

Section of Epidemiology & Preventive Medicine

President Joan Taylor MB

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Specialized Training in the Management of Communicable Diseases

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Training of Epidemiologists for Control of Communicable Diseases

The best way to manage communicable diseases is to discover infections quickly and stop them from spreading. This indicates the need for a first-class laboratory service and a first-class epidemiology service, whose work is so closely interwoven that the two are in real and continuous contact. We need to handle outbreaks with skill and wisdom; but we must also make a continuous and always fresh study of the ever-changing problems in order to advise on how best to limit and prevent future infections. One difficulty is that episodes of communicable disease differ widely and often unpredictably from one to another. There are important differences, not easy to define, among the causal agents, the means by which they are spread, the human and animal populations, and the whole environment of the community within which these variables interact. We need, therefore, a race of epidemiologists with specialized knowledge of communicable diseases to take responsibility for large regions. We shall soon need to make up our minds how, where, and with whom these regional epidemiologists are to work; for then we might know better how these important people should be trained for their specialty. We urgently need decisions on these matters; and it seems like putting the cart before the horse to discuss the training of the epidemiologists before we have defined their work or created enough jobs to make it seem credible to young people that there is a career for them in this field. But perhaps we might assist thought and hasten decisions if we tried to clear our minds on how to train epidemiologists to manage com-

municable diseases. First we need to know what these specialist epidemiologists ought to be doing.

The Present Position

Alone, I cannot presume to describe the whole of this field as it is today; and I am not brave enough to say exactly how I think it should be tomorrow. But seven things seem reasonably clear to me. (1) Before 1945 the management and control of communicable diseases was virtually the main work of the medical officer of health. But in recent years there has been a big decline in the interest of medical officers of health in communicable diseases – partly because of many other preoccupations, partly because there has been a great reduction in the deaths and the illnesses caused by microbial diseases, partly because of changes in the practice of medicine as a result of the National Health Service, and partly by reason of a severe reduction in the microbiology content of post-war courses leading to the Diploma in Public Health. (2) As a result, more and more, the medical officer of health tends to make only infrequent appearances on the scene. In any major episode he must appear, because its management is his statutory responsibility. His statutory powers will very often need to be invoked. He has the duty of making known the relevant facts to all who need to know them and of co-ordinating the actions of the team, which will usually need to have many components. (3) The effective discharge of such important interventions is not assisted by their infrequency; so a way must be found of ensuring that there is regular and frequent contact between the 'epidemiologist-manager' and all whose technical skill and advice must be available to understand an outbreak and handle it sensibly – neither creating needless panic nor failing to appreciate the true significance of certain findings; neither creating suspicion by saying too little nor creating alarm

by going further than is necessary. (4) Between major episodes, work must be going on all the time to deal with less dramatic episodes of infection, to uncover unsuspected communicable diseases, to trace with great precision and detail exactly how microbial agents are spreading, to assess the best methods of prevention, and to explain the issues, in principle and in detail, to all the numerous people of different backgrounds whose interests are involved and whose co-operation is essential. (5) There is more to this than an expertise in microbiology; but, to fill the gap, many public health microbiologists have acquired the Sherlock Holmes flair which leads to concentration on the main issues. (6) Thus, although I do not think that the microbiologist's training makes him an epidemiologist without more ado, I think that epidemiology will suffer unless epidemiologists know enough microbiology to know how to assess laboratory findings with knowledge and wisdom. (7) Routine observation, regular collection and analysis of laboratory reports, planned field inquiries, controlled trials, systematic surveillance, and understanding of human relationships are all required by an epidemiologist who is to specialize in the management of communicable diseases.

Suggested Programme of Training

If my picture of the work required is anywhere near being correct we have some clues about what the course of training must include. In my view the epidemiologist needs to be medically qualified and registered. He should follow a specialist training leading to a consultant post in the National Health Service. He should be a part of the Public Health Laboratory Service and of the Health Authority. This will probably mean something like 6 years' further training after full registration with the General Medical Council. It is difficult to specify the exact time that ought to be spent on each aspect of the training. Obviously there will need to be experiment as well as discussion. With this cautious attitude, therefore, I offer the following outline scheme for consideration. It assumes a 6-year programme of training after full registration. Part of the time would be spent on training on the job and part of it in academic studies.

First year: Post-registration training for one year: six months in an infectious diseases hospital and six months in general practice.

Second and third years: A two-year academic course, including: enough microbiology to ensure that the trainee appreciates the wide differences in the characters and habits of the main known causal agents of communicable

diseases; public health law and methods of administration; statistical methods and the use of computers; the organization of controlled trials; the collection, organization, analysis and assessment of routine reports from laboratories and the field; and enough study of behavioural science to improve the student's understanding of human relationships.

Fourth year: A year based on a laboratory of the Public Health Laboratory Service to increase acquaintance with the common microbes, to develop a capacity to judge the significance of laboratory reports, to learn how to decide what examinations are worth making and which are in need of being abandoned, and to gain experience of collaborative work in the study of hospital infections and communicable diseases in the field.

Fifth year: A year based on a local authority health department to see the problems of communicable diseases from an administrative angle involving local administration, inter-authority relationships, and relationships with other constituents of the health and social services.

Sixth year: A year of wider experience – perhaps overseas in a place like the Communicable Disease Center of the USA; perhaps in the epidemiology set-up of the Public Health Laboratory Service; perhaps in a government department; or perhaps in an academic department or research institute. The choice would depend on the trainee's special interests and the opportunities available.

Need for Posts and Experiments

But at present there are only a very few senior posts for communicable disease epidemiologists. As indicated, I think it not too hard to see what a good, balanced, 6-year postgraduate training might include; but it is difficult to advocate this with conviction to potential trainees for whom there are no permanent posts. We need as a matter of urgency to set up posts for regional epidemiologists with a proper career structure. They will require to be paid at the same level as consultants in the National Health Service; and they will need to be so linked to local health authorities that they may use or call upon the statutory powers at present vested in medical officers of health. They must also have a clear connexion with the Public Health Laboratory Service. Points of detail about their registration as specialists and their appropriate higher qualifications should not be too hard to settle. Without waiting or much argument, as I believe, we should now resolve to press for an experiment. I should like this meeting to encourage me to seek

agreement and finance for two supernumerary posts within the Public Health Laboratory Service in order to make a training experiment that would link together for this purpose a university, a local health authority, a regional hospital board, and the Public Health Laboratory Service. I should be willing to try to negotiate for two trainees the necessary co-operation among these four authorities. The results would show us how to work out the details. I realize that various political and administrative questions of the reorganization of all the health and social services complicate the problems we are discussing. But the professional needs, as I think, are clear enough to show us what kind of trial we should be attempting. Until we get something going on these or similar lines we shall remain in the present unsatisfactory position in which nobody is clear who is to control a particular outbreak of infection, talk to the press and public, and co-ordinate the collection of information and the giving of sound advice; and we are left with the unhappy position that much of the good work done at present by the Public Health Laboratory Service is insufficiently understood and imperfectly applied. The consequences of this deficiency are the two contradictory attitudes of alternating indifference and panic towards communicable diseases. The first attitude is that communicable diseases have almost ceased to matter and that nothing much need be done about their study or control. The second is that an old-fashioned plague has incredibly and mysteriously come upon us—how on earth can we stop it and whose head should come off as a sacrifice to prevent a recurrence of this outrageous aberration of nature?

Instead, we should now make up our minds to establish regional epidemiologists in communicable diseases and set about erecting a pilot experiment to discover how best to train them and thereafter use them.

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The claim I shall make, and hope to sustain, is that we need in our hospital services a group of physicians who have a special interest and training in the communicable diseases, and that we are in great danger that this specialty will be under-represented in our medical community.

The historical background is well known. Vast fever hospitals were built to house patients with the great epidemic diseases and, fortunately, provision on this scale has become unnecessary. But in the last fifteen years the decline in demand for isolation facilities has levelled off. There is a steady and often heavy demand on the facilities which the larger units provide. The type of patient admitted has, however, changed a great deal: instead of catering for very large numbers of patients with diseases such as diphtheria, scarlet fever or poliomyelitis, these units now admit patients with a very wide variety of medical, and sometimes surgical, problems.

The need for a continued and renewed specialty does not, of course, arise only because of the persistent problems of communicable disease. There is also a vast field of clinical microbial diseases deserving special study over and above the special problems of communicability, as can be seen on a quick round of any general medical or surgical ward. The need for a specialist group is evident if one considers the vast expansion of virology and immunology; the complexity of antibiotic problems, ranging from their clinical pharmacology in the individual to their effects on a whole community; problems of infection associated with immigration and foreign travel; renewed problems of hospital cross-infection and a host of other examples. No one would claim that every infection needs a specialist for its treatment, any more than every iron deficiency anæmia needs a hæmatologist or every respiratory disease a chest physician. But many problems could best be dealt with by a physician with special training in this field. Infectious diseases is not a system specialty but rather a sphere of interest related closely to general medicine and pædiatrics on the one hand, and to microbiology and epidemiology on the other. One still meets remarkable misconceptions about the nature of the work of infectious diseases units and many people remain unaware of the wealth of clinical and educational interest to be found there, among the many cases that pose problems in epidemiology and social medicine as well as in individual diagnosis and treatment. Sir James Howie (1967) has pointed out the fallacy of believing that reduction in deaths from notifiable infectious diseases means that the clinical management of infectious diseases is now easy.

These persistent misconceptions arise from the separation of infectious disease from the rest of hospital medicine. For a century the hospital management of these patients was under the care of local authorities although even before the main epoch of infectious diseases hospitals in the