Performance review is at an embryonic stage. FPC administrators are keen to take part in an agreed and planned system of performance review but only as a contribution to the College's quality initiative. FPC administrators must be careful to avoid any question of forcing performance review on unwilling family doctors. Such reviews must not be seen as some sort of disciplinary stick with which to beat the profession and, in fact, the whole subject will only be successfully implemented if it is seen in a positive light by the profession as contributing to patient care and as value for money. Having said that, the Council of the Society of Administrators wholeheartedly shares the view of the Chairman of the College, when launching the quality initiative, in hoping that FPCs will adopt a more vigorous stance in administering the contracts of family doctors. In this connection the majority of FPCs already have plans to visit practices, providing an opportunity to explain the schemes that exist to assist family doctors in improving premises and to talk over other matters of particular local concern, for example, the effectiveness of nursing attachment schemes, the employment of additional ancillary staff, the use of age–sex registers, general relationships between the practice concerned and the FPC and relationships with the other family practitioner professions.

CLIVE W. PARR
Administrator, Cheshire Family Practitioner Committee

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Biotechnology: implications for general practice

SEVERAL advances in molecular biology have occurred in the last 15 years which promise great clinical improvements and the likelihood of intense ethical and moral dilemas. As general practitioners we must look to the future if we are not to find ourselves taken unawares by events. This issue of the *Journal* contains the first of two articles reviewing biotechnology, the implications it holds for general practice and why it is important to start thinking about these innovations now.

Biotechnology has been defined as the application of biological organisms, systems or processes to manufacturing or service industries. As such the term embraces traditional activities, for example brewing, but here refers to today's advanced genetic technology.

In the last 10 years our ability to manipulate the DNA molecule — whether of viral, bacterial, plant or human origin — has been radically extended. It is now possible, for example, to isolate from human tissue the DNA sequence that is the gene for manufacturing insulin and insert the DNA fragments into *E.Coli* bacteria so that the bacteria utilize the gene and produce pure human insulin in commercial quantities.

Such technical virtuosity might seem just another esoteric advance on the road to human enlightenment. But we must face the fact that advances in genetic engineering will have serious implications for all branches of medicine. The wide range of problems presented to general practitioners and their place as mediators between the patient and the technically complex medicine of the hospital means that the innovations and the dilemmas arising from biotechnology will have great impact in primary care.

The articles are concerned with two aspects of bioengineering. The first article reviews some of the technical methods, such as recombinant DNA techniques, which enable particular genes to be isolated and then utilized in bacteria. Initially this is likely to permit the production of physiological substances, such as interferon, calcitonin and endorphins, and perhaps in the future derived compounds for use as drugs. There follows an outline of genetic probes, which are tools that locate particular genes on the DNA molecule and which will greatly increase our understanding of the genetic component of many diseases. One likely outcome will be the ability to screen both the fetus and the adult for those genes associated with particular diseases. Combining these approaches signals the distant approach of gene therapy — the attempt to use human DNA itself as a therapeutic agent. The second article takes a wider view of the social and ethical problems that biotechnology presents to general practice.

It is extremely difficult to predict the timescale of advances in biotechnology. Many of the developments hold immense commercial possibilities and new academic and business arrangements for research deliberately enforce a degree of secrecy unprecedented in the medical sciences. In the next few years, therefore, general practitioners may find themselves suddenly presented with startling new clinical opportunities.

The promise of the advances is tremendous but if we are also to avoid the ethical and practical pitfalls, an informed medical and lay audience is essential. We hope that these two articles will contribute to an awareness of the power of the biotechnological revolution that is now beginning to affect us all.

PAUL HODGKIN
EDWARD YOXEN