostly restricted to the public system. Support for private health services should not come at the expense of the public system. Furthermore there are dangers in the worldwide trend towards the principle of 'user-pays'. If health services had been charged for in Sri Lanka they might not have been as successful as they were. Sri Lankans, though keen seekers of health treatment, are not wedded to modern health services. They will use those services which they can afford. If they cannot afford government health services they may well turn to alternatives which health specialists may not believe to be as effective.

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Health transition research in India can improve health¹

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There has been increasing evidence that the argument between those who explain improvements in health and mortality decline in terms of medical interventions and those who do so in terms of rising living standards is an essentially false dichotomy. The new evidence suggests that, in addition, there are powerful cultural, social and behavioural determinants of health which must be understood if the world is to achieve good health for all by the end of the present decade or even subsequently (Caldwell, 1990: ix).

The term 'health transition' is just a decade old. It was coined at a meeting of demographers, medical scientists and social scientists held in 1985 at Bellagio, Italy (Caldwell and Santow 1989: xiii). Since then considerable literature has been generated on the precise meaning of the term, yet there is no agreement among researchers about what it means.

It appears that the term 'health transition' is derived from earlier terms like demographic transition, fertility transition, mortality transition and epidemiological transition; let us examine briefly the relationship between them. Van de Walle (1990: xiv) suggested that transition of infant mortality from high to low levels could be an important part of health transition. The reasons for his suggestion are that

infant mortality is in general highly correlated with overall mortality, it is fairly easy to measure, and changes in infant mortality provide an unambiguous indicator that fundamental changes are taking place in the field of health (van de Walle 1990: xiv).

Suggesting that health transition can propel fertility transition, he added

On the face of it, in historical series, infant mortality declines look very much like marital fertility declines. Although levels are different from one population to another, for the same population pre-decline variations are minor, the decline of infant mortality seems to be generally steep and continuous, and there is a bottom level close to ten deaths per 1,000 births which marks the successful completion of the transition (van der Walle 1990: xiv).

It can be conceded that the transition of infant mortality from high to low levels can be an important part of health transition, that infant mortality is fairly easy to measure and that declines in infant mortality can lead to declines in fertility; but it is arguable whether infant mortality is highly correlated with overall mortality everywhere. That this is not so can be illustrated with the example of the state of Karnataka in India.

Table 1 presents data on infant mortality rates and crude death rates in selected years in the state of Karnataka. The infant mortality rate declined from 95 per 1,000 live births in 1971 to 67 in 1993: a decline of about 29 per cent. But the crude death rate declined from 13.1 per 1,000 population in 1970 to eight in 1993, a decline of about 39 per cent. Thus, the

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crude death rate declined at a much faster rate than the infant mortality rate. Although infant deaths are taken into account in computing the crude death rate, the causes of infant mortality and general mortality are different. Thus, infant mortality need not always be highly correlated with overall mortality, for one can decline at a much faster rate than the other.

Table 1
Infant mortality rate and crude death rate in selected years in the state of Karnataka

Year	Infant mortality rate	Crude death rate
1970	—	13.1
1971	95	—
1975	80	11.1
1980	71	9.6
1981	69	9.1
1982	65	9.2
1983	71	9.3
1984	74	9.6
1985	69	8.8
1986	74	8.7
1987	75	8.7
1988	74	8.8
1989	80	8.8
1990	71	8.1
1991	77	9.0
1992	73	8.5
1993	67	8.0

Source: *Newsletter* of the Registrar General's Office, Government of India.

Discussing the meaning of health transition, Palloni (1990: xvi-xvii) focused on mortality decline only, but he conceded that the term 'health transition' has implications for health also.

Cleland equated the term 'health transition' with epidemiological transition. He raised the question, 'Does the term "health transition" differ from "epidemiology transition"?' and answered as follows: 'I think not. Both are concerned with the distribution of death and disease among population groups; with their determinants and consequences; and with how these factors change over time' (Cleland, 1990: xviii). He continued:

what is new about the health transition project, as conceived by the Rockefeller Foundation and by the health transition centre at the Australian National University, is not a matter of formal definition but rather its emphasis on social, cultural and behavioural determinants of health (Cleland, 1990: xviii).

But health transition is a much broader concept than epidemiological transition.

Caldwell defined health transition as 'the cultural, social and behavioural determinants of health, that is, nearly all the determinants except the material standards of living, medical interventions and public health interventions' (Caldwell 1994: 13). Explaining that the term 'health transition' is broader than the two terms, 'mortality transition' and 'epidemiological transition', he wrote:

A broader term than **mortality transition** has been the **epidemiological transition** because it embraces changes in levels of sickness as well as mortality. For our purposes, neither term is sufficient because both are purely outcome measures...We employ the term

health transition to include both epidemiological and related social changes' (Caldwell 1990: xi).

Elsewhere he distinguished health transition

from the mortality transition which refers only to mortality and not morbidity, and from the epidemiological transition which refers to the change in balance of disease, and especially the cause of death, as mortality declines from higher to lower levels (Caldwell, 1994: 13).

It is not always correct to assume that declines in mortality indicate improvements in the health of a population: low mortality rates and high morbidity rates can coexist in the same population. It has been well documented that, in the state of Kerala in India, low mortality and high morbidity coexist (Kumar 1993). Johansson (1991) stressed the multidimensional nature of morbidity as one of the main reasons for rise in morbidity as mortality falls. It is hoped that everybody agrees that not only low mortality but also low morbidity is necessary for people to enjoy good health.

Expectation of life at birth is regarded as a good indicator of the health of a population, but some thinkers question the wisdom of increasing life expectancy without decreasing morbidity and suffering. Analysing the epidemiological transition in Germany, Imhof (1986:74) observed:

Certainly it is correct to say that the traditional causes of death claimed their victims from all age groups and that life at that time was therefore a much riskier business than it is today. But isn't it also correct to say that death was often more humane then, since most of the infectious and parasitic diseases kill quickly? Today, precisely because we have defeated those diseases, we are living longer, growing older. Simultaneously, however, the dying process in many cases has been lengthened. Chronic suffering no longer just extends over a period of a few days or weeks but can often last for many months and years so that death is ultimately viewed as liberation.

Neither mortality transition nor epidemiological transition nor increase in life expectancy can be an alternative for health transition.

Health transition should take into account not only mortality and morbidity, but also disability. Health expectancy is generally divided into different states depending upon different degrees of disability (Mathers, Robine and Wilkins 1994). This means that disability is regarded as a negative health state.

Health transition may be defined as a process through which high levels of mortality, morbidity and disability are reduced to low levels by influencing cultural, social and behavioural factors. Because we are talking about a 'process', we need data at two or more points of time in order to measure health transition. We have to identify cultural, social and behavioural determinants of health such as educational levels among males and females, the age and sex composition of the population, and habits like alcohol consumption and smoking. The list of determinants mentioned here is suggestive rather than exhaustive. These determinants will be our independent variables. By the dependent variable, health, is meant age- and sex-specific mortality, morbidity and disability rates.

Health transition in a country or in a state within a country may be measured first by the selection of cultural, social and behavioural determinants or indicators of health. A number of considerations may even determine the selection of indicators, not the least of which is availability of data. It may be difficult to express some of the indicators in quantitative terms:

quantitative values may have to be assigned to such indicators. Then health indicators, that is, age- and sex-specific mortality, morbidity and disability rates, are selected.

The association between the independent and dependent variables can be measured by one of the multivariate regression techniques. The difference in the values of association between the two sets of variables at two or more points of time indicates health transition. No claim is made that the method of measuring health transition suggested here is final or perfect: these are some ideas to consider. But it certainly should be possible to measure health transition.

The health of the aged

As a result of fertility and mortality control programs implemented in India since 1951, there have been considerable declines in both fertility and mortality. For example, the crude birth rate has declined from about 40 per 1,000 population in 1941-51 to about 30 in 1990 (Government of India 1991: 113). Similarly, the crude death rate has declined from a little over 27 per 1,000 population per year to a little lower than 10 during the same period (Government of India 1991: 113). The expectation of life at birth has increased from about 32 years in 1941-51 to about 59 years in 1986-91 (Government of India 1991: 113). It has been projected that the crude birth rate will be lower than 28 and the crude death rate lower than nine in 1996-2000 (Registrar General 1988: 17). The expectation of life at birth is projected to increase to about 65 years by 2001 (Government of India 1991: 113).

One of the consequences of these improvements is an increase in both the proportions and numbers of the aged, that is, those who are 60 years and above, in the total population of India. The proportion of the aged increased only marginally from 5.5 per cent in 1951 to about 6.5 per cent in 1991 and is projected to increase to about 7.4 per cent in 2001. But the number of old people increased from about 20 million in 1951 to about 55 million in 1991 and is projected to be about 76 million in 2001.

In India, the old have traditionally been honoured and respected. Religious texts and writings enjoined the sons to provide all support for their old parents. Grown-up children, especially sons, provided not only financial and material support for their parents; they also provided psychological and emotional support. As Caldwell (1982: 54) wrote, 'It is a fallacy to think of the value of grown-up children being merely equivalent to an insurance policy against old age and sickness'.

Since Independence in 1947, India has been through a rapid socio-economic transformation which has brought in its wake important changes in the social profile of the people. Forces of modernization, technological changes and social mobility have changed the lifestyle and values of people. These changes have adversely affected traditional respect as well as attitudes of empathy and care for the aged. As a result of the acceptance of contraception and fertility control by an increasing proportion of couples, some older people are likely to be adversely affected in the matter of care by their children because of increasing mobility and other reasons. More important, there is now a greater investment by the family in the education and upbringing of children. The high cost of living, coupled with changing priorities, affects the intrafamily distribution of income in favour of children. In the phraseology of Caldwell (1982: 333-351), the **wealth flow** in India is turning downwards. All these socio-economic changes have adversely affected the situation of the aged in India, who, like those in other countries, suffer from a range of problems. However, 'of all the problems associated with an aging population, health care demands top priority' (Ory and Bond 1989: 1). This is also true of the aging population in India.

The study

A paper entitled 'The health status of the elderly in India' (Reddy 1995) was presented at the 'John C. Caldwell Seminar' held on 14 - 17 August 1995 at the Australian National University, Canberra. The data analysed in the paper were collected in the 42nd Round of the National Sample Survey (NSS) conducted by the National Sample Survey Organisation (NSSO) in India during July 1986-June 1987. The National Sample Survey collected data not only on the health problems of the elderly, but also on their various other problems. The survey covered 49,693 households in each of which there was at least one person aged 60 years or over. Of the 49,693 households covered, 32,237 were in rural and 17,456 were in urban areas. The survey covered the whole of India except for Ladakh and Kargil districts of the state of Jammu and Kashmir, and rural areas of the state of Nagaland.

Findings

The findings related to the health status of the elderly are briefly summarized here. The details are available elsewhere (NSSO 1991: S176-S220; Reddy 1995).

In both rural and urban areas about five per cent of the male aged were physically immobile, compared with about seven per cent of the female aged. The difference is perhaps due to the cultural neglect of women. The proportions physically immobile increased with age in both males and females and in both rural and urban areas.

About 45 per cent of old men and women in both rural and urban areas were suffering from some chronic disease; the proportions with chronic disease increased with age in both men and women and in both rural and urban areas. Two major chronic diseases suffered by the elderly were cough and pains in the joints. In both rural and urban areas, a greater proportion of men than of women suffered from cough, a difference explained by the difference in behavioural patterns: for instance more men than women smoke. More women than men suffered from pains in the joints in both rural and urban areas.

The disease prevalence rate, expressed as the number of the aged suffering from each disease per 1,000 during the two weeks before the survey, was 427 among men and 357 among women in rural areas; in urban areas, the rate was 423 among men and 366 among women. Thus, the disease prevalence rate was higher among men than among women in both rural and urban areas; clearly, this reflects the differences in their behavioural patterns.

The proportion hospitalized, expressed as the number of the elderly admitted to a hospital per 1,000 on any day during the two weeks before the survey, was 101 among men and 93 among women in rural areas; in urban areas, the proportion was 99 among men and 93 among women. Thus, the proportions hospitalized were slightly lower among women.

Government measures

Until recently, the Government of India justified its reluctance to provide special health services for the aged by saying

It is necessary to dispel the belief that old age is synonymous with ill health or disability.

Thanks to modern science and technology, most people are able to lead an active and healthy life up to the age of 70 years or more (Ministry of Social Welfare 1987: 20).

Many state governments provide old age pensions ranging from Rs.50 to Rs.75 per month to each of the destitute aged (one Australian dollar equals about 22 rupees); they maintain a few homes for the destitute aged and provide grants to a few more old age homes maintained by voluntary organizations. But no state government provides special health services for the elderly.

The Government of India has recently started a scheme of assistance to voluntary organizations which have programs for the aged. The programs included under the scheme are foster care-adoption services, mobile medicare services, day-care services, old-age homes, and non-institutional services. The conditions stipulated for voluntary organizations to qualify for grants from the Government of India are stringent. There appear to be very few such organizations receiving grants, except for old-age homes.

Under the program of mobile medicare services, voluntary organizations should provide services for the health care of elderly persons. Since it is difficult for the families to take the aged persons to distant hospitals, the need for assistance for geriatric disabilities is more acute among the poverty stricken elderly population. Under this program, grants will be provided to voluntary organizations which possess 'experience and expertise' in providing mobile medicare services for the aged in rural and urban slum areas. The financial outlays on various items approved by the Ministry of Social Welfare are meagre. Information on the number of mobile medicare units operating in the country is hard to obtain, but it is safe to conclude that their number is far short of requirements.

Intervention strategies

The foregoing analysis has implications for many policies and programs which will improve the health of the elderly. Some of the important intervention strategies are as follows.

1. There is a need to create geriatric facilities and provide geriatric services in all the government hospitals.
2. There is a need for liberalization of the conditions stipulated by the Government of India to provide grants to voluntary organizations which operate mobile medicare units for the elderly.
3. More finance needs to be approved by the Government of India for the setting up and maintenance of mobile medicare units for the elderly by the voluntary organizations.
4. There should be an end to the cultural practice of discrimination against women in access to food, nutrition and health facilities.
5. People in general and men in particular need to be educated about the health hazards of consuming alcohol, smoking, tobacco chewing, inhaling snuff and using drugs.
6. Carers for the aged in the family are invariably females (daughters-in-law). It is known that mass education in general and female education in particular is an important factor in the decline of mortality and morbidity (Caldwell, Reddy and Caldwell 1983; Caldwell 1989). It is, therefore, necessary to promote education among the people, particularly among females.

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Synthesis: where are we now?

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The Health Transition Program has flagellated itself, perhaps unnecessarily, in an effort to show that those involved in health transition research have also been directly, and even simultaneously, involved in interventions to produce better health. The research reports either reproduced by the program's publications or induced by them clearly suggest actions which, if taken at the governmental or the personal level, could lower the risk of mortality (Caldwell and Santow 1989; Caldwell et al. 1990. *Health Transition Review* 1991-1995). The

introductory paper in the first number of *Health Transition Review* worried about the problem (Caldwell and Caldwell 1991). Yet hardly any of those papers or the contributions to this forum report on the implementation of health transition findings and the subsequent demonstration that health improved as a result. This summary concentrates first on the reasons for this and second on whether this shows, in health terms, that health transition research is hardly worthwhile.

The program's goals, and indeed the global health effort, were not helped by the unusable and almost Utopian definition of health which was contained in the World Health Organization's *Alma-Ata Declaration* 15 years ago: 'health.... is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity...' (Warren 1990:22). Because of the form taken by the most reliable data, most papers in the program have employed reductions in mortality as an index of improving health. This can be defended as a rough index of health improvement over the long haul and as a measurement showing success in delaying what most people fear most. Yet Johannson² is undoubtedly right in arguing that the field has been held back by lack of agreement on what health really means.

Perhaps a greater problem, although one inadequately discussed in the literature, is the priority allocated by individuals to good health. Any meeting or declaration will place it foremost. Yet in reality many individuals would rather smoke on their own or drink with their companions than lower their mortality risks. Similarly, governments limit their expenditure on health so that they can meet other targets, including taxation reduction, according to their perceptions of electoral reactions.

Forum contributors argue both that health transition research has tended to focus most strongly on restricted areas of the health field, such as household and family mechanics and also the situation of women, and that this has probably been a good thing in that the most gains may be made in this area (Hill, Johansson, Pieris, Findley). The prospect of considerable gains is probably real, although interventions in these intimate and sensitive areas may provoke the most resistance. It is also pertinent to note Hill's warning that the study of historical experience may be a misleading pointer to the contemporary Third World. Findley makes an important and strong case for health transition research when she points out that the nature of the family and the interaction of its members are entirely omitted from nearly all epidemiological research.

Returning to the focus of this forum three basic points should be made. The first is that health transition research has a justification outside the improvement of health and that is its ability to explain what has happened to the world's population in terms of its health. The second point is that many of us believe health transition research can have an enormous effect on health even if no specific interventions follow from it. The third point is that specific interventions are likely to follow even if the health transition researchers are not personally involved in their construction.

Elaborating on the second point, health transition research is likely to achieve its greatest effect through the public awareness of its findings, mainly through the media and mainly by human beings achieving greater knowledge of themselves, and institutions achieving greater knowledge of people.

At the individual level, there are many parallels. The most direct are changes in Western lifestyles through research information about the effect of exercise, losing weight and other factors. The women's movement gained equal education for boys and girls more by debating the previous inequalities than by championing legislation. Even fundamentalist Muslim societies must be beginning to ponder the demonstration that the failure to educate their daughters imperils the survival of their grandsons.

² All authors' names not followed by reference dates refer to the preceding papers in this forum.

Because of the reliance of much health transition research on data collected by surveys, most of the findings tend to be social rather than behavioural or cultural. Accordingly, much of the appeal is to government and other institutions rather than to individuals. It is also to international organizations and helps to shape their agendas which ultimately affect all of us.

Research of a health transition type certainly had some influence on the 1978 Alma-Ata Declaration. Health transition research, much of it carried out by persons who have contributed to *Health Transition Review* and its allied publications, clearly had a major effect on the 1993 *World Development Report* (World Bank 1993) and the 1994 Cairo International Conference on Population and Development (ICPD) *Plan of Action*. In many of these plans and publications, health transition findings help to cement alliances that gain greater strength through their union. Thus, in the ICPD, forces favouring education, the improvement of women's position, and better health, formed a common front in promoting both greater education for girls and greater autonomy for women. Similar coalitions backed the motions urging greater stress on improved reproductive health.

One further point emphasized in the forum (Pieris, Johansson) is that the impact of health transition research through the 'know-thyself' mechanism clearly implies that health programs are likely to be most effective when there is a substantial degree of community control.

Elaborating the third point, it is likely that the health transition academic literature itself is known to many public health researchers and health policy makers and helps to frame their interventions. These people publish in public health journals and not in *HTR*. Increasingly, they can locate the health transition literature through computer searches. Nevertheless, there remains an obligation on health transition researchers to make this cross-fertilization of knowledge as easy as possible. A good contemporary example of a health crisis compelling medical and social science researchers to read each others' papers is provided by the AIDS epidemic with its major cultural, social and behavioural components.

The forum authors wrestle with the problem of collaboration. The starting point (especially in Legge and Johansson) was essentially that of the blind men trying to describe an elephant from the aspect of each one's own first contact. They emphasize that each profession has its own 'singular truth' and that both individual experience and reasons of professional expediency and advancement exert strong pressures to retain their singular perspectives. Yet the real truth, and the path to accelerated health improvement, is multi-faceted.

Collaboration is not merely a case of yielding time to learning another field and reading its literature. Professionals are rewarded most for specializing increasingly in their own fields. Furthermore, collaboration can often be achieved only by agreeing on the lowest common multiple of the information derived from the different fields of the various collaborators.

Not only scientific disciplines but implementing organizations have strong reasons for resisting potentially useful health innovations which are not central to the way the institution currently functions or is staffed, or is organized (Kunitz and Levy).

The examples chosen from the forum contributors' own experiences are instructive. Findley and colleagues relate the story of a grassroots Malian collaborative project that actually worked, with the social scientists demonstrating the positive interrelation between education and health programs and so inducing the collaborative program to place greater emphasis on education. Furthermore, they came up with a finding that may appeal to commonsense but which is far from received wisdom in the health transition field, namely that specific locally-oriented health information embedded in the educational programs actually assisted the recipients in getting health services and achieving better health. Pieris analyses the Sri Lankan health miracle, and, again with commonsense not always supported by majority opinion, concludes that the Sri Lankan health approach was so successful 'for a host of reasons, not all of which are replicable everywhere in the world, but which should he

harnessed when suitable conditions exist'. This puts the case for analysis and dissemination rather than collaboration. Kunitz shows that the Australian government readily accepted the case for its greater intervention in the area of Aboriginal health precisely because it did not find this recommendation threatening. Orubuloye described research in an area where health transition analysis may be increasingly important in rolling back new policies and in enforcing collaboration as rethinking takes place. The Nigerian research shows what happens as structural adjustment programs enforce the user-pays principle on health services in poor countries. The economists failed to envisage not only that there would be many fewer users but that mothers would lose control of health decision-making over their children and that fostered children would be hit especially hard. One is reminded that the otherwise excellent *1993 World Development Report* (World Bank 1993) was disconcertingly entitled *Investing in Health*, with apparent scant regard to human suffering.

It is, however, the examples of frustration and lack of collaboration which show most clearly why the major effect of health transition research is likely to come from its information being supplied and spreading into public awareness, so changing individual and societal outlooks and thence behaviour and institutions. One reacts thus to Kunitz and Levy explaining the rejection of research into American Indian drinking patterns by a medical establishment certain of its role in treating the effects of drinking on an individual level and deeply suspicious about how to undertake social investigation and where it would lead. It might be noted here that both the Australian government and the Australian Aboriginals were keen to accept further Commonwealth financial and physical medical intervention because this approach avoided the issue of the extent to which high aboriginal mortality derives from cultural, social and behavioural patterns, and substituted high-cost, relatively ineffective medical approaches for attempts to bring about potentially more effective behavioural change. Kunitz and Levy also show how a plan to introduce female household health visitors on the American Indian reservations was foiled by the nursing service which foresaw competition. In Botswana an effective household visiting system has been largely destroyed by increasingly using the health visitors as nurses' assistants at the health centres, a role which the medical profession understands and which appeals to the health visitors because it makes them appear to be part of the medical establishment. Reddy shows that the Indian Government used an argument right out of the health transition armoury, namely that age should not be identified with ill-health, to justify refusing funds to help the aged. In this case the government approach may well be undermined by the dissemination of research findings on the disabilities of the old and the burden they impose on their families.

It is incontestable that health transition researchers should devote more time to attempts at achieving collaborative projects with the health profession. Nevertheless, the effect of most research is likely to be achieved in two different ways. The first way is through specific reports to government or other authorities which analyse the health transition evidence and which demonstrate how effective interventions can be made within the scope and aims of existing institutions. Hill provides an example of this in terms of the potential for focusing health services—especially, perhaps, the services of health visitors—on the small minority of families where most child morbidity and mortality occurs. Clearly, measures would have to be devised which identified such families by means other than waiting until after the first child death.

The second way, and certainly the main justification for health transition research, is the changes made in human behaviour and social institutions by the wide acceptance of its findings. In comparison with the huge amounts spent on medical research and intervention, the funding of health transition research is likely to prove a particularly cost-effective way of improving health. This may be specifically true with regard to support for *Health Transition Review*.

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