Existing guidelines on the management of acute pancreatitis reflect the controversial nature of this subject. The guidelines of the British Society of Gastroenterology offer no specific recommendation.[4] The practice guidelines of the American College of Gastroenterology say that it is reasonable to initiate treatment with antibiotics in patients with necrotising pancreatitis.[5] The guidelines on the surgical management of acute pancreatitis of the International Association of Pancreatology are the most recent.[6] Its recommendation—that prophylactic broad spectrum antibiotics reduce infection rates in necrotising pancreatitis proved on computed tomography but may not improve survival—reflects the uncertainty of the evidence that has emerged from the trials undertaken to date.

A Cochrane review recently undertaken by Bassi et al examined four of nine randomised controlled trials related to antibiotic prophylaxis in acute pancreatitis.[2] This choice was based on all four studies having similar entry criteria: the presence of pancreatic necrosis proved by contrast enhanced computed tomography. However, variations were seen in drug agent, case mix, duration of treatment, and methodological quality. There were no double blind studies. The meta-analysis showed an advantage for antibiotics for the two primary end points—all cause mortality and rates of infection of pancreatic necrosis. The reviewers therefore recommend the use of broad spectrum antibiotics active against enteric organisms (cefuroxime, imipenem, or ofloxacin with metronidazole) for one to two weeks, in patients with proved pancreatic necrosis.

However, serious concerns exist about such a policy. In a study by Beger et al carried out before antibiotic prophylaxis became widely used, organisms cultured from infected pancreatic necrosis were predominantly of gastrointestinal origin (*Escherichia coli* and *Bacteroides* spp).[7] The microbiology results of a more recent study, comparing perfloxacin and imipenem in pancreatic necrosis, were dominated by methicillin resistant *Staphylococcus aureus* and *Candida* spp.[8] This development is important because evidence is beginning to emerge which indicates that infection with fungi and drug resistant organisms is associated with a significantly increased mortality.[9] More data on possible adverse effects with prophylaxis with antibiotics are clearly required.

Furthermore, preliminary results from two further randomised controlled trials have recently been presented, which fail to show a benefit for prophylaxis with antibiotics.[10 11] The first double blind study of prophylaxis with antibiotics in acute pancreatitis has been undertaken by Isenmann et al, who compared ciprofloxacin and metronidazole with placebo in patients with severe acute pancreatitis. This did not reduce the incidence of infected necrosis or mortality. The authors therefore advocate that a policy of antibiotic treatment on demand should replace prophylaxis with antibiotics. Specific indications for antibiotic treatment would include a newly developed systemic inflammatory response syndrome, progressive organ failure, and clinical deterioration, with or without evidence of bacterial infection. This study may lead us to a more rational approach to the use of antibiotics in acute pancreatitis.

Despite this controversy, the Cochrane reviewers' recommendation of the use of broad spectrum antibiotics active against enteric organisms, in patients with pancreatic necrosis proved with computed tomography for one to two weeks, is a reasonable one given current evidence. Progress will be made, however, and adverse effects minimised when the indications for the use of antibiotics in acute pancreatitis are refined further and made more specific.

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Payment by results—new financial flows in the NHS

The risks are large but may be worth while because of potential gains

A revolution is happening in the money flows around the NHS in England. "Payment by results" is essentially a way of paying providers a fixed price for each individual case treated.[1] Each case, say an admission to hospital, will be grouped into a healthcare resource group according to the treatment carried out and the clinical condition of the patient. Then a fixed price or tariff will be assigned to each healthcare resource group, based on the national average cost of treatment in NHS trusts in England. From 1 April 2004 locally determined tariffs apply to the growth in activity for 48 healthcare resource groups, covering all surgical and most medical specialties. From April 2005 nearly all specialties will be commissioned on this basis, with the national tariff being phased in over three years. By 2008 all health care will

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be covered, including outpatients and ambulatory care, and national tariffs will then apply to private providers. Foundation trusts coming on stream this year will adopt "payment by results" a year early. This reimbursement system for providers based on case mix is similar to that used in many countries such as Australia, Norway, and the United States. The difference in the United Kingdom is that it will be more extensively applied, potentially to all health service activity wherever it is provided.

The risks are large but may be worth while because of the potential gains. Paying providers on a cost per case basis, rather than the current block contract basis (not linked to number of cases treated) may encourage providers to treat more patients, as payments will reflect workload and productivity much more clearly and support the new policy to allow patients a choice of provider. A fixed national tariff may encourage providers to scrutinise efficiency and to compete with other providers (private and NHS) more on the basis of quality than price. The system should allow greater transparency in the prices charged by NHS relative to non-NHS providers before it is applied to the latter in 2008. Paying for each individual treated will force providers to improve information, particularly the accuracy of hospital episode statistics, on which good commissioning and planning depend.

For primary care trusts and primary care providers, the incentives should encourage them to treat more patients upstream to avert costly admissions many of which may be preventable. This will be critical if the rising challenge of managing patients with chronic diseases is to be tackled more fully. In time primary care trusts will be able to redirect resources from secondary to primary care, which should in turn prompt more interest in primary care and prevention by secondary care staff. Finally a fixed national tariff will mean that primary care trusts, in particular those who have weakest bargaining capacity, will be less subject to the strong arm twisting techniques of acute trusts to lever up the prices of contracts, although disputes may shift to other dimensions of care, such as quality and volume.

So why is this change risky? Since the fixed tariffs are based on national average costs, 50% of acute providers will have costs below and 50% above the tariff. Overnight, those with costs below the tariff will face windfall surpluses whereas their primary care trust commissioners will face steeper bills and those NHS trusts above the tariff risk sizeable financial losses. Politically this is worrisome—the gains from extra investment in the NHS may be more than cancelled out by stories of crises as hospitals face closure. While "payment by results" will be phased in over three years, one is an election year. So far ministers have been uncharacteristically sanguine about closures, unlike their predecessors in the mid-1990s. Hospitals with costs over the tariff for some treatments might be tempted to stop doing these treatments rather than improve efficiency—with knock-on effects on access to care for local populations. The tougher financial regime will severely test an already stretched capacity in financial management in the NHS, as finance departments face this and other serious challenges—for example, implementing a whole new system of paying staff.[2] Payment using healthcare resource groups critically depends on the accuracy of the numbers of patients and the clinical coding of inpatient data—well recognised problems exist with both in NHS trusts. Healthcare resource groups still need to be refined for complex cases—for example, in mental health, critical care, and for specialised services. More fundamentally, funding services on a cost per case system may not be a good basis for planning some specialised services for which a service is necessary almost regardless of demand (for example, very specialised services such as major trauma care and treatment for burns). A list of other problems still needs to be sorted out—for example, how best to compensate hospitals in high cost areas and for the costs of teaching and research.[3–5]

"Payment by results" is the most important policy in a recent stream that alters incentives in the NHS for individuals and institutions. Taken together with other policies, such as the new general medical services contract,[6] the new consultant contract,[7] and patients' choice,[8] the incentives environment in the NHS is being changed radically—and it is about time. Four related things are now needed. Firstly, we urgently need a comprehensive analysis of how all these incentives are beginning to operate in a sample of health economies, in particular the impact, if any, on clinical staff, which cannot be done from the eyrie in Whitehall. Secondly, we need a full evaluation of the costs and benefits of "payment by results." Thirdly, we need a clearer national and local articulation of how all these incentives can be harnessed to achieve some basic objectives beyond bald headlines of efficiency and choice, such as fast access, care close to home, and better management of demand. For example, at present the incentives are not well aligned in favour of managing chronic disease better at home; acute trusts have little incentive under "payment by results," or indeed foundation status to act to prevent avoidable admissions and may block the efforts of primary care trusts.[9] Finally, in the spirit of shifting the balance of power,[10] health economies need freedom to experiment with these incentives given the basic structure now in place.

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