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THE USE OF CONTRACTS IN THE MANAGEMENT OF INFECTIOUS DISEASE RELATED RISK IN THE NHS INTERNAL MARKET

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1. Introduction

There is increasing public awareness of and concern about the risks of infectious diseases. Reacting to public concern by managing these risks is difficult, since infection is hard to predict, costly to monitor, and relevant property rights are poorly defined. In the NHS internal market most health services, including those relating to infectious diseases, were supposed to be managed using contracts to protect the interests of taxpayers and patients. Although the internal market has now been abolished, the notion of contracting has been retained (Department of Health, 1997; Allen, 1999). Commissioners are supposed to use agreements as a vehicle for meeting their objectives with respect to quality.

Analysing the governance of infection is interesting since, it has characteristics making it a classic economic externality and making it likely that contracts will be incomplete. We therefore expect contracts, on their own, to be an inadequate means of meeting objectives. Socio-legal theory suggests that efficient governance can nonetheless occur, if networks can supply missing information and a basis for developing co-operative strategies as events unfold.

This paper analyses the role actually played by contracts in managing the risk of infection. Using institutional economic and socio-legal approaches, the paper will address the question of whether contracts, as they were introduced in the NHS internal market, were used to govern infectious diseases in the NHS internal market. We report the results of a series of case studies and of a national survey of all professionals involved in infectious disease management. We find that contracts were incomplete, but that both contracts and professional networks nevertheless played an important role in governing the risks of infectious disease. There is evidence, however, that professional networks did not exist in all areas, and there is no evidence that these networks necessarily provided information of the type that would substitute for that missing from formal contracts.

Section 2 of the paper outlines relevant socio-legal and institutional economic theory. Section 3 describes the use of contracts in the NHS internal market. Section 4 provides a brief outline of salient issues with respect to infectious disease. Section 5 outlines the method and sources of data, and section 6 presents the results. The final section discusses the results.

2. Socio-legal theory

The use of contracts is an example of an attempt to tackle the problem of agency in the public sector. The principal-agent relationship can be defined as 'a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.' (Jensen and Meckling, 1976). The principal's problem is ensuring that the agent acts in the principal's interests, overcoming any different or conflicting interests. Agency relationships are central to all complex organisations, be they private firms or public sector bureaucracies, because, in such organisations, many people are needed to carry out the aims of the organisation. In circumstances of imperfect information, once any significant degree of decision making is delegated, it is possible for the agent to make decisions which will further their own ends, rather than those of the principal. The appropriate use of the contractual relationship is therefore central to the management of agency relationships.

Contracts can fulfil this role if they are complete, in other words if they specify all future matters at the outset (this is known as 'presentiation') (Macneil, 1978). It would not be necessary for a fully specified contract to be open to renegotiation within the contractual period, but rather both parties would abide by the terms agreed at the outset.

Complete contracts safeguard principals' interests, whilst simultaneously giving agents an incentive to act efficiently. In the event that terms are breached, a principal can use the contractual terms to rectify matters, or use a verifiable breach of terms as grounds to exit the relationship.

There is evidence suggesting that completeness is not a true representation of actual long term commercial contractual relationships: that parties to long term commercial contracts often do not plan and specify their contractual relationships completely (Macaulay, 1963 and Beale and Dugdale, 1975). Moreover, socio-legal and economic theory suggest that this might be an efficient response when uncertainty or asymmetric information increase transaction costs, making complete contracts infeasible. In these circumstances, relational contracts might evolve and permit efficient trade.

The theory of relational contracts was developed by Macneil to explain long term contracts as relationships over time (Macneil, 1978 and 1981). In long term contracts between separate firms presentiation is not always attempted and instead use is made of a commitment to good faith, in other words to co-operative efforts to realise their joint and several goals in the face of contingencies that arise during the course of the performance of the contract (Campbell and Harris, 1993). This does not mean that parties do not have differing interests, but rather that that co-operation is a way of realising those interests.

Some authors see the process of negotiating and writing the contractual documentation as part of the process of building and planning the relationship (Deakin et al 1994, Daintith 1986, and Lorenz 1999).

> '[B]y agreeing from the start on an appropriate set of procedural rules to guide their response to unanticipated contingencies, agents can promote the kinds of mutual learning that contribute to the build-up of trust and which increase the likelihood of successful co-operation.' (Lorenz, 1999, pp 313-314)

Some authors, by contrast, contend that the act of negotiating and writing contracts is inimical to the development of trusting, co-operative relationships between the parties. (Lyons and Mehta 1992, Macaulay 1963 and Sako 1992)

Relational contracts rely on the existence of networks. The term networks can be used in either of two senses, either or both of which might be a feature of relational contracting. The first use connotes webs of informal relationships between individuals (e.g. Burt, 1992). These do not exist as a means of allocating financial risk, but rather to communicate information missing from formal structures, and may also have the normative effect of constraining opportunism (Ouchi, 1979). Networks may therefore be a means of regulating the behaviour of professionals, both by supplying missing information, by allowing better monitoring and through their normative role.

The second use of the term networks connotes 'virtual firms', when different organisations sharing risk without formally integrating (Sabel 1991, Lorenz 1988). Under conditions of uncertainty when it is not feasible fully to allocate future risk (i.e. in the absence of presentiation), risk can be managed within relational contracts both by being pooled between the parties as events arise (when co-operative strategies can be developed). Personal relationships may provide the basis for this type of network, by providing the basis for co-operation between organisations.

3. Contracting in the NHS internal market

In 1990 the NHS was reformed with the introduction of an internal market by means of a split between the purchasers of care and its providers [1]. The remit of purchasers was to purchase health care for their resident population with moneys which were allocated by central government. The providers of health care were constituted into independent 'self governing Trusts'.

Contracts were the fulcrum of the internal market. The separation of purchasers and providers could work only if there was an institutional arrangement mediating between these two types of

organisation, facilitating agreement over what health care should be provided and at what price. As with all of the quasi-markets introduced into the UK public sector in the early 1990s (Le Grand and Bartlett, 1993), in the NHS internal market contracts were seen as a vehicle for improving the capacity of the public sector to deliver, through its many individual agents, its major goals. In other words, contracts were seen as a way of enhancing the accountability of agents. Purchasers were supposed to operationalise their objectives, including those relating to quality standards, through contractual specifications (Department of Health, 1989a).

When quasi-markets were introduced, policy makers assumed that contracts would fulfil this function by being complete (Department of Health 1989a, b, c). They were supposed to be complete with respect to first, the specification of quality, and second the allocation of financial risk. Although it was recognised that detailed contracts could not be written immediately, it was thought that contracts would become more specific as the internal market bedded down. One policy document stated: 'Over time, as the parties gain experience in operating them, all contracts will become more specific.' (Department of Health 1989b, paragraph 4.4) Thus, any problems concerning the failure to be specific were thought to be technical and merely due to the initial lack of skill on the part of staff.

Contracts could be complete with respect to quality only if purchasers knew the characteristics likely to produce their desired result, in other words, if they knew the quality standards. It also required that all relevant aspects of quality be able to be specified, communicated, monitored, and enforced. As outlined in section 2, to be complete in either the allocation of financial risk or the specification of quality, it had to be possible to fully specify in advance all future events. However, in health care, the existence of high transaction costs means that contracts are unlikely to be complete (Bartlett, 1991 and Croxson, 1999). Transaction costs are the costs of making contracts, in other words, the costs of searching for a suitable trading partner, and of negotiating and writing the contract, and the costs of subsequently monitoring, enforcing and, perhaps, renegotiating contracts. Contracts will be incomplete if the transaction costs of making contracts that cover every eventuality are too high.

Although official policy continued to promote complete contracting as the ideal, in a speech in May 1993, the then Secretary of State for Health, Brian Mawhinney, recognised the nature of the interdependence of parties to commercial contracts (Mawhinney, 1993). And in 1994, the Health Service Journal had published an article pointing out that in commercial relationships, complete contracts could be seen as inflexible (Key et al, 1994). The possibility that a relational model might be more appropriate has also been recognised by some commentators (e.g. Ferlie, 1992). Moreover, the

[1] *This paper concerns the activities of health authorities as purchasers of health care, and does not discuss the role of fundholders.*

importance of networks to the dissemination of information among health care professionals, in particular, has been recognised and empirically demonstrated (Flynn et al, 1996, West et al, 1999).

4. Contracting for infectious diseases

As noted above, in the internal market, health authorities were charged with using contracts to achieve their ends. In respect of infectious diseases they had to meet three objectives. First, they had to ensure access to appropriate treatment for those with infectious diseases; secondly, they had to ensure adequate prevention of and protection from infectious diseases, including hospital acquired diseases; and thirdly, they had to maintain the capacity of the hospitals to provide all other types of health care, despite any disruption arising from infectious diseases. It is important to note that, with respect to infectious diseases, Health Authorities were responsible for both ensuring adequate treatment for sufferers and for preventative, infection control.

It is likely to be the case that contracts governing infectious diseases will be incomplete, since there is uncertainty about future events. It is hard to predict the types of infectious diseases likely to occur and the number of cases, since the incidence of each infectious disease varies over time, and the risk of contagion varies between individuals. It is also difficult to specify in advance exactly what should be done to prevent and contain infectious disease. (Crawshaw et al 2000) This means that it is costly to negotiate and write contracts specifying incidence rates and actions, making it likely that contracts will be incomplete. Moreover, it is costly to establish and enforce property rights in infection-free space, since infectious disease does not respect organisational boundaries.

5. Methods and data

The results reported in this article form part of a larger ESRC-funded project, undertaken between 1997-2000, which explored the management and distribution of risks posed by infectious disease, and the implications of introducing contracts for infection control (Crawshaw et al 2000).

The results reported here are derived from two arms of the study: an in depth series of case studies in five sites; and a national questionnaire survey of all members of the three main professional groups with responsibility for infectious diseases. The five case studies were designed to investigate arrangements for managing the risks of infectious diseases in five localities were undertaken. The sites have been guaranteed anonymity, and include two London health districts (one suburban and one central) and three provincial health districts. The sites were chosen by a purposive sampling technique designed to cover a range of institutional contexts: including large conurbations and county towns; and district general hospitals and specialist teaching hospitals. The method used comprised analysis of formal contractual documentation and interviews with key clinical and managerial actors in local hospitals, health authorities, and laboratories. A total of 36 people were interviewed over a period

beginning in November 1997 and ending in November 1998. The situations reported by interviewees were in respect of matters pertaining at the time of the interviews themselves, or which had occurred in the recent past (i.e. since 1995). Individuals were interviewed to gain in-depth understanding of issues within the context of each site, in order to understand the global institutional picture in that area, and not only the individuals' own roles.

Building on the case studies, separate questionnaires were developed for each of the three professional clinical groups with direct responsibility for infectious diseases treatment or management. The first group are Consultants in Communicable Disease Control (CsCDC), whose role was created by the Acheson Report, 1988.The CCDC is responsible for the surveillance, prevention and control of communicable disease throughout a Health Authority. This role incorporates membership of Hospital Infection Control Committees, District Infection Control Committees, accountability to local authorities, liaison with Public Health Laboratories and, since the introduction of the NHS internal market in 1991, responsibility for advising the Health Authority on contracts. The two other groups, Infection Control Nurses (ICNs) and Infection Control Doctors (ICDs), are usually based in Trusts, and form part of the hospital infection control team, responsible for protecting the hospital population from the risks of infectious diseases (Cooke 1995).

Each of the questionnaires was piloted with appropriate professional colleagues who provided feedback. The final versions were sent in February 1999. Two reminder letters and further copies of the questionnaire with SAE were sent out in April and June 1999 to non-respondents. Valid responses were received from 93 ICDs (response rate 47%), 176 ICNs (response rate 54%), 58 CsCDC (response rate 52%).

Detailed case studies were needed in order to be able fully to explore the complex relationships between the actors and concepts of interest (Yin, 1994). Due to the intensive use of resources required to undertake a case study, it was only possible to carry out five. Despite the careful way in which the study sites were selected, this might have led to questions about the generalisability of the findings of the case studies. So a national survey of all staff involved in infection control was also undertaken, in order to broaden the geographical coverage. Triangulation of data (i.e. using multiple sources of evidence, in this case interviews, documents and questionnaires) can help to increase the validity and generalisability of the findings (Yin, 1994). However, the range of evidence does not have the same 'situated' character (Silverman, 1993), so it is to be expected that each source might produce data that differs in some ways.

With the exception of the contract documentation relating to the five study sites, our data enables us to explore the self-reported perspective of staff involved in infection control. For example, using

interviews and a national questionnaire provides information about actors' views of the networks in which they were engaged.

Analysis of the data from the case studies was conducted in the following manner. The theories which guided the production of the aim and objectives of the project, together with the respective expertise of the grant-holders, were used to generate an initial set of categories, which were used to code the interview data. An iterative process was used, under which the categories were applied to the data and amendments to them were made in accordance with what the data revealed. Careful notice was taken of deviant cases, as they can be particularly helpful in testing a hypothesis (Silverman, 1993).

6. Results

6. 1 Contracts and quality

Appropriate management of infection control is central to safeguarding quality. As far as the practice of infection control was concerned, the contractual documents from the five case study sites were incomplete. Four of the five sets of contractual documents contained no specifications of good practice in the management of infection, nor did they contain quality indicators relating directly to infection. In one site, however, there was an additional document, intended to be part of the contract, setting out a specification for how the practice of infection control should be carried out in the local hospitals. This schedule recites the statutory sources of obligations on the Trust first, and then sets out the required management structure, policies, surveillance and education, but at a very high level of generality. For example, one clause states that 'The ICC will initiate the development, evaluation and revision of written policies and procedures at least biannually, making reference to the appropriate legislation or published professional guidance'.

This finding of incompleteness is consistent with the results of the national questionnaire survey. As shown in Table 1, only a minority of each group reported that the contract between the acute Trust and Health Authority included clauses relating to surveillance of hospital acquired infection. A slightly larger proportion reported that the Trust was required to meet specific standards for infection control. The descriptions of the contractual provisions by the staff with knowledge of their contents suggest that the relevant clauses of the contracts were of a general nature, and, thus, the contracts were not complete. (In the absence of the documents themselves, this conclusion has been inferred.) National standards, such as those set by the Department of Health (Cooke Report, 1995) and the King's Fund Accreditation Scheme were frequently referred to.

There is positive evidence that Health Authorities were not able formally to monitor infection rates or control practices, because of high *ex post* transaction costs. For example, in the case study site in

which quality specifications were formally made, the Health Authority did not believe that they had the resources to monitor infection control practices and so did not engage in any monitoring. Another site had introduced specific targets for infection control, including an acceptable limit for MRSA incidence and for the rate of post-surgical infections: the 'deep infection rate' was to be less than 1%. The costs of monitoring and enforcing this rate were not incurred because they were prohibitively high. A Trust-based respondent in this site said that there was no 'infrastructure' either to deliver or to monitor this standard, and that no audits were ever conducted by the Health Authority or by the Trust.

Other interviewees suggested that transaction costs are raised by the characteristics of infectious disease: its intangibility; and the irregularity of its appearance. The monitoring costs were explained by one interviewee in the context of a particular organism, SRSV [2]. This is particularly hard to monitor because it is transmitted very quickly between individuals:

> 'SRSV, my experience is that it's gone halfway round the ward before you get evidence and control measures up and running.'

A number of Health Authority contract managers stated that they did not monitor the Trust's practice with respect to infectious diseases directly, instead they focused on its ability to deliver the contracted level of activity. They noted that they might become aware of problems with infectious disease control if it affected levels of elective activity or, connected with this, length of stay. Trusts were also aware of this: one Trust noted that although they would not report to the Health Authority an outbreak such as salmonella, it would be brought to the Health Authority's attention when they were forced to explain changes in activity levels and length of stay. The Health Authorities and Trusts themselves recognised that length of stay and activity rates were both imperfect indicators of infection, since each is affected by multiple factors. This meant that Trusts were not being monitored effectively: an increase in activity could be achieved with increasing rates of hospital acquired infection (HAI) without any penalty being incurred. And conversely, a fall in activity could be incorrectly attributed to HAI. This, coupled with the monitoring costs, gave Trusts a financial incentive to ignore infection and focus on activity rates.

6. 2 Contracts and financial risk.

In each of the five case study sites, responsibility for managing the financial risk normally associated with infection control was passed to Trusts by using 'sophisticated block contracts' which tied payment to activity, where activity was specified in terms of the different volumes of activity in each

[2] *Small Round Structured Virus*

specialty. None of the five sites had a contract where contractual payments depended on levels of infectious disease treated in hospitals or on their efforts to control infection. The allocation of financial risk in the event that an outbreak of HAI disrupted normal activity was not dealt with at all in three of the contracts. In two sites *force majeure* clauses allowed renegotiation of the contract in the event of a 'major outbreak'. These clauses did not attempt to specify what would constitute a 'major outbreak'. Thus, the contracts imply that, in all but exceptional circumstances for two of the sites, financial risk was passed to the provider. On a strict reading of the contracts, the silence concerning the allocation of the normal financial risk of infection implies that it was intended to be passed to the providers. This is confirmed by the interviews conducted at the case study sites, which suggested that the costs of managing or controlling HAI were viewed by Health Authority and Trust management staff as overheads, as a 'risk that the Trust bears'. Interviewees at three sites, based in both Health Authorities and Trusts, likened managing the risk of infection to that involving emergency activity: they stated that a hospital with large fixed costs could and should carry this type of recurrent expenditure as part of its 'bread and butter' activity; and should have in place processes to deal with unanticipated events. (No contrary view was stated at the other sites, or by other respondents.)

However, although the intention was to write complete contracts, transferring financial risk to providers, there was evidence in all study sites of flexibility beyond that envisaged in the contractual documents. This suggests that the contracts were not in fact complete: if they had been, the allocation of financial risk would be complete. It would be agreed at the time the contract was made, and no further applications would be made to the purchasers during the financial year, save in accordance with any explicit contractual provisions.

Although all purchasers stated that they intended transferring financial risk to providers and this is consistent with the formal contracts, most Health Authority managers said that they would in practice share the financial risk if it could be shown that the Trust was not at fault and if the true marginal costs, due to the outbreak of infection, could be identified. In the event of large scale financial problems concerning infectious disease, purchasers said they would be prepared to share financial risk with providers, or to join with them to apply for additional resources from higher tiers of the NHS hierarchy, being the regional offices of the NHS Executive. This is consistent with general NHS practice with respect to emergency admissions. Some Health Authorities did concede that they had a contingency fund. All said that, if absolutely necessary, they would be prepared to accept a reduction in elective activity caused by a major outbreak of HAI.

This finding is consistent with that found in the national questionnaire survey. In order to explore this issue, respondents were asked if Trusts had approached the Health Authority for additional funding

for infection control during the year[3]. 25% of ICNs said their Trust had done so, 74% said it had not and 1% did not know. 33% of ICDs said their Trust had done so (but 25% did not know). 40% of CsCDC said their health authority had received such requests (only 18% did not know). Free text responses suggest that many of the approaches were to purchase ICN time, which, it can be argued, need not be due to an emergency situation (which might have been covered by provisions in the contract for events of force majeure). It is possible that these applications constituted attempts to obtain further sums, irrespective of the terms of the contract made. In other words, they may be evidence of attempts to disrupt the complete allocation of financial risk by a contracting party. However, as the contractual documents are not available, it is not possible to be sure that their terms were similar to those in the case study sites discussed earlier in this paper. Moreover, it is not known how many of these applications were successful, although some of the respondents commented that they had not received the additional money they requested. Although only a minority said that Trusts had approached the Health Authority, this is nonetheless consistent with the case study findings which related to an, in principle, willingness to consider approaches.

To further explore completeness, ICDs and CsCDC were also asked an additional general question in the national survey. They were asked whether they thought that the wording of the current contract was comprehensive enough to deal with issues which arise during the course of the year – in other words, if the contract was complete, in their view. The results, shown in Table 2, suggest that a large number of both groups thought the contracts were not sufficiently comprehensive, although over half of the ICDs did not know. As will be discussed below in section 6.5, at least some of those who viewed the contract as sufficiently comprehensive believed their contracts had little detail, but that this was inevitable since contracts were not the appropriate means of governing infection control. They implied that they viewed contracts as inherently incomplete, and as useful only in conjunction with professional networks.

6. 3 Professional networks

As discussed above, if formal contracts are incomplete, personal relationships between individuals can supply missing information. Both the national survey and the case studies suggest that professional networks were important in many local areas.

[3] *The question to CsCDC was: Are you aware if any Trust has made representation to the Health Authority for additional funding for infection control? The question to ICDs was: Are you aware if your Trust has made any representation to the Health Authority for additional funding for infection control in the last two years? Respondents answering 'no' may have meant either that they were not aware of representations or that they were positive none had occurred.*

As shown in Table 3, almost all CsCDC and ICNs, and the majority of ICDs believed that professional networks were important in conducting negotiation, specification and monitoring between Health Authority and Trusts. Moreover, each group was more likely to see professional networks as important than they were to see contracts as important.

Table 4 shows an analysis of this question in terms of the relative importance each individual placed on professional networks as opposed to contracts [4]. Individuals were likely to see professional networks as more important than contracts, but the table also shows that contracts were also viewed as important. The role of contracts will be discussed in section 6.5, below.

We asked respondents to the national survey a free text question about the extent and nature of non-contractual relationships. A number of the respondents to this question said they had no arrangements (11% ICDs, 26% of ICNs and, interestingly, only 3% of CsCDC). The remainder referred to the District Infection Control Committee, the Hospital Infection Control Committee (to which ICD, ICNs, and CsCDC are all supposed to belong, Cooke 1995), outbreak teams or various ad hoc groups to deal with specific issues, such as HIV. A large number of responding ICDs (49%) and ICNs (43%) also referred to informal professional contact with members of the Health Authority, and 53% of CsCDC referred to this type of contact with individuals in Trusts.

All of the professionals interviewed in the case study sites viewed personal, professional relationships as vital to managing infectious diseases. They used personal relationships to trace the contacts of an infected person throughout the community. They also stated that, in the event of an outbreak, they co-operated across organisational boundaries. All stated that, with respect to the management of infection, they would not be affected by 'financial considerations' and would not refer to the contract.

At least some CsCDC were in a position to gain information about Trust practices, in other words to monitor infection control procedures and the management of outbreaks. They were members of the Hospital Infection Control Committee, and a number referred to informal relationships as a means of gaining information on trust practices. In one case study site, the CCDC had been in post for twenty years, and stated that this meant that he knew 'most people' and could use this to find out what was going on within trusts and to influence practice.

6.4 Financial risk and professional networks

Professional networks certainly facilitated pooling risk between organisation, insofar as they facilitated interagency co-operation over outbreak management and tracing contacts, with no concern for financial responsibility. As discussed above, all of the CsCDC, ICDs and ICNs interviewed in the case study sites said that they would manage outbreaks without reference to costs or to contracts. In this sense, professional networks provided the basis for inter-organisational networks, in other words, for virtual risk-sharing firms. Moreover, the discussion about incomplete contracts suggested a degree of shared responsibility for unanticipated costs.

However, in practice, we do not find evidence of universal, fully developed risk pooling between organisations. There are frequent instances of *ex post* haggling between organisations over who should meet costs. For example, in two sites there were problems with assigning responsibility for the costs of screening: one interviewee argued that this resulted from the failure to identify whether screening was necessary for the optimal management of individual patients (in which case it should be paid for by the provider), or was part of routine disease prevention, making it the Health Authority's responsibility. He contrasted controversies over who should bear costs in the internal market with the 'grey old days' when organisational boundaries were irrelevant.

Other problems with assigning responsibility resulted from another characteristic of infections disease: its failure to respect organisational boundaries and the poor definition of property rights over infection-free space. Three of the Trusts interviewed in the case study sites argued that they should not bear responsibility for the costs of MRSA [5], since they blamed outbreaks on poor infection control procedures in local nursing homes.

6.5 The role of contracts

The results presented in Tables 3 and 4 suggest that respondents to the national survey believe contracts have a role, since a large number of respondents believed both contracts and networks to be important, and some placed greater emphasis on contracts than networks. These results also show that a small number believed neither were important.

Responses to other questions suggest that at least some respondents believed that networks and contracts played complementary roles. This is implied by some text responses to the question analysed in Table 2, which asked whether contracts were sufficiently comprehensive. A number of

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[4] *This assumes that individuals make a consistent ordinal ranking of the categories. Results on CsCDC not available at time of writing.*

[5] *Methicillin Resistant Staphylococcus Aureaus.*

who stated contracts were sufficiently comprehensive did so because they did not believe contracts could or should contain detailed provisions. One ICD, for example, stated 'the issues that arise are too complex and specific to be covered by the general wording and phraseology of the contract', and another that 'Further detail unlikely to cover all issues. Goodwill and sense required in agreeing HSG(95)10 implementation.' A similar pattern was evident in the responses of some CsCDC. A number of respondents explicitly referred to the two playing complementary roles, with contracts providing a basis for building relationships and for agreeing policy, as well as giving Health Authorities a lever of 'last resort'. One CCDC, for example, said she/he refers to the contract only 'if there are serious concerns and the issue needs to be raised with senior management. More of my CCDC work is non-contractual and operated due to good professional relationships. Good liaison and personal/professional relationships are the key to success'. Another stated that 'About 4 years ago, I agreed detailed IC specification with 3 trusts, but those were since dropped by the HA given the style of contracting. However, that initial work helped secure and confirm IC arrangements locally'.

However, networks were not viewed as satisfactory by all respondents. Some implied that they would benefit from more completely specified and enforceable contracts, since they did not have recourse to effective networks. For example, one CCDC stated that having 'no provision for communicable disease issues regularly causes problems with refusal to co-operate – adverse publicity is the only sanction'. Others stated that the contract was ' inadequate', 'not specific enough' and that it did not 'impose a system for monitoring', features which other respondents, with functioning networks, had seen as at least not problematic or as positively advantageous. For example, one CCDC said that 'Within the limits of the system you can only address key points. Large volumes of paper do not necessarily get read or acted upon!', and another stated the need for 'flexibility' in contractual specifications. Moreover, as noted above, a substantial minority of ICNs and ICDs said they had no non-contractual arrangements with the Health Authority, implying that professional networks are not universally used to overcome the limits of contracts and provide information across organisational boundaries.

Case studies generally confirmed the complementary role played by networks and contracts, although none of the people interviewed believed their networks to be inadequate. Contractual documents were viewed as largely irrelevant during the year by interviewees in the case study sites. No interviewee could remember referring to the contract document at any time, not even to resolve to disputes. One manager even saw contracts as directly harmful, stating that they could 'de-motivate' individuals. One set of Health Authority contract managers saw the *process* of negotiating the contract and of involving clinical staff in that process as more important than the final document, as a way of raising the profile of infection control within the trust. Rather than relying on contracts, relationships between

individuals were seen as the vital link for resolving financial issues and for communication over infection-related issues.

7. Discussion

Our results show that formal contracts were incomplete: that they did not usually specify quality and that, even when they did, high monitoring costs meant that formal contracts could not be used in isolation to ensure standards were met. Similarly, with respect to the allocation of financial risk, contracts were not treated as complete documents, since there is evidence of renegotiation occurring during the year, and purchasers expressed willingness to be flexible.

We find that, in some Health Authorities and Trusts, personal professional networks played an important role, providing information and, perhaps, a basis for inter-organisational co-operation in managing risk. There was however heterogeneity, with some respondents to the national survey reporting that they had no links with professionals in other organisations.

Contracts did, however, play a role. As found by Allen (1995), our work shows that contracts were sometimes a basis for building relationships and sometimes provided a structure for setting policies. Our work also suggests that contracts provided some purchasers with additional leverage to meet their objectives, perhaps because they gave these public agencies the ability to make a credible threat of exit. The finding that contracts and networks played complementary roles in relationships between organisations mirrors work carried out by Goddard, Mannion and Smith (1999), who found that within organisations ‘hard’ and ‘soft’ indicators play complementary roles.

Our results also contain general lessons about the impact of transaction costs on behaviour, the role of contracts in the NHS internal market, and the institutional arrangements actually governing resource allocation decisions in the internal market. We found that parties did not use contracts as a lever for imposing quality standards, as was intended when the NHS internal market was introduced. Purchasers and providers did not use contracts in this way because they faced high transaction costs and because property rights were poorly defined. In practice contracts played a limited role, mainly in respect of aggregate-level financial management and in building relationships. The use of the contract as a planning mechanism, the problem of the cost of monitoring contractual performance, and the use of non-contractual mechanisms all indicate that a complete model of contract was inappropriate, and more relational forms were operating.

The use of two sources of data in this study, being a limited number of case studies and a national survey of infection control professionals, was an attempt to increase the validity and generalisability of findings. Due to the different nature of the two sources of data, simple triangulation was not possible. The 'situated' character of the data had to be taken into account. Furthermore, the relatively low response rates to the national surveys were regrettable. It is possible that there was some degree of respondent bias, and that, for example, respondents were less content with the contractual regime in the NHS internal market than those who did not respond. But, as the respondents represent almost half of the relevant infection control professionals in England, their views are significant in any event. The characteristics of infectious disease and the formal institutional arrangements of the NHS are certainly generalisable across England.

The National Audit Office (NAO) has recently published a report (NAO, 2000) on the management of hospital acquired infection in acute hospitals in England. Although they included analysis of the role of contracts, no detailed analysis of the provisions of contractual documents was reported. Very brief findings are reported by the NAO on the content of contracts, but these do not deal with the questions concerning completeness discussed in the research reported in this paper.

As it is part of a larger project, a number of interesting and important issues have been highlighted in this paper, but will be developed elsewhere. They include the nature and role of transaction costs, the role of national guidelines, the role of individuals' perceptions of risk, and the role of professional groups in contracting. In particular, it appears that high transaction costs of monitoring infection control and of conducting outbreak surveillance, coupled with the incentives of the internal market, led providers to focus on activity rates, possibly transferring to patients the costs of infection, through poorer health.

It appears that the only monitoring of Trusts by Health Authorities that occurred did so through professional networks. We do not have direct evidence about the role fulfilled by networks, nor do we know how effective this informal monitoring was in changing practice. However, there is no evidence that the information gained by professionals about activities in Trusts was fed back into the formal contracting process. In other words, it appears that the information remained informal, and remained within the professional network. This may lead to effective and efficient management of infection, but it does not meet one of the formal aims of the internal market: to use contracts as a means of ensuring that purchasers' objectives were met and accountability of providers increased. Governance based on personal relationships is unlikely to be explicit as required in the public sector in order to demonstrate such accountability. Moreover, it makes it impossible to judge whether universal standards have been applied and inter-health authority equity achieved. Current government policy emphasises the role of co-operative informal relationships and seeks to achieve universal blanket standards: the two may be

incompatible. However, if our finding that contracts were incomplete is generalisable, it is also impossible to use formal contracts to enforce universal standards. Perhaps, in a complex health economy, the inherent level of asymmetric information and uncertainty may make it impossible to achieve meaningful universal standards.

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Table 1 Do contracts include quality-related specifications (% of total respondents in each professional group)

	Yes	No	Don't know	Missing/NA	Total
Hospital acquired infection[+]					
ICN	26%	27%	42%	6%	176
ICD	27%	33%	37%	3%	93
CCDC	32%	48%	20%	0%	56
Standards for infection control*					
ICN	28%	17%	49%	6%	176
ICD	16%	42%	39%	3%	93
CCDC	44%	36%	20%	4%	56

+ Does the HA require surveillance of hospital acquired infection in its current contract?
** Does the HA require your Trust to meet specific standards for infection control (such as King's Fund Accreditation)?*

Table 2 Whether respondents believed contracts were sufficiently comprehensive (number of respondents, by professional group, CsCDC and ICD)*

	Yes	No	Don't know	Missing	n
CCDC	21	19	13	3	56
ICD	14	17	54	8	93

** Do you feel that the wording of the current contract is comprehensive enough to deal with issues which arise during the course of the year?*

Table 3 The importance of contracts and networks (% of total respondents, by professional group)[+]

	negotiation		Specification		Monitoring	
	not important (%)	important* (%)	not important (%)	important* (%)	not important (%)	important* (%)
CCDC - Professional networks	2	98	5	95	2	98
ICD - Professional networks	16	74	11	77	14	75
ICN Professional networks	2	99	4	96	3	97
CCDC - Contracts	30	70	21	77	32	67
ICD - Contracts	33	57	39	49	39	50
ICN - Contracts	5	95	6	93	6	95

[+] *In your opinion, what is the relative importance of contracts and networks…in the negotiation, specification and monitoring of communicable disease issues with the Health Authority / [Trusts] ? Respondents were asked to rate each as "unimportant", "quite important" or "very important"*
** combines two categories of reply: "quite important" and "very important"*

Table 4 Analysis of the relative importance individuals placed on contracts versus professional networks (number of respondents, ICNs and ICDs)*

	Both unimportant	Both quite important or both very important	Contracts given less importance than Professional Networks	Contracts given greater importance than professional Networks	Number of valid responses	Number of respondents with missing or incomplete answers
ICD – negotiation	9	26	31	17	93	10
ICD – specification	7	28	37	9	93	12
ICD - monitoring	9	24	40	9	93	11
ICN – negotiation	2	90	49	16	176	19
ICN – specification	4	96	36	21	176	19
ICN - monitoring	3	95	38	20	176	20

** See question underlying Table 3.*