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The public health perspective of social and preventive medicine[1]

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It is an honour and I feel happy to have been asked to speak on the occasion of the 20th anniversary of the Institute in Berne. The hallmark of its work has been the pursuit of uncompromising excellence in the service of public health through research and teaching in social and preventive medicine. The accomplishment of these aims requires a sound and encompassing framework, which Professor Abelin has provided in his diagram, depicting the ways in which preventive and social medicine and public health are demarcated and interact. The term "social and preventive medicine" is a good term and seems to be endemic in Switzerland. The terms "community medicine" and "community health", sometimes combined with "epidemiology", have come into common use elsewhere, or "social medicine" is used in isolation. "Clinical epidemiology" has gone out of fashion, probably rightly so because of its narrowness and its failure to build a bridge, by this means alone, between clinicians and epidemiologists. This bridge is extraordinarily important for two main reasons: it supports the role of the practicing physician in carrying out the high-risk strategy of prevention, and it provides the ground for conducting clinical investigation among representative population samples, rather than selected patients and control subjects. This type of research into discovering mechanisms of disease is assuming increasing importance, and helps to invalidate the frequent claim that epidemiology cannot contribute to the elucidation of disease mechanisms. The late Dr. Thomas Francis Jr. spoke of epidemiology as clinical research on the population level. The non-overlapping part of the circle on the left side of Professor Abelin's diagram covers the overall borderlands between social and preventive medicine and clinical medicine. In this context, there is also a great need to bridge the gap between curative and preventive medicine, and there has been a good deal of progress along these lines during recent years in covering what has been almost been an abyss.

Where does epidemiology fit into this scheme? Epidemiology is difficult to define because it has so many facets, which is part of its fascination. Definitions range from the appealing saying of the late Dr. Alexander Gilliam of Johns Hopkins "epidemiology is what the epidemiologist does", over Dr. Francis' definition, just given, to what is probably the best single definition: "the basic science of preventive medicine". This definition is not only correct but takes the wind out of the sails of basic scientists in other fields who tend to look on epidemiology – and certainly epidemiology as it relates to public health – as a discipline lacking rigorous standards. Professor Abelin correctly says that all the areas of public health as shown in the diagram are based on common principles, including the "use of epidemiology as a scientific basis and tool" but one could take issue with his distinction between basic and applied research. In a sense, all research is basic and the distinction is between research into causes and mechanisms of disease, and research into the ways in which the knowledge gained can be applied, i.e. turned into preventive action on the community or individual level. The corresponding activities are descriptive and analytical epidemiology within the circle "social and preventive medicine", preventive trials and intervention studies straddling this circle and the circle "public health" and, thirdly, demonstration projects within the field of public health.

Within this universe of public health, the investigation of social differentials in mortality, addressed by Professor Marmot, clearly belongs in the realm of social and preventive medicine under the heading of epidemiological research, but the implications reach far and deeply into the entire fabric of public health and, indeed, public policy. The British have been leaders for many years in this area because the data needed for mortality analyses by social class are either non-existent or difficult to generate in other countries. The great wisdom on the part of the Registrar General in having provided data by social class for many years past is, indeed, most admirable! In addition, the Whitehall Study has yielded unique information on the same question and Professor Marmot has used both to great advantage. I learned from Professor Marmot some 10 years ago the marvellous saying of Sir Peter Medawar: "if politics is the art of the possible, research is surely the art of the soluble ...".

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The investigation of social class differences in disease and susceptibility to illness is difficult and it requires great artistic and scientific skill to design studies which can give insight into their causes. Professor Marmot's skill has made decisive and unique inroads into these questions. The current and eventual answers will not only serve to lessen the social disease gradients but may provide new knowledge on hitherto unrecognized risk factors.

Coronary heart disease is a good point of departure. There is no doubt that it shows an inverse social gradient, not only in Britain, as Professor Marmot has shown, but also in the United States, e.g. in Baltimore [1] and in the Dupont Study [2] or in Norway (I. Holme, unpublished data). This came as a surprise because the condition was thought to be a "managers' disease" and, indeed, in Britain, the situation may have been different soon after the Second World War, as reported by Professor, later Sir John Ryle, the first Professor of Social Medicine in Oxford, in 1949 [3] and by Logan in 1954 [4]. The single, most exciting aspect of the Whitehall Study is that this inverse social gradient is found for all major causes of mortality and, thus, total mortality. In the first report on our study in the town of Tecumseh, Michigan, in 1965, we had already reported links between major chronic conditions and their risk factors [5] and in a monograph, to be published shortly by the NHLBI, we have shown that there are links between the secular mortality trends for major chronic diseases in 26 countries between 1952 and 1985 [6]. However, to date, the Whitehall data provide the most telling published data on these interrelationships. Professor Marmot has meticulously and painstakingly looked for possible reasons for this phenomenon. It is clear that most of it cannot be explained by social class differences in known risk factors but it seems likely that an appreciable part may be accounted for by the cumulative influence of small effects attributable to several of these risk factors. The most attractive hypothesis would be that there is a general susceptibility to illness which affects specific illnesses over a wide range, as postulated by the late John Cassel and mentioned by Michael Marmot. Dwayne Reed and co-workers published data on Hawaians of Japanese ancestry, indicating that measures of social networks were not associated with a number of diseases [7] but, a few years later in 1988, House summarized impressive evidence for a consistant relationship between social relationships and health [8]. In the Whitehall Study, a number of psycho-social factors were measured and the findings were compatible with the interpretation that they explained part of the social gradient in disease.

Among the new and haunting observations on coronary heart disease and other chronic disorders are the reports on determinants operating early in life. There have been several prior reports, especially from Norway, but the results of systematic investigations have only recently been reported by Barker [9]. They indicate that birthweight and placental weight not only correlate with cardiovascular mortality later in life but also with coronary heart disease risk factors. There are also correlations with other diseases. The entire area has been critically reviewed this year in the Journal of Epidemiology and Community Health [10] and the Lancet [11]. Professor Marmot concludes from the Whitehall data and others that there may be both influences operating very early in life and current influences. At the present state of knowledge, this view makes eminent sense. As far as coronary heart disease in concerned, Peto has recently pointed out that the results of intervention studies show a lowering of coronary heart disease of the same order as would be predicted from observational studies [12]; there is no doubt, therefore, that risk can be reduced over the period of only a few years although this is not to say that early life experiences could not set, in part, the level of alter disease susceptibility.

Professor Marmot discusses several possible other explanations, beyond those mentioned here in more detail, which might account for social inequalities in health. He concludes that "the generality of the findings across cause of death groups suggest that there may be factors operating that increase the tendency to a variety of diseases". He implies that not all of these are known. There is evidence from a number of sources, summarized elsewhere [13], that the major chronic diseases and causes of death have links in common, suggesting that the same preventive measures, particularly those for coronary heart disease, might protect health across a broad front. Powerful measures are already known and there is the prospect that those left to be discovered will further improve preventive potential. Toward this end, Professor Marmot has greatly contributed.

Before closing, it is proper and fitting to revert to the two examples of work at the Institute, carried out by our host and his colleagues. As the first example, Professor Abelin has chosen smoking as one model of practice-oriented research. Indeed, the Institute in Berne has been the leader in Switzerland in the combat against smoking. The reason for this becomes apparent from Professor Abelin's consideration of studies to serve as a basis for selecting preventive strategies. Too often, such studies or even campaigns are hit-and-run efforts rather than part of a deliberately targeted plan of action. The studies which Professor Abelin has described are cornerstones in the design of field programs and individual counselling, aimed to promote smoking cessation and to prevent young people from starting the habit. Elegance is not the most important thing in studies, any more than conventional beauty is the primary criterion for

judging art. However, one cannot fail to be struck by the elegance – in addition to their soundness – of some of the smoking studies presented by Professor Abelin.

Another area in which the Institute has done pioneering work in Switzerland relates to health and disability among the aged, and planning for their care. A more important area for concern cannot be imagined in this day and age, one of the key questions being the degree of dependency and its determinants. Professor Abelin has given no more than a glimpse of the large project conducted by the Institute, assessing disability and the needs for care in elderly and old people. Among the public health priorities in our time, none ranks higher than the search for ways to prevent or limit disability and dependency in an aging population so that health can be maintained as long as possible. It is particularly noteworthy that medical students are taught, as part of their training, to take the social history of elderly patients in order to become aware of the social implications of illness.

Medicine – as Salomon Neumann wrote 150 years ago – is a social science in its innermost core [14]. Social class differentials in health provide a prime example for the truth of this dictum. In developed countries, social class differences cover mostly a relatively narrow range, compared to developing countries where the distribution is skewed toward dismal poverty. In our part of the world, there is no justification or excuse for inequalities of health and the more disadvantaged classes should be provided with the additional preventive and curative medical services which they need. Moreover, health education should pay attention to their special circumstances.

Summary

The author discusses two presentations illustrating how, with suitable study designs, useful insights for understanding social gradients in health and for developing preventive strategies can be gained.

Résumé

Perspectives de la santé publique et de la médecine préventive

L'auteur discute deux présentations qui montrent comment, à l'aide de dispositions appropriées de recherche, il est possible de mieux comprendre les différences sociales en morbidité et de développer des stratégies préventives.

Zusammenfassung

Perspektiven des Gesundheitswesens und der Präventivmedizin

Der Autor diskutiert zwei Präsentationen, in denen gezeigt wird, wie mit Hilfe geeigneter Studienanlagen soziale Unterschiede im Gesundheitszustand besser verstanden und präventive Strategien entwickelt werden können.

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