In this number

The public know best
"Lay epidemiology" describes the rediscovered importance of the people's own views about their health. As well as a paper on this topic, this number includes an editorial about the need for appropriate information to support the new public health.

Environmental health and communicable disease
Two papers – one from Scotland and one from the North of England – cover topics which relate to detrimental effects which the environment can have on the quality of life of whole communities as well as on cancer incidence. Another paper, from Burkina Faso, describes very basic hygiene measures which are of great importance for health in any community. However, sometimes environmental health measures can themselves have subtle deleterious effects: a comment on Smoking and health promotion in Nazi Germany lays some blame for Germany's current reluctance to give up the weed on the Führer's anti-smoking meausre of 50 years ago.

Short reports
The flow of these is increasing and among the three we are publishing this month is a report on the relationship between the phases of the moon and the out of hours work load of GPs. Prospective authors and readers should note that short reports are refereed in the normal way but can be published much more quickly than full length papers.

Editorial

Creating a new knowledge base for the new public health

Fundamental changes in thinking about research and education are emerging from the challenges faced in the field of public health. Over 15 years of work to revitalise public health policy and practice has lead to a growing recognition that new approaches to understanding public health problems are needed.

A governmental resolution accepted at the 1977 World Health Assembly that by the year 2000 all citizens of the world would attain a level of health permitting them to live socially and economically productive lives was a major impetus for a process of renewal in the field of public health. A progression of official health policy documents[1-3] and publications outlining the dimensions of a new public health[4-8] appeared. Nearly all member states of the European Region of WHO have now developed *Health for all by the Year 2000* (HFA) policies and strategies.

The recently updated version of the WHO European HFA targets summarises achievements.[9] The concepts and strategies in the HFA policy are widely accepted. Monitoring and evaluation exercises are in place. Declarations and action plans confirm the relevance of HFA principles. Average life expectancy for the region as a whole continues to increase, largely as a result of reductions in infant mortality. Even with these achievements, however, little progress has been made against many of the most serious problems. Inequalities in health status between and within nations remain, and in some cases have increased. Cancer mortality is still increasing. Violence in all forms remains high and is increasing in many places. Economic and social conditions that directly or indirectly affect health are growing worse in many countries, endangering the health and wellbeing of broader segments of the population. There is an increasing danger that health inequalities both within and between countries will expand. Little progress has been made in achieving intersectoral cooperation for health protection in society.

The insufficient progress made in many countries is highlighted by the decreasing health returns and satisfaction with health services relative to constantly escalating costs as the target date grows nearer. The international economic crisis is a major barrier to progress. The range of new problems which must be tackled counteracts many achievements, reflected by "the inability of most societies to promote and protect their populations' health to the degree made necessary by historical circumstances".[10]

The origins of the movement for a new public health have been traced to the insatiable financial appetite of medical care systems throughout the world, paralleled by high levels of premature death, avoidable disability, and social inequalities.[11] The problems are now well articulated and new approaches to public health work are already well established in some countries.[4-9 12 13] This is a major reason for the wide ranging initiatives now being organised around the perception that new types of skills and knowledge are needed to redirect priorities and implement the policy changes needed in the new public health.

A series of initiatives by the Pan American Health Organization of WHO in collaboration with the Association of Schools of Public Health of the United States and the Latin American and Caribbean Association for Education in Public Health starting in the mid-1980s resulted in a sustained effort to improve the quality of public health education, especially at the graduate level. Work in these projects repeatedly documented the need to change "what one sees" by broadening the subjects of analysis and "the way of seeing" by including more comprehensive analytic approaches. Epidemiological research, it is concluded, has not achieved the development needed. Too limited to isolated projects, too orientated toward clinical and laboratory areas, population studies and the complexity of the forces creating and maintaining health have been neglected.

Public health education has not kept pace with today's rapid social, economic, and political changes and transformations, which are

creating a need for different and more complex public health theories and practices. Added to this gap is the growing schism seen in most countries between academia and practice.[10]

Parallel work on these issues is also underway in Europe. New approaches to public health policy and practice focus action on the causes of ill health in communities. For example, one approach is to create healthy environments by working in settings (cities or schools) to strengthen community action and develop personal skills for health protection.[3-8] A new knowledge base is needed to inform the new approaches to public health work.

Progress is now being made in setting an agenda for achieving the new types of research and education needed for public health action.[14-19] The Association of Schools of Public Health in the European Region has taken up challenges of curriculum development and interdisciplinary education in support of public health in Europe.[20] Cross-national collaboration among schools of public health on masters level courses and summer schools based on European HFA philosophy are providing educational benchmarks.

A project sponsored by public health practitioners and researchers is bringing together for concerted action the range of disciplines needed for creating a knowledge base for the new public health.[17] Consensus has already been reached on the need for critical debate within the field of public health and on the need for interdisciplinary research using appropriate methods to study the complex real problems faced in public health research and practice. Sound and rigorous studies using the range of appropriate methods will increase both the scientific validity and the public health relevance of population health research.

In an international methodological project focused on pulling together knowledge and methodological options not readily available to public health researchers, it was concluded that major areas of public health action (deprivation, inequalities, quality of life, social support, behavioural habits, etc.) often are neglected or handled inappropriately because of their weak scientific base.[18]

New types of research are needed to elaborate their meanings for public health work. The inadequacy of the experimental model as a "gold standard" for public health research needs to be recognised and research resources redirected accordingly.[17-19] The problems of failure to consider context and multicausation and the issues of confounding that plague epidemiological research are reduced when elaboration methodology is used because the focus is understanding complexity rather than controlling or removing the "confounding" intervening and mediating influences.

While the documents and initiatives mentioned here certainly do not cover all the important contributions to new thinking about the types of research and education needed for creating the knowledge base for the new public health, common themes are identifiable. The neglect of context and complexity in research on health, the need for more relevant research on health, the necessities of theory development, use of a broader range of methods and better training in public health, and the need to shift resources to the production of new types of knowledge and public health professionals are all important priorities for creating the knowledge base for public health action.

Public health schools have a crucial role in the process of solving the problems. According to the WHO report outlining the dimensions of the challenges faced in the field, public health schools are central "to developing creative capacity and producing and transmitting knowledge that leads to the formation of a new health culture".[10] The educational challenge is to produce a new health professional with the interdisciplinary knowledge and skills that are prerequisites for studying public health problems and developing solutions in a contextual framework. An understanding of social structures and skills for studying multiple levels and types of influence on health and behaviour are essential components of the new types of education needed.

These priorities are reflected in the establishment of a new Programme on Training and Research in Public Health at the WHO Regional Office for Europe.[21] The programme will focus on the complementary nature of research and training in public health and identify the levels of education needed for preparing public health practitioners and researchers.

What has emerged from facing the challenges in HFA goals is a strong impetus toward conducting research that is both more relevant and more scientifically sound. It has long been known that disease is not randomly distributed in populations, that "hosts differ in their exposure to agents and in the likelihood of their developing a disease in response to the agent".[22] The repeated proof of multicausality has not ended the tendency to study disease in terms of single causes.

The research paradigm inherent in the experimental model is one force inhibiting new approaches. Early work on modelling statistical relationships emphasised the importance of understanding the meaning of relationships, the antecedent and moderating effects of variables influencing a relationship of interest.[23 24] The major constraint to elaborating the meaning of relationships was the inability to examine all of the relevant variables at one time to study the many relevant inter-relationships.

High speed computers have created new possibilities for moving beyond this fundamental constraint. Yet, in spite of the new possibilities, relationships are often less well studied than before computers offered so many new opportunities.[18] Part of the reason for this is the causal thinking underlying the experimental model, with its focus on removing and looking away from multivariate and moderating influences. Confounding is never really solved by experimental design or statistical control of other influences. Relationships of interest are simply stripped of the moderating multiple influences that constitute true causation.

Another barrier arises from the limits of widely used methods for studying complexity. Some of the most useful procedures for the elaboration of multiple influences have become available only in recent years. Educational opportunities for understanding the available procedures and their appropriate use have not become available to most population health researchers.

The dominant influence of the clinical model on public health in recent times, focusing on disease in individuals rather than health in populations, is an underlying force constraining the development of the new, more accurately—the renewed, public health. Interdisciplinary research guided by sound theory and drawing on the range of appropriate methods can improve the knowledge base needed to guide public health practice. Efforts to alter the imbalance in the field are multiplying, but the forces maintaining the status quo are strong. Meanwhile the developments contributing to the perceived crisis in public health highlight the challenges facing the field.

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