

McKeown's *The Role of Medicine:* A Clinician's Reaction

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The Role of Medicine is good reading, interesting and thought-provoking. Doubtless it will be widely studied and quoted. McKeown presents a worthwhile long-range perspective of the factors that have altered mortality statistics in the last three centuries, and attempts to define the contribution that clinical medicine has made toward the betterment of these figures. The conclusion reached, and the opinions expressed, are to the effect that the major factors leading to improved health are sanitation, housing, and food supply. He cites figures to show that medical practice, including such preventive measures as immunization, has had an almost insignificant role in the improvement of health, and he is in fact generally disapproving of the whole system of medical care, clinical teaching, and biomedical research that prevails in the world today. In short, our medical care system has received more credit and more financial support than can be justified after critical appraisal of its effectiveness.

I should like now to offer a few remarks in defense of the clinician. I feel that McKeown's criticisms are sometimes unjustified and often reveal lack of understanding. He is a far more credible critic than Illich (1976), and, precisely because of that, I am uneasy about the impression his book may leave with people unfamiliar with the actual difficulties and circumstances of patient care.

McKeown and I entered the medical profession at about the same time, in the thirties, but he early opted for a career in social medicine. Judging by many of his remarks about clinical medicine, he has not been actively engaged in patient care during most of the past four decades, a period in which the whole face of clinical medicine has altered unrecognizably. I realize that he has been a

member of a medical school faculty and has read clinical journals and textbooks, but his knowledge of practical matters often seems to reflect concepts gained while a medical student some time ago.

McKeown builds his argument on a framework of mortality figures for England and Wales from 1838 to 1971. He makes the assumption that mortality statistics are a reasonable yardstick on which to judge the health of a population. Although he concedes some lack of precision in the terminology of those statistics, he nevertheless comes to major conclusions on the basis of the diagnoses given on death certificates. For example, in Table 3.6 he quotes a death rate from rheumatic heart disease of 64 per million during the period 1848 to 1854, and of 88 in 1971. I find it hard to believe that rheumatic heart disease was a worse problem in 1971 than in 1851, and impossible to believe that figures based on such a diagnostic term can be employed to show what has occurred over a period of 120 years. In the same table he cites "nephritis" as responsible for a death rate of 615 during the earlier period, and of 46 in 1971. Some unfamiliarity with modern clinical medicine is evident in his remark that the commonest cause of fatal nephritis is bacterial infection. Even the diagnosis of "tuberculosis" on a death certificate up to, say, 1920, must have been far less well validated than it is today. Yet he calculates the percentage of reduction in death rates and draws conclusions as if he were dealing with hard data.

One of McKeown's recurrent themes is to belittle the effect of the introduction of antimicrobial therapy. For instance, let us take his interpretation of modern treatment of pneumonia. Although he does not specifically say so, he apparently assumes that the term "pneumonia" on a death certificate refers to the principal kind of pneumonia we were familiar with as medical students, that is, lobar pneumonia caused by the pneumococcus. His calculations tell him that since the 1940s there has been a slight reduction in pneumonia death rates in the age groups between 0 and 14 years, and between 45 and 64 years, but little or no change for people between the ages of 15 and 44. Furthermore, he notes a sharp increase in the death rate beyond age 65 "from about the time antibiotics came into use"! This kind of coupling of events not necessarily related is one of the weak points in McKeown's arguments. No experienced clinician has the slightest doubt that penicillin can be life-saving in pneumococcal infections in any age group. Furthermore, few clinicians would

assume that the majority of deaths from "pneumonia" in patients over 65 are due to pneumococcal infection. "Pneumonia" is a common accompaniment of death in old people, and the term which appears on death certificates embraces not only infections by a wide variety of bacteria, viruses, and fungi, but also lesions due to aspiration of gastric contents, atelectasis, pulmonary infarct, etc. His calm remark that deaths due to pneumonia have risen sharply in the over-65 segment of the population since the advent of antibiotics presents a wholly unwarranted inference to the casual reader.

Another curious way of downgrading antimicrobial therapy is found in the discussion of tuberculosis. Throughout the book McKeown refers to the chemotherapy of tuberculosis as "streptomycin." I can only hope this is a sort of shorthand for all the anti-tuberculous drugs, inasmuch as streptomycin was replaced as the drug of first choice for the treatment of tuberculosis within four years of its introduction, that is, when isoniazid was introduced in 1951. His graph shows a steady decline in tuberculosis mortality from 1838 to 1970, and he is undoubtedly correct in saying that this gratifying decline was related to improved standards of living. There is, however, a perceptible deepening of the mortality slope of his graph following the introduction of chemotherapy in 1948. In our medical student days tuberculous meningitis and miliary tuberculosis were rapidly fatal, and even moderately advanced pulmonary tuberculosis was fatal within 5 to 10 years in 50 percent of patients. The only treatment available was months or years of bed rest. To have witnessed the change in outlook that modern chemotherapy has brought for an individual patient with tuberculosis has been a thrilling and unforgettable experience. McKeown has, unfortunately, experienced this only by inspection of the mortality slope. So here is the way he deals with the chemotherapy of tuberculosis: "Treatment by streptomycin reduced the number of deaths in the period since it was introduced (1948-71) by 51%; for the total period since the cause of death was first recorded (1848-71) the reduction was 3.2%." Thus he characteristically couples some constricting clause with any admission of improved medical care. What was the point in even calculating the effect of specific anti-tuberculous therapy on the number of deaths due to tuberculosis since 1848, when the first effective drug came into use a century later? Why not just come out and rejoice that the death rate from tuberculosis has

been cut by 51 percent since the introduction of specific chemotherapy, and that in most instances treatment can be carried out with little interruption of the patient's regular routine of life?¹

McKeown is no more charitable toward the accomplishments of immunization, except in the cases of smallpox and poliomyelitis. He does not mention the highly successful vaccination against yellow fever, nor the effective immunizations against tetanus and diphtheria. He seems to lean over backward to be skeptical of the value of vaccines against whooping cough and measles, although his data seem to me quite in keeping with a conclusion that their introduction coincided with a decline in incidence of both diseases. In particular, the sharp fall in the number of measles cases since vaccination against that disease began in 1968 (Fig. 6.10) looks highly suggestive to me.

McKeown criticizes clinicians and teachers of clinical medicine for their overriding interest in the mechanisms and pathogenesis of diseases, and for an apparent lack of interest in the causes of disease and the environmental factors involved. He is unenthusiastic about the accomplishments of laboratory research and feels that far more emphasis should be given to epidemiological investigations. He takes comfort in the remark of Burnet (1971), who, toward the conclusion of a brilliant scientific career in laboratory research, made the astonishing prediction that this activity cannot be expected to make a large contribution in the future. Perhaps it should be recalled that in 1876 Billroth spoke of the astounding growth of the natural sciences prior to that time, but predicted a slackening in the pace of advance in the period to follow.

McKeown's recommendation for support of medical research calls for a judicious placing of bets. He suggests that the main investment should be in the identification of factors responsible for disease, presumably through epidemiological methods. He then grants laboratory research a little reprieve by saying, "However, it would be prudent to have a substantial side-bet on laboratory science in the knowledge that it will assist with contemporary problems and in the hope that it may contribute in unpredictable ways at some time in the future." I, too, admire the epidemiological

¹I have just found that Walsh McDermott, in his Paley Lecture, October 1976, takes McKeown to task for that tuberculosis graph and the interpretation. McDermott cites the graph as an example of what he calls "the fallacy of the stretched abscissa." When he plotted McKeown's figures for the 40-year period 1930-1970, a very sharp drop in death rate can be seen to follow the introduction of chemotherapy in 1947.

method of investigation; in fact, in a recent article on the development of clinical knowledge, I listed it as one of a dozen areas of conspicuous success. But epidemiology doesn't operate in a vacuum—it must be based on good clinical definitions. Actually, many of its great achievements have been to verify the suspicions of alert clinicians: for example, the connections between smoking and lung cancer, woodworking and nasopharyngeal carcinoma, exposure to vinyl chloride and sarcoma of the liver, thalidomide and teratogenicity, maternal rubella and birth defects, contraceptive pills and thrombophlebitis.

McKeown's recommendation that we should relegate laboratory research to a "prudent side-bet" makes my hair stand on end! He has moved so far off in order to see the big picture that he clearly is unaware of the really immense new body of knowledge that laboratory scientists have produced during his own lifetime. What is wrong with studying the pathogenesis of diseases? This is surely one way of working back toward a discovery of primary causes of disease, something he and I both desire. Let us realize that even when we have discovered an etiological factor, as for example smoking in lung cancer, or alcohol in liver disease, effective control may be more likely to come by finding a way to interrupt the ensuing sequence of host reactions than by persuading people to give up tobacco or alcohol.

Yes, it is true that clinical investigators have put more effort into the study of acute medical problems than into chronic disease or the subject of aging. But is this necessarily to be condemned? Acute episodes are easier to approach. One can't just study "cancer" or "arteriosclerosis"; one must have a handle to grasp and turn. This is set out elegantly in Medawar's *The Art of the Soluble* (1967), a book McKeown has read, but apparently has not found persuasive.

He likes Thomas's characterization of modern medical diagnosis and treatment as "halfway technology." This is fair; all clinicians realize that much of what they can do today is to palliate manifestations of the end-stages of long-established diseases. The fact is we aren't even halfway there, but is it a bad thing to do what we can to alleviate symptoms? Relieving pain by replacing a diseased hip joint or by performing coronary by-pass surgery is often enormously successful in terms of quality of life for the afflicted person. There have been substantial advances in treatment since McKeown was a medical student, with unarguable benefit to sufferers from many chronic diseases, even though we don't understand the causes of

those diseases. Some examples are Parkinson's disease, rheumatoid arthritis, ulcerative colitis, pemphigus, and disseminated lupus erythematosus. Dermatologists, now able to employ steroids so effectively in many skin diseases, would not readily accept McKeown's belittling of the accomplishments of laboratory science. It would be nice to know the cause of benign hypertrophy of the prostate and to be able to prevent its occurrence. But until we do, it is comforting that urologic surgery has developed a low-risk treatment requiring only a short period of hospital care. Consider what it must have been like to suffer the effects of prostatic hypertrophy at the time mortality statistics began to be collected in England and Wales. (This disease, incidentally, may have been one of the factors in the high mortality from what was called "nephritis" in 1851!) The fact that we can bring malignant hypertension under control now, whereas it would have led to early death thirty years ago, is gratifying to us. Admitting that the therapy of neoplastic diseases has not yet advanced very far, and that we know almost nothing about etiology, it is an exhilarating experience now and then to witness apparent cure of some patients with Hodgkin's disease and some with childhood leukemia, by means of chemotherapy and radiotherapy.

McKeown emphasizes the major health problems in developed countries today: motor vehicle accidents, alcoholism, smoking, poor eating habits, and drug abuse. He feels that medical school teachers fail to put sufficient emphasis on this and that practicing doctors should do more to alter the behavior of their patients. The truth is that most doctors do everything they can think of to educate and persuade their patients about these dangers. Hundreds—yes, thousands—of special clinics have been organized to deal solely with such problems as obesity and alcoholism, but the results have uniformly been discouraging. Doctors can explain, cajole, or threaten, but they do not have police power. McKeown should have a go at one of these efforts himself; the one certain outcome would be greater charity toward us.

The space allocated for comments does not allow discussion of several other points made by McKeown. I must say, however, that I do not accept his point that clinicians take too little interest in the environmental and genetic factors that contribute to disease—something we refer to daily under the term "risk factors." It is a little difficult, too, to conceive of a practical implementation of his

recommendation that a single hospital should accommodate acute and chronic illness, patients with subnormal mentality, and patients with the multiple disabilities of old age. He is unfair in charging that clinicians do not adequately evaluate therapeutic procedures. The fact is that we are constantly setting up good scientific prospective clinical trials. (We have long since realized that retrospective analysis—the method he employs—is fraught with unidentifiable sources of error.)

The Role of Medicine does a praiseworthy job of presenting a long-range perspective of health problems in recent centuries, and its conclusion that the greatest improvements resulted from forces other than medical practice is undeniable. But in his criticism of clinical teachers and clinical practice, McKeown indulges in massive and unjustified overkill. His perspective is so distant, so telescopic, that he is unable to appreciate the individual triumphs and comforting measures which we clinicians, working in an imperfect world with one patient at a time, can claim as our contribution.

References

- Billroth, Christian A.T. 1876. *Die Allgemeine Chirurgische Pathologie und Therapie*. Berlin: G. Reimer.
- Burnet, Sir Macfarlane. 1971. *Genes, Dreams and Realities*. Aylesbury, Bucks, England: Medical and Technical Publishing Co. Ltd.
- Illich, Ivan. 1976. *Medical Nemesis*. New York: Pantheon Books.
- McDermott, Walsh. (In press). *Perspectives in Biology and Medicine*. Chicago: University of Chicago Press.
- Medawar, P. 1967. *The Art of the Soluble*. London: Methuen.

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The conclusion that physical suffering is not inevitable and can often be relieved when it occurs does not of course meet the objection that pain is rewarding and should be accepted, even sought rather than resisted. Such ideas usually come from people of exceptional sensitivity and imagination who should be careful about prescribing for others who are less gifted or less afflicted than themselves. A man may say paradoxically: I find life a misery yet dread the prospect of death; I can come to terms with existence only if I resign myself to pain and suffering. But except on religious grounds, which can be accepted or rejected, he should not pass the same harsh sentence on other people, I suspect the large majority, who do not share his anguish, and find severe and prolonged suffering, like severe and prolonged poverty, degrading rather than elevating. Moreover response to distress is not unrelated to the background and condition of the individual who bears it; it is one thing to give up wealth, like Francis of Assisi, and quite another never to have had it. After a period of debauchery, repentance at Yasnaya Polyana must have been more refreshing for its master than for one of his servants, and the down-and-outness of an Old Etonian who subsequently put his experience into a book was very different from that of a peasant who fled from rural poverty in East Bengal to urban squalor on the streets of Calcutta. It would be unfortunate if the prescription for bearing the ills of the flesh were written by those who bear mainly the ills of the mind, for there are many more suffering peasants than there are Tolstoys and Orwells.

The Role of Medicine: Dream, Mirage, or Nemesis?
Thomas McKeown,
The Nuffield Provincial Hospitals Trust, 1976,
pp. 170–171.