in which the "purpose of admission" is considered to be an explanatory variable, has been found to increase the predictive power of formulas used to compare resource consumption and outcome in the United States.[14]

The first step in this process is to describe what is currently happening. Purchasers need more information on the packages of care provided for the population for whom they are responsible. Panels of clinicians could advise on which of the commonly observed patterns of multiple admissions should properly be regarded as a single episode (as in the example of diabetes given above) and generate rules for use with routine hospital information systems. The absence of a unique NHS patient identifier remains a problem, although this is less important if readmissions to a single provider are being considered, as the same hospital number will normally be used for each patient. Existing information systems containing diagnostic data cover only inpatient and day surgery. In future, defining packages of care that include outpatient treatment will be necessary, particularly because patients with chronic disease are receiving more of their care in the community.

The contracting process is in its infancy; purchasers are negotiating multimillion pound contracts on the basis of totally inadequate information, and improving health through the contracting process is still a long way off. But the key position of the consultant episode in the contracting process and the possibility for opportunism by less scrupulous providers make it essential to consider more clinically and epidemiologically relevant alternatives for describing health care and provider activity.

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Whistle blowing: a curse on ineffective organisations

Better management, not gagging, is the answer

Competent managers have nothing to fear from whistle blowing. They have no reason to write clauses into employees' contracts forbidding them to talk to the media. Indeed, such gagging clauses are highly likely to create the conflict that managers are trying to avoid. Rather than wasting time trying to gag staff, managers should be concentrating their energies on creating organisations where whistle blowing and gagging are both irrelevant.

One of the best analysed episodes of whistle blowing began in February 1991 when a doctor at the Christie Hospital went to the media about a woman with renal cell carcinoma who was denied treatment with interleukin 2—supposedly on grounds of cost.[1] Huge publicity resulted, and the woman was eventually given the drug. An inquiry conducted by Michael Orme, professor of clinical pharmacology in Liverpool, concluded, however, that the publicity was "almost totally counterproductive": staff and patients lost confidence in the hospital; some patients were worried that they had not got the treatment they should have had on grounds of cost; and fund raising was made more difficult.[2]

The background to the story was that interleukin 2 had no product licence, and its usefulness in renal cell carcinoma was still unclear. The drug's use had been considered by the hospital's drug and therapeutics committee, but the oncologists, it emerged, had no faith in the committee. Most of Professor Orme's recommendations related to improving the decision making mechanisms within the hospital. The episode showed that management by media is hopeless.

Most organisations eventually have to take tough decisions. Difficult choices, particularly over allocating resources, have long been part of working in the NHS. The choices will become tougher, and there may be more losers than winners. The fear that the losers will tell all to the media is what leads managers to reach for their gags. They make a mistake. Instead, they need to create organisations—be they hospitals or health authorities—where employees feel enough part of the decision making process not to need to blow their whistles.

You begin by letting everybody know what is going on. If the rhetoric is glossy brochures full of the word "quality" and the reality is elderly patients with pressure sores in back wards with peeling paint, then staff will become cynical and demotivated. They need to be convinced that the available resources are used fairly, efficiently, and effectively. The surest way to convince them is to involve them in decision making. The decisions that are made must be clearly and honestly communicated. Staff must have a chance to come back on poor decisions, and managers should not be afraid to reverse decisions that are wrong.

If staff understand the true circumstances of the organisation and feel that their views have been given serious attention then they will accept tough decisions. But if seemingly arbitrary decisions appear from nowhere then staff will be unhappy and one or two will contact the press. Managers who try to create a climate of fear will neither stop whistle blowing nor run an effective health service. Managers also have a broader responsibility to their local communities, and being honest with the local media is no less important than being honest to staff. A long term relationship with local journalists that includes discussing difficulties will produce much richer returns than a cloud of obfuscation and a brisk "No comment" after somebody has blown the whistle. Letting arguments be

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conducted in public is no bad thing in a public service and may also help to make the public aware of the complexities of many of the issues.

Every employee should, however, have the right to blow the whistle when all else fails. There sometimes comes a point when doctors and others must draw public attention to iniquities. Some of what has been happening in Britain's special hospitals and prisons provides good examples of where whistle blowing was needed. In circumstances where the public gain from whistleblowing is substantial the law should offer protection—as in the United States.[3]

Although we need legal reform, the main message is that managers worried about whistle blowing should concentrate their energies on improving the management in their institutions rather than on trying to gag staff. Similarly, staff should insist first on good management and only secondly on the right to blow the whistle—because whistle blowing usually achieves little.

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Gangliosides and neurological diseases

Their use in humans should be suspended

Gangliosides are found mainly in nerve cells but also occur in smaller concentrations in other cell types. They belong to the family of complex acidic glycosphingolipids and make up about a tenth of the total lipid content of the nerve cell plasmalemma. These complex glycolipids are formed in the Golgi apparatus of the cell, transported down the axon, and from there incorporated into the lipid bilayer of the axolemma. A complete understanding of their normal role and function is not yet available, but they are likely to be involved in signalling between cells. The ganglioside G_{m1} acts as a cell surface receptor for cholera toxin.

Exogenous gangliosides help in the regeneration of peripheral nerves, enhance formation of neuromuscular junctions, and promote neuronal sprouting. They also increase peripheral nerve enzymes such as sodium and potassium ATPase, adenylate cyclase, and phosphodiesterase. In the gangliosidoses the metabolism of gangliosides is clearly abnormal, and evidence is accruing of their involvement in many neurological diseases (for example, multiple sclerosis[1]).

Antibodies to gangliosides, particularly to the G_{m1} ganglioside, are present in the serum of patients with many different diseases. High titres of antibodies to G_{m1} have been found in patients with motor neuropathies, especially multifocal motor neuropathy (a clinical syndrome of asymmetric limb weakness with neurophysiological evidence of motor conduction block and axonal loss). Claims have been made that these patients may benefit from immunosuppressive treatment.[2] The antibodies are clearly not specific—similar high titres have been found in patients with such diverse neuropathies as chronic inflammatory demyelinating polyneuropathy, Guillain-Barré polyneuritis, and other lower motor neurone syndromes. They have also been found in patients with autoimmune disorders of muscle and even in normal people.[3]

The techniques of measuring these antibodies are relatively new, and even "minor methodologic variations can lead to large changes in results."[4] Investigations have shown that the antibodies react with a limited range of epitopes, usually on gangliosides G_{m1}, although cross reactivity with other gangliosides occurs. The antibody specificities and their possible relation to different diseases remain to be determined. What emerges from the studies is the suggestion that high antibody titres may be clinically important, but no firm conclusions can yet be drawn.

Gangliosides have been used to treat many neurological diseases. By 1990 more than 12 million patients around the world had received them.[5] Usually prepared from bovine brains, they have been used to treat patients with conditions as diverse as diabetic and alcoholic neuropathies, nerve injuries, dementia, Parkinson's disease, and cerebrovascular disorders.[5] An effect of the monosialoganglioside G_{m1} has been claimed in animals with nigrostriatal lesions. Originally thought to be due to enhanced sprouting, the effect is now considered to be a neuroprotective mechanism. Similar effects have been claimed to occur after treatment for injury to the white matter (for example, in optic nerve lesions[6] and acute injuries to the spinal cord, where considerable improvements in motor performance have followed treatment with gangliosides[7]). Similarly, treatment with gangliosides has been claimed to benefit animals with induced dopamine deficiency.[8] Recent evidence suggests that they are effective only when given shortly after injury,[9] which may explain their lack of efficacy in genetically determined disorders of the central nervous system.[5]

How gangliosides may bring about such therapeutic effects is unknown, but some studies have suggested that they may interact with endogenous trophic factors and counteract the toxicity of certain excitatory amino acids.[10]

Despite the accumulating claims for their therapeutic benefits gangliosides should be used extremely cautiously until more knowledge is available. This caveat is highlighted by this week's report by Figeuras *et al* of the development of serious complications in patients treated with gangliosides (p 1330).[11] Because these substances are immunogenic (with a role in producing a disease resembling experimental allergic encephalomyelitis in immunised animals[12]) and their therapeutic value is disputed further trials and experimentation in patients, if still continuing, should be suspended. Indeed, much better research in animals needs to be done on the normal and pathological function of gangliosides before they should be allowed any therapeutic role.

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