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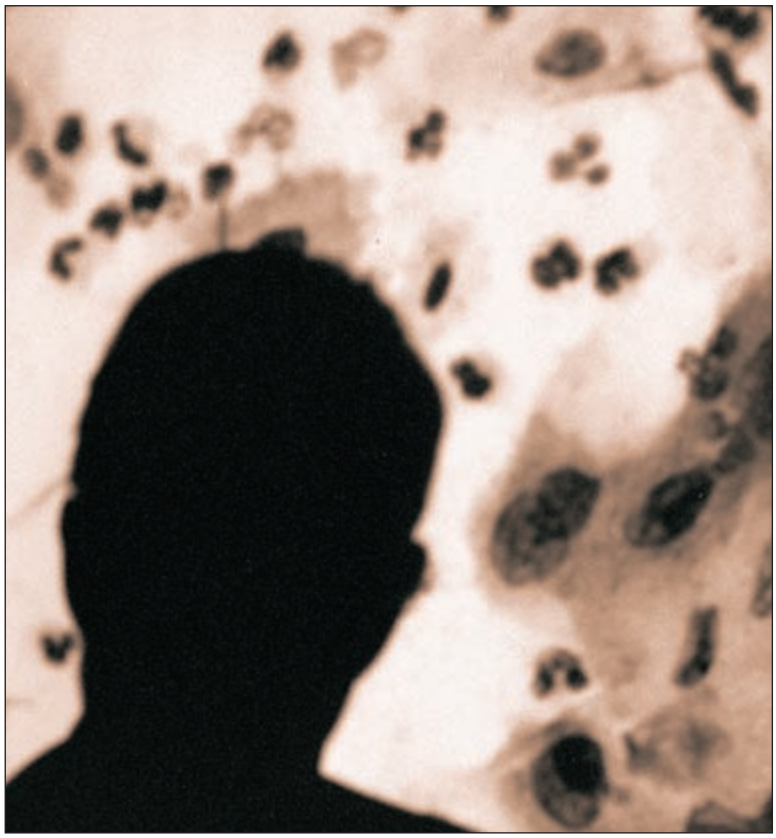
Health Contract Failure: Who bears the risks?



The Evening Post

A Ministerial Inquiry has found inadequacies in the design of the National Cervical Screening Programme. A new paper by Bronwyn Howell[1] looks at the myriad of nested contracts that make up the NCSP and concludes that the problem may be endemic.

Considerable attention has been given in New Zealand to the role of contracting in health service provision, however this attention has been focussed almost solely on the explicit commercial contracts between third party purchasing agencies (the Regional Health Authorities, the Health Funding Authority and now the Ministry of Health) and the providers of services. But the health sector is comprised of many contracts, both implicit and explicit, including contracts between:

- the voting public and politicians: for the creation of health policy and the use of taxation revenue for health care,
- politicians and public servants: for the implementation of policy, purchasing of health care services, and oversight of the publicly funded health sector,
- public servants and professional registration bodies: to set standards for health practitioners,
- professional registration bodies and practitioners: to licence practitioners and maintain professional and ethical standards,
- health practitioners and patients: to act in the best interests of the patient even though the patient does not pay directly.

These contracts are just as important for the effective working of the publicly funded health system as the commercial contracts for the purchase and provision of health services.

All of these contracts can be described as principal-agent contracts. In each case one party (the principal) has allocated the responsibility to another party (the agent) to carry out duties on the principal's behalf.

Principal-agent contracts are characterised by information asymmetry. That is, the principal is usually less informed than the agent about what is required to successfully complete the delegated task. The principal and the agent are assumed to have independent interests, which they are seeking to maximise. Because of these factors the principal must devise a contract that provides incentives for the agent to act in the principal's interests. This can be achieved by shifting some of the risk of contract failure from the principal onto the agent. Alternatively incentives to monitor the contract may be given to agents who *do* have the information

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REGULATING TELECOMS:

Why Should New Zealand Change Now?

asks Bob Crandall of the Brookings Institution, Washington DC.

GUEST EDITORIAL

Robert W Crandall is a Senior Fellow in the Economic Studies Program of the Brookings Institution. His research has focused on telecommunications regulation, cable television regulation, the effects of trade policy in the steel and automobile industries and environmental policy. His current research focuses on competition in the telecommunications sector and the development of broadband services. His book on universal service, *Who Pays for "Universal Service"?* (written with Leonard Waverman of the London Business School), was published by Brookings in 2000. He was also a contributor, with Professor Jerry Hausman of MIT, to the recently published Brookings book, *Deregulation of Network Industries: What's Next?* (Sam Peltzman and Clifford Winston, editors).

There is no sector of the economy in which technical change is wreaking more havoc with long-established firms than telecommunications. Wireless is replacing wired circuits for anyone under thirty and a substantial number of us who are over thirty. The Internet is replacing traditional voice circuits. Satellites are poised to deliver everything from voice to video. Can it be a surprise that telecom firms around the world have seen the value of their equity shares undergo violent swings in the past two years?

As new technologies replace the old and new services proliferate, there cannot be a plausible argument that telecommunications is the "natural monopoly" that it might have been before the invention of the transistor and microwave more than fifty years ago. New Zealand, quite sensibly, rejected the regulation of telecommunications when it opened its telecom sector to competition, leaving Telecom New Zealand and new entrants to battle it out in the marketplace. Unfortunately, the battle soon settled into the courts and the major skirmish was settled only after years of procedural delays. This is no reason to consider a return to regulation, however, but rather to find a better way to expedite court reviews of legal issues that affect this sector.

As I understand it, the Telecommunications Bill drafted by the Government would impose North American/European style regulation on the telecom sector, purportedly to ensure that competition develops. A more naïve undertaking cannot be imagined. As a student of regulation, I cannot think of a single example of regulators accelerating the development of competition. Rather, regulators are political agents who trade off various benefits among constituency groups. In the case of telecommunications, this involves taxing one group of users so as to provide funds to subsidize others. Since regulators rarely have the authority to levy an indirect tax, they can only engage in such redistribution by making sure that the regulated carriers are sufficiently protected from competition in some markets to raise some rates above costs in order to allow others to be set below costs.

I notice that the Telecommunications Bill follows this homely tradition by establishing a Telecommunications Service Obligation (TSO) – a requirement that regulated carriers provide *something* at rates that are below cost. Just as in most other OECD countries, this "something" is rural service. Given the high per-capita income of New Zealand's farmers, very few households in rural areas would forego telephone service even if the service were priced at cost. They might find wireless more attractive because it costs less in lightly-populated areas, but why must they talk over a wire? In short, there is little reason to try to use telecom regulation to shift income from cities to the countryside. But then without a TSO, there would be little for regulators to do.

Well, there is something else. In the modern world of fragmented, changing telecom networks, interconnection of complementary and rival networks is essential. You cannot call me in the United States unless Telecom New Zealand or some other domestic carrier can interconnect with my local company, Verizon. You should not be surprised that *government-regulated* interconnection of this variety has traditionally been priced at ten or twenty times cost. You would be hard pressed to find any other *unregulated* good or service that carries such a mark-up because without government protection firms simply do not have this kind of market power.

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THE COSTS OF ENFORCING SOBRIETY and Holiness and Limits on Ducks

Why do we have a law preventing garden centres from opening on Easter Sunday rather than tax the profits they make on that day? Why do we have fishing and duck shooting seasons and not a variable tax on the catch according to the time of year? Judy Kavanagh investigates.

Economists in general favour taxes (and liability rules) to quantity controls (and property rights rules). This is because a tax has the effect of limiting an "undesirable activity" but does not prevent individuals who value the activity highly from paying a higher price. In many situations like the examples above, however, the government regulates undesirable activities by controlling quantities rather than charging taxes.

Edward Glaeser and Andrei Shleifer[1] at the Harvard University Department of Economics explain that quantity regulations are more often used where the costs of detecting violations would otherwise be very high, and where there is a strong incentive for private reporting of breaches. In these cases, although quantity regulations restrict some socially efficient conduct, the cheaper costs of identifying and enforcing breaches of the regulations may make the use of regulation more efficient overall.

Tim Mulcare's study of New Zealand's liquor licensing laws, featured in the last issue of *Competition and Regulation Times*, is a good illustration of Glaeser and Shleifer's argument. Prohibitionist and temperance groups had an incentive to report drinking after "time gentlemen please". And pub owners had an incentive to monitor and report breaches of six o'clock closing, as breaches could result in a competitor losing his licence. Without these "whistle-blowers" the costs to the government of enforcing six o'clock closing in every small town and the country areas of New Zealand would have been prohibitive.

This also explains why, up until recently, shop liquor sales were banned on Sundays instead of being taxed at a higher Sunday rate. A "Sunday tax" would have been more socially efficient as it would have enabled those people who valued the ability to purchase liquor on Sundays to pay more.

The tax though, would be relatively easy for the retailer and the customer to evade (dockets could have a Saturday date, for example) and thus difficult for the IRD to detect. As a result, enforcing the tax rule would require spending considerable resources to find out whether the proper taxes had been paid.

In contrast, when there is a restriction against liquor sales on Sundays, the inspector need only see liquor for sale on a Sunday in order to take action. Enforcement is even easier and costs much less if the government can rely on private citizens to report violations of the law. Clearly it is a lot easier for a motivated private citizen to verify that a bottle of wine was purchased by the person in the queue ahead of them at the check-out, than it is for the citizen to verify that the correct "Sunday tax" had been charged by the supermarket.

We can now buy liquor on Sundays but it is still against the law to trade on certain days important in the Christian calendar. In this case it is not so obvious that a ban on trading on Easter Sunday would cost less for the government to enforce than the net cost of collecting an additional tax on the profits made that day. It is easy to detect which shops open on Easter Sunday, however the current fine imposed is a cost to retailers that is more than offset by the lucrative day's trading. If the government is committed to keeping Easter Sunday sacrosanct, a mixed strategy may be optimal. That is, a ban on trading (so that stores that open can be identified by the public) with a surtax on the profits of the non-complying stores that do open[2].

A clearer case for quantity regulation over taxation is the duck shooting season. Shooting out of season would be costly for the government to detect without private reporting of violations by neighbours and other duck shooters. A variable tax on the shoot would result in socially efficient shooting, but it would require a fairly brave neighbour to confront a duck shooter in her mau mau to ask whether she'd paid her duck tax.

1 *Glaeser, E.L. and A. Shleifer (2001) A case for quantity regulation. NBER Working Paper No. 8184*

2 *Glaeser and Shleifer note that because certain activities (such as trading on holy days) are seen as morally wrong, their level is regulated at zero. In fact a ban on trading plus a 100% surtax on the profits of non-compliers would be required to achieve the morally desired level of trading.*

EXPERT WITNESSES - HELP OR HINDRANCE?

GUEST ARTICLE

When Courts rely on specialist knowledge, how can they be sure of the independence of expert witnesses? Terence Arnold deliberates on the problem of asymmetric information in the Court room.

In general, witnesses in Court cases are limited to giving evidence about facts – they are not permitted to express opinions. One class of witness to which this general rule does not apply, however, is expert witnesses.

Experts are entitled to express opinions on matters within their areas of expertise. Such opinions must be based on proven or admitted facts and can only be expressed where the particular specialist knowledge is relevant to issues raised in the case. This generally arises where the field of expertise is outside ordinary human experience.

It is not the task of the expert witness to determine the case – that remains the task of the ultimate finder of fact, whether Judge or jury, whose responsibility it is to reach an independent view based on all the evidence. As a consequence, the traditional rule was that experts should not express an opinion on the ultimate issue in the case. In recent times, however, this rule has been relaxed. It is fair to say that expert evidence has played an increasingly important role in modern legal process.

However, in England, the United States, New Zealand and similar jurisdictions, Courts and commentators have become increasingly concerned about expert evidence. Two aspects in particular have been identified as problematic. First, there has been a concern about "junk" science, ie, scientific evidence based on theories or methodologies that are not widely accepted within the relevant scientific community. Second, there has been a concern about experts becoming partisan advocates rather than remaining independent.

"Junk" science has been a particular problem in the United States, which continues to place heavy reliance on juries not simply in criminal cases, but also in civil cases. The United States Supreme Court addressed the problem in *Daubert v Merrell Dow Pharmaceuticals Inc* (1993) 509 US 579. There had been a series of cases in which it was alleged that birth defects had been caused by pre-natal maternal use of a particular anti-nausea drug. A number of these claims succeeded at trial on the basis of expert evidence that the drug had caused the birth defects. However, the overwhelming epidemiological evidence was that the drug did not cause birth defects. The question for the Court was how these competing expert claims should be approached.

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The Court held that where expert scientific evidence was to be called, the trial Judge had to make a preliminary assessment of whether the reasoning, principles or methodology underlying the evidence had scientific validity. This required consideration of factors such as whether the underlying theory, methodology, technique etc, had been tested, whether it had been subject to peer review, whether it was dealt with in published writings and whether it had been widely accepted in the relevant scientific community. Applying this approach the Judge could exclude expert evidence that was derived from theories that were speculative, unsubstantiated or extreme. Obviously, requiring the Judge to act as a "gatekeeper" is particularly important in jurisdictions where juries continue to be the principal finders of fact.

The problem of experts losing their independence to become partisan advocates was highlighted by the New Zealand High Court in a recent competition case. In *Commerce Commission v Carter Holt Harvey Building Products Ltd* (2000) 9 TCLR 535 (Williams J and Prof. Lattimore) Williams J said:

> "Economic evidence is, of course, commonplace in cases of this kind. As with other experts, the role of economists is to provide disinterested opinion evidence to the Court based on the evidence of other witnesses and the experts' particular field in order to assist the Court in arriving at conclusions on topics which are often complex and outside the Court's normal area of inquiry. But the key to such evidence is that it is disinterested and, in this case, although it has been taken into account as the only economic evidence, it must be said that the Court found the evidence of both economists of restricted assistance in reaching conclusions on the principal matters in issue. This was because neither … was disinterested in the evidence they gave. Neither … seemed able to contemplate the possibility of accepting conclusions other than their own on particu-

lar facets of the evidence they found of importance. Each … was partisan in his advocacy for the point of view of the party for which he appeared, selective in the evidence which he chose to accept in order to support the view reached, and dismissive of all other evidence which did not fit their theory of the case and what should be the outcome." (para 206, p 589).

Williams J goes on to highlight similar concerns that have arisen in other jurisdictions.

Two questions emerge from this – what is the proper role of the expert witness? Why has a problem developed in New Zealand in recent times?

The overriding duty of an expert is to the Court and not to the party for whom he or she appears to give evidence. The expert's obligation is to be independent and objective. A useful way of testing whether an expert witness has been objective is to ask whether the evidence which that expert has given would have been the same if he or she had been called by the opposing party to express an opinion on the same issues. The reason for the independence requirement is obvious. Expert witnesses have a favoured position, in the sense that as a result of their expertise they have greater latitude than other witnesses. By its nature, their evidence is likely to be critical to the determination of some issues in a case. Correspondingly they have a greater responsibility, and that responsibility is to be independent in the views they express.

There will often, of course, be legitimate differences of view among experts. That is accepted. Independence simply means that the expert's opinion should not change depending upon which party he or she is retained by.

Why has this problem emerged in New Zealand recently? Presumably for much the same reasons as it has emerged elsewhere, although there is a particular feature of the way in which competition cases are conducted here that may have brought the matter to a head. Typically in important competition cases in New Zealand, the principal economic witnesses are American. Economic witnesses involved in litigation and regulatory proceedings in America do take a much more aggressive and partisan approach than has traditionally prevailed in New Zealand. In addition, whereas in New Zealand an expert witness under cross-examination may not discuss his or her evidence with anyone, including the legal advisers for the party on whose behalf he or she is giving evidence, in the United States there is no such restriction. So an expert may discuss the issues with the legal advisers while under cross-examination. This may foster a more partisan approach.

Some American experts fail to adjust sufficiently to the different rules and expectations that prevail in the New Zealand Courts when giving evidence here and maintain an aggressive and partisan style. This is inappropriate in the New Zealand context and destroys or damages their credibility. There is, in short, a clash of cultures.

> "THE OVERRIDING DUTY OF AN EXPERT IS TO THE COURT AND NOT TO THE PARTY FOR WHOM HE OR SHE APPEARS TO GIVE EVIDENCE. THE EXPERT'S OBLIGATION IS TO BE INDEPENDENT AND OBJECTIVE."

In an effort to deal with these difficulties, the High Court Rules Committee is considering amending the High Court Rules to introduce a code of conduct which must be agreed to by those who wish to give expert evidence. That code of conduct emphasises the need for independence by describing an expert's overriding duty as being "to assist the Court impartially on relevant matters within the expert's area of expertise".

As disputes become increasingly complex the need for expert evidence increases. Those charged with resolving disputes such as judges, arbitrators and mediators frequently need the assistance of experts. It is, however, important that they have confidence in those experts. This requires that experts accept the obligation to act independently. This does not mean, of course, that experts cannot be firm in maintaining and defending their views but it does require objectivity and open-mindedness. In this area the old adage "he who pays the piper calls the tune" does not apply.

Terence Arnold was appointed Solicitor-General of New Zealand in 2000. He has been a member of the Market Surveillance Committee of the New Zealand Electricity Market and on two Standing Committees of the Market Surveillance Panel of the New Zealand Stock Exchange.

He is co-author, with Lewis Evans, of Governance in the New Zealand Electricity Market: "A Law and Economics Perspective on Enforcing Obligations in a Market Based on a Multi-lateral Contract", *The Antitrust Bulletin* (2001), 3.

INDICATORS OF QUALITY: QCs and laureates

What's the link between the Nobel prize for economics and the appointment of QC's in New Zealand? Ronald Pol explains.

This year, the Nobel prize for economics was awarded to George Akerlof, Michael Spence and Joseph Stiglitz for work that forms the foundations of modern information economics. Akerlof showed that information asymmetry between buyers and sellers of used cars skews the average price of used cars downwards. Sellers of good quality used cars therefore have an incentive to find innovative ways of signalling the quality of the cars they sell to achieve a price that reflects that quality.

A "signal" in these circumstances is any message sent by an informed party to a less informed party about certain characteristics (like quality) that would otherwise be unknown. Spence found that the signals used in markets to convey information are wide-ranging. For example, individuals with a graduate degree not only send a signal to prospective employers that they are knowledgeable but also that they are motivated and hard working.

Stiglitz showed how uninformed parties can get informed parties to reveal information about themselves, without necessarily being aware they are doing so. For example, car insurance companies can glean information about whether their customers are high-risk or low-risk by the size of the deductibles and premiums they choose.

Information asymmetry is a special feature of markets for professional services. It is therefore important to factor this into public policy affecting such services.

In the legal services market, appointment to the rank of Queen's Counsel is a signal of excellence that potentially provides valuable information to those who seek to engage senior counsel. Although some organisations have reasonably extensive knowledge of the perceived skills and abilities of a wide range of New Zealand's senior counsel, many do not. Most rely to some extent on information signalling, particularly the QC rank, to help select senior advisers to address some of the most important legal issues facing their organisations.

> "WHAT IS THE SIGNALLING VALUE OF THE QC RANK TO THOSE WHO SEEK TO ENGAGE SENIOR COUNSEL? IS THE RANK OF QC A RELIABLE SIGNAL OF QUALITY PERFORMANCE?"

The rank also has some of the characteristics of what economists call a tournament. The commendation that attends an appointment to the rank of QC provides an incentive for those with the requisite qualities to reveal those qualities in order to be selected.

The rank of Queen's Counsel is currently held by about 80 barristers (there are over 8,000 practising lawyers in New Zealand). Currently, candidates for the rank of QC are drawn from barristers at the separate bar, with an emphasis on excellence in litigation. The Attorney General advises the Governor General on QC appointments, which are made with the consent of the Chief Justice. Judges, the Law Society and the Bar Association are consulted during the selection process. The procedure is flexible and selection criteria are not specified.

The Government has initiated a review of whether QC appointments should continue and, if so, on what basis. Clearly any process that ameliorates asymmetric information in the market for legal services is valuable. An important question is: what is the signalling value of the QC rank to those who seek to engage senior counsel? Specifically, is the rank of QC a reliable signal of quality performance?

In response to the Government review and its request for submissions, the Corporate Lawyers' Association of New Zealand (CLANZ) surveyed the Chief Legal Officers of some of New Zealand's largest companies, financial institutions and government departments.[1]

Only 10 percent of survey respondents thought that the QC rank should be abolished, suggesting that most respondents valued the QC rank as a signal helping to ameliorate information asymmetry in the market for senior counsel. Eighty percent of respondents, however, called for appointments to be made on a new basis – to dispel any perception of inconsistency in the quality of appointments. Survey respondents noted that appointments may be based on a variety of grounds including – but not always clearly, strictly, or transparently – merit. It was considered important to dispel any perception that, at times, the rank might seem to be awarded as much for demonstrated excellence as for "what you did for the Law Society", "who you know" or "how long you've practised". Instead, it is considered that the distinction should be awarded for meeting appropriate criteria of demonstrable excellence, based on a more transparent and robust set of criteria.

The principal driver in the call for change in the way QCs are appointed is clearly to enhance the signalling value of the QC (or similar, such as

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LIABILITY RULES FOR GMOs

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Productivity gains associated with research and investment in biotechnology may have a very significant positive impact on future economic growth in New Zealand. For that potential to be realised, New Zealand must provide a regulatory and legal environment with appropriate incentives for the development and use of genetically modified organisms (GMOs). A key component of the legal environment is the liability regime for firms that produce or conduct research on GMOs, writes Neil Quigley.

The Royal Commission on Genetic Modification has expressed the view that there is nothing so exceptional about GMOs that they warrant a variation from New Zealand's existing negligence-based liability regime. Under this regime, proof of negligence is required if damages are to be obtained. The Commission considered and rejected the imposition of a regime of strict liability (under which damages are awarded for the harm caused and do not require a demonstration of negligence). The conclusions of the Royal Commission have been challenged in a report which proposes that anyone who sells or uses any genetically modified organism should be subject to strict liability for any and all physical harm, damage or economic loss to property caused by that organism at any time in the future, and that it be compulsory for sellers or users of GMOs to acquire insurance to cover for this liability.[1]

Liability rules provide incentives to invest in precautions and to adjust the amount of the potentially hazardous activity to the socially optimal level.[2] There is no liability rule that simultaneously provides appropriate incentives for both injurer and victim to take the appropriate level of care and choose the appropriate amount of economic activity.[3] Therefore the choice of any liability rule must be based on a careful analysis of its efficiency relative to alternative rules.

In respect of the provision of incentives for precautions, strict liability has no advantage over negligence-based liability rules if the potential for harm is uncertain, as is the case with GMOs. This is because the strictly liable party will not have any efficient means of responding to the higher level of liability with a higher level of investment in precautions. In the case of the unknowable future risks associated with GMOs, there may be no increase in efficiency as a result of the imposition of strict liability. Indeed, strict liability may provide incentives that reduce economic efficiency when the potential for harm is unknown. If there is no efficient means of investing in higher levels of precaution and such investment does not provide a defence against damage claims, then strict liability may have the effect of reducing the investment in precautions by GMO producers to a level that is below the social optimum.

Strict liability regimes may be efficient when producers internalise the cost of harm resulting from the products (either through the purchase of a formal insurance policy or a calculation of the cost of self-insurance) and this cost is passed on to consumers. The higher cost ensures that consumers make the optimal choice between this product and less risky, therefore less expensive, products. This concept works well for isolated manufacturing defects, but is extremely difficult to apply in the case of mass toxic torts, especially where the potential for damages was not foreseen at the time that the products were produced.[4] Unanticipated future liabilities can have no impact on *ex ante* efficiency because current users and purchasers of the products will not have paid a cost reflecting those liabilities. In this case, *ex post* state funding for some or all of these costs may be more efficient than any attempt to impose them on the private sector.

Insurance is the business of removing from individual persons or firms the risk associated with the occurrence of events that are not predictable for the individual but are predictable across the population as a whole. For any large

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required to do the monitoring on the principal's behalf.

An agent in one principal-agent relationship can become a principal in another principal-agent relationship as delegation of tasks and responsibilities passes down the chain. When this happens the preferences of the originating principal can become diluted or lost due to filtering by many agents. Of course it is also possible for any agent to act opportunistically in carrying out his or her duties at any point along the chain, jeopardising the outcome of the whole system of inter-related or 'nested' contracts.

The National Cervical Screening Programme is made up of a nexus of contracts (Figure 1) which are part of a wider nexus of contracts within the health sector. Although the diagram is a simplification[2] of these complex arrangements, it shows the wide range of implicit and explicit contracts that make up the programme beyond the explicit commercial contracts between the third party purchaser and health providers. As such, it reveals a number of shortcomings in contract design:

- Although contracts for service provision typically include specifications relating to quality, purchasing authorities do not have the information to effectively monitor contracts. The information by which laboratory performance could be monitored is held by the Cervical Screening Register and the Cancer Registry, not the purchasing authority.
- The extreme information asymmetry that characterises the doctor-patient relationship makes monitoring by patients very difficult. Evidence from the Ministerial Inquiry suggests that public servants who have concerns about a particular health professional in the performance of a contract, had limited incentives to report it.
- There was no information sharing and no incentive for either register to monitor the performance of smear takers or laboratories.
- Patients can only signal their satisfaction or otherwise with the screening programme by voting, and this is strictly limited by election timings. This signal is a dilute one because one vote must express satisfaction or otherwise with all other agencies. The change to elected District Health Boards will allow votes to be cast specifically on health issues, although it is not clear what (if any) responsibility District Health Boards will bear for contractual failures of the type found by the Inquiry. Furthermore, District Health Boards will be in no better position to monitor the performance of their agents than their predecessors.
- There is no mechanism that shifts the financial risk of contract failure from the patient to the politician as politicians are protected from liability.
- Patients also have limited ability to shift risk onto errant health professionals and registration bodies because of the unique waiver of the right to sue – medical misadventure is covered under New Zealand's accident compensation legislation. While there are some mechanisms (such as loss of reputation, threat of disciplinary action, etc.) that help to align the incentives of the health professional with those of the patient, there are few direct financial repercussions from negligent practice.

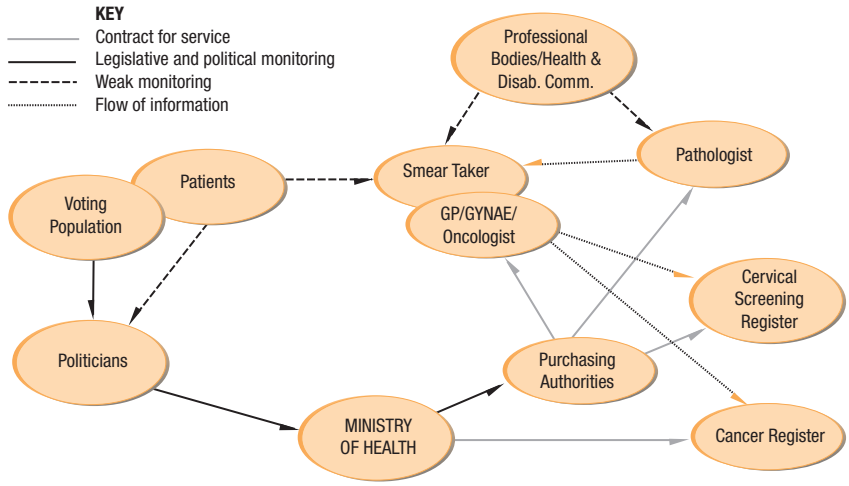
This analysis suggests that the originating principals – the patients – have borne almost the entire risk for contractual inadequacies in the NCSP.

Problems with the programme came to light when one patient, Witness A, took a case for exemplary damages against the pathologist who had repeatedly misread her cervical smears. This led to the Ministerial Inquiry which, without minimising the extent of the pathologist's negligence, focussed on wider systemic problems in the design of the programme.

While the Inquiry Report made recommendations to improve monitoring of practitioner performance and the quality of the information held on the Cervical Screening and Cancer Registers, it did not address the inability of any of the contracts, implicit or explicit, to align the incentives of any agent with those of the originating principals – the patients.

The fundamental problems identified in this analysis of the NCSP attend the provision of all services in the publicly funded health system in New Zealand. The lesson is that where there is extreme information asymmetry, as in the relationship between patient and doctor or purchaser and provider, the principal must rely more heavily on incentives for performance, including shifting some of the risk for poor performance onto the agent.

Figure 1: The National Cervical Cancer Screening Programme – showing the misalignment of contracts for service, atempts at monitoring and information required for monitoring.



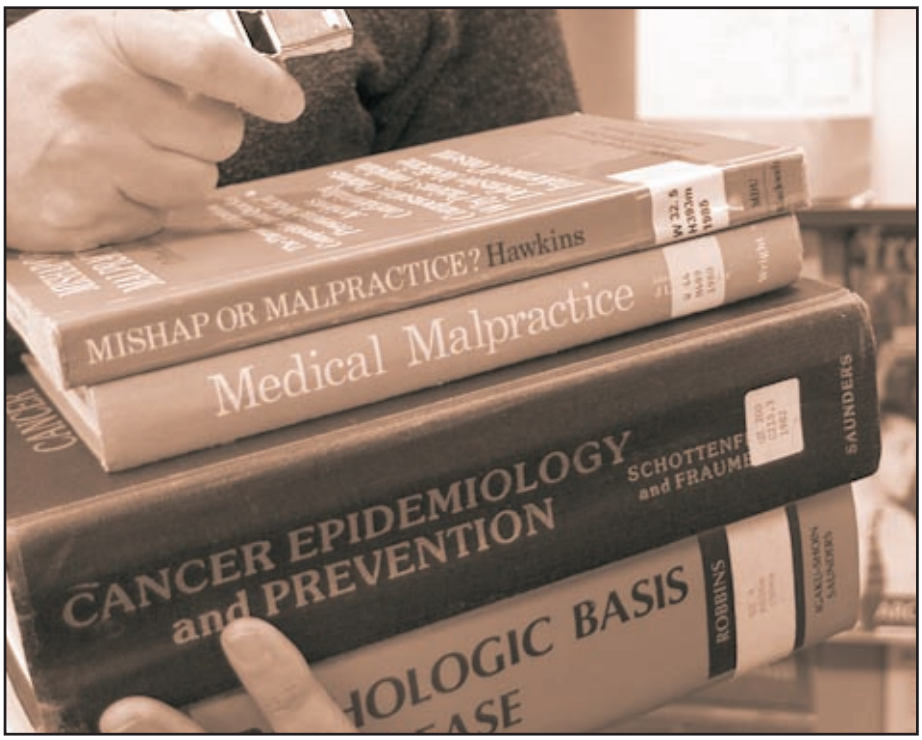
1 *Health Sector Failure in NZ: Act of God, Act of Man or Inadequacies in Contract Design?*

2 *The diagram is very simplified. For example, it was only as a response to the Duffy Ministerial Inquiry that responsibility for the entire programme was centralised into a national programme (NCSP) within the Ministry of Health. Purchasing contracts, however, were still administered by the HFA. Further restructuring in 2000-2001 saw the responsibility for purchasing transferred back to the Ministry of Health. At the time of writing, it is unclear whether responsibility for the purchasing of services lies with the NCSP or a contracting division within the Ministry.*

Whistle-blower, *n. Inf.*

A person who informs on someone or puts a stop to something

Without the actions of Clare Matheson,[1] Witness A,[2] and Colleen Poutsma,[3] the failure to provide adequate health care to thousands of New Zealand women might have gone unnoticed, perhaps indefinitely. These three women belong to a special group of people – whistle-blowers, those who choose to disclose confidential and sometimes deeply personal information relating to some danger, fraud, or other illegal or unethical conduct.[4] Lisa Marriott investigates the economics of whistle-blowing and why it is so important for maintaining quality in the health sector.



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Whistle-blowers can play a vital role in revealing situations where undesirable behaviour is present, even though such action entails considerable personal cost. From an economic perspective, "blowing the whistle" does not appear to be a rational action as personal costs, such as invasion of privacy, public exposure of personal medical details, legal costs and extreme self-sacrifice appear to decrease the whistle-blower's well-being. So, why would anyone choose to "blow the whistle" and voluntarily incur a loss in welfare? Is there an economically rational motivation to engage in this behaviour?

In cases of medical misadventure, where the whistle-blower's actions cannot change the outcome for him or herself, then any action would appear to only incur costs and bring no personal benefit. There is a positive benefit, however, if the person is altruistic – that is, their welfare includes the welfare of others. In this case, the benefit of preventing others from incurring loss as a result of a practitioner's misconduct may justify the apparent self-sacrifice. Thus, anyone who valued the benefit to others more than the costs to themselves would "blow".

Another reason why individuals may "blow the whistle" is because they do not regard their past suffering as a sunk cost and unrecoverable. Economic reasoning would suggest that past suffering is a sunk cost and "blowing the whistle" would only be worthwhile for the individual if the future benefits were to outweigh the future costs. Whistle-blowers, however, often say "I don't want all of my pain and suffering to be in vain", suggesting that the act of "blowing the whistle" allows them in some way to recover some of the costs of their past suffering.

Whistle-blowing is particularly important in the New Zealand health sector because of the lack of contractual mechanisms for prescribing the quality of service provision; a lack of incentive for self-monitoring by the medical profession, due to the statutory provisions which include compensation for medical malpractice in our ACC legislation; and, insufficient accountability of politicians for poor performance of public entities.

However, the special circumstances required – the right person being in the right place at the wrong time – means that whistle-blowing by itself is inadequate for effective monitoring of the health sector.

From an economic perspective whistle-blowing is also inefficient. When someone "blows the whistle" on malpractice, other patients gain the benefits of the whistle-blower's actions at no cost. Such "free-riding" suggests that the level of whistle-blowing is less than optimal.

Unless things change, it seems inevitable that a few individual New Zealanders must bear the costs of monitoring substandard medical practice. What may be of greater concern, however, is that the extreme motivation required by individuals to "blow the whistle" raises the distinct possibility that many more instances of substandard practice have gone undiscovered, or indeed that poor performance is encouraged in the current environment.

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1 *which lead to the 1987 Royal Commission into the Treatment of Invasive Cancer at National Women's Hospital,*

2 *resulting in the 2000 Ministerial Inquiry into the Under-Reporting of Cervical Abnormalities in the Gisborne Region,*

3 *leading to the 2001 trial of Dr Graeme Parry in respect of his treatment of her cancer, and the contemporary Cull Inquiry Into Processes Concerning Adverse Medical Events,*

4 *Borrie, G., (1996). "Blowing the whistle: business ethics and accountability". The Political Quarterly. Apr/Jun 1996. Volume 67, pp141-150.*

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sample of insured parties, the risks faced by each individual can be removed if the risks posed by each insured party are independent and uncorrelated. Insurance does not remove from firms the costs associated with their liability; it simply removes the uncertainty in the timing of those costs by allowing them to pay an annual premium in return for the insurance company bearing the risk.

The mass nature of litigation relating to toxic torts, and the clustering of the associated claims, means that the risks are no longer independent and identically distributed. The result is that the usual assumption that various risks in the insurance portfolio will be offsett will not be satisfied, and the efficiency of insurance is called into question. Further, the efficiency of private insurance rests on the voluntary contract between insurer and insured in which exclusions of particular types of liability, caps on the total amount of insured risk, and co-insurance or deductibles may all form part of an efficient contract. Legislation specifying compulsory contracts will normally remove the ability to use these mechanisms to design an efficient contract.

That we do not have a clear understanding of the risks associated with GMOs, distinguishes policy in this area from policy on other issues, such as pollution. The output of pollution is measurable, the types of harm caused by it are known, and as a result technologies that allow firms to invest in lower pollution emissions have been developed. Similarly, the types of precautions in which the nuclear industries should invest, and the likely costs if they do not make those investments, can be assessed on the basis of present knowledge. In contrast, neither the appropriate precautions nor the costs that may result if those precautions are not undertaken are at present known for GMOs. This makes it extremely difficult for insurance markets to undertake the assessment of the frequency and magnitude of likely claims that is required for an efficient insurance market.

> "THERE SHOULD BE NO PRESUMPTION THAT COMPULSORY INSURANCE FOR COSTS ASSOCIATED WITH GMOS THAT ARE AT PRESENT UNKNOWABLE WILL IMPROVE ECONOMIC EFFICIENCY OR THE WELFARE OF SOCIETY AS A WHOLE."

There should be no presumption that compulsory insurance for costs associated with GMOs that are at present unknowable will improve economic efficiency or the welfare of society as a whole. Since it is not clear that insurance markets can provide cover for such a poorly defined risk, a requirement that producers and users of GMOs acquire liability insurance may simply kill the development and use of GMOs in New Zealand.

The academic literature in law and economics provides strong support for the Royal Commission's conclusion that a negligence-based liability regime for GMOs is to be preferred over strict liability. A strict liability regime, particularly when combined with a requirement to purchase insurance for a risk that may be uninsurable, would have a very substantial negative impact on research, investment and economic growth in New Zealand.

1 Chen, Palmer and Partners and Simon Terry Associates (2001) Who Bears The Risk?: Genetic Modification and Liability (Wellington).

2 Brown, J.P., (1997) "Economic Theory of Liability Rules in Newman P. (Ed) The New Palgrave Dictionary of Economics and the Law, Volume 2 pp 15 – 19.

3 Shavell S., (1980) "Strict Liability versus Negligence" Journal of Legal Studies 2 pp 323-349.

4 Viscusi W.K., (1996) "Alternative Institutional Responses to Asbestos" Journal of Risk and Uncertainty 12 pp 147 –

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"Senior Counsel") rank, and facilitate a greater reduction in the information asymmetry inherent in the engagement of professional legal services.

Simple abolition of the QC appellation, without an effective replacement, would reduce the current level of information signalling, increase information asymmetries, and decrease market efficiencies for many consumers – the users of legal services in New Zealand.[2]

And the Nobel prize? There is possibly no better signal of quality performance. Such international recognition applies, however, only to specified fields of professional endeavour. New Zealand's legal services market, in the selection of senior counsel has its own signalling mechanism – and a call for improvement.

1 A copy of the full results of the QC survey can be downloaded at http://www.clanz.org/QC_survey.pdf.

2 The survey was aimed at major consumers of commercial legal services. Suppliers of legal services (e.g. law firms and barristers) also have an interest in expressing their views on the present method of appointment of, and their perceived need (if any) for Queen's Counsel, and indeed many have been willing and able to mobilise resources to present their views. Consumers of legal services might offer a different – perhaps in some respects more objective – viewpoint, but many did not prepare formal submissions. There is therefore a very real possibility that the views of at least one group of some of the largest users of QC services would have remained with individual users. The survey, therefore, may have itself reduced information asymmetry between a significant consumer group and the constitutional bodies charged with making decisions regarding the potential abolition or modification of the QC rank.

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Why have international interconnection rates been kept so high? Because they are paid by non-citizens of the country in which the call is received. What better source of taxation to fund the (unneeded) TSO? Today, after the exertion of considerable pressure from the United States Government, international interconnection rates are finally falling. A random search of the Internet revealed that I can get a "call back" service to reduce my calling rate to New Zealand to just $0.13 per minute – or about 4 or 5 times the marginal cost of transmitting and switching the call. That is grudging progress, but it came only after decades of government protection began to erode.

Will the new regulators, in New Zealand and elsewhere, be different? Will they now try to stimulate competition so that markets can determine telecom rates? Perhaps, but there certainly is room for doubt. First, they still have the dreaded TSO. How are they to fund it if markets are competitive? Second, regulation of a nascent competitive industry is subject to the same games that were played in the courts in the battle between Clear and Telecom New Zealand. Legal advocacy is simply focused on a different venue. The regulator will be forced to make difficult determinations based upon the pleas of the contesting parties, and he or she will be very reluctant to make a decision that causes firms to sink into bankruptcy. The likely compromise will be to keep many rates as high as possible – local service to rural areas being an obvious exception – so as to allow inefficient competitors to thrive. We did this with airlines and trucks for decades in the United States before our 1978-80 wake-up call.

To its credit, the New Zealand Government's Bill does not go as far as we have in the United States or in many European countries. Since 1996, we have required "unbundling" of the established firms' networks so that entrants can lease the unbundled pieces of these networks – switches, customer drop lines, transmission, network intelligence, etc. The New Zealand legislation does not go this far, but it leaves open the opportunity for doing so in a few years. However, as in the United States, the proposed New Zealand policy requires the incumbent carriers to provide their services to entrants at wholesale rates that are lower than retail rates by the "avoided cost" of retailing. Somehow, reselling these wholesale services is supposed to be competition and add to the chances that entrants survive in the rough and tumble telecom marketplace. The evidence from the US suggests that such resale does not provide a successful entry strategy. Canada has wisely avoided this approach, but New Zealand appears to be ignoring the evidence and pushing ahead.

Perhaps the most dangerous aspect of the new, purportedly pro-competitive, telecom regulatory policy is the notion that regulators can set prices efficiently. The New Zealand Bill requires that regulators consider setting carrier interconnection rates – the prices at which traffic is transferred between carriers – at "total service long run incremental cost". Whatever this means to the layman, to an empirical economist it conveys confusion. How can we estimate the cost of interconnection when facilities are changing dramatically and are used for many different services at the same time? What should we assume about the useful life of these facilities? Whose cost is relevant – the old-line company's or the entrant's?

For most of the 1980s and 1990s, western countries moved away from cost-based regulation because it could not be executed efficiently and provided dreadful efficiency incentives for the regulated carriers. Now, under the guise of promoting competition, cost-based regulation is returning – just when the demands for massive investment in high-speed Internet connections are growing rapidly.

New Zealand has done many things well in telecom policy. It has kept local calling rates at zero – the marginal cost of a local call is very near zero anyway – and has thus allowed the Internet to flourish. It has opened its markets to competition and invited foreign investment and technology. It has eschewed regulation of a sector that is far from a natural monopoly. Why turn back now? The government should reconsider its decision to impose suffocating regulation on the central nervous system of the new economy, the telecommunications sector.

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hedges that are in place well in advance of a crisis are effective: the supply of hedge contracts might dry up in times of crisis, or not be available at prices they can bear. Without financial institutions stepping in to offer suitable risk instruments in such circumstances – an occupational hazard in the New Zealand context given the relative infancy of its electricity industry and the dimness of its, and indeed New Zealand's, blip on global hedge fund managers' radar screens – the exposure of non-vertically integrated players can be telling. Indeed, where retail energy contracts do not fix prices, vertical integration – unlike other types of hedge – offers the ability to change prices in periods of volatility. This is difficult where there is competition, however, as reflected in the reported experience of On Energy during the recent "crisis".

The lesson of Spencer's article is not so much that vertical integration in the electricity sector can provide a natural hedge against price and volume co-movements, since that is perhaps to state the obvious. Rather he highlights the special problem faced by the sector by virtue of this co-movement, and applies options-market technologies to formalise the problem and its possible solutions. That he should conclude that vertical integration is a natural solution to the problem is a useful insight of relevance to the current debate.

1 *"The risk that wasn't hedged: So what's your gamma position?" 1 October 2001*

2 *Those Seeking answers can find comfort in chapter 14 of "Options futures and other derivatives" by John Hill, 3rd edn 1977*

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Options, Hedges and Gamma in the ELECTRICITY BUSINESS

In this article Richard Meade discusses the hedging benefits of vertical integration in the electricity sector.

The recent large but now eased rally in wholesale electricity prices in the relatively young New Zealand Electricity Market has added heat to the ongoing debate regarding the desirability of electricity generators being vertically integrated with energy retail companies. As might be predicted, those companies that did not fare well through the "crisis" have looked askance at those that did: particularly any that are vertically integrated.

A recent article by Lloyd Spencer in *Public Utilities Fortnightly* takes a look at the debate from an option-based risk management perspective.[1] As suggested by the title, he draws attention to technical parameters used by option traders such as "delta" (the rate of change of portfolio profit with respect to asset price) and "gamma" (the rate of change of "delta" with respect to asset price) in assessing the risk position of energy generators and purchasers, which he shows to generally have long and short "gamma" positions respectively.

Such talk generally leaves most mortals grasping for dusty boxes of lecture notes stockpiled under the stairs precisely for emergencies such as these.[2] The essential point, however, is this: it transpires (or, some might suggest, conspires) that the circumstances in which electricity prices rise (fall) just so happen to coincide with those in which volumes rise (fall) at the same time. Recent New Zealand experience would tend to agree with this, and hence it is perhaps no surprise that some companies such as Contact Energy should report increased profits when the industry has reportedly been in "crisis".

For generators this implies not only that their profits rise in these circumstances (positive "delta"), but also that their profits rise at an increasing rate (positive "gamma"). Energy purchasers face the mirror image of this: falling profits at an increasing rate. Unbundle the two parties and, depending on the direction of price and volume changes, one of them has to be hurting. Put them together and, hey presto, you have a hedge. In fact, as Spencer argues, such vertical integration just happens to represent the lowest risk means of hedging generator and energy retailer risk.

Naturally vertical integration is not the only way to achieve such a hedge. With financial innovation and speculative global hedge funds it is conceivable (if not immediately possible without a concerted and well-pitched marketing drive) for non-vertically integrated generators or energy purchasers to purchase financial instruments such as options or contracts-for-differences to remove or at least mitigate their exposure to such conspiracies of price and volume. Also, with the advent of the New Zealand Electricity Market we have observed a range of energy hedge contracts being entered into by various industry parties to synthesise a vertically-integrated position, even if these contracts are not yet especially liquid.

Spencer notes that the risk faced by energy retailers can be balanced with a plain European option on forward electricity contracts. More precisely (but at the expense of option liquidity) they can be mitigated using a "ladder" of such options at a range of exercise prices that more closely mirror the retailer's supply curve (which is contoured because of the problematic price-volume co-movements). He also suggests that volume-based, rather than price-based, options could also be usefully employed to mitigate the retailer's risk (given this co-movement), but notes that such alternatives do not appear to have developed in the electricity sector despite the existence of similar weather-based derivatives. In any case he acknowledges the risk premium that is likely to be priced into these instruments by speculative counter-parties may be significant.

A particular difficulty faced by non-vertically integrated parties, however, is that only those

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