

Our attempts at forecasting in previous editions of this book have met with mixed success. We have predicted that some new procedures would be described (but not by us), and that some of them would prove to be worthwhile. However, most of our comments have been targeted elsewhere—at the practical difficulties involved in getting the message out and the job done. We stated ‘toys have turned into tools, and the excitements of conception have inevitably engendered the obligations of parenthood’. These issues continue to dominate, and have come into somewhat closer focus.

However, it does no harm to speculate first on some of the technical trends. The imperatives of disinfection, always logical but recently driven by the acquired immune deficiency syndrome (AIDS) pandemic, have caused manufacturers to give ease of cleaning and disinfection a high priority in design, and has even spawned the first (partially) disposable endoscopes. These are beginning to prove popular for flexible sigmoidoscopy in some isolated units which do not wish to gear up fully for formal chemical disinfection. The search for better cleaning and disinfection machines and effective, safe disinfectants continues. The demand for less costly procedures has led to increasing interest in sedation-free endoscopy which reduces the need for monitoring and recovery. Smaller ‘screening’ endoscopes and transnasal passage are being re-evaluated. The opposite trend is for more complex therapeutic instruments, for example a large-channel ‘bleeding’ endoscope. Double-channel instruments have particular application but have not become widely popular. Developments in enteroscopy are to be anticipated, particularly a sonde-type instrument with tip deflection and a therapeutic capability. Control body ergonomics will be improved; self-steering and ‘lumen-seeking’ instruments are in prototype development. Automatic scope location (without fluoroscopy) is being developed using electromagnetic sensors; the endoscopic image and the scope position in the body are viewed simultaneously on the video monitor.

Diagnostic devices will be improved. Surely it is possible to develop a biopsy instrument which would provide multiple samples without repeated passage down the channel? The marriage of endoscopy and ultrasound will generate better devices for sampling submucosal and adjacent organs. Focused ultrasound may become a therapeutic tool for the destruction of tumours and stones. Tumour therapy should improve in other ways. The pioneering efforts of Japanese endoscopists in resec-

tion of early tumours (mucosectomy) will gradually be adopted in the West—with endoscopic ultrasound defining the target and the result. Photodynamic therapy will become more popular as more convenient and safer photosensitizers are developed. Endoscopic gene therapy is already being explored. Engineering skills being used in the laparoscopic revolution will have some spin-off in flexible endoscopy. We will be able to sew, and to leave clips and loops. Current stent research will yield an increasing harvest. Expandable, covered and removable stents will improve existing applications and open new ones.

Other new perspectives will be opened with the ‘digital key’. The change from fiberoptic to charged couple device (CCD) image capture has been a terrific boost for teaching, and reduces the risk to endoscopist’s eyes (and necks). But the real gold is in the potential for image capture, enhancement, analysis and transmission. Spectroscopy may well yield important clinical information. Image transmission opens up all the potential of ‘telemedicine’.

### **Evaluation and documentation**

The simplicity of electronic databases and the increasing interest in ‘outcomes research’ provide the tools and an environment in which we can evaluate our procedures in a meaningful way. We need to track defined patients, lesions, goals and outcomes—and demand that other specialties undergo the same discipline. What we do nowadays is so complex that we cannot possibly keep track without accurate and detailed recordings, including representative images stored from every examination. Without documentation there is no measurement. Without repetitive measurement (audit) we cannot improve the process. For this is the essence of our task — to do the job better. Comparisons of endoscopic treatments with surgery and interventional radiology are not possible unless we develop a common database, and particularly a method for recording realistic risk factors. Increasing interest in quality of life indices is a welcome development since it swings the focus back to the object of our profession—the patient.

### **Delivery problems**

Some endoscopy procedures are undoubtedly worthwhile. Others need to be tested. Whatever is good (or at least better than the current alternatives) has to be made available as widely as possible, and at high quality. This requires a functional health-care system and effective methods for teaching and funding the necessary professionals (doctors, nurses, support staff). In the last edition of this book, we spoke of the different arrangements in the UK and USA. At that time, budgets were fixed annually in

the UK, and there was pressure to do *fewer* procedures, or at least to prioritize stringently. The pressures were quite different in the fee for service sector of the USA. Doctors and institutions both had a vested interest in maximizing endoscopic activity. There was less scrutiny of indications, and more opportunity for abuse. Gastroenterologists and endoscopy units proliferated. It is a fascinating irony that these polarities are being (somewhat) reversed. The UK is moving to a system with some competition, at the same time that the USA is flirting with capitation. These trends will have an enormous impact.

We have also spoken before about the relationship between surgery and gastroenterology. In the USA, the endoscope has been used as a weapon in an academic turf battle. Whether endoscopes 'belong' to gastroenterologists or to surgeons is a sterile issue. It is surely more productive to think of therapeutic endoscopy simply as a new form of surgery, and to attempt to break down the artificial barriers which may interfere with its best use. The laparoscopic revolution has substantially changed the surgical mind set, providing more flexibility and greater mutual respect across the disciplines. The opportunity to develop a multidisciplinary Digestive Disease Centre was the reason why one of us (PBC) has moved recently to the Medical University of South Carolina, in Charleston. The plan is to blur the distinction between surgeons and gastroenterologists to the extent that these differences no longer interfere with streamlined specialty care. There are joint facilities, goals and documentation, and a common springboard for clinical research. These collegial principles have long been espoused at St Marks Hospital in London, where CBW does most of his endoscopic 'surgery'. This small hospital specializing in colorectal disease is renowned for its team spirit, and has spawned numerous alumni devoid of interprofessional paranoia. St Marks Hospital has also moved recently to join a large community hospital with a new endoscopic centre and renewed commitment to teaching.

We sincerely hope that our book provides some guidance as we approach the 21st century. The next time we meet will probably be in cyberspace.