
Training in infectious diseases—looking to the future

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INTRODUCTION

In 1990, the UK Royal Colleges of Physicians and Pathologists issued a joint report on training in infectious diseases [1]. In the foreword they wrote: 'In recent years it has been realized that infections cause serious problems, some of which are increasing'. Reading this now, nearly 10 years later, one might be forgiven for thinking that this was an example of the masterly art of British understatement.

The need to have physicians trained in infection was recognized by the Colleges even earlier, in 1976, when they recommended that each district general hospital should have a 20-bed infection unit. The theme was reiterated 6 years later by David Tyrell, in his Rock Carling lecture, 'The Abolition of Infection. Hope or Illusion?' [2]. He devoted a whole chapter of this fascinating monograph to Organization and Training, and wrote: 'Without question [infectious diseases] must be a different type of speciality from that in the past. The old type fever hospital wards are gone, we hope for ever, and practice needs to be in most flexible units with single bed isolation and closely associated with a general hospital with a full array of resources for diagnosis and specialized treatment such as intensive care.'

Despite these efforts, few changes took place and infectious diseases in the UK remained a small speciality, largely (although not exclusively) focused on regional infectious diseases units. However, pressures were building for change, driven in part by the increasing importance of infection and the rapid spread of antimicrobial resistance, and by the parallel changes in the discipline of medical microbiology, which was shifting from a predominantly laboratory-based discipline to one with a significant bedside consulting role. Indeed, it became increasingly clear that the interface between clinical microbiology and infectious diseases was becoming very blurred, and that there were many doctors who wished to practice on that interface and were willing to obtain the necessary skills to do so. This then was the background that led the

Royal Colleges, by now represented by a single Joint Committee on Infection and Tropical Medicine, to look once again at training in infection-related disciplines.

THE EXISTING MODEL

It is useful to start by summarizing briefly the existing pattern of training in the infection disciplines (Figure 1).

All doctors who wish to train in subspecialties of internal medicine spend the first 2 years after qualification in general medical posts. (Rarely, doctors who wish to train in microbiology will go straight into that field at Senior House Officer level, but that is becoming increasingly uncommon.) The purpose of the general medical training is to obtain experience in unselected acute general medicine, and, nowadays, many trainees will use this time to work towards Membership of the Royal College of Physicians (MRCP), the 'entrance examination' which is a prerequisite for higher training in any subspecialty of internal medicine. At this point the trainee must make a key decision, to specialize in medical microbiology or infectious diseases. Traditionally, microbiology has been a speciality overseen by the Royal College of Pathologists; it has been seen as a laboratory discipline, and, indeed, technical skills form a key component of the final 'exit' examination, the MRCPPath. Microbiologists can go on to practice in hospitals as National Health Service consultants, as academics or in industry. In addition, most of the public health doctors and infectious disease epidemiologists in the UK were trained initially in medical microbiology.

In contrast, the infectious diseases track was overseen by the Royal College of Physicians, and has been regarded as the 'bedside' speciality. Similarly, infectious disease doctors could finish up working in clinical practice, academia or industry, and a small number would specialize in tropical medicine.

The picture painted here, although certainly not true for everyone, is a reasonably fair general representation of the status quo, in which relatively junior doctors needed to make key decisions about the kind of medicine they wanted to practice at a rather early stage in their career. We need to ask if this model is appropriate for the current needs of medical practice.

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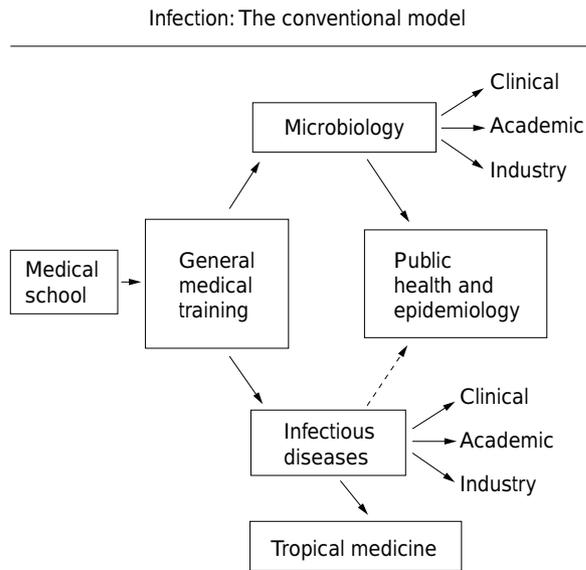


Figure 1 A diagram summarizing the current pattern of training, in which an early decision is made to specialize in microbiology or infectious diseases.

NEED FOR CHANGE

What should an infectious diseases physician do? At the turn of the century, the answer would have been rather easy; infectious diseases doctors worked in fever hospitals, usually situated away from major conurbations, and concerned themselves with the classic communicable diseases. They looked after measles, malaria and meningitis, polio, diphtheria and 'infective jaundice'. Today, the picture is much less clear. For sure, there are 'core' areas in which all infectious diseases physician would be expected to be competent. These might include: community-acquired infections (e.g. meningococcal meningitis); travel-associated infections (e.g. malaria); and fever of unknown origin. For these cases, the infectious diseases doctor will often be the primary physician, with total responsibility for the medical care of the patient.

Then there are the many infections with interfaces with other disciplines, e.g. hepatitis, tuberculosis, or osteomyelitis. In the UK, these diseases would usually be under the primary care of gastroenterologists, respiratory physicians and orthopedic surgeons, respectively. However, they are certainly infections and, indeed, in some centers, largely for reasons of local convenience, practice or interest, infectious diseases doctors will have a significant, even primary, role in the care of these diseases. Whether all infectious diseases physicians should be expert in diseases such as this is more debatable.

A third category is what one might call infections in special patient groups, e.g. pediatrics, the immunocompromised host, HIV/AIDS, or nosocomial infection, especially on the ICU. These areas raise some interesting questions. So far as UK practice is concerned, virtually all 'routine' pediatric infectious disease is cared for by pediatricians. There is a tiny handful of specialist pediatric infectious diseases physicians, and adult infectious diseases doctors will occasionally give advice when there are rare or difficult-to-manage infections. However, in general, pediatric practice is not considered to be part of the remit of the adult infectious diseases doctor.

HIV medicine is more complicated. In the very large HIV centers, the demand is such that there is a need for full-time AIDS specialists, who practice solely in that area. These doctors come from a variety of backgrounds, including infectious diseases, genitourinary medicine or chest medicine. However, this is the exception, and it is certainly true that infectious diseases doctors would be expected to be competent to manage HIV/AIDS as part of their general practice.

In the case of the immunocompromised patient or ICU infection, infectious diseases physicians will rarely be the primary carers, but they will often work in close collaboration with hematologists, oncologists or ICU doctors in the joint management of the patient.

Finally, there are the related disciplines such as tropical medicine, public health, epidemiology, and genitourinary medicine. Infectious diseases doctors would certainly be expected to have some knowledge of these areas—and, indeed, infectious diseases will sometimes have been the initial training pathway—but in the main, these represent separate areas of specialization.

In summary, then, the scope of infectious diseases is indeed very broad. There are a number of overlapping areas of expertise (Figure 2), and it is probably unreasonable to expect that any individual will be expert in every aspect of the subject. Hence, we need to ask a second question. For whom, and for what, are we training infectious diseases doctors?

There are a number of potential 'customers', including academic centers of excellence, district general hospitals, government agencies and the pharmaceutical industry. Their requirements will clearly differ. However, it has become clear that there is a demand for doctors who have broad experience in clinical and laboratory medicine, who are equally comfortable at the bench and at the bedside, and who can move with confidence between them. It is this demand that has been the impetus behind a new initiative in training in infection which has lately been developed in the UK.

INFECTION—A MODEL FOR CHANGE

The key component of this new scheme is a 'third way', a joint training track in clinical microbiology and infectious

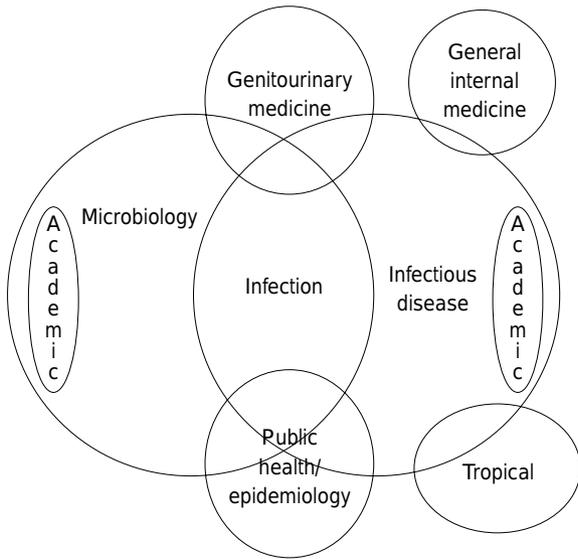


Figure 2 The overlapping areas of expertise of the infection disciplines.

diseases. Instead of requiring the trainee to decide, at an early stage, whether to be a ‘laboratory’ or a ‘clinical’ doctor, it allows him or her to progress through training while gaining both sets of skills, and to decide much later exactly what kind of practice to follow (Figure 3). Flexibility is all-important; we anticipate that trainees who go down this route will have the potential to move between predominantly microbiological and infectious diseases practice, between academia and clinical work, much more easily. Perhaps most importantly, they will be well placed to work in general hospitals, where there is a need for rigorous laboratory control but also for significant clinical practice. Naturally, the period of training will be somewhat longer than training in either speciality alone, and will generally be 6 years.

The outline program is shown in (Figure 4). The entry requirements will be 2 years of general professional training, with at least 18 months of direct experience of acute medicine, including 6 months of the care of unselected emergencies. Trainees will also need to have passed the MRCP. Some experience of an infection-related discipline will be advantageous, but not essential. Trainees satisfying these requirements will compete for a specialist registrar (SpR) position which will then entitle them to a National Training Number (this is the same process that exists for all Higher Specialist Training in the UK). We anticipate that regions that are interested in offering these schemes and that have the necessary local expertise at consultant level will establish complete rotations, and that these will be advertised as such. It should be emphasized

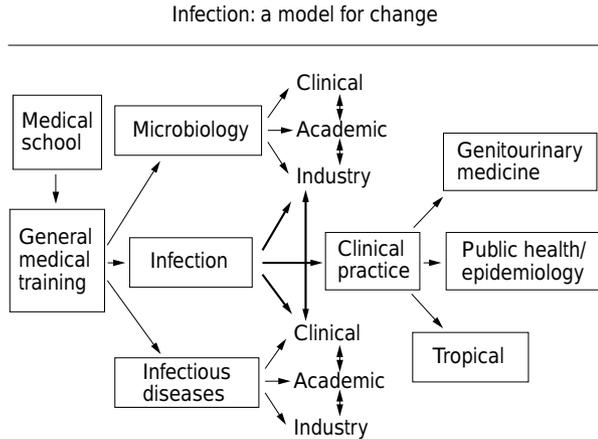


Figure 3 A model for the future. Monospeciality training in microbiology and infectious diseases will remain an option, but there will be a third option, joint training in infection. This is likely to increase the options available to trainees and will lead to greater flexibility in career paths.

that this ‘third way’ is not intended to replace existing ‘monospeciality’ training in microbiology or in infectious diseases. It will still be possible to train in either alone, and the joint training track simply represents an alternative option.

Combined training programme in infection

Year	1	2	3	4	5	6
		Laboratory – Medical microbiology				
			Medical microbiology 6 months, Virology 6 months			
				Clinical infectious diseases		
					Clinical infectious diseases	
						Clinical/Laboratory project
						Medical microbiology 6 months, Infectious diseases 6 months

Figure 4 An outline of the proposed new Joint Training Scheme in Infection.

The first 2 years are concerned largely with training in microbiology. They will probably be largely laboratory based, and trainees will learn the basics of laboratory safety and practice, and methods of microbial identification. They will also spend 6 months studying virology. It is anticipated that, during this period, there will also be significant exposure to a ward-based infection consulting practice.

Years 3 and 4 focus primarily on clinical infectious diseases. Trainees will need to spend significant periods gaining experience of the management of acute community-acquired infections, and in addition will begin to acquire experience in at least some of the specialist areas such as HIV medicine or ICU consulting. Equally important will be a continuing interaction with the diagnostic laboratory, perhaps by attending daily bench rounds.

Year 5 is designed to accommodate the requirements for the MRCPPath, which asks for a period of relevant research in the form of a dissertation or laboratory project. This year offers considerable flexibility, especially for trainees who wish to undertake a higher degree. We anticipate that the majority of trainees will want to obtain a research degree, usually a PhD, which in the UK means a 3-year period of full-time research. For these doctors, one of these 3 years in research will count towards their 6-year training period, i.e. this will be their year 5. The following 2 years will be additional; thus their total period in training will be 8 years. Funding for these 3 years will need to be found from alternative sources, most commonly by the award of an MRC or Wellcome Trust Training Fellowship. For those who choose not to do a higher degree, their 1-year project or dissertation will be done during the tenure of an existing SpR post. Thus, the salary will be provided in the normal way by the Trust (hospital) in which they hold their appointment, and hence they will be able to discuss with their training supervisor the most suitable type of clinical work, depending on the availability of posts and the particular needs of the trainee.

Finally, the sixth year is intended to 'plug the gaps'. Six months will be spent in microbiological work and 6 months

in a clinical field, the intention being that trainees and their supervisors will, wherever possible, be able to plan this period to ensure that a complete spectrum of experience has been obtained.

At the end of training, trainees will be eligible for a CCST (Certificate of Completion of Specialist Training) in both Medical Microbiology and Virology, and in Infectious Diseases. They will be in possession of both MRCP and MRCPPath (providing they have passed the examination), and, if they chose to do so, a higher degree. It should be noted that they will not have a CCST in General (Internal) Medicine. There is no theoretical reason why they should not do the additional training required to obtain this, but it will lengthen the training by about 18 months, and doctors who wished to do this would need to make individual arrangements with the Regional Postgraduate Dean.

THE FUTURE

This joint training track is not for everyone. It will be rigorous and demanding, and it will take longer than monospeciality training. We do not know at this stage if there will be a 'market' for these trainees: only time will tell. What is clear, however, is that there is much enthusiasm for this approach, among both trainees and supervisors. It is just one possible way forward for a training in infection, but we believe that it is responsive to changes that are taking place in the delivery of healthcare. We are also hopeful that it will prove to be the basis of an exciting and challenging career in medicine, and also represent an improvement in care for our patients.

REFERENCES

1. Royal College of Physicians and the Royal College of Pathologists. *Training in Infectious Diseases. Report of a joint working party*. London, 1990.
2. Tyrell DA. *The abolition of infection. Hope or illusion?* London: The Nuffield Provincial Hospitals Trust, 1982.