MDL

McKinlay Douglas Ltd

PHARMACY OWNERSHIP

A report prepared for the Pharmacy Guild of New Zealand

by

McKinlay Douglas Limited

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36-42 GreySt
P O Box 13 125, Tauranga
Tel: (07) 579 4217 Fax: (07) 579 4218
www.mdl.co.nz
email: mckinlay@mdl.co.nz

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1. Introduction

For many years the ownership of pharmacies in New Zealand was regulated under what could loosely be described as the "one pharmacist (or group of pharmacists), one pharmacy" model. In addition, the then Pharmacy Act had extensive rules designed to prevent third parties from having a financial interest in pharmacies (other than through normal arms length business arrangements) and there were restrictions on the type of premises within which pharmacies could operate.

In 2003, following years of lobbying by commercial interests seeking entry into the pharmacy business, the existing rules on pharmacy ownership were repealed and replaced by new rules included in the Medicines Act.

The majority ownership of a pharmacy business (however held) must be in the hands of a pharmacist or pharmacists. There is provision for a temporary exemption in the case of the estate of a deceased pharmacist. Although the changes, from the perspective of the pharmacy profession, were quite far reaching, they did not satisfy the commercial interests that had been seeking change as their objective had been the removal of any restriction on who might own a pharmacy business.

The Pharmacy Guild of New Zealand (the Guild) accepts that there will be continued pressure on government, from commercial interests, to completely deregulate pharmacy ownership. The Guild's position is that further deregulation would be against the public interest, especially at a time when demands on community pharmacy are changing rapidly through influences such as the evolution of the government's primary health care strategy.

To provide support for its case that there should be no further deregulation, the Guild has commissioned McKinlay Douglas Limited (MDL) to prepare a report for it developing the public good arguments for pharmacist ownership of pharmacies. The focus of the report is to be on the incentives that different ownership structures can be expected to create for the effective delivery of pharmacy services in an environment in which the nature of pharmacy is clearly evolving from the supply of goods (pharmaceuticals under prescription, pharmacist and pharmacy only medicines, and other goods) to the supply of services designed to support the optimal use of medication as part of a wider health care strategy.

Layout of the Report

The balance of this report comprises the following sections:

- Background – an overview of recent changes to ownership regulation and the shifting role of community pharmacy.
- What We Did – a brief outline of the work undertaken in the preparation of this report.
- The Future Role of Community Pharmacy – a look both at international trends in community pharmacy (towards a pharmaceutical care model) and current trends in

community pharmacy in New Zealand based on discussions with individual pharmacists and with a DHB which is leading change in this field.

- Ownership Rules and Service Orientated Pharmacy - a consideration of current trends in ownership, of international experience, and of economic research on the incentive impacts of different ownership structures (in this respect, this section of the report is largely an introduction to Appendix 2).
- Public Interest Implications – this section draws out the implications for the public interest of current trends in community pharmacy and their implications for any further changes in ownership rules.
- Pharmacy Use of the Changed Ownership Provisions: A Footnote – this section is a somewhat speculative consideration of how pharmacy itself might use the new ownership provisions in support of rural and provincial pharmacy.
- Appendix 2: Literature Review is a substantive review of recent literature on trends in community pharmacy worldwide, of recent reviews of the nature of pharmacy ownership, and of economic literature dealing with the incentives associated with different ownership structures. It includes an annotated bibliography providing brief commentary on the content of each item (often as an abstract from the original paper).

2. Background

The pharmacy sector itself, and the services it provides, are evolving as the consequence of two separate influences:

- The changes to ownership regulation introduced in 2004.
- An increased emphasis on the role of the pharmacist as a professional providing advice and support for the optimal use of medication.

Ownership Changes

Changes to the Medicines Act in 2003 substantially relaxed the previously tight restrictions on ownership. Under the new rules one pharmacist or group of pharmacists may own up to five pharmacies. Up to 49% of the capital of a pharmacy owning company may be held by one or more non-pharmacists with no limit on the number of pharmacies in which a single non-pharmacist may have a minority interest.

The impact of those changes is still working through retail pharmacy. It will probably be another two or three years before the full consequences of the changes are evident and can be properly assessed in terms of the public interest.

As with any significant change in black letter law, it is clear that commercial interests have sensed opportunities that may not necessarily have been anticipated by legislators or their advisers.

One significant development is the emergence of pharmacy chains linked together by a common shareholder with a stake of 49% in each of a number of pharmacies.

An example which has attracted public interest recently is the Beauty Direct/Lifecare pharmacy chain. This is a grouping of some 17 large scale pharmacies trading under a common branding (in this respect not unlike the franchise chains such as Unichem and Amcal that had emerged under the earlier legislation) but with the significant difference that a single shareholder owns 49% of the capital of each pharmacy. That shareholder itself has become a listed public company through what is commonly referred to as a "reverse takeover" under which what was effectively a "shell" listed company, Beauty Direct, issued shares in exchange for the ownership of the common minority shareholder, thus itself becoming the minority shareholder in the 17 pharmacies concerned.

This is a new corporate structure for pharmacy in New Zealand. On the face of it, it appears compliant with the requirements of legislation. What cannot yet be known is the potential impact on pharmacy services of this type of ownership structure. Two factors are relevant:

- The Companies Act 1993 imposes certain duties on the directors of a company which give them a paramount responsibility to shareholders.

- The listing rules of the New Zealand Stock Exchange impose quite rigorous disclosure requirements on listed public companies.

The Companies Act impact includes, under section 131, that a director of a company has a statutory duty that "when exercising powers or performing duties must act in good faith and in what the director believes to be the best interests of the company".

This duty is normally regarded as requiring that directors act to optimise the long-term value of the company for shareholders. In most companies, and certainly in pharmacies under the previous legislation, there is a close identity between directors and shareholders. Effectively this means that directors can impose their own interpretation of "best interests of the company" by, for example, trading off professional or personal objectives against optimising the value of the company. As they are normally the only persons affected, there is no conflict of interest and no risk of being challenged in the exercise of the directorial discretion[1]. In contrast, in a company where 49% of the capital is held by an investor shareholder, there is the potential for a clear conflict of interest if a pharmacist director seeks to put professional concerns or preferences ahead of the objective of optimising the value of the company. There must be a real risk, from a public interest perspective, that the minority shareholder will seek to ensure that the pharmacist's ability to give priority to professional concerns over and above profitability is strictly limited – with the potential for a "do what you need to do to comply but don't go further unless it is consistent with enhancing shareholder value" requirement. Without that, the investor could be at risk.

The New Zealand Stock Exchange's website describes the continuous disclosure obligation in these terms:

> "Listed issuers (companies and other entities which issue securities) have obligations under the listing rules (section 10) to keep the market constantly informed on matters that may affect the price of their securities.
>
> "Listed issuers must disclose relevant information immediately, on the presumption that the information belongs to all shareholders. This includes disclosure of financial forecasts, where the information may differ from market expectations."

In the case of a listed public company whose sole or principal asset is a series of minority investments in pharmacies, it is a reasonable assumption that the continuous disclosure requirement can only be met if the listed minority shareholder itself receives regular and detailed financial (and other) reporting information from each pharmacy in which it has an interest. The listed company will need this information in order to provide the market with the normal forecasts of expected financial performance, advice of significant business initiatives etc and to provide the market with information of any circumstances that could affect information already provided (for example a revision to the financial forecasts). It is not yet clear how this set of requirements will impact on pharmacies which do have a listed minority shareholder. It does seem likely, however, that the

[1] There is one exception to this comment; the best interests of the company is interpreted to include creditors so that, in a company where there is any risk of non payment of creditors, directors' actions could be open to challenge by creditors.

requirement itself will place a strong focus on financial performance and, over time, affect the incentives faced by pharmacists involved in the direction and management of those pharmacies.

For the purposes of this report, what MDL wishes to highlight is that New Zealand's pharmacy sector is still in a state of change following on from the legislative amendments of 2003 and that it is still too early to assess properly what the actual impact of those changes will be, especially on the quality and effectiveness of the services that pharmacies under new ownership arrangements will deliver.

The Changing Role of Pharmacy

The second background factor for this report is the apparently changing emphasis within the pharmacy sector from one of providing products (medicines and other products for sale; dispensing of pharmaceuticals) to the provision of services.

As we shall see further on in this report, there does appear to be a quite marked shift taking place, not just within New Zealand but internationally, in the role of pharmacists within the health care system. There is a growing recognition that the true value of the pharmacist as a professional is not so much in the actual dispensing of pharmaceuticals, as in the provision of oversight of prescribing practices, counselling of patients, and the ongoing management of medication – measures to ensure that the right medication is taken at the right time in the right way – and of other public health services.

In parallel with this, there is also a growing recognition of the potential role of pharmacists in the management of a number of different health care initiatives.

One problem that health care purchasers, and pharmacists themselves, face in the shift from a product to a service model is how the pharmacist should be remunerated and how the service purchaser can determine that the service itself was delivered as specified.

The current template for the pharmacy services agreement (the standard agreement entered into between each DHB and individual pharmacies within its region) is drawn on the basis that pharmacists will be remunerated for dispensing pharmaceuticals but expected, in conjunction with that, to provide a range of services (Appendix 1 sets out extracts from the agreement's description of base pharmacy services). The range is quite extensive including verifying the appropriateness of the prescribed pharmaceutical, checking the patient's medication history, providing counselling on the usage of pharmaceuticals (including what to do in the event of any side effects) and reporting back to the prescriber in the event of any concern that the user may be applying the medication in a way which is detrimental to the user's health.

A persistent dilemma for district health boards (and the health services purchasers which preceded them) is how to identify and pay for pharmacist services.

The approach that has been taken is to treat the prescription fee as covering not just the dispensing of the pharmaceutical itself, but also the provision of the related services. The concern that health services purchasers express, when discussing this model, is how do they determine the extent to which pharmacists actually deliver the required services in any particular case. There appears to be a quite widespread belief that, if the actual

performance cannot be closely monitored and the delivery of the service confirmed, then the service itself may not be delivered, or delivered to the standard contemplated by the pharmacy services agreement.

The Pharmacy Guild response is that pharmacists, as professionals with a strong professional ethic, have more than simply a contractual commitment to the provision of the defined services; they have a professional commitment and a pride in delivering on that.

MDL's assessment is that, generally, the Guild's position will be the practice but the issue is nonetheless a real one. There is a potential for it to become much more significant if the incentives facing pharmacists change because of a change in the ownership structure in which they work.

To put it bluntly if DHBs have concerns about whether pharmacists will deliver on their professional commitment, when they work in businesses which they themselves own and thus have the right to put professional considerations ahead of shareholder wealth maximisation, how will those pharmacists act when there is a wedge between their professional commitment and their commercial commitment? How easy will it be for a pharmacist with a significant investor as a minority shareholder to refuse pressure to minimise on service in order to increase profitability? How prepared will a profit maximising corporate be to accept that, in one part of its business, professional standards could over-ride financial performance?

These matters will be addressed again later in this report.

3. What We Did

In order to prepare this report we:

- Undertook extensive Internet searching for information on the changing nature of community pharmacy.
- Reviewed recent Australian material on pharmacy ownership including the Wilkinson report and recent research undertaken for the Australian Pharmacy Guild.
- Undertook an extensive literature review of the economic implications of different forms of pharmacy ownership (the report of that review is attached as Appendix 2).
- Interviewed selected pharmacists to obtain their views on the future direction of community pharmacy.
- Met with the senior manager of a DHB which believes that it is leading change in community pharmacy to gain its understanding of what it sees as the future place of community pharmacy in primary health care.

4. The Future Role of Community Pharmacy

As already noted in this report, the role of community pharmacy is undergoing change from a primarily product-based approach to one which is increasingly service-focused.

The process of change is complicated by the fact that the regulatory environment for pharmacy is still premised largely on the assumption that the role of pharmacists is to dispense pharmaceuticals, rather than to provide a service as part of primary health care. As already noted, this is reflected in the way in which pharmacists are currently remunerated.

Discussion with individual pharmacists about the nature of their practice, and perhaps more importantly with health services purchasers about their expectations of pharmacy, provides strong anecdotal evidence that this approach is changing.

In this respect, New Zealand is part of a worldwide trend. Evidence for this can be found in the now extensive literature on pharmaceutical care. In support of this we quote from the abstract for a 2004 article, *Pharmaceutical Care: Past, Present and Future* published in *Current Pharmaceutical Design (Volume 10 No. 31)*:

> "Since the concept of pharmaceutical care was introduced from the United States about 20 years ago, this initiative has become a dominant form of practice for thousands of pharmacists around the world. Currently, pharmaceutical care is understood as the pharmacists' compromise to obtain the maximum benefit from the pharmacological treatments of the patients, being therefore responsible for monitoring their pharmacotherapy."
>
> "Indeed, an awareness of the problem resulting from the use of medicines exists and numerous studies reflect that drug use control is necessary since there is an important relationship between morbidity/mortality and pharmacotherapy. Thus, it is possible to evaluate the benefits of pharmaceutical care on patients' health and ultimately on society. Many studies have been conducted, which show that the provision of pharmaceutical care has its value in common pathologies such as diabetes, hypertension, asthma, hyperlipidemia, chronic pain, rheumatic diseases or psychiatric disorders, as well as in polymedicated patients."
>
> "A large amount of data is currently being published in Biomedical journals, in an effort to establish the clinical, economic and humanistic viability of pharmaceutical care."
>
> "We conclude that the positive outcomes obtained with different programmes of pharmaceutical care are making a beneficial change in patients' health but still more research projects should be conducted to support this change."

The last comment is particularly pertinent in the New Zealand environment. There appears to be no research identifying specific benefits from medication management – for example the avoidance or minimisation of admissions to hospital as a consequence of

medication misadventure. Instead, there is a tendency to rely on American and Australian research but, as Appendix 2 establishes, it would be extremely unwise to rely on this research to draw any significant inferences about New Zealand conditions.

In drawing inferences about the potential for pharmaceutical care in a New Zealand context, we are left to fall back on two sources:

- Quite extensive evidence, internationally, that where the benefits of pharmaceutical care have been the subject of research investigation, they do appear to be positive.
- Emerging New Zealand practice.

One difficulty in extrapolating from international experience to the New Zealand situation is the different structure and funding of our health system as compared with the health systems in other jurisdictions. This makes it dangerous to assert that, because X happens in country Y, X will also happen in New Zealand. An obvious example is hospital admissions as the result of medication misadventure. American research (see Appendix 2) reports that medication misadventure is responsible for a quite high proportion of all hospital admissions. However, the American health system is remarkably different from New Zealand's. It is entirely possible that the incidence of hospital admissions in the US for medical misadventure is a function of the structure of the US health system.

Stronger reliance on overseas research may be more appropriate in other areas of concern, for example, research on the extent to which patients, especially older patients, or patients with multiple medications, are able effectively to manage their own medication. To the extent that research suggests that this is a significant problem in (say) the United Kingdom, it seems reasonable to assume that this may also be a problem in New Zealand, especially if there is anecdotal evidence (as there is) to support this.

As further evidence of the increasing interest in the potential of community pharmacy to become a major participant in primary health care services, on 1 April 2005 the UK Department of Health published *Choosing Health Through Pharmacy*. The report includes the following vision of the health promoting pharmacy in 2015:

The health-promoting pharmacy in 2015[2]	
• **Is a primary source of information and advice** on health issues and local services for the community, helps reduce health inequalities, and is part of a strong local network of health improvement services • **Provides directly, or makes space available for, a range of health improvement services** in particular for disadvantaged people, older people, children and young people, and focusing on specific services such as stop	• **Is linked with schools, workplaces and other local settings**, including people's homes, to provide health information and advice • **Helps people to take more control of their own health and to shape the services they need** by being a trusted health advocate, visible and active beyond the pharmacy and working closely with local community leaders and volunteers • **Improves the health of people with long term conditions** by helping them with their medicines, promoting healthy

[2] The report is available on the web at: http://www.dh.gov.uk/assetRoot/04/10/74/96/04107496.pdf

smoking, sexual health, substance misuse, weight management and immunisation • **Identifies people with risk factors for disease** and provides appropriate advice, including support for self care • **Works in partnership with the local authority and voluntary organisations** to improve the wider determinants of health, such as poverty, housing, education and employment	lifestyles, supporting self care, signposting to other services and working closely with community matrons and case managers • **Makes best use of the extended pharmacy team** with active links to training, research and public health networks • **Works in partnership with health organisations and the wider public health community** across primary, community, social care and hospital settings • **Uses a wide range of modern IT and communications technology** to provide electronic health information to the public and to access electronic health records shared with patients

On a similar theme, the Australia Pharmacy Guild released the final report of the change management and community pharmacy project, *The Shape of our Future*[3], early in 2005. It is a quite comprehensive examination of the potential for community pharmacy in Australia to take a more service-orientated focus and includes quite extensive discussion of issues which will arise in the New Zealand context such as how to shift the basis of remuneration from a product focus (dispensing fees) to a service focus.

As already noted, there is an expectation in the current pharmacy services agreement that pharmacists will provide a range of services in conjunction with the dispensing of pharmaceuticals. The obligation reflects a mutual recognition, by health services purchasers and by pharmacists, that optimal use of medication requires more than simply a few words on the label for the container in which the pharmaceutical is dispensed.

There have been successive attempts to introduce a specific service, to be funded separately from the prescription fee, which would enable pharmacist review of the medication programmes of individual patients. MDL understands from discussion with pharmacists that the successive attempts (variously Continuing Pharmacy Care and Prescription Review Services) to put in place a medication review programme have so far been relatively unsuccessful for reasons including:

- Overly complex requirements including quite rigorous pre-conditions for pharmacist accreditation.
- Gaps in the funding provision – for example under Prescription Review Services, requiring involvement of the patient's doctor but making no provision to remunerate the doctor.

[3] Available on the web at: http://www.guild.org.au/public/researchdocs/2003-06_change_finalreport.pdf

The Current New Zealand Situation

As MDL understands it, the current situation in terms of shifting towards a more service-orientated approach on the part of pharmacy is a combination of:

- The service requirements under the pharmacy services agreement.
- A series of specific separately funded programmes such as the Methadone programme, the Needle Syringe Exchange Scheme, and Rest Home Services.
- Pharmacists' own interest in ensuring that the primary health care system makes optimal use of their skills.
- The emergence of a number of initiatives, largely on an ad hoc basis, made possible by the availability of some experimental funding within DHB budgets.
- A gradual rethinking, by some health services purchasers, of the role of pharmacy and primary health care driven substantially by a concern to minimise hospital admissions.

Amongst the initiatives which pharmacists themselves see as desirable extensions of their activity, or initiatives which they are actually developing themselves, are:

- Disease state management. Pharmacists are generally the most easily accessible members of the primary health care team. From a patient's perspective, access is straightforward (no appointment required) and services (as opposed to products) normally free. There are a number of possible disease state management initiatives which pharmacy could undertake. Here we outline two examples:
  - Blood sugar testing for diabetes, with the results sent to the patient's doctor if they indicate a need for medical intervention.
  - Managing the use of Warfarin, a drug which is designed to reduce the potential for blood clots – it is a blood-thinning agent. It requires frequent blood testing and adjustment of the dosage as the toxic dose (which could result in chronic bleeding) is very close to the therapeutic dose. There is potential for pharmacists to undertake the necessary blood testing and, as the dispenser, adjust the dosage as indicated by blood test results.
- Intensive medication management of selected patient categories based on the potential to minimise hospital admissions or other high cost interventions. One example cited was a proposed pilot project for the intensive medication management of 50 mental health patients selected because of the expected high potential for hospital admission as the consequence of a failure to follow the patient's medication plan. The pilot will include pharmacist interviews with patients and regular supervision of self-medication. The potential savings will be estimated by establishing a control group of patients with similar conditions but not within the pilot project and comparing the experience of the two groups.

More generally, there is a clear view amongst pharmacists that the potential for reducing hospital admissions as the consequence of medication mismanagement is considerable. The main current obstacle to achieving this is a combination of lack of funding and the lack of structural arrangements within the health system to facilitate greater pharmacist involvement. As an example, there appears to be very little obligation on primary health organisations – which carry the main responsibility for implementing the government's primary health care strategy – to engage with pharmacists or to take a primary health care team approach to the relationship between pharmacists, general practitioners and other primary health care professionals.

On the other hand, there are clear signs that at least some district health boards, acting as health services purchasers, are becoming much more focused on the potential contribution of pharmacists. They have a clear motivation to exploit the potential of pharmacists' skills to contribute to disease state and medication management and the avoidance of unnecessary hospital admissions, as they are the risk bearers for the often substantial costs involved. As examples:

- Diabetes, identified early, and treated with appropriate medication, can be effectively managed at a relatively low cost. Diabetes not identified early and/or not well managed can result in dialysis. There is a clear expectation that New Zealand will see a rapidly rising incidence of diabetes as a consequence of the current obesity epidemic.
- One DHB reports that, from its experience, every acute admission of an older person has associated with it a medication issue. There is a strong implication that more effective medication management could have avoided at least some acute admissions.

This DHB spoke to MDL in terms of encouraging the emergence of a primary health care team that included the pharmacist as a natural member – in other words breaking down the apparent distance that currently exists between general practitioners as prescribers and pharmacists as dispensers. There is a recognition that this will require both a change in attitude, a change in contracting arrangements, and a change in funding.

The scope of this project has not permitted MDL to review emerging practice with a broad range of DHBs. However from the description given by the one DHB interviewed of the likely direction of change, and from other available evidence, it seems a reasonable assumption that New Zealand's health services purchasers are turning their minds to the question of how to make better use of pharmacists' services with a particular emphasis on a combination of early intervention and minimising hospital admissions.

Precisely how this will happen is far from clear. As noted, there are some quite significant structural obstacles in the New Zealand health system that will need to be addressed. For the purposes of this report, MDL assumes that they will be – the alternative, of significant and ongoing unnecessary expenditure within the health system should be a sufficient incentive for change.

Accordingly, from the material reviewed on international experience and from what is happening locally, we conclude that the trend towards a more service-focused role for community pharmacy in New Zealand is inevitable. The only questions over it are when it will happen and precisely what structural/funding arrangements will accompany it.

5. Ownership Rules and Service-Orientated Pharmacy

Introduction

In this section of the report we consider the implications for the future direction of pharmacy of possible changes to the ownership rules. We start by considering the standard arguments that have been advanced by advocates for the deregulation of pharmacy ownership. We then consider what can be learnt from recent research looking both at experience with pharmacy ownership internationally and, more widely, at what can be learnt from recent economic literature about the incentives associated with different institutional arrangements.

Conventional Arguments Against Regulation

The standard deregulation arguments against ownership restrictions for pharmacy include:

- Restricting ownership (including majority ownership) to a narrow professional group shelters retail pharmacy from the impact of competition and, in particular, excludes from the sector highly competitive retail skills that could provide additional benefits to consumers.
- It minimises price pressure on products that can only be retailed through pharmacies, in particular depriving consumers of the buying power and buying skills of major retail groups.

The major anti-competitive arguments supporting the ownership of pharmacy deregulation are normally accompanied by a series of assumptions about how the public interest in pharmacy will be protected under an open ownership environment. A good example of this is provided by a paper presented to an Australian Productivity Commission conference in June 2000 by the Australian Consultancy ACIL Consulting. It argues that the public interest can be adequately protected by the regulatory and professional constraints on pharmacists – in other words, so long as dispensing of pharmaceuticals and the supply of pharmacist and pharmacy only medicines is under the control of a pharmacist who has a responsibility to regulators and to his or her professional body, then the public interest will be adequately protected.

It is worth considering some of the arguments put forward in that paper, which the author developed by taking objectives stated in the *National Competition Policy Review (the Wilkinson report*) and then critequing them. Selected examples, with the NCP review objective in italics and the consultant's comment in plain type are:

- *Promoting the integrity of pharmacy as a professional activity as opposed to a commercial activity*. These two need not be in conflict – a well run pharmacy will attract more customers than a badly run one. The integrity of the pharmacy is protected by the requirement to have a trained pharmacist on duty at all times that the pharmacy is open.

MDL comment: The crucial issue is the incentives faced by the pharmacy owner. This consultant's comment assumes that the incentives faced by an investor owner of a pharmacy to "go the extra mile" in meeting professional service obligations will be the same as for those for a pharmacist owner.

- *Industry wide awareness of professional pharmacy objectives as well as commercial objectives*. This has nothing to do with ownership per se. Trained pharmacists on duty in pharmacies can be expected to pursue professional objectives, and the Pharmacy Guild or other associations can pursue industry wide objectives. Non-pharmacist owners could support such efforts – as do the friendly societies.
  MDL comment: Trained pharmacists in an investor owned pharmacy are likely to be operating under quite strict productivity requirements with a financial orientation and hence a potential conflict with spending time on activities that may be of industry or public good benefit but provide very little private benefit for the investor owner. The comparison with friendly societies is misleading. They are not investor owners but service providers with a similar orientation to pharmacy itself (the typical friendly society was established as a form of cooperative to facilitate access to medical and related services by members and targeted primarily towards lower income individuals).
- *Making the proprietor of a pharmacy business professionally and directly accountable to regulatory authorities*. The duty pharmacist must, in any case, be accountable for his or her professional activity. It is not clear what else is achieved by this additional layer of accountability which is not found in other health areas eg doctors and dentists.
  MDL comment: The issue is whether the pharmacist faces incentives that encourage doing the minimum necessary to satisfy compliance requirements, or "going the extra mile". The comparison with doctors and dentists is not valid. Both of those professions are directly remunerated for the services they provide. The issue in pharmacy is the requirement, which relies primarily on professional commitment, to provide services that are not directly remunerated.
- *Improving the capability to link community pharmacy … to overall health care provision and multi-disciplinary service provision*. Ownership restriction is not necessary for this, as the duty pharmacist has been trained for such activities.
  MDL comment: It is not the pharmacist's training that is the issue. It is the restrictions/incentives that the pharmacist faces in the course of his/her employment. The real question to consider is whether a pharmacist working in a retail chain environment where the focus is on cost minimisation and maximising the yield from shelf space will be able to undertake a service orientated collaborative activity which, almost by definition, is foreign to the normal practice and culture of the retail enterprise itself.

The recent changes to the ownership rules have almost certainly removed any force which attached to the argument that ownership restrictions provided a protection for inefficient businesses. The emergence of the minority investor/franchise model, such as the Beauty Direct/Lifecare pharmacy example, demonstrates that the law now enables the emergence of significant retail pharmacy chains, with the scale and scope of activity needed to drive out inefficiency amongst competitors.

There may still be some force in the argument that ownership restrictions reduce the potential to force down the price of pharmacist and pharmacy only medicines but even that argument must now lose some of its force as pharmacy chains emerge and develop greater buying power.

Current Research and Economic Analysis

The literature review attached as Appendix 2 of this paper provides a comprehensive overview of recent research on the impacts of pharmacy regulation, especially in respect of ownership. It then considers what can be learnt from the economics of organisation in terms of the incentives within different ownership structures.

The research looking at the impact of changes in the regulation of pharmacy internationally provides some guidance for New Zealand. However, as the literature review cautions, there are very real difficulties in extrapolating from the experience of other jurisdictions because health systems, within different countries, differ widely.

On balance, the literature reviewed suggests that there are risks associated with further deregulation, especially in terms of quality of service. There is at least an implication that the requirements for an effective service orientated approach, and the incentives that operate within a typical corporate environment, are not compatible.

This view is reinforced by consideration of what can be learnt from the economics of organisation. In essence what this suggests is that:

- Incentives matter – even within the health services.
- Ownership structures can play a crucial role in determining the incentives that will operate within a pharmacy business.
- Generally, it can be expected that incentives within an investor owned structure will be biased towards maximising the value of the firm whereas incentives within a pharmacist owned business will see more of a balance between a focus on financial return and an emphasis on professional service.

Briefly the differences are along the following lines:

- In an investor owned firm, the overriding purpose is to maximise the value of the firm for its owners. Such a firm will pay attention to its public reputation and its standing with regulatory authorities but will do so not because of an overarching commitment to professional service rather than as a form of risk management or, to put it another way, as part of a strategy of ensuring that the firm is able to maximise profitability over the long term.
- The professional, owning a firm, will normally seek to maximise not just the value of the business, but the value of his or her human capital. This is likely to include seeking to ensure that his or her reputation within the profession is maintained or enhanced.

6. Public Interest Implications

The analysis of the incentives that pharmacists will face under different ownership structures raises an important public interest question; what are the implications for the likely future direction of community pharmacy in New Zealand of different ownership structures and, in particular, of any further deregulation of pharmacy ownership.

As earlier sections of this report have shown, the practice of community pharmacy is undergoing significant change both within New Zealand and internationally. The change is from a primarily product focused activity to a service focused one. The driving force is a growing recognition of the importance of pharmacists' skills in disease state management, medication management and the promotion of public health and the potential that those skills have to contribute to:

- Improved health status in the population at large.
- Reduced hospital admissions.

There is a sense in which the case for a shift from a product-based focus to a service based focus is perfectly straightforward. Pharmacists are the professionals within the primary health care system who have the greatest expertise in the impact of medication on individual patients, whether the medication is taken on its own or in combination with others. They are also the professionals who most closely deal with patients over their medication.

In a world in which the optimal use of medication is increasingly recognised as a crucial factor in health care, both in maintaining the health of the population and in minimising the need for more expensive treatment, it seems perfectly logical that any well run health system would make full use of those skills both as a means of improving the health status of the population and as a means of minimising overall health care costs.

In practice, the situation is not quite so straightforward. Difficulties include:

- Managing the inter-relationship between different health care professions, especially prescribers on the one hand and pharmacists on the other.
- Measuring and valuing the nature of the services provided, or which could be provided, by pharmacists.

This latter point is a particularly difficult one. Because pharmacists have traditionally been remunerated on a product basis (a fee per item dispensed) there is both little tradition of valuing pharmacist services per se, or experience with how to remunerate pharmacists for services in a way which fairly balances the interests of a pharmacist on the one hand and the health services purchaser (the public) on the other.

This is in marked contrast with other primary health care professionals such as general practitioners and dentists. They have a long established tradition of being paid purely and simply on a time basis. Although there may be tensions from time to time between health services purchasers and those professions around the level of remuneration, there

appears to be a well established and shared understanding about the nature of the services being purchased and how they should be measured and remunerated.

An important implication of this is that for those professions there is much less risk to the health system (either in terms of quality of care or of cost) through allowing open ownership. Because the nature of the service is so much better understood, the risks of incentive differences between investor ownership and professional ownership having a significantly adverse impact is comparatively minimal.

Furthermore, there is a relatively high degree of understanding within the community at large about the nature of the service, supported by a range of oversight mechanisms which, taken together, can be seen as providing reasonable assurance to consumers about the quality of the service virtually regardless of ownership.

The same is clearly not the case for the range of services that pharmacists could and should be offering if the health system is to make full use of their skills. This means that in contrast to other primary health care professions, there are very significant risks associated with a shift to a service focus (evidence of this can be seen in the rather difficult history, in recent years, of negotiations between pharmacists on the one hand and health services purchasers on the other over the mix of services that should be covered by the dispensing fee, and on the future direction of pharmacy and how it should be remunerated).

The implications for the public interest seem clear. Community pharmacy is in a state of evolution. The final outcome is far from obvious. It is possible, for example, that it could see a fragmentation of community pharmacy with some specialising purely on the product side and others adopting a more service orientated focus (although that would raise questions about whether dispensing per se could be separated from service provision). There are difficult questions in terms of how pharmacists should be remunerated if pharmacy moves to more of a service orientation. Should, as some DHBs argue, the prescription fee be reduced to free up funding to pay for services (a position adamantly resisted by pharmacy)? Should payment for services come from additional funding based on the expected savings from a more intensive involvement by pharmacists in disease state management and medication management?

Most importantly, how should services be defined, access determined, remuneration agreed and performance measured?

Managing change to more of a service orientation will be difficult enough when the parties involved are the health services purchasers on the one hand and a professional group on the other. If significant parts of community pharmacy became investor owned, that would introduce a further and extremely difficult element into negotiations over the restructuring of community pharmacy.

Amongst other matters, it would create the unnecessary complexity of how to build into an essentially product based profit maximising retail operation, a service orientation potentially quite at odds with the culture of the investor owned organisation itself.

This suggests that if ownership were further deregulated before the shift to a service orientation had been completed, and a shared understanding of how to define, measure

and remunerate services had become bedded in, there is a very real risk that further investor ownership in pharmacy could undermine the potential for change.

There is an inference from experience in broadly parallel jurisdictions (Iceland and Norway) that the immediate consequence of further deregulation of pharmacy ownership would be an increase in the number of pharmacies as investor owned businesses enter the sector (for example supermarket chains) whilst existing pharmacy businesses remain in place. This probably seems counter-intuitive to advocates of change.

MDL expects this would happen as new entrants such as supermarkets would not want to purchase existing pharmacies – the whole point of their entry is to establish new pharmacies within their own premises (this has been the experience in Iceland and Norway) Existing pharmacists will make their choices based on their next best option. That may mean, even in a declining business, that their best option is to stay in place. Their income may reduce, possibly dramatically, but they may lack both the alternative of sale (because of the impact on the market for pharmacy businesses of the entry of major chains) and any realistic and acceptable employment alternative.

In that situation, health services purchasers could find it extremely difficult to undertake successful negotiations with pharmacists to move to a service orientated approach. Pharmacists adversely impacted by change may be either resistant to new initiatives and/or feel that they do not have the financial capability to explore different options. Supermarkets and other chain retailers, with their focus on moving product, and seeking to capture as much as they can of the market in pharmacist and pharmacy only medicines, may also be relatively uninterested in even commencing negotiations on a service orientated approach.

A further complicating factor is the structure of the firms likeliest to enter pharmacy in the event of further deregulation. Most are national chains which manage their purchasing and other commercial arrangements nationally. This could make the process of negotiating with a series of regionally based health service purchasers extremely difficult to manage.

In terms of change management, from a public interest perspective it seems unarguable that the public interest is in minimising complexity throughout the change process. If there is to be further deregulation of pharmacy ownership, this suggests that it should not be considered until health services purchasers (and government) were satisfied that the nature of community pharmacy had stabilised – that the shift from a primarily product based approach to a primarily service focused approach had been successfully achieved. At that point in time further deregulation of ownership would take place in a situation of shared understandings about the nature of the services provided by community pharmacy and how they were both measured and remunerated. Until that is possible, though, further deregulation of ownership carries with it significant risks to the change process without any corresponding benefit.

7. Pharmacy Use of the Changed Ownership Provisions: A Footnote

In various projects which MDL has undertaken for the Guild over the years, one common theme has been the difficulty of ensuring equal access to pharmacy services. A specific concern has been the ability to maintain an appropriate level of service in rural and provincial New Zealand.

The issue has three dimensions to it:

- Whether pharmacists can expect to earn a sufficient income, by way both of remuneration for their time in the business, and return on capital, from a rural or provincial pharmacy.
- Quite crucially, whether a pharmacist who owns a pharmacy in a rural or provincial centre can expect to find a purchaser for that pharmacy when he or she wishes to move on or retire.
- The ability to find locums when required.

These difficulties were exacerbated by the former ownership rules which effectively prevented pharmacists from sharing and thus reducing the risks associated with rural and provincial practice. The new rules provide an opportunity which may be worth exploration.

As has already been demonstrated by models such as the Beauty Direct/Lifecare pharmacy group, there is now no barrier to the establishment of quite substantial pharmacy chains on the basis of a common minority shareholder with individual pharmacies 51% owned by a pharmacist or pharmacists. This could provide an option for rural/provincial pharmacists, with pharmacists selling 49% of the capital in their individual pharmacies into a separate vehicle which might, initially, itself be solely pharmacist owned but which could also provide an investment opportunity for non-pharmacists.

The establishment of such a structure should be able to provide rural and provincial pharmacists with a better assurance of liquidity. First, and most obviously, they would have realised 49% of their investment simply through the restructuring. Secondly, the entry cost for any purchaser would be significantly reduced. Thirdly, membership of a potentially significant chain should make the process of recruiting new pharmacist owners much more straightforward.

There could be a number of collateral benefits as well, for example, the opportunity through the common minority shareholder to establish a locum service.

The opportunity appears to merit exploration and may be of interest not only to pharmacists, but also to health services purchasers as a means of underpinning the viability of rural and provincial pharmacy.

APPENDIX 1: Base Pharmacy Services

Base Pharmacy Services include the following requirements:

(a) Dispensing of Pharmaceuticals

Dispensing will comply with the Pharmaceutical Schedule, all legislation and regulations applicable to the practice of Pharmacy in New Zealand, the New Zealand Code of Good Manufacturing Practice for Manufacture and Distribution of Therapeutic Goods 1993: Part 3 Compounding and Dispensing (Ministry of Health), the Code of Ethics 2001 and any other professional requirements which may be specified by the pharmaceutical Society.

The Dispensing process includes:

(i) ensuring the completeness of information on the Prescription Form, eg Service User details, legibility and legal requirements;
(ii) Verification of the appropriateness of the prescribed Pharmaceutical using any relevant available information, eg suitability of the prescribed medicine, dosage and possible interactions;
(iii) Checking acquired medication history for consistency of treatment, possible interactions and evidence of non-compliance or misuse.

(b) Provision of Advice and Counselling

You agree to provide essential professional advice and counselling and to take all responsible steps to ensure that Service Users have sufficient knowledge to enable optimal therapy.

Provision of essential advice and counselling includes:

(i) directions for the safe and effective use of the Pharmaceutical;
(ii) the expected outcomes of therapy;
(iii) what to do if side-effects occur;
(iv) storage requirements of the Pharmaceutical;
(v) disposal of unused Pharmaceuticals.

In addition to sub-paragraphs (i) to (v) above, you will make available to any person, written information about:

(vi) the needle syringe exchange scheme, whether or not you participate in this scheme, and a list of providers of the needle syringe exchange scheme in your local area.
(vii) The safe disposal of used syringes, needles and other skin piercing devices, including a list of places where a person may take used syringes, needles and other skin piercing devices for safe disposal.

(c) Maintaining Service User Records

You agree to maintain Service Users' Records and other required information in accordance with statutory requirements. You further agree to maintain a Service User medication profile, being an individual Service User profile that lists, to the best of your knowledge:

(i) the prescribed Pharmaceuticals that the Service User is currently receiving; and

(ii) other relevant information, such as previous Pharmaceuticals taken, reactions to any Pharmaceuticals and other medicines of which you are aware the Service User is currently taking and which may influence the Service User's Pharmaceutical management at that time.

(d) Reporting

You agree to report any significant findings to the Prescriber. As a guide this may include, among other things, notifying the Prescriber of any problems which are apparent with a particular Prescription, if you have reasonable grounds to suspect that a Service User may be abusing the prescribed Pharmaceutical or that it could be detrimental to the Service User's health.

APPENDIX 2: Literature Review

Executive Summary

1. This review surveys the empirical and economic literature as it applies to possible deregulation of the ownership of community pharmacies in New Zealand. Currently pharmacies must be majority owned by a pharmacist, who is limited to own five or fewer pharmacies. The review examines theory and evidence on allowing non-pharmacists, including retail chains, to own pharmacies.

2. The international evidence is found to be ambiguous but implies that:
   - The quality of service is likely to be undermined by chain pharmacists.
   - Broader health services are less well provided by chain pharmacies.
   - The impact of reform on access to a pharmacy and the price of drugs is unclear.

3. An examination of the theoretical literature on different forms of ownership suggests:
   - A change in incentives will lead to pharmacists, like other healthcare professionals, changing how they treat patients.
   - A change in ownership rules will change the incentives and the new incentives will encourage pharmacists to be more responsive to the aims of larger chains.
   - Such a change is detrimental to efforts that attempt to integrate pharmacy more closely into provision of other primary health care.

Section 1: Background

4. We propose to examine the economic impact of changing the law so community pharmacies can be majority owned, or even wholly owned, by non-pharmacists. Currently, the legislation prescribes ownership of pharmacies so non-pharmacists cannot own more than 49% of a pharmacy and each pharmacist may own up to five shops.[4] Thus any change is likely to include expanding both the number of pharmacies a business may own and who may own a pharmacy business

5. There are two areas of work similar to this report:
   a. Work in Australia stimulated by competition authorities' interest in deregulating the pharmacy industry in the late 1990s.[5]
   b. A developing consensus within the UK that pharmacists are an underused resource in the delivery of primary health care.[6]

[4] See sections 55D and 55F respectively of the Medicines Act 1981 (as amended in 2003)

[5] The *National Competition Policy Review of Pharmacy* (2000) (the 'Wilkinson' report) and NECG (2004). Subsequent references to the Wilkinson Report will use 'NCPR' followed by volume and page.

[6] See University of Aberdeen (2003) and Department of Health (2003)

6. While this report draws from this work, it markedly departs from it in three ways. Most obviously, previous work focuses on Australia and the United Kingdom rather than New Zealand. In considering this literature we must:
   a. Consider national contexts and how they differ from New Zealand. For instance, the USA's diverse health system, in a country of 250 million people, may explain more than differences in pharmacy ownership rules.
   b. Disentangle the impact of general healthcare policies from the specific impact of pharmacy regulations;
   c. Look at what is of interest to the *regulator*, particularly the impact on prices, access, and quality of service.

7. Secondly, there is a marked preference in the Australia work for the *status quo*. This substantially weakens the argument for retaining restrictions because the reviews tend to assume the special status of pharmacy and then look for justificatory evidence. For instance NECG (2004) discuss the Lane *et al* (2004) comparison of four professions in Britain and Germany and claim "German pharmacists were far more likely to prioritise their clients' needs over their own needs", a fact they attribute to the size of employing organisation.[7] Closer study of Lane *et al*'s results clearly indicates the difference between Britain and Germany is true across all four professions and, in fact, more marked in the legal profession than in pharmacy.[8]

8. The perspective taken in this review is summarised by Berkley University professor James Robinson that "[T]he most pernicious doctrine in health services research, …, is that health care is *different*".[9] Thus any case made for restricting ownership of pharmacies will be based on mainstream conventional economic arguments, and the assumption that pharmacy needs to justify its special status.

9. Third, this report notes that New Zealand is also looking to find ways of integrating pharmacy into the local delivery of healthcare.[10] This is of major importance when considering the impact of any change on community pharmacy, since it is necessary to go beyond asking what the impact will be on the current delivery of pharmacy services to asking whether changing ownership rules will help or hinder broader attempts to improve primary health care delivery.

Section 2: International Perspective

10. The Wilkinson Report reviews the ownership policies across 22 countries and identifies the UK and US as unique in having open ownership. (NCPR, Volume 8, p5). It then analyses in greater detail the situation in the US and UK (NCPR, Vol 8, chs 3 and 4 respectively). We will follow them in starting with these countries, but argue this is not necessarily the most useful means of understanding the available evidence for New Zealand. We will suggest the changes in Scandinavian countries, particularly Iceland, are of greater relevance and examine the evidence from these countries.

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[7] See table and discussion in NECG (2004) page 43

[8] Tables in Lane *et al* (2004) p8-9.

[9] Robinson (2001), italics in the original

[10] Ministry of Health (2001) p11

11. In the US prescriptions are required to be dispensed by a pharmacist but there is little restriction on the ownership of pharmacies (NCPR, Vol 8, p8). The report concludes that 'the US experience with open ownership does not provide a model of less restrictive means of achieving the objectives of pharmacy ownership legislation' (NCPR, Vol 8, p23). While their chapter reveals a catalogue of problems, it is very difficult to understand how that conclusion is reached, even when the comparison is with Australia rather than New Zealand.

12. The majority of quoted papers address quality failings in the US system, but make no comparison with other countries (see NCPR, volume 8, pp12-15). The only potentially powerful comparison comes from the work of Johnson and Bootman (1995) on hospital admissions in the US, that suggests misuse of pharmaceuticals accounts for 11 to 28% of hospital admissions in the US; and work by Roughead et al (1998), that shows only 2.4 to 2.6% of Australian hospital admissions are pharmaceutically related (NCPR, volume 8, p12/3). [11] However this comparison is much weakened by the fact:
    a. The papers use radically different methods to estimate the level of pharmaceutically related hospital admissions. The Australian study is a meta-analysis of data on hospital admissions, while the US study uses a survey of pharmacists' estimates of the probability of problems.
    b. No account is made of the differences in other primary health care services, thus it is simply unclear why different ownership rules are being identified as the reason for the different rates (for example, could differential access to GPs be a factor?).

13. However, there is American evidence on the quality of customer service:
    a. A study by Briesacher and Corey (1997) found customers prefer independent pharmacies because they feel the service is more personalised.
    b. Fritsch and Lamp (1997) found independent pharmacists four times more likely to counsel customers about their prescriptions (44% against 11%.)[12]
    c. Kotecki and Hillery (2002) conducted a follow up to a 1996 study on pharmacists that included questions on whether they sold cigarettes. The authors found that more than 90% of chain pharmacists in both years were selling cigarettes, but found the number of independent pharmacists selling cigarettes had gone down from 38% to 18% in the same period.[13]

14. The underlying problem here is that the quoted percentages do not provide a useful comparison between the two systems of pharmacy *ownership*. Without some attempt being made to standardise data collection and estimate the impact of other differences in the health systems, this comparison is just not valid.

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[11] To be fair, the NCPR do also note that the average estimate for US drug related admissions is actually 5.1%, though they do not source this estimate. This does not effect the above argument.

[12] The paper's authors conclude that levels of counselling are low for *all* types of pharmacists. Also, these figures do not include counselling by pharmacy technicians. However, there still remains a case for saying the independents are offering a better quality of service.

[13] Kotecki and Hillery (2002), p4, table 2

15. One such attempt has been made to compare pharmacy in the UK with the rest of Europe. Effectively there is no price competition on prescription drugs between pharmacies in the UK because the prices are set by the government. [14] So this makes the UK a more obvious comparator for New Zealand.

16. Cancrinus *et al* (1996) surveyed 929 pharmacists, across five European countries, to compare quality of practice. As noted in NCPR, there does appear to be greater dissatisfaction with the professional role in the UK and this is linked to the fact many are employed by chain stores. However, Cancrinus *et al* conclude that it is difficult to judge whether one country's service is better because different countries generate different benefits.

17. However, even this work, though better than an extrapolation from one country, still compares countries with many differences in health sectors that may have a greater impact than pharmacy ownership rules.

18. Thus the work by Anell A and Hjelmgren (2002) and Almarsdottir and Grimson (2000) on Iceland and Norway is potentially of considerably greater value because it examines deregulation of pharmacy within a country. Further, both countries have health systems similar to New Zealand.

19. Of the three areas of potential changes to customers identified above, the reform appears to have had some success in increasing the number of pharmacies. In Iceland it led to 41% more pharmacies in urban areas and 17% more pharmacies in rural areas.[15] The impact was more muted in Norway, with an increase in the number of pharmacies of 20%, concentrated in urban areas.[16] Unfortunately these results were measured for only 30 months after the legislation was enacted and it is not clear whether this increase results from small pharmacies being unable to shut down in the face of increased competition, or a longer term trend.

20. The impact on price was more ambiguous. In Iceland, it led to price competition that reduced the price of drugs, whilst in Norway there was an increase in prices. Also the reform appeared to lead to a greater concentration of pharmacies into a smaller number of firms.[17]

21. Amarsdottir and Grimson model the impact of the reform on sales of over the counter drugs containing codeine. They reason that if the new commercial environment is encouraging pharmacists to become less professional, then we would observe this in the sales of non essential drugs that might be abused, such as codeine. After their model has accounted for the trend towards increased purchase of codeine that predates the reform, they find the measured increase in purchasing codeine is not statistically significant.[18] Unfortunately the short time period may explain why potentially important increases in the prescription of

[14] NCPR, Volume 8, p26 and p29 respectively.

[15] Amarsdottir and Grimsson (2002), p271

[16] Anell A and Hjelmgren (2002), p154

[17] Quoted in NECG 2004, p44

[18] Amarsdottir and Grimsson (2002), p227

codeine are not statistically significant, and it is not clear whether these results really do measure service, or are just the result of changes in price.

22. In summary, the international evidence is ambiguous but appears to show that:
    i) Health services, like public health, are less well provided by chain pharmacies.
    ii) The impact of reform on access to a pharmacy and the price of drugs is unclear.

Section 3: Incentives and industry re-organisation

23. An alternative way of analysing the pharmacy industry is to consider it in the light of broader theories about the impact of industrial organisation on incentives. This will give a robust theoretical understanding of the possible outcomes of relaxing ownership restrictions and how this would shape the industry's incentives. In this section we will first consider some of the evidence that health professionals respond to incentives. We will then consider how the change in ownership might affect those incentives. Finally we will consider how a new ownership structure might influence the response of pharmacists to future primary health care policy.

24. From an economic perspective, the key issue is how the incentives on pharmacists change under different ownership models because this may lead to pharmacists treating their patients differently. Before going on to this, it is worth expanding on a point that is likely to be highly counter intuitive to those in the health industry: Health professionals change their treatments in response to financial incentives.

25. There is now a substantial literature on the impact of incentives. In general, it may seem intuitively obvious that the financial consequences of their actions will influence how people act, though this has been controversial for some academics.[19]

26. However there has been much debate whether this true of health professionals making decisions about their patients. The overwhelming evidence now, is that they do.[20] In the main, these papers show how doctors' behaviour changes with different payment systems, but the relevance to pharmacists, and their practice, is clear: Within professional boundaries practice will change when the incentives are changed. Here we will describe three examples of very different professional groups, in different countries, altering their treatments because of changes in incentives.

27. First, Forsberg *et al* (2000) studied whether a performance payment scheme to *hospitals* in the Stockholm area increased the efficiency of *doctors*. Over the two years they studied, they found substantial efficiency increases, leading to a reduction of length of stay by one day relative to the rest of the Swedish health service.

28. Second, Dickey (2004) reports on a study of adherence to best practice among psychiatrists. Those who were paid by managed care schemes (where payment depended on adherence to guidelines) were 10 to 15% more likely to comply with the guidelines.

[19] For a review see Jenkins *et al.* 1998)

[20] See Robinson (2001), Hellinger (1996)

29. Third, Croxson *et al* (2001) studied how British GPs responded to changes in the way they were funded. During the 1990s, GPs were offered the opportunity to become 'fundholders', where they would have the opportunity to control their own budgets and retain any surpluses from savings they had made. Before gaining this status, there was a preparatory year that included an assessment of the number of non-emergency referrals the GP made and this assessment was used to calculate their fundholder budget. Croxson *et al* found unambiguous evidence that GPs increased the number of non-emergency admissions in the preparatory year and then returned to previous practice once they became fundholders. Thus they boosted their income from 'savings' made by changing referral practice.

30. There are two points to note here. First, this change in behaviour requires a sophisticated understanding of the fundholding regime. General referral behaviour did not change, what changed was the behaviour most likely to increase financial rewards. Secondly, the GP's patients did not suffer from this process (though the strain on the budget for these services may have had an impact on the wider health service). Thus, the professional restraints still applied, even though behaviour changed to increase income.

31. This evidence is in line with other work that changes in incentives will change the behaviour of professionals. Thus the key economic question for understanding the impact of changing the ownership rules for community pharmacies is how this changes the incentives faced by the pharmacist.

32. Fama and Jensen (1983) analyse how different models of firm ownership, including the limited company and partnerships, might evolve to be different in different industries because of the incentive properties of these organisations. It is thus worth stating that, the three most plausible models for the industry are:
    a. Individual pharmacies that are both owned and operated by a pharmacist.
    b. A franchising arrangement that links a number of pharmacies, each with a minority interest held by a separate company, that can be owned by non-pharmacists, possibly in a publicly traded company, with each pharmacy still majority owned by its pharmacists.
    c. Pharmacies are parts of chain stores, like supermarkets, that might sell any number of goods. The role of the pharmacist becomes purely to manage the safe dispensing of drugs and the sale of pharmacist and pharmacy only medicines.

33. For Fama and Jensen, the important difference between these models of ownership will be the status of the 'residual claimants', those who have a specified right to any profits generated by the firm. In particular 'what distinguishes [a. and c. above] is that the residual claims are largely restricted to important decision agents'.[21]

34. What drives their model is the fact that people trading as individuals are at a distinct disadvantage compared to those who trade are part of chains. In particular, where residual claims only reside with owner-proprietors the financial value of the firm will be lower because the owner proprietors are much less able to control risks:

[21] Fama and Jensen (1983), p332

a. they will find it more difficult to diversify their risks, for instance, by operating in more than one geographical area,
b. they will find it more difficult to raise capital internally, because there are fewer owners and thus there is likely to be less wealth available,
c. they will find it more difficult to raise capital externally because they represent a greater risk,
d. they will thus find it more difficult to invest because they are relatively constrained in their ability to find funds for investment.[22]

35. For pharmacists in New Zealand, the position is even more difficult because ownership of pharmacies is limited to a particular group of people. Thus the opportunities to invest are not just capital constrained, but limited in who is allowed to supply the capital.

36. However, there are benefits, both to pharmacists and their customers, to this limited form of ownership. These benefits are all linked to information and considering them in turn gives a clear indication of the way the pharmacy industry will change if ownership restrictions are lifted.[23] [24]

37. The first benefit is that keeping decision making at the local level reduces the costs of decision making. The proprietor pharmacist does not need to "manage upwards" – spend time dealing with the demands of distant owners – and thus can spend more time learning about the needs of customers. Conversely, ownership by chain stores will lead to greater emphasis on strategies that help the chain as a whole rather than customers at individual stores.

38. The second is that ensuring compliance with business decisions will be easier because the decision maker will be closer. This is strongest for pharmacists who own one pharmacy, where there are none of the diverse costs of performance management of employees from a distance. For those pharmacists who own more than one pharmacy this will reduce, the more premises they own the lower the advantage.

39. Third, there will be relatively little need for long term investments outside of investment in the professional's name and reputation. This is more powerful than it may appear. A person for whom "reputation is everything" has already invested in their own human capital and has a reduced need to make other investments in the business. Whereas a business whose value depends on the value of a broader range of assets will need to invest more in marketing and developing these assets.

40. In the case of New Zealand pharmacies, the current arrangements provide a powerful incentive for pharmacists to concentrate on their prime asset, their own reputation among the local population. The restrictions mentioned in paragraphs 34 and 35 mean that pharmacists are limited in their ability to use external capital to

[22] *ibid.*, p332/3

[23] Fama and Jensen discuss the following issues under the heading 'professional partnerships'. For our purposes sole proprietor pharmacies are more like partnerships, say GP's practices or law firms, than dairies because the owner/proprietor of a pharmacy is trading on their professional name.

[24] The discussion in the following five paragraphs is based on *ibid.*, p335/6

diversify the risks they face. Thus the incentive is to reduce risks to their income by generating a loyal customer base. This is helped by the fact mentioned in paragraph 37 (and to some extent paragraph 38), that they will have greater opportunity to be responsive to local needs because they have no other personal incentive.

41. Further, paragraph 39 implies a value maximising pharmacist will have a strong incentive to focus on their most important investment, their own pharmacy skills. Effectively, the pharmacist has already made a substantial investment by obtaining the necessary education to become qualified. When, as a proprietor of a pharmacy, they wish to find means of maximising value they will be choosing between using more effectively the asset they have already developed, or starting again, developing a completely different asset. Given they are constrained in their ability to obtain financial capital, they currently have a clear incentive to go for the option requiring least new investment, their professional skills.

42. In summary, the change of ownership will see greater emphasis placed on the commercial aspects of the firm and a move away from professional and local services. Note that the argument here is not ethical or professional, but relies on pharmacists responding to the incentives they face. Of course, pharmacists will respond to the professional and ethical obligations. The point is that the current ownership restrictions align their incentives with their professional obligations, whereas a different regime will put these in conflict.

43. An example of the impact differences in ownership can make on the administration of health care can be found in Harrington *et al* (2001). They used American Medicare and Medicaid data from the inspection of homes for the elderly to find out if ownership had an impact on the quality of care. After adjusting for morbidity and geography they found those owned by investors (two thirds of which were chains) had 46.5% more deficiencies of care than not for profit homes. Partly this was because the investor owned homes employed nearly a third fewer nurses per patient.[25]

44. So far, option b in paragraph 32 has not been discussed. Potentially it forms a middle ground in which aspects of both forms of ownership will be present. How this hybrid will work in practice depends on how far the majority owner, the pharmacist, remains the sole decision maker.

45. Legislation constrains how the pharmacist, as majority owner, may act in two ways. First, the Companies Act 1993 imposes an obligation on directors to act in what they consider to be "the best interest of the company"[26], a requirement that is normally interpreted in terms of maximising shareholder value. Secondly, the listing rules of the New Zealand Stock Exchange impose what is known as a continuous disclosure requirement. For a listed company whose sole or principal asset base was a series of minority interests in pharmacy companies, satisfying this

[25] Harrington *et al.*(2001) p1453/4

[26] See page 4 of the main paper for more on this issue. While this discusses the legal requirements for public listing, it seems certain that any company wishing to attract external investment would be required to maintain a similar kind of information flow so that external investors were able to manage their interests.

requirement would necessarily require a regular flow of information, financial and non-financial, from individual pharmacies to the minority shareholder. This is clearly an example of the 'managing upwards' discussed above. Theory suggest two ways this may influence the way pharmacies act.

46. First, because the local pharmacist will remain in control, the pharmacy may continue to resemble a partnership. There will be two differences with sole proprietorship: an additional burden from managing the relationship with a more influential external minority share holder; and reduced risks associated with pharmacy ownership that will create an incentive to focus on other commercial activities. Both of these erode the advantages of ownership by the pharmacist.

47. Work by Holmstrom and Milgrom (1991) on those given incentives to perform diverse tasks, such as acting professionally as a pharmacist while trying to managing a business to maximise profits for an external shareholder, suggests the balance of effort will depend on the relative importance of the benefits. Pharmacists who place a high value on their professional standing will act very differently from those who value the benefits of diversified risk.

48. Alternatively, it may be closer to a franchising agreement (see Brickley *et al.* (1991). How such arrangements work depends on the specific financial agreement reached. However it is unlikely to be possible to sell shares in such pharmacies without some agreement on explicit financial aims and thus greater pressure to meet financial targets.

49. The issue of the impact of ownership is further complicated by the proposed changes in the role of the community pharmacist. A key issue in New Zealand, and other countries (University of Aberdeen 2003), is the need to integrate pharmacy more closely into local services.[27]

50. Evidence of such benefits abounds. For instance, Gray *et al* (2004) find evidence in the UK that there are substantial savings to be had from integrating the practice of GPs and pharmacists. Also in the UK, Needham *et al.* (2002) suggest that 81% of interventions by a pharmacist in a primary health care team for terminally ill patients were beneficial. Similar results were obtained for Australia in Sorenson *et al* (2004).

51. Which form of ownership will best allow this integration can most fruitfully be understood by considering how a change in ownership alters the economics of firms' vertical and horizontal relationships. The vertical relationships are along the same supply chain for a particular product. For instance, for a drug it would go from the chemical raw materials to the point of sale at a pharmacy. The horizontal relationship, would be the set of different products sold. Thus, pharmacies do not just sell drugs, but also offer advice on broader health matters and sell toiletries. Again the choice of vertical and horizontal relationships is influenced by complementarities between goods.[28]

[27] Ministry of Health (2001) p11

[28] Milgrom and Roberts 1990, pp553-80

52. The key benefits from both sorts of relationship are the savings made by linking activities. So if, as seems likely from the empirical evidence, pharmacies were to become part of chain stores when deregulated,[29] would this make some work more or less difficult for pharmacists?

53. Integrating local pharmacists more closely into primary health care is essentially requiring the pharmacist to put effort into expanding the services around supplying drugs. Thus they would become more integrated into the vertical supply chain for *healthcare*, where they would need to focus on the health needs of the local community as defined by local healthcare bodies.

54. However, changing the ownership rules, so local pharmacies are part of larger chains, appears to be changing the incentives in the opposite direction. As discussed in paragraphs 34 to 39 above, the model where the pharmacist is most concerned with the local community is when the pharmacist owns the business. Indeed, one of the (financial) benefits of becoming part of a large chain is that they can spend less time being responsive to the local community and spend more time on maximising profit. To that extent they are likely to follow the example of chain store pharmacies in the UK, that have sought to horizontally integrate with shops providing a broader range of products only loosely connected with pharmacy. [30]

55. Further, for the larger organisation that takes over the pharmacy, one of the main benefits of merging pharmacies into larger groups is the ability to integrate the products more closely into overall firm strategy.[31] In other words, such integration is likely to lead to pressures to reduce local responsiveness.

56. In summary:
    - A change in incentives will lead to pharmacists, like other healthcare professionals, changing how they treat patients.
    - A change in ownership rules will change the incentives and the new incentives will encourage pharmacists to be more responsive to the profits of larger chains.
    - Such a change is detrimental to efforts that attempt to integrate pharmacy more closely into provision of other primary health care.

Section 4 – Concluding remarks

57. The evidence considered in section 2 is ambiguous and it is unclear what benefits there will be from a change in regulatory regime. However, what evidence there is suggests there will be a short term increase in the number of pharmacies, mostly chain pharmacies, and a possible reduction in the quality of service.

58. The theoretical work by economists predicts that such a change will lead pharmacists to focus less on local priorities and more on the priorities of national chains. This will lead to a conflict with the aim of integrating pharmacists into the provision of primary health care services.

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[29] See paragraph above

[30] University of Aberdeen (2003) p9/10

[31] Milgrom and Roberts, 1992, p557-8

BIBLIOGRAPHY

This bibliography includes, where possible, an abstract and web address for the articles. Most abstracts here are shortened versions of those on the websites.

Where a direct reference does not exist, a commonly available database where the article can be accessed is given. These usually allow free access to the abstract, but the article itself may need to be purchased unless the person searching (or their institution) has subscribed to the database. Note that abstracts for some articles that can be viewed through EBSCO and Jstor may be found by searching for the journal name on Google.

The following abbreviations are used for database web addresses:

EBSCO (subscription needed): http://search.epnet.com/

Ingenta (abstracts only):
http://www.ingentaconnect.com/browsing/BrowseJournals
To find the article, find "Publication Title' and then follow the journal, volume, issue and page references.

Jstor (subscription needed): http://www.jstor.org/

Medline: (abstracts only): http://www.ncbi.nlm.nih.gov/entrez/query.fcgi

Science Direct (abstracts only): http://www.sciencedirect.com/
To find the article enter the journal name and then follow the journal, volume, issue and page references.

Almarsdottir, A and Grimson, A (2000) 'Over the counter codeine use in Iceland: the impact of increased access' *Scandinavian Journal of Public Health* 28:270-274

The objective of this study was to test the assumption that liberalizing community pharmacy ownership in Iceland would lead to increased irrational use of over-the-counter pain relievers containing codeine. The observed total use of over-the-counter pain relievers containing codeine as well as those containing paracetamol and codeine has risen steadily throughout the period under study, but the model did not show a substantial effect from the legislative change on the use.

Web reference: Ingenta

Brickley, J, Dark, F and Weisbach, M, (1991) "An agency perspective on franchising," *Financial Management* 20, p27-36

The article summarises the agency-cost explanation for on firm franchising in the United States. It shows cross-sectional determinants of owning versus franchising and the stock market reactions to franchise buy-backs.

Web reference: EBSCO

Briesacher, B and Corey R (1997) 'Patient Satisfaction with pharmaceutical services at independent and chain pharmacies', *American Journal of Health Systems Pharmacy*, Vol 4, 5, pp531-6

Patients' satisfaction with pharmaceutical services at independent community pharmacies and chain community pharmacies was studied. Respondents rated their satisfaction with the time it took for prescriptions to be filled, the technical skills and courtesy of pharmacy personnel, the convenience of the pharmacy's location, and other aspects of the experience. An aggregate of responses across the two pharmacy types showed an excellent or very good rating given by most respondents for all items. Respondents rated independent pharmacies better than chain pharmacies.

Web reference: http://www.ajhp.org/cgi/reprint/54/5/531.pdf

Croxson,B, Propper,C and A. Perkins (2001) 'Do doctors respond to financial incentives? UK family doctors and the GP fund holder scheme' *Journal of Public Economics* 79(2), pp375-398

The 1991 reforms to the UK NHS created a group of buyers of hospital care from amongst primary care physicians. The implementation of the reforms was such that these buyers had incentives to increase their use of hospital services prior to entering the scheme in order to inflate their budgets. It has been argued that non-financial motives would limit such behaviour. The paper shows that these health care providers did respond to the financial incentives offered by the scheme, increasing hospital-based activity prior to entry, and so inflating their budgets upwards for the duration of the fundholding scheme.

Web reference: Science Direct

Department of Health (2003) *A Vision for Pharmacy in the new NHS*

Discussion document on the direction of reforms aimed at expanding the role of pharmacists in the UK National Health Service. Very useful reference for how a strategy of expansion might work.

Web reference: http://www.dh.gov.uk/assetRoot/04/07/00/99/04070099.pdf

Dickey, B (2004) 'Best Practices: are financial incentives and best practice compatible' *Psychiatric Services* 55, pp130-2

Report on the impact of incentives on implementation of psychiatric guidelines. They compared the treatment of schizophrenic patients on Medicaid who were in different fee plans. They found clinicians changed their treatment depending on whether the plan directly incentivised treatment within guidelines.

http://ps.psychiatryonline.org/cgi/content/full/55/2/130

Fama, E and Jensen, M, (1983) "Agency problems and residual claims" *Journal of Law and Economics* 26, pp327-49

This article examines the different forms of ownership, (for example sole proprietorship, partnerships and corporations) and explains why these different forms gain market advantage in particular industries. This is the standard article for economists on this area.

Web reference: Jstor

Forsberg, E, Axelsson, R and Arnetz, B (2000) 'Effects of performance based reimbursement in health care' *Scandinavian Journal of Public Health*, Vol 28(2), pp102-10

The aim of this study was to assess changes in attitudes and behaviour related to efficiency and quality of care after introduction of performance-based reimbursement. The results show a significant difference between the two groups of physicians in attitudes concerning changes in quality of care and premature discharge from hospital. Despite concern about quality and premature discharge, physicians in Stockholm were found to have changed their behaviour in that the average length of stay in 1994 was about one day shorter in Stockholm than in the other 11 county councils.

Web reference: Medline

Fritsch, M and Lamp, K (1997) 'Low pharmacist counselling rates in the Kansas City, Missouri, metropolitan area' *The annals of Pharmacotherapy*, Vol 31(9), pp984-91

Study aimed to quantify the percentage of patients counselled by community-based pharmacists. Forty-six pharmacies were observed with pharmacists providing counselling in only 14 (30%). Pharmacists in independent pharmacies were observed counselling a significantly higher percentage of patients than were pharmacists in chain pharmacies though technicians were observed counselling patients in chain

pharmacies. The overall observed rate of counselling in community pharmacies is low.

Web reference: Medline

Gray, S, Woolfrey, S Copeland, R, Gill, D, Dennett, G (2004) 'Evaluating the potential impact of community pharmacy interventions on patient care in Northumberland." *Quality in Primary Care*; Mar2004, 12,1, p47-52

As part of a baseline clinical governance assessment, each pharmacy in Northumberland was asked to record prescription or over-the-counter interventions in a one-week period. The majority of the prescription interventions related to safety. If regulations were changed to permit pharmacists to make amendments to prescriptions, and to accept more responsibility for patients' treatments, much GP and pharmacist lime could be saved.

Web reference: Ingenta

Harrington, C, Woolhandler, S, Mullan, J, Carrillo, H, and Himmelstein, D (2001) 'Does investor ownership of nursing homes compromise the quality of care?' *American Journal of Public Health* 91 (9) pp1452-6

Two thirds of nursing homes are investor owned. This study examined whether investor ownership affects quality. We analyzed 1998 data from state inspections, using a multivariate model that controlled for case mix, facility characteristics, and location. Investor-owned nursing homes provide worse care and less nursing care than do not-for-profit or public homes.

Web reference: Medline

Hellinger, F.J (1996) 'The impact of financial incentives on physician behaviour in managed care plans: A review of the evidence. *Medical Care Research and Review* vol 53(3), pp294-314

Review of articles on physician behaviour and incentives

Web reference: Medline

Holmstrom, B and Milgrom, P (1991) "Multitask prinicipal-agent analyses: Incentive contracts, asset ownership and job design", *Journal of Law, Economics, and Organization*, Special Issue, vol7, pp. 24-52

The economic analysis of agency relationships when employees do more than one task. They find it is necessarily to equate the marginal reward for the different

activities, otherwise agents will spend more time than is efficient on the relatively remunerative tasks.

Web reference: Not available electronically

Jenkins, J, Mitra, A, Gupta, N and Shaw, J (1998) 'Are Financial Incentives Related to Performance? A meta-analytical review of empirical research' *Journal of Applied Psychology* Vol 83, 5, pp777-787

The relationship of financial incentives to performance quality and quantity is cumulated over 39 studies containing 47 relationships. Financial incentives were not related to performance quality but had a corrected correlation of .34 with performance quantity. Setting (laboratory, field, experimental simulation) and theoretical framework moderated the relationship, but task type did not.

Web reference: Science Direct

Johnson, J and Bootman, J (1995) 'Drug related morbidity and mortality: a cost of illness model', Archives of Internal Medicine, Vol 155, 18, pp1949-56

Study develops a conceptual model of drug-related morbidity and mortality, and estimates the associated costs in the ambulatory setting in the United States. Pharmacist practitioners were surveyed and the drug-related morbidity and mortality was estimated to cost $76.6 billion. The largest component of this total cost was associated with drug-related hospitalizations. Policies and services should be developed to reduce and prevent drug-related morbidity and mortality.

Web reference: Medline

Kotechi, J and DeAnna, Hillery (2002) 'A survey of pharmacists' opinions and practices related to the sale of cigarettes in pharmacies – revisited' *Journal of Community Health*, Vol 27, 5, pp321-34

The objective of the study was to follow-up on a 1996 survey of Indiana pharmacists' opinions and practices on the sale of cigarettes in pharmacies. Findings reveal that independent pharmacies had significantly reduced their sale of cigarettes from 1996 while there was no significant change among retail chain pharmacies. Additionally, significantly more pharmacists in 2001 believed that pharmacies should not sell cigarettes compared to five years ago. When it came to pharmacists' involvement in tobacco control activities, results were mixed. This study found that the majority of pharmacists do not ask their patients about their smoking habits.

Web reference: EBESCO

Lane, C, Wilkinson, F, Littek, W, Heisig U, Browne, J, Burchell, B, Mankelow R, Potton M, and R Tutscher (2004) ***The future of professionalized work. UK and Germany compared*** **Anglo-German Foundation for the Study of Industrial Society**

This paper reports on a comparative study of professionals' attitudes towards aspects of work. As well as pharmacists, the report covers the legal profession, HR managers and counsellors. The report gives a fascinating insight into culture differences, as well as insights into the worries of both old and new professions.

Web reference: http://www.agf.org.uk/pubs/pdfs/1232HRMweb.pdf

Medicines Act (1981)

This act includes the current regulations governing ownership of pharmacies. The act has been revised a number of occasions since 1981. All amendments are included in the web site below.

Web reference ('Medicines Act' is listed in left hand window): http://www.legislation.govt.nz/browse_vw.asp?content-set=pal_statutes

Milgrom, P and Roberts, J (1992) ***Economics, Organization and Management*** **London: Prentice Hall**

This is the standard textbook on the economics of the internal organisation of firms.

Web reference: No electronic version

Ministry of Health (2001) ***The Primary Health Care Strategy***

Strategic vision for primary health care, including the closer integration of services like pharmacy.

Web reference: http://www.moh.govt.nz/moh.nsf/0/7BAFAD2531E04D92CC2569E600013D04/$File/PHCStrat.pdf

National Competition Policy Review of Pharmacy **(2000)**

Extensive review of pharmacy issues in Australia that concluded ownership restrictions were necessary

Web reference: The Australian government appears to have removed the report from its website, so all web links return an error!

Network Economics Consulting Group (2004) *Ownership Restrictions applying to pharmacists: Assessment of case for retaining restrictions*

This is a report for the Pharmacy Guild of Australia on ownership restrictions. The report makes a case for retaining restrictions, though does never seriously challenge any evidence against removing restrictions.

Web reference: (for NECG) www.necg.com.au

Needham, DS, Wong, ICK, Campion, PD (2002) 'Evaluation of the effectiveness of UK community pharmacists' interventions in community palliative care'. *Palliative Medicine* 16, 3, p219-26

Patients with a life expectancy of less than 12 months were each registered with a single pharmacy and their consent was obtained for the community pharmacists to access their general practitioner (GP) case records. The clinical interventions were reviewed by an independent multidisciplinary expert panel and 81% were judged by the expert panel likely to be beneficial. The result supports the view that appropriately trained pharmacists can intervene effectively to improve pharmaceutical care for palliative care patients.

Web reference: Ingenta

Ottewill, R and Magirr, P, 'Changes in the Ownership of Community Pharmacies: Policy Implications. *Public Money and Management* 1999; 19:39-44

Based on an 'independent contractor' model, most community pharmacies have traditionally been owned by self-employed pharmacists running them as small businesses. With the rapid erosion of this pattern of ownership, issues arise for public, professional and commercial policy makers. For health policy purposes, particular consideration needs to be given to options for fully utilizing the expertise of community pharmacists; securing equal access to services; and ensuring rationality and transparency in making decisions about the location of pharmacies.

Web reference: Ingenta

Robinson, J (2001) 'The end of Asymmetric Information' *Journal of Health Politics, Policy and Law*, Vol 26, 5, pp1045-53

A discussion of previous work that argued information differences between health professionals and patients restrictions of trade. He suggests information issues have been misused to justify otherwise unjustifiable restrictions.

Web reference: Ingenta

Robinson, J (2001) 'Theory and Practice of in the Design of Physician Payment Incentives' *Milbank Quarterly* Vol 79:2, pp1-20

A review of the way doctors are paid that concludes systems that blend fee for service, salary and capitation payments is likely to be the most efficient.

Web reference: Ingenta

Roughead, E, Gilbert, A, Primrose, J and Sansom, L (1998) 'Drug related Hospital Admissions: A review of Australian Studies Published 1988-1996', Medical Journal of Australia, Vol 168, pp405-8

This study examined the extent of drug-related hospital admissions in Australia by reviewing Australian studies published between 1988 and 1996. 14 studies were identified; 2.4%-3.6% of all hospital admissions were reported to be drug-related. 6%-7% of emergency admissions, 12% of all admissions to medical wards and 15%-22% of all emergency admissions among the elderly were drug related. Between 32% and 69% of drug-related admissions were reported as definitely or possibly preventable.

Web reference: Medline

Sorensen, L, Stokes, J., Purdie, D., Woodward, M., Elliott, R. Roberts, M. (2004) 'Medication reviews in the community: results of a randomized, controlled effectiveness trial.' *British Journal of Clinical Pharmacology*, 58 (6), p648-65

The study examined the effectiveness of a multidisciplinary service model delivering medication review to patients at risk of medication misadventure in the community. The study was carried out in three Australian states and conducted as a randomized, controlled effectiveness trial. Effectiveness was assessed using the four clinical value compass domains of (i) functional status, (ii) clinical outcomes, (iii) satisfaction and (iv) costs. The model was successfully implemented with 92% of intervention GPs suggesting that the model had improved the care of participating patients, a view shared by 94% of pharmacists. In addition, positive trends in clinical outcomes and costs were evident.

Web reference: Ingenta

University of Aberdeen (2003) *Evolution and Change in Community Pharmacy* Royal Pharmaceutical Society

This is a comprehensive literature review aimed at informing the UK debate on the future role of pharmacists.

Web reference: http://www.rpsgb.org.uk/pdfs/chevcommphsyn.pdf