

MEDICAL NEGLIGENCE AND THE NHS: AN ECONOMIC ANALYSIS

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SUMMARY

Medical negligence was estimated to cost the NHS in England £235m in 1996/1997, growing at rate of up to 25% per annum. Yet analysis of NHS accounts suggest that a change in accounting policy has led to growth rates and recurrent expenditure on medical negligence being over estimated. The main concern, however, is total societal cost, not the accounting cost to the NHS. The objective of policy should be to ensure that cost-effective investment in injury prevention takes place. Measures that simply shift cost to other social budgets or onto patients are not helpful. NHS arrangements changed in the 1990s with Trusts taking responsibility for claims against hospital doctors and a new NHS Litigation Authority providing insurance for Trusts. It is unclear, however, whether Trusts have had either the incentives or the ability to implement effect risk management policies. Estimates based on two US studies and one UK study suggest that negligence in the NHS in England may cause around 90000 adverse events per year involving 13500 deaths, but only resulting in around 7000 claims and 2000 payments. A priority must be the establishment of a comprehensive national database of claims information. Other policy measures are proposed to reinforce the incentives on Trusts and doctors to implement cost-effective risk management policies. Copyright © 1999 John Wiley & Sons, Ltd.

INTRODUCTION

Litigation for clinical negligence has been estimated to have cost the NHS in England £235m in 1996/1997 [1], with a rate of increase estimated at 17.5–25% per annum [2]. These figures are of great concern. They reflect prior harm to patients as a result of NHS activity and reduce the funds available for other activities. As US evidence [3] suggests that only a small number of patients harmed by negligent practice currently file claims, these figures understate the actual rate of injury and the potential growth of claims. The Secretary of State wrote to interested parties [1] on the 29th April 1998 for ‘ideas and suggestions’ as to what further action the NHS should take. This paper provides a response, setting out an economic

framework for evaluating policy options, examining UK and international evidence.

THE ECONOMIC CASE FOR PROFESSIONAL LIABILITY FOR MEDICAL NEGLIGENCE

Information asymmetry characterizes the services of many professionals and provides an economic rationale for professional liability [4]. Patients seeking medical care are usually imperfectly informed about both the competence of specific providers and the risks and benefits of treatments. Whilst reputation and clinical outcome publication may help *ex ante* choices, it is usually not possible for the patient to monitor the quality of

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care delivered. Tort (civil) liability of medical professionals, therefore, has two objectives:

- (i) to create incentives for providers to take appropriate precautions; and
- (ii) to compensate those injured.

Compensation can be provided at lower overhead cost through other forms of first party or social insurance which pays on the basis of the injury irrespective of the cause. Economic analysis, therefore, assumes that the primary purpose of negligence-based liability is to deliver cost-justified deterrence. Alternatively stated, the policy objective is to structure legal and other institutional arrangements to minimize the total social cost associated with iatrogenic injuries. These costs include:

- (i) Costs of injuries, including compensation costs borne by the NHS, other social and private insurance arrangements, and uncompensated costs borne by patients.
- (ii) Costs of injury prevention, including: the cost-justified precautions that the liability system is intended to encourage; defensive medicine, defined as changes in care that are undertaken to reduce the risk of suit but are not cost-justified [5]; and the administrative costs of risk management.
- (iii) Litigation and other related overhead costs (including lawyers fees, the uncompensated time and anxiety of patients and doctors, and hospital and insurance company overheads).

The policy focus should be total societal cost. By contrast the objective implicit in most current policy discussions is to reduce accounting cost to the NHS. Yet this understates total negligence-related costs borne by the NHS which include, *inter alia*, the cost of NHS medical care for victims. It would be easy to reduce measured NHS cost by making it harder for patients to win actions. However, if this shifts cost to other public sector accounts or to patients, there is no net social gain and a social loss if the incentive to avoid negligent behaviour is thereby diminished. The test of any reform proposal is whether it will reduce the total cost to society, not the measured cost to the NHS.

Optimal policy can also be stated in terms of cost-effective investment in injury prevention, analogous to investment in any other procedure. The deterrence benefit is reduced harm to pa-

tients by injury, which could in principle be measured in terms of QALYs. Optimal investment in injury prevention should depend on the cost-per-QALY that can be achieved compared to investing those funds elsewhere. The Secretary of State has incorrectly suggested [1] that expenditure on medical negligence necessarily detracts from patient care. It depends on the technical and allocative efficiency of such investments.

NHS INSURANCE ARRANGEMENTS AND COST INCIDENCE

Two 1950s NHS circulars required all NHS doctors to join medical defence organizations (MDOs). MDOs were responsible for handling claims against their members. Damages were shared between the MDO and the NHS according to their respective shares of responsibility.

In 1990, following a decade of rising claim costs and subscription rates, the Department of Health instructed Health Authorities to take on full responsibility for all new and existing claims of negligence against employees. GPs, who are self-employed, continued to have their subscriptions fully refunded in arrears.

In theory, Health Authority assumption of enterprise liability should improve deterrence, assuming that the employer is better able to implement measures to reduce risk than the employee. However, in 1990, hospital managers were far removed from day-to-day clinical practice and lacked the information and authority necessary for system-wide management of risk. The main practical effect was to reduce hospital doctors' role in claim settlement and eliminate their concerns over premiums. The initial impact of the policy change may, therefore, have been to reduce incentives for injury prevention.

Liability for new incidents was transferred from Health Authorities to NHS Trusts (i.e. hospitals and other providers) in 1991. In theory, Trusts with high litigation costs would have higher prices and so be penalized in the internal market. But if Trusts face inelastic demand for their services, internalizing their liability costs would have little deterrence effect since costs could be passed on to purchasers. There was, however, concern about the lack of risk pooling and about lack of expertise given the small number of complaints any Trust would face.

In 1995, the NHS Litigation Authority (NHSLA) was set up to run a Clinical Negligence Scheme for Trusts (CNST). The CNST pools the costs of Trusts liabilities for clinical negligence arising from incidents occurring after 1st April 1995. It was set up on a pay-as-you-go basis to minimize the short term cash implications for Trusts. Contributions collected each year are only sufficient to cover claims paid out plus expenses. The main aim of the CNST is to 'minimise the overall costs of clinical negligence to the NHS, . . . defending unjustified actions robustly, settling justified actions efficiently, and creating incentives to reduce the number of negligent incidents' [6].

By 1996–1997, 384 out of 429 English NHS Trusts were CNST members. Initial CNST premiums ranged from £2000 for an ambulance trust to £60000 for a large acute hospital [7], according to:

- which of four categories of services a Trust provided;
- turnover;
- choice of excess level ranging from £10000 to £500000;
- Trust ability to meet ten core risk management standards and one clinical standard on maternity care.

Trusts pay claims up to their excess level and then 20% of sums between this level and an ultimate threshold of between £100000 and £1000000. The CNST pays everything above the threshold with no upper limit. Since the mean settlement is around £50000, significant excesses could create strong incentives for Trust risk management, depending on the elasticity of demand for their services.

A separate Existing Liabilities Scheme (ELS) was established in April 1996 for claims for injuries occurring prior to 1st April 1995. Under the ELS, a Trust or Health Authority can apply for 80% funding of claims over £10000. The ELS meets all liabilities above £500000 [8]. The NHSLA also took over responsibility for the residual liabilities of Regional Health Authorities in 1996.

These major changes in the 1990s to NHS insurance arrangements raise important issues of moral hazard and effective deterrence and practical difficulties of measuring trends in the incidence and cost of clinical negligence.

EVIDENCE ON THE INCIDENCE AND COST OF MEDICAL NEGLIGENCE

Injuries and claims

There are no comprehensive data on the incidence of negligent injuries in the NHS or elsewhere. The most comprehensive studies of medical negligence are retrospective studies of hospitalization in California in 1974 [9] (California study) and New York in 1984 [3] (Harvard study). Teams of doctors and lawyers reviewed the hospital charts of several thousand patients to determine the incidence of iatrogenic injuries and the proportion attributable to negligence.

These studies found that around 4% of patients suffered an iatrogenic injury (adverse event) with about 1% experiencing an adverse event due to negligence (i.e. 25% of adverse events were due to negligence). On average 15% of adverse events caused or contributed to death. If we uprate 1990 calculations for England, based on these studies, by Smith [10], for increases in NHS activity, this would give an estimate of around 90000 adverse events per year for the NHS in England caused by negligence involving around 13500 deaths. The studies found that only around 10% of negligent events resulted in a claim, and fewer than half of claims led to a payment. This would imply around 9000 claims and 3600 payments per annum for the NHS.

Fenn *et al.* [11] surveyed 142 of the then 190 English district health authorities to obtain claims information for 1990–1991. On this basis they estimated for England as a whole around 6000 new claims, and around 1600 settled (for payment) claims, with around 22000 outstanding claims at the year end. Uprating for increased NHS activity implies around 7000 claims and 2000 payments in 1997. This suggests a lower claims rate than that extrapolated from the US studies, which may reflect differences between US and UK definitions of injury and negligence [12], lower rates of injury, or higher rates of unfiled claims.

Since the Fenn *et al.* [11] study few data have been published. In August 1997 [13] the CNST had 779 claims reported, and in March 1997 there were 5130 claims reported [14] under the ELS. However, these data cover more than 1 year of operation and do not include claims settled by non-CNST members, claims below the excess

Table 1. Medical negligence costs reported in the 1996–1997 NHS accounts

	Charged to income and expenditure				Movements on provisions			
	(1) Claims cash out £m	(2) Provisions £m	(3) Other £m	(4) Total £m	(5) Opening £m	(6) Cash out £m	(7) Provisions £m	(8) Closing £m
HAs	–	87.9	–	87.9	221.4	77.2	87.9	232.1
Trusts	1.8	62.9	8.0	72.7	80.9	15.0	62.9	128.8
NHSLA	5.3	69.1	4.1	78.5	–	–	69.1	69.1
Total reported	7.1	219.9	12.1	239.1	302.3	92.2	219.9	430.0

Source: Comptroller and Auditor General. *NHS (England) Summarised Accounts 1996–1997*, The Stationery Office, 21 July 1998.

thresholds of both schemes, and claims against GPs met by the MDOs. These numbers are, therefore, not comparable with those of the Fenn *et al.* study. They do not suggest, however, that the 1990s has seen a dramatic increase in claims over and above the underlying rate of increase of NHS activity.

Claim costs to the NHS

A 1988 King's Fund Study [15] estimated that the NHS was paying £60m towards doctors' MDO subscriptions, whilst compensation, legal and administrative costs totalled £15m for Health Authorities—a total cost to the NHS of £75m. A 1991 NHS consultation paper [16] estimated that the NHS paid out £50m for medical negligence in 1990. A parliamentary answer estimated total NHS cost for England at £53.2m for 1990–1991 and £51.3m for 1991–1992 [17]. These figures were similar to the calculation of Fenn *et al.* [18] of a total cost of £52m for 1990–1991. They exclude NHS reimbursement of GP MDO subscriptions and NHS administrative costs and thus could be consistent with the overall King's Fund estimate of £75m.

However, after this point trends become less clear:

- in 1994 the NHS estimated claim costs at £75m in England in 1993 [19];
- the *British Medical Journal* reported NHS costs to be running at over £150m per annum in 1995 [20];
- in 1996 the NHS estimated expenditure of £200m for 1995/1996 rising to £500m by the year 2000/2001 [21].

The basis for these reported sharp increases in NHS claim costs is unclear. Estimating trends in claim costs is complicated by the 'long tail'. The average time from injury to claim reporting is 3 years and settlement can take several years. Understanding trends has been made much more difficult by the shift in responsibilities to Trusts and the new central schemes, and by changes in accounting policies to move from cash outlays to an accruals basis. Trusts are now required to make provisions for claims reported but not paid [2]. They are allowed to deduct the share that they expect to be met under the CNST or ELS [22]. In addition they will be expected to provide for incurred but not reported (IBNR) claims when a method of calculating likely cost has been derived [23].

The medical negligence components of the most recent published NHS accounts are set out in Table 1. The numbers show that although £239m [24] was charged to English NHS income and expenditure accounts, only £7m of this was cash paid out in claims. The bulk—£220m—was charged to provisions against future payouts. However, £92m cash was paid out from reserves, giving total cash expenditure of £99m. Comparing this figure with the Fenn *et al.* estimate of £52m for 1990–1991 suggests a compound annual growth rate for 1996–1997 of 12.5% annum. This, although of concern, is half the quoted annual growth of 25%. An accruals-based estimate of 1996–1997 costs would involve removing a £69m NHSLA provision as a one-off adjustment, to give a figure of £170m. Although a true accruals figure would include NHSLA provisions for its likely share of the cost of CNST claims reported

in 1996–1997, this is probably the best estimate of recurring cost. However, we cannot compare this number with the cash-based estimates of the early 1990s. Whilst we strongly support the move to accruals accounting for claims reported, it is critical to distinguish the resulting one-off provisions from a change in underlying trend. We conclude that growth rates and recurring annual costs are currently being overestimated as a result of the change from a cash to an accruals basis. Further problems of interpretation may occur if full expensing of IBNR claims is introduced.

When the new arrangements are in steady state, accounting should be simpler. With the handling of claims concentrated in the Trusts and the CNST it should be possible to establish a set of consolidated data on claim frequency, severity and payout. We propose that such a centralized database be established as a top priority, for tracking system trends and—if sufficient detail were included—providing useful information for risk management programmes.

Evidence on the impact of liability on defensive medicine, deterrence and risk management

The evidence from the California and Harvard studies suggests that most negligent events do not lead to a claim, and most claims are not linked to negligent events at least as reflected in hospital charts. If true, this could undermine deterrence and create incentives for defensive medicine. White [25], however, estimates that an injury due to negligence is much more likely to lead to a claim than an injury not associated with negligence, hence significant deterrence incentives remain.

Defensive medicine can be defined as changes in practice that are induced by the threat of liability, are not cost-justified, and not simply the result of insurance induced moral hazard, as distinguished from the cost-justified changes that liability is intended to encourage. A study of consultants in the Oxford RHA area [26] found no evidence of defensive medicine although 56% of respondents had received at least one complaint. Many responses to complaints were positive—better record keeping, fuller consultations with patients, and increased clinical vigilance. A study of 300 GPs in the UK [27] found that 98% reported changing clinical practice to reduce the possibility of a patient complaining. The most

common changes appeared to be cost-justified rather than defensive medicine, comprising increases in diagnostic testing, referrals, and follow-up, more detailed patient explanations and note taking. Although these studies are small and rely on self-reported behaviour, the findings are encouraging.

Several US studies have found that the distribution of claims against doctors, controlling for medical speciality, is more concentrated than could be explained on the basis of chance [28,29], and that doctors' prior claims experience partially predicted their subsequent claims [30]. While these studies strongly suggest that 'bad apples' may be part of the problem, rather than just random bad luck by competent practitioners, such conclusions remain uncertain because none of these studies adjust for the severity or number of cases treated. Risk management, however, goes beyond identifying poorly performing individuals. In the US, a comparison of 40 hospitals in Maryland [31] found that those with risk management programmes had fewer claims than those without them. A study in California [32] found that incident reporting systems led to potential claims being identified more rapidly by hospitals.

OPTIONS FOR REFORM

Changing the liability rule: 'no-fault' systems

Proposals have been advanced for administrative 'no-fault' schemes, drawing on the experience of Sweden and New Zealand. The key characteristics of these proposals are:

- (i) the criterion for compensation is changed, eliminating the requirement to prove fault;
- (ii) an administrative process is substituted (optionally in Sweden) for the tort process.

However, although such systems are called no-fault, they are not in practice. No-fault would extend compensation to all adverse outcomes of medical care, including those within normal risk. Neither the Swedish nor New Zealand schemes do so. Sweden provides compensation only if an injury was preventable, implying some notion of error. New Zealand originally provided compensation for all unexpected injuries but has introduced a stricter notion closer to medical error [12]. More importantly, these systems are 'no

blame' since they sever all links between compensation of the patient and penalty or discipline to providers and professionals who, therefore, have little reason to oppose claims. This tends to reduce administrative cost, a feature commonly cited by proponents of these schemes, but thereby foregoes deterrence. Budget costs are also kept low by collateral source offset [33] shifting cost to other social insurance programmes and by foregoing the information systems necessary for risk management. In sum, 'no-fault' schemes may result in relatively low accounting and overhead costs but real social costs from the loss of deterrence and cost shifting are probably high.

The Secretary of State has ruled out the no-fault option on the grounds that he could not 'condone the use of money to make payments where there is no legal obligation in respect of the injury being alleged' [1]. However, the real problem is that such schemes are not cost-effective from a societal perspective. Nevertheless certain components of these schemes—in particular, schedule-based damage rules and administrative disposition—could be adopted to achieve some cost savings without foregoing the deterrence of fault-based liability.

There are strong economic arguments for scheduled limits on an irreplaceable loss, such as compensation for pain and suffering [5,34] and limits exist in the UK. Scheduled amounts for quasi-medical costs, such as special education and nursing care, might also be appropriate for limiting the potential moral hazard implicit in unlimited compensation.

A shift to detailed procedural rules for tort cases may bring the benefits of an administrative process. Such a system of case management was proposed by the Woolf Report [35,36] to reduce the costs and delay in litigation. Its key features are:

- early communication between claimants and defendants, and target dates for disclosure of medical records;
- both parties to make realistic and prompt settlement offers with premium damages for defendants who fight on, lose and face an award above the offer;
- scheduled costs of elements of care for severely injured patients, to avoid case-specific calculations;
- use of a single (jointly instructed) expert witness for smaller more straightforward cases,

with meetings between experts where they were separately instructed;

- a fast track for cases up to £10000 with strict time and cost limits.

We strongly endorse these proposals, for medical negligence and other civil litigation, and note the adoption by the NHS [37] of the Pre-action Protocol [38] which will accompany the new Civil Procedure Rules which come into force in April 1999. Other alternatives worth considering include arbitration and other dispute resolution processes. Specialized administrative tribunals could use simplified rules of procedure and clearer definitions of negligence and compensatable damages. Where national evidence-based standards of care are established, these could be used to determine negligence. Clearer definitions of a compensatable event would reduce error and litigation expense. The use of specialized adjudicators would also reduce error, increase predictability and hence provide a clearer signal to doctors.

Financing of legal action

Under the traditional 'English rule' the loser pays both sides' legal costs. Risk-averse plaintiffs may, therefore, be reluctant to even bring a meritorious case, resulting in a suboptimal rate of litigation and suboptimal deterrence. However, most medical negligence plaintiffs receive Legal Aid, which does not pay the costs of the other side if the plaintiff loses. Whether this results in too much or too little litigation depends on the extent to which Legal Aid lawyers review cases and on the fees they receive relative to their opportunity cost of time.

An alternative mechanism to Legal Aid is the offer of 'no win, no fee' by lawyers. Law Society rules allowing contingent fees came into effect in 1995 [39]. However, even though plaintiffs would not have to pay their own lawyers if they lose, they still face the risk of paying the other side's costs. At least one insurer is offering cover for medical negligence cases. Thus a plaintiff could negotiate a contingent fee with a lawyer and simultaneously buy insurance to cover the other side's legal costs if the case is unsuccessful.

A move to contingent fees is likely to reduce patients' incentives to bring claims, because of the cost of buying insurance, and increase the incentive of plaintiff lawyers to screen cases and decline

those with a low chance of winning. The net effect would be to decrease the incentives of both patients and their lawyers to file claims. If, as the evidence suggests, the number of claims already falls short of the number of negligent injuries, policies that are likely to further reduce the frequency of claims may not be advisable if the objective is to reduce societal costs rather than NHS and Legal Aid costs.

If contingent fees are combined with the English rule on costs, then one possible alternative is to make the unsuccessful solicitor, rather than the patient, pay the costs of a defendant who prevails. This would place all of the incentive for screening out dubious claims on the lawyer who should be better informed than the patient. However, lawyers would presumably require higher fees on successful cases to compensate for the added costs if they lose. Unlike the US, UK contingency fees are restricted to the hourly fee rate for work done plus a mark up to a maximum of 100%. If those constraints are binding, this would reduce lawyer willingness to take cases on such a basis.

CONCLUDING COMMENTS

The Secretary of State's call for views on tackling medical negligence is timely. However, given the lack of reliable information on trends in number and size of claims, and of their causes, making significant policy changes seems premature. We conclude as follows [40]:

- (i) Published data on payouts is insufficient to identify underlying trends and their causes. Both growth rates and total recurring cost are currently being overestimated as a result of failure to adjust for accounting policy changes. Expensing of IBNR reserves should not be adopted pending more analysis. A high priority is the establishment of a comprehensive database of claims on a sound actuarial basis using accrual accounting. Such a database should cover both hospital and primary care with the co-operation of the MDOs. The data could be held by the NHSLA.
- (ii) Incentives are crucial to reducing the occurrence of events. NHS liability must operate as an effective deterrent for individual doctors. This means ensuring that the CNST

moves to experience rating and that the insurance market is contestable. The White Paper emphasis on Trust responsibility for quality through the introduction of effective clinical governance, and on the related publication of outcome measures and the use of inspection teams, should help shift attention to the avoidance of adverse outcomes and so reinforce risk management procedures. Ability to pass through liability costs due to inelastic demand of purchasers remains a concern, however.

- (iii) In order to encourage primary care groups to achieve better risk management and litigation savings, they should be permitted to assign individual provider liability by voluntary contract, or to adopt collective enterprise liability. Such changes could be monitored on an experimental basis. In any case the GP market for liability insurance should be made more contestable if, however, GPs are able to pass on the costs of their insurance to the rest of the NHS, then the incentive to improve performance is diminished.
- (iv) The White Paper changes raise the possibility of new litigation based on lack of local use of national treatment frameworks or clinical guidelines. If such local flexibility is considered desirable, providers and professionals must follow due process and support their decisions on the grounds of cost-effectiveness.
- (v) We concur with the Secretary of State's rejection of no-fault proposals, but for different reasons. They dilute or eliminate deterrence and rely on cost-shifting (e.g. to social security budgets) to achieve budget 'savings'. However, some components of these schemes are useful, in particular the use of simplified rules of procedure. In this context the Woolf proposals offer the promise of reducing wasteful overhead cost, while preserving deterrence.
- (vi) Where negligence has occurred, a speedy NHS response is required. The NHSLA is encouraging Trusts to be more proactive in managing patient claims. The NHS should design and implement performance standards in this area.
- (vii) Legal Aid financing requires review. However, given that claim rates are below the

likely incidence rate of negligent injury, careful consideration is needed of any proposals for change. Simply removing Legal Aid for medical negligence claims will reduce claim rates unless it is linked to more flexible arrangements for contingency fees.

REFERENCES

1. Dobson, F. *Dobson to tackle rising levels of litigation in the health service*. DH Press release, 29 April 1998.
2. Comptroller and Auditor General. *Report of the Comptroller and Auditor General in NHS (England) Summarised Accounts 1995–96*. London: The Stationery Office, 18 July 1997.
3. Weiler, P., Hiatt, H., et al. *A measure of malpractice: medical injury, malpractice litigation and patient compensation*. Cambridge: Harvard University Press, 1993.
4. Spence, M. Consumer misperceptions, product failure and product liability. *Review of Economic Studies* 1977; **64**: 561–572.
5. Danzon, P. *Medical malpractice: Theory, evidence and public policy*. Cambridge: Harvard University Press, 1985.
6. NHS Executive. *The National Health Service Litigation Authority: framework document*. London: NHS Executive, 1996.
7. Mason, T. and Hickey, J. The Clinical Negligence Scheme for Trusts: pooling the risk. *British Journal of Health Care Management* 1995; **1**: 154–157.
8. NHS Executive. *Clinical negligence funding: new arrangements for claims incurred before 1 April 1995*. FDL (95) 56, NHS Executive, 1995.
9. Mills, D., Boyden, J., et al. *Report on the Medical Insurance Feasibility Study*. California Medical Association and California Hospital Association. San Francisco: Sutter Publications, 1977.
10. Smith, R. The epidemiology of malpractice. Adverse events common, negligent cases rare. *British Medical Journal* 1990; **301**: 621.
11. Fenn, P., Hermans, D. and Dingwall, R. Estimating the cost of compensating victims of medical negligence. *British Medical Journal* 1994; **309**: 389–391.
12. Danzon, P. Liability for medical malpractice. In: Culyer, A. and Newhouse, J. (eds.), *Handbook of Health Economics*, Elsevier Science, 1999.
13. Sanderson, I. Clinical focus: the CNST. A review of its present function. *Clinical Risk* 1988; **4**: 35–43.
14. NHS Litigation Authority. Report and Accounts 1997.
15. Ham, C., Dingwall, R., Fenn, P. and Harris, D. *Medical negligence: compensation and accountability*. London: King's Fund Institute, 1988.
16. Department of Health. *Arbitration for medical negligence in the National Health Service*. London: Department of Health, 1991.
17. Mawhinney, B. *Medical negligence claims*. House of Commons Official Report (Hansard) 1994; March 14: 239.
18. Fenn, P.I., Hermans, D. and Dingwall, R. Estimating the cost of compensating victims of medical negligence. *British Medical Journal* 1994; **309**: 389–391.
19. NHS Management Executive. *Clinical Negligence: proposed creation of a central fund in England*. London: Department of Health, 1994.
20. Warden, J. Litigation Authority to focus on malpractice (news item). *British Medical Journal* 1995; **311**: 1250.
21. NHS Executive. *Clinical negligence costs*. FDL (96) 39. NHS Executive, 1996.
22. As the CNST and ELS schemes are discretionary, i.e. the NHSLA is not obliged to pay Trust claims, Trust are also expected to disclose gross provisions.
23. It is not necessarily the case, however, that normal accounting rules should be followed for IBNR claims. Estimates should be made but not necessarily charged to operating cost. For a long-tailed line such as medical negligence, there may be cross-generational arguments, linked to changes in social norms and levels of care, for using a 'claims made' basis of accounting as the risk associated with future claims may be non-diversifiable. The optimal *ex ante* provision for future claims is, therefore, unclear. There is a danger of insurers (including hospitals and purchasers acting as self-insurers) overproviding to the detriment of patient care.
24. The headline figure of £235m referred to on the first page excludes the £4.1m NHSLA administrative expenditure in column 3 of Table 1.
25. White, M. The Value of liability in medical malpractice. *Health Affairs* 1994; **13**: 75–87.
26. Mulcahy, L. and Selwood, M. Consultants' response to clinical complaints (letter). *British Medical Journal* 1995; **310**: 1200.
27. Summerton, N. Positive and negative factors in defensive medicine: a questionnaire study of general practitioners. *British Medical Journal* 1995; **310**: 27–29.
28. Bovbjerg, R., Sloan, F., et al. Valuing Life and Limb in Tort: Scheduling Pain and Suffering. *Northweston University Law Review*, **83**: 908–976.
29. Rolph, J. Some statistical evidence on merit rating in medical malpractice insurance. *Journal of Risk and Insurance* 1981; **48**: 247–260.
30. Sloan, F., Mergenhagen, P., Burfield, B., et al. Medical malpractice experience of physicians: predictable or haphazard? *Journal American Medical Association* 1989; **262**: 3291–3297.

31. Morlock, L. and Malitz, F. Do hospital risk management programs make a difference? Relationships between risk management programme activities and hospital malpractice claims experience. *Law and Contemporary Problems* 1991; **54**: 1–22.
32. Lindgren, O., Christensen, R. and Mills, D. Medical malpractice risk management early warning systems. *Law and Contemporary Problems* 1991; **54**: 23–41.
33. Collateral source offset deducts from the defendants liability to the plaintiff any compensation available from other public insurance programmes or private first party insurance.
34. Cook, P. and Graham, D. The demand for insurance and protection: the case of irreplaceable commodities. *Quarterly Journal of Economics* 1977; **91**: 143.
35. Woolf, H. *Access to Justice: final report to the Lord Chancellor on the civil justice system in England and Wales*. London, The Stationery Office, 1996.
36. Richards, P., Kennedy, I. and Woolf, H. Managing medical mishaps. *British Medical Journal* 1996; **313**: 243–244.
37. Health Services Circular, HSC 1998/183. Handling Clinical Negligence Claims. Department of Health, 16 October 1998.
38. Clinical Disputes Forum. Pre-action Protocol for the Resolution of Clinical Disputes. Version 1, July 1998.
39. Dyer, C. First 'no win no fee' case to go to the Lords (news item). *British Medical Journal* 1995; **310**: 1351–1352.
40. For a fuller discussion of options for reform see Towse, A. and Danzon, P. *An economic analysis of clinical negligence: options for the NHS*. London: Office of Health Economics, forthcoming.