Medical Negligence: Evaluating Alternative Regimes

by H. S. E. Gravelle *

Danzon (1985) has demonstrated that medical accidents are a serious problem in the United States. It should be emphasised that similar problems also occur in the very different health care systems in Europe. For example, in the United Kingdom patients pay charges only for a small proportion of medical care and most of the cost of provision is met out of general taxation. Most hospitals are in the public sector and, except in the small private sector, doctors are paid salaries if they work in hospitals or by capitation fees if they are in the primary health care sector. Only in a small proportion of cases will the doctor-patient relationship resemble that in America where the doctors are generally paid on a fee per item of service basis by the patient or their insurer. Despite these differences there are similar grounds for concern about the number of medical accidents.

The table presents some evidence from the United Kingdom on the proportion of medical accidents which could be considered negligent. The death rate in the CEPOD (Confidential Enquiry into Perioperative Deaths) sample was 0.8% of relevant operations and the sample deaths were 3.4% of deaths from all causes in the three regions in the study.¹ The table is alarming but probably understates the problem since over a quarter of relevant deaths had to be excluded from the study because of the non-cooperation of the doctors involved. More importantly, studies of this kind do not provide any information on non-fatal medical accidents from brain damage under anaesthesia to failed sterilisations.

The evaluation of alternative policies requires (a) clear statement of the objectives; (b) positive models of the behaviour of decision makers and their responses to policy; (c) detailed empirical information. None of these requirements is likely to be easily satisfied in the case of medical accidents.

* Queen Mary College, University of London. This is a revised version of my comments on Danzon (1989) given at the conference on the Law and Economics of Professional Liability Insurance in Geneva in March 1988. It was written whilst I was visiting the University of Manchester as a Halls-worth Fellow.

¹ Buck, Devlin and Lunn (1987, page 13).

PERIOPERATIVE DEATHS IN THREE ENGLISH REGIONAL HEALTH
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	% of Sample Perioperative Deaths	
	Anaesthetist Assessor's Opinion	Surgeon Assessor's Opinion
Would not have agreed to anaesthetise	10.1	—
No operation should have been performed	4.2	6.4
Monitoring was inadequate	20.9	—
Departures from ideal practice	40.3	14.3
Death was avoidable	17.6	23.3

Source: Buck, Devlin and Lunn (1987): Tables 4.168, 4.170, 4.169, 4.167, 4.166, 4.159, 4.157, 4.156. Perioperative deaths are deaths within 30 days of an operative procedure carried out by an anaesthetist or surgeon in an NHS hospital. Diagnostic and therapeutic procedures are not included. The sample is all perioperative deaths in one year except those where other audit mechanisms were in place (eg maternal deaths and cardiac surgery). The number of cases in this sample where complete notes could be obtained was 2391.

It is essential to use *ex ante* rather than *ex post* criteria in assessing policies since they will almost always affect the amount of care taken by doctors and thus the likelihood that patients will suffer medical accidents. It is natural to focus on the often appalling consequences of such accidents and the extent to which alternative policies compensate the victims. But policies cannot be judged solely by post-accident results such as the level of compensation received by victims and the administrative costs of compensation. There are two main difficulties. First, it is not obvious what the appropriate concept of *ex post* compensation should be. Should compensation aim to provide ideal insurance to victims? If so the marginal utilities of the victim in accident and no accident states will be relevant in determining the amount of compensation. But since the amount of insurance that would have been bought by the victim depends on the administrative costs of insurance should this be taken account of in fixing the amount of ideal insurance or compensation? An alternative aim of compensation and the one most frequently adopted by the courts is to make the victim as well off as he or she would have been if there had been no accident. Thus total utilities in the accident and no accident states are relevant for this concept of compensation. Unfortunately it will often be the case that there is no financial compensation which can equalise utilities in the two states, as with most fatal accidents.

Second, an *ex post* criterion which takes account only of the post-accident effects of policies will provide at best a partial ranking of policies. Most policies for example will alter the amount of care taken by a doctor. Thus the expected number of accidents will be changed and even if there is no accident to a particular patient there will be a change in resource use. Only an *ex ante* criterion which allows for effects in accident and no accident states and for the number of accidents will be able to rank all policies.

The requirement that we use an ex ante criterion creates serious difficulties arising from the assessment of probabilities. The standard notion of efficiency rests on the value judgement that individuals are the best judges of their own welfare. Under uncertainty this means that the analyst accepts individuals' own assessments of the probabilities of different states of the world as well as their preferences in each state. With medical accidents it is quite likely that individuals' probability assessments, especially those of potential victims, will be incorrect in the sense that they differ from the observed accident probabilities.² The policy maker should use the true probabilities in predicting the effects of policies on the number of accidents but which probabilities should be used in evaluating the ex ante expected effects on the welfare of individuals? Should the analyst accept the individuals' utility functions in assessing the consequences of medical accidents but use the true probabilities rather than the individuals' mistaken probabilities?

Predicting the effects of alternative policies requires models of the behaviour of the doctors, patients, insurers, the courts and regulatory authorities. It is not clear how we should specify the objectives of some of these decision makers. Systems of professional ethics require doctors to act in the best interest of their patients but it is not clear how far such ethics are internalised [Gravelle, (1985)]. Some professional liability insurers may be firms and therefore presumably aim to maximise expected profit. Others, especially in the UK,³ are mutual associations of doctors. It is not obvious what the objectives of such associations are, but the fact that they do not risk rate to the same extent as insurance firms do, indicates that they may respond differently to policies. The objectives of judges and juries are even less obvious. The fact that juries typically make higher awards than judges indicates that who decides court awards is important but it does not tell us how they will respond to policies.

It is assumed in much of the discussion of medical accidents that they are unilateral: the probability of an accident depends on the care of the doctor and is not affected by the behaviour of the patient. But patients can alter the probability that they will suffer a medical accident. Their behaviour (exercise, diet, cigarette consumption...) will influence their health and thus the probability that they will require the services of a doctor and their chances of surviving a medical accident. They may have a choice of doctor or hospital and can choose more or less careful doctors.⁴ Such choices will in part be affected by the likelihood of accidents and the financial and other consequences. Thus analysis of policies should recognise that medical accidents are bilateral and can be affected by the incentives provided to patients as well doctors. This may be important even if the analyst is primarily concerned with compensation rather than deterrence since it could be argued that individuals whose accidents are in part determined by their behaviour are less deserving than "blameless" victims.

The most important feature of models of medical accidents is the pervasiveness of asymmetrical information between the different decision makers. Patients are obviously

² See Machina (1988) for a discussion and extensive references.

³ See Bowles and Jones (1988) for a model of medical protection societies and an explanation for their premium structure.

⁴ The CEPOD study showed that there was great variation across hospital districts in the percentage of perioperative deaths which were avoidable [Buck, Devlin and Lunn (1987, Figure 2.2.)].

less well informed than their doctors about medical technology (the accident production function) and they will find it difficult to measure medical inputs. On some matters however patients will be better informed than their doctors: they will know more about the outcome and they will often be able to influence the outcome by their behaviour (taking medication as instructed, taking proper rest...). Such bilateral information asymmetry makes it difficult to devise contracts which will induce doctor and patient to take the appropriate decisions. Insurers will suffer from the usual problems of moral hazard and adverse selection whether they are insuring doctors for professional liability, or patients for medical expenses or for the consequences of medical accidents. The courts or other regulatory agencies will generally be less well informed than patients or doctors.

Although such information asymmetry will prevent the achievement of first best allocations by private decisions this does not necessarily mean that intervention is justified on efficiency grounds. Rational decision makers will recognise the problems posed by asymmetrical information and will attempt to mitigate them. Insurance companies for example will design insurance contracts to reduce moral hazard by coinsurance or excess clauses and statistically discriminate to reduce adverse selection. Further it must be realised that the information asymmetries will also affect the policy maker: it is not obvious in most cases that policy makers will have access to better information. Does this mean that the outcomes produced by private decision making cannot be improved upon? Arnott and Stiglitz (1986) and Gravelle (1986) have shown that even when the policy maker does not have superior access to information and individuals have done their privately efficient best to design contracts to reduce the costs of moral hazard and adverse selection it is still possible to increase efficiency. The reason is that the policy maker may have policy instruments which are not available to individual decision makers.

In the case of medical accidents there are many instruments available. Danzon (1989) discusses alternative liability regimes but, as she notes, there are many other ways of influencing the incentives for the production of medical accidents and the compensation of victims: legal procedural rules (cost shifting, limitation of actions, judge or jury trials, providing award schedules...), regulation of insurers, regulation of doctors, taxes and subsidies to patients, doctors or insurers. Danzon's discussion of the regimes she considers is admirably clear and so I will limit myself to suggesting briefly that one particular liability regime not examined by her has some attractive features which may make it worthy of more extended study.

Subrogation and no fault schemes

Choice amongst legal liability regimes will usually require a trade off of incentives for care by doctors against compensation of accident victims. New Zealand has a system of no fault compensation to victims of medical and other accidents funded by levies on employers, car owners and from general taxation. Sweden has a similar scheme solely for medical accident victims funded from a per capita levy [Ham et al (1988)]. The advantage of such schemes are that victims are much more likely to receive compensation and that administrative costs should be less than in regimes where liability is determined by courts and insurance by doctors or patients is private. As Danzon notes the disadvantages are the reduced incentive for doctors to take care and the deadweight losses caused by tax or levy finance. Administrative methods of improving the quality of care such as peer review could

be supplemented by financial incentives if the compensation fund had subrogation rights over the claims which it compensated. The fund could attempt to recoup some of its compensation payments from the doctor involved in the accident. Thus some of the costs of the accident would be passed to the doctor and would provide some incentive for care.

Doctors would presumably take out liability insurance against such claims by the compensation fund. This would not remove the incentives provided by the claims made by the fund against doctors, although it would weaken them. If insurance companies design their policy terms and premia to reduce moral hazard and adverse selection some of the costs of doctors decisions will still be borne by them. Those in higher risk specialities will have higher premia and no claim discounts and coinsurance would penalise less careful doctors in any given speciality.

The compensation fund would have a considerable advantage in claiming against doctors and their insurers compared with individual patients. The fund would be an experienced and knowledgeable player, it would be less risk averse in respect of any given claim or suit and its threats would be more credible. Subrogation would have some disadvantages in that legal and other administrative costs would be increased and doctors would bear some risk. Further as the literature on the positive models of public sector institutions shows, it may not be straightforward to devise incentive schemes for the compensation fund managers to make them behave efficiently in pursuing claims [Gravelle (1982)]. A compensation fund with subrogation rights would reduce to some extent the trade off between compensation of victims and incentives for doctors and would repay more detailed analysis.

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