

Financial incentives and the health workforce

Anthony Scott^{1,4} BA(Hons), MSc, PhD, Professorial Fellow, ARC Future Fellow

Luke B. Connelly^{2,3} BA, MEconSt, PhD, Director (ACERH), Associate Director (CONROD),
Professor of Health Economics

¹The University of Melbourne, Melbourne Institute of Applied Economic and Social Research, and School of Population Health, Level 6, Alan Gilbert Building, 161 Barry Street, Melbourne, VIC 3010, Australia.

²The University of Melbourne, Australian Health Workforce Institute (AHWI), Level 3, 766 Elizabeth Street, Parkville, VIC 3010, Australia.

³The University of Queensland, Australian Centre for Economic Research on Health (ACERH) and Centre of National Research on Disability and Rehabilitation Medicine (CONROD), Ground Floor, Edith Cavell Building, Royal Brisbane and Women's Hospital, Herston, QLD 4029, Australia.

⁴Corresponding author. Email: a.scott@unimelb.edu.au

Abstract. Changes to the remuneration of medical practitioners are currently being considered in Australia. In this paper, we provide a discussion of financial incentives in healthcare markets and their effects on health professionals' behaviour. After defining incentives, the paper focuses on the design of incentive schemes for the health workforce. It discusses several issues that should be considered when designing incentives, illustrated with some Australian examples. What are the objectives of the incentive scheme? What types of incentives can be used and under what circumstances? What is the empirical evidence around the effects of incentive schemes? What unintended consequences might exist? The paper concludes with a set of principles around which incentives can be designed. These principles might be used to inform the current debate about revisions to the incentives that are faced by medical practitioners in Australia.

Introduction

Incentives constitute a key issue in the design and operation of healthcare systems. Changes in incentives provided to medical practitioners, healthcare organisations, and patients are being considered by the Australian Government¹ with input to its decision-making from the National Health and Hospitals Reform Commission,² the National Primary Health Care Strategy³ and National Preventative Health Taskforce.⁴ In this paper, we provide an overview of the incentives that may be provided to healthcare professionals and providers. We focus on the behaviour that different types of financial incentives tend to encourage and upon the consequences – both intended and unintended – that may be produced as a result.

Incentives can be used to help align the behaviour of healthcare providers with the broad objectives of the healthcare system and organisations within it. Designing the 'right' set of incentives is, however, problematic. It is often much easier to identify situations where existing incentives are promoting the 'wrong' behaviours, than it is to design incentives to promote the 'right' behaviours. This is mainly because there is often little agreement on what the 'right' behaviours are, especially in healthcare where the evidence-base can be poor.

Good incentive design also requires evidence on what motivates healthcare providers and health professionals.⁵ In practice, healthcare providers are motivated by a range of factors, including the health and well-being of patients and earnings,⁶ but also factors such as autonomy and intellectual satisfaction. The

relative weight placed on these factors in different decision contexts will determine the effectiveness of incentives in terms of the extent to which health professionals react to them and change their behaviour. If health professionals are only partially motivated by money, financial incentives might not be the most efficient way of achieving an objective of interest.

Incentives are also embedded in and created by social, professional and cultural contexts. Often, existing sets of incentives have evolved over a long period of time (e.g. the Medicare Fee Schedule) or are the result of lengthy negotiations between strong professional lobby groups and governments. Radical changes might be hard to achieve in the short-term, and a staged long-term plan might be needed.

What are the objectives of the incentives?

A key issue in incentive design is to specify the objective in terms of service delivery, health outcomes and costs.⁷ Incentives that help reduce costs while maintaining an acceptable quality of care and achieving the desired health outcomes are important for the efficiency of the sector. Where there is clear evidence from randomised trials or systematic reviews that an intervention (e.g. a test or treatment) is more cost-effective than the alternatives that are being used, the efficiency of the sector may be improved with measures to support its use or discourage the use of the cost-ineffective alternatives. For example MSAC and PBAC both have review processes in place that are designed to ensure that new technologies, procedures and pharmaceuticals are

competitive, on cost-effectiveness grounds, for Commonwealth subsidies. The Service Incentive Payments that are paid to GPs for diabetes, asthma, and cervical screening for women who have not had a recent pap smear, are also based on established evidence-based guidelines for treatment.

However, there are other areas where incentives are provided but the evidence-base is weak. For example, the Medicare fees for Health Assessments are not based on good evidence that medical advice on primary prevention works: such evidence does not exist or, at least, is weak. The fee relativities between primary care and specialist services in the Medicare Fee Schedule are also not necessarily based on the relative cost-effectiveness of the services provided, and indeed may create incentives to provide less cost-effective services at the expense of more cost-effective services. These issues might give rise to both allocative and productive inefficiencies in the health sector.

The objectives might also be specified with reference to the structure of the system itself. For example, encouraging GPs to employ more practice nurses or allied health professionals might be based on an efficiency argument: these professionals can deliver some tasks at lower costs, without lowering service quality or health outcomes. This frees up the time of time of doctors to treat more patients. Incentives to do this could be delivered in several ways, and adding more items to the MBS has happened to an extent and is currently being reviewed. To avoid increasing complexity of an already complex MBS, other options, such as fixed payments to cover practice nurses' salaries (e.g. via the PIP scheme), could also be explored. The addition of items and the attendant subsidies to the Schedule would encourage general practices to substitute nurse for GP labour, with the usual advantages and possible disadvantages of FFS remuneration (see, e.g. Cutler and Zeckhauser⁸).

Defining incentives in the context of the health workforce

An incentive is an extrinsic motivator provided to a health professional, or a team of health professionals, or an organisation. This might be non-financial incentives (e.g. the provision of education) or financial incentives, although here we focus on the latter. Financial incentives relate to how a healthcare provider is funded, and how that funding is delivered. For a given level of funding, different ways of delivering the funding can have different effects on behaviours. These schemes differ according to the degree of risk sharing between the health provider and government or insurer, and also by the extent to which objectives (i.e. performance or health outcomes) can be observed or monitored by government/insurer. Common contractual mechanisms that are used in the health sector include the following.

1. A fixed payment per unit of time

For employees, this is a salary, and for the self-employed this might be a sessional payment or fixed payment contract. Fixed payments contain incentives to reduce costs, but do not contain explicit incentives to improve the quality or quantity of care. The threat of dismissal might provide an incentive to attain a minimum standard of care. This payment mechanism relies on the intrinsic motivation of providers. To the extent that progression through a salary scale might be based on subjective assessments of

performance through performance appraisal, the gap between increments on the scale and for promotion (career progression) might also provide strong financial incentives, although there might be biases in the promotion process (e.g. currying favour with superiors) if performance cannot be easily measured or is uncertain.⁹

2. Capitation payments involve the payment of an agreed amount per patient, per period of time

Again, the important incentive with fixed payments is to reduce costs. Often, the payment is 'risk-adjusted' so that patients whose expected costs are higher (e.g. elderly patients or patients in greater need for services) also attract a higher capitation payment. Proponents of capitation argue that it has the following advantages:

- (a) practitioners (at least partially) subsume the insurance function and this encourages preventive activities, rather than focussing on the treatment of illness itself;
- (b) practitioners are not rewarded for 'churning' patients through and have no incentive to induce demand (by existing patients) for their services;
- (c) consumers are tied to a given practice, for a defined period of time, and this may improve continuity and quality of care. Critics respond that the disadvantages of capitation are that rewards are independent of practitioner effort and, in fact, may decline with increases in the quantity and quality of services per patient (i.e. costs may increase with the quantity and quality of services, but remuneration does not).

3. Fee-for-service (FFS)

A system of fees that are related to specific services provided (e.g. visits, treatments, or procedures). Proponents of FFS remuneration argue that its advantages are that:

- (a) practitioners are rewarded on the basis of the services they actually provide and hence are generally motivated to provide service;
- (b) a re-allocation of medical resources can be encouraged by adjusting fee relativities or adding bonuses for targeted services. Critics of FFS medicine argue that, because FFS mechanisms reward higher volume of service provision, they encourage the treatment of acute illness rather than its prevention or chronic disease. Furthermore, proponents of the supplier-induced demand (SID) hypothesis would argue that FFS payment encourages practitioners to induce demand for their services (i.e. supply more services to consumers than consumers themselves would want to consume, if they were as well informed or knowledgeable as their doctors). FFS is also more costly to administer than salary or fixed payments.

4. Pay-for-performance (P4P)

This is similar to fee-for-service except payments are related to defined measures of health outcomes and processes of care, rather than the number of services provided. P4P is dependent on being able to measure 'performance', which ideally should be in terms of health outcomes, but is usually in terms of process and

types of care provided that are recommended in evidence-based guidelines (e.g. statin prescribing, measuring blood pressure and other risk factors, HbA1c measurements (blood glucose measurements) in diabetes). It also assumes that performance can be attributed to the actions of the healthcare provider or team. P4P can also include payments and 'bonuses' to hit targets (e.g. immunisation coverage). It is used to improve quality of care in specific areas, such as Service Incentive Payments in Diabetes and Asthma for GPs, the Quality and Outcomes Framework for GPs in the UK, or supplements to DRG payments for hospitals.

5. Blended payments

A mix of the above with usually (1) to (3) as the main form of payment with P4P as an add-on. This helps dampen the extreme incentives of (1) to (3), while additionally providing incentives for quality improvement if appropriate measures of quality are available.

The strength of the incentives depends on the extent to which the benefits (profit and effects on patients' health) are greater than the costs of providing the activity, including any disutility (or dissatisfaction) the practitioner feels from performing or not performing that function. For example, a fixed payment to all GPs for completing a cycle of diabetes care will produce variation in the response to the payment. For some GPs, the costs of completing a cycle of care will be higher than the payment, and so they will not respond to the incentive, or will try and reduce the costs of providing the service. The likelihood of behavioural change increases the larger is the difference between the payment and the additional cost of providing the activity. Additionally, P4P schemes may affect reported behaviour more than the actual end that is targeted. In terms of the foregoing example: GPs who already engage in good diabetes care will be eligible for the new performance payments, so the scheme will increase remuneration even if it does not change behaviour at all.

The strength of the incentive also depends on the degree of risk sharing between the healthcare provider and government or other insurer. With FFS, the financial risk is borne by government and patients. Given that the MBS is uncapped and doctors have discretion to change prices, more services mean higher expenditures for both governments and patients, depending on the extent to which co-payments change. With capitation and salary (or other types of fixed payments including casemix payment for hospitals), the financial risk is borne by providers, as more costly patients will reduce their profits. Providers have strong incentives to reduce costs and not provide unnecessary care. Blended payment schemes have the advantage that risk is shared, although the degree of risk sharing is still important in determining the strength of the incentives to be both costs conscious while improving health outcomes for patients.

Other forms of financial incentives include those provided by the probability of dismissal as well as competition in the labour market (e.g. higher remuneration in different jobs, or in different sectors). This is quite important for nursing and allied health professions, who operate in local labour markets where their choice of career, job and sector is partly determined by relative earnings. It therefore is important to consider that different types of incentives and different levels of earnings across different types

of jobs, will also influence recruitment and retention, the relative attractiveness of jobs, and decisions to specialise. Increasing the pay of doctors by 10% has been shown to increase their hours worked by between 1.2 and 6%, depending on the country.^{10,11} Increased earnings for GPs relative to specialists, for example, provide incentives for more doctors to choose general practice. Similarly, increased pay for public hospital specialists relative to earnings in the private sector may encourage specialists to work more in public hospitals and help reduce waiting lists. Access to healthcare in remote and rural areas may also be changed through the use of financial incentives. Theoretically, the possibility of a 'backwards-bending supply curve' for medical labour also exists. Specifically, an increase in remuneration could lead to a reduction in the supply of medical labour if practitioners responded to an increase in earnings by reducing their hours to take more leisure time. The notion of the backwards-bending supply curve is generally regarded as a theoretical curiosity. Nevertheless, some empirical work by Connelly and Butler¹² suggests that such an effect followed, at least initially, the increase in the Rebate for GP services in Australia in January 2005.

What is the empirical evidence about the effects of incentives?

Empirical evidence on the effects of financial incentives for health professionals and healthcare providers has largely focussed on financial incentives for doctors and dentists, rather than other health professionals. This literature has generally shown that financial incentives work, but the magnitude of their effects is dependent on context (see for example, Gosden *et al.*^{13,14}; Robinson¹⁵; Petersen *et al.*¹⁶; Scott¹⁷). Compared to salaried and capitation payment, FFS has consistently been shown to lead to a higher volume and intensity of care being provided. What this literature has yet to show, however, is whether this represents 'too much' care or overservicing. The focus in the literature is on the effects of remuneration on 'process' measures. However, it is necessary to examine the effect of different payment systems on the health outcomes of patients yet this is a key area where the literature is lacking. Capitation payment has been shown to lead to low levels of healthcare provision and a more conservative approach to treatment by doctors. Salaried payment has again shown lower levels of treatment provided in comparison to FFS, although there has been little empirical research on the role of incentives contained within salary scales and careers.¹⁸ In order to avoid the more extreme opportunities to provide too much or too little care, blended or mixed systems of remuneration have been advocated by many as the way forward.^{15,19}

The Practice Incentive Program (PIP) for GPs in Australia was introduced in 1999. In addition to the usual FFS payments, the PIP provided capitation payments to improve practice infrastructure, and incentive payments to improve quality of care for patients with diabetes, asthma, mental health problems, and to improve coverage in cervical screening. This pay-for-performance scheme was recently evaluated and found that in diabetes, the HbA1c test was between 15 and 20% more likely to be ordered by GPs in the PIP compared to GPs not in the PIP.²⁰ The study controlled for a wide variety of patient and GP characteristics, and also controlled for the self-selection of GPs into the PIP. The results suggest that

modifications to the FFS scheme can have marked effects on quality of care.

The cost-effectiveness of financial incentives v. other means to change behaviour has been examined little in the literature. One randomised trial of fees v. education for dentists to apply fissure sealants to children's teeth found that the effect of the fee was to increase fissure sealants by almost 10%, whereas the educational intervention had little effect. The fee was also found to be the most cost-effective intervention.²¹

What unintended consequences may exist?

The use of financial incentives is not without its problems. In relation to pay for performance, a key issue is the shift of activity towards the remunerated disease area and away from other disease areas of care. This is inevitable where resources are scarce, yet it is unclear whether these shifts in activity are allocatively efficient, i. e. generate more health gains overall such that the additional health gains from the remunerated activity outweigh the health losses from other activities that are given up.⁹ This is especially difficult to monitor and manage in complex areas such as healthcare.

Health professionals may 'game' the system to claim additional payments, either through re-classification of patients, avoiding the sickest patients, or fraudulent claims, especially where there is little monitoring of actual activities against reported performance (e.g. Doran *et al.*²²). Such monitoring costs can also be high, as can the administrative costs and complexity of a detailed and complex fee schedule and performance system.

Performance targets and levels may generate myopia and there are incentives to 'perform to target' and do no more once the target is reached.²³ For example, the diabetes outcome payment in the PIP is paid for completing cycles of care for only 20% of patients with diabetes. Similar targets for immunisation in other incentive schemes are for 90% coverage of the eligible patients.

In theory at least, extrinsic financial incentives can reduce and 'crowd out' the intrinsic motivation of professionals:²⁴ where once health professionals were motivated by improving patients' health, they may now be motivated by the monetary reward. The two motivations may be complementary, but in theory it is suggested that extrinsic rewards sometimes do not change the level of the targeted activity and may sometimes reduce it. This could happen if, for example, a change in 'culture' accompanies the change in remuneration and individuals become de-motivated as a result. In addition if the incentive is subsequently removed, the level of the activity may fall even though there may be good evidence to support it. Similarly, even if a proven new technology is introduced and is highly beneficial to patients, the culture of FFS and P4P may mean that health professionals won't provide it unless they are paid, even though it would otherwise be considered to be a 'core' activity with a strong evidence-base.

Conclusions

Any new financial incentives for health professionals need to be carefully designed and judiciously used. Proposals for new incentives should:

1. be accompanied by (a) an evidence-based justification for undertaking the targeted activity (e.g. evidence for its effect on patients' health and, preferably, evidence on its cost-

effectiveness) (b) an evidence base that indicates that not undertaking a target activity (e.g. routine counselling following traumatic event) reduces costs and has no negative consequences for health outcomes;

2. be as simple as possible and be cognisant of the additional administrative costs of claiming, paying and monitoring the incentives, as the costs may outweigh the additional gains in patients' health;
3. be sufficient to at least cover the additional costs faced by health professionals of providing the activity;
4. encourage an appropriate level of risk sharing between providers and government/insurers
5. be evaluated as to their effects on health professionals' behaviours, patients' health outcomes, and costs; and
6. be subjected to a careful consideration of the potential for unintended consequences.

These issues should be carefully considered in any proposed reform of financial incentives for the health workforce.

Competing interests

The authors declare that no conflicts of interest exist.

Acknowledgements

We thank Professor Peter Brooks and attendees at the 2008 Australian Health Workforce Institute (AHWI) Colloquium for their comments on an earlier draft of this paper.

References

- 1 Cresswell A. Performance pay likely for doctors. *The Australian*, 6 May 2009; 4. Available at <http://www.theaustralian.com.au/news/nation/performance-pay-likely-for-doctors/story-e6frg6nf-1225710305729> [verified 13 July 2011].
- 2 A healthier future for all Australians – final report. Canberra: Commonwealth of Australia, National Health and Hospitals Reform Commission; 2009.
- 3 Building a 21st century primary health care system: a draft of Australia's first national primary health care strategy. Canberra: Commonwealth of Australia, Department of Health and Ageing; 2009.
- 4 Taking preventative action. Canberra: Commonwealth of Australia, National Preventative Health Taskforce; 2010.
- 5 Le Grand J. Motivation, Agency and Public Policy: of Knights and Knaves, Pawns and Queens. New York: Oxford University Press; 2003.
- 6 Gravelle H, Sutton M, Ma A. Doctor behaviour under a pay for performance contract: further evidence from the quality and outcomes framework. CHE Research Paper 34. York, UK: Centre for Health Economics, University of York; 2008.
- 7 Nicholson S, Pauly MV, Jung Wu AY, Murray JF, Teutsch SM, Berger ML. Getting real performance out of pay for performance. *Milbank Q* 2008; 86: 435–57. doi:10.1111/j.1468-0009.2008.00528.x
- 8 Cutler DM, Zeckhauser RJ. The anatomy of health insurance. In: Culyer AJ and Newhouse JP, editors. Handbook of Health Economics. Vol.1A. Amsterdam: Elsevier; 2000: 563–644.
- 9 Prendergast C. The provision of incentives in firms. *J Econ Lit* 1999; 37: 7–63. doi:10.1257/jel.37.1.7
- 10 Ikenwilo D, Scott A. The effect of pay and job satisfaction on the labour supply of hospital consultants. *Health Econ* 2007; 16: 1303–18. doi:10.1002/hec.1220
- 11 Baltagi B, Bratberg E, Holmes TA. panel data study of physician's labor supply: the case of Norway. *Health Econ* 2005; 14: 1035–45. doi:10.1002/hec.991

- 12 Connelly LB, Butler JRG. Incentives and primary care: an analysis of the Australian Medicare arrangements and producer behaviour. ACERH; 2005. Available at http://www.acerh.edu.au/News/Butler_Research_Forum_160606.pdf [verified 5 August 2011].
- 13 Gosden T, Forland F, Kristiansen IS, Sutton M, Leese B, Guiffrida A, *et al.* Impact of payment method on the behaviour of primary care doctors: a systematic review. *J Health Serv Res Policy* 2001; 6: 44–55. doi:[10.1258/1355819011927198](https://doi.org/10.1258/1355819011927198)
- 14 Gosden T, Pedersen L, Torgerson D. How should we pay doctors? A systematic review of salary payments and their effect on doctor behaviour. *QJM* 1999; 92: 47–55.
- 15 Robinson JC. Theory and practice in the design of physician payment incentives. *Milbank Q* 2001; 79: 149–77. doi:[10.1111/1468-0009.00202](https://doi.org/10.1111/1468-0009.00202)
- 16 Petersen LA, Woodard LD, Urech T, Daw C, Sookanan S. Does pay-for-performance improve the quality of health care? *Ann Intern Med* 2006; 145: 265–72.
- 17 Scott IA. Pay for performance in health care: strategic issues for Australian experiments. *Med J Aust* 2007; 187: 31–5.
- 18 Mavromaras K, Scott A. Promotion to hospital consultant: regression analysis using NHS administrative data. *BMJ* 2006; 332: 148–51. doi:[10.1136/bmj.38628.738935.3A](https://doi.org/10.1136/bmj.38628.738935.3A)
- 19 Eggeston K. Multitasking and mixed systems for provider payment. *J Health Econ* 2005; 24(1): 211–23.
- 20 Scott A, Schurer S, Jensen PH, Sivey P. The effects of financial incentives on quality of care: the case of diabetes. Working Paper No. 12/08. Melbourne: Melbourne Institute of Applied Economic and Social Research; 2008.
- 21 Clarkson JE, Turner S, Grimshaw JM, Ramsay CR, Johnston M, Scott A, *et al.* Changing clinicians' behavior: a randomized controlled trial of fees and education. *J Dent Res* 2008; 87: 640–4. doi:[10.1177/154405910808700701](https://doi.org/10.1177/154405910808700701)
- 22 Doran T, Fullwood C, Reeves D, Gravelle H, Roland M. Exclusion of patients from pay-for-performance targets by English physicians. *N Engl J Med* 2008; 359: 274–84. doi:[10.1056/NEJMs0800310](https://doi.org/10.1056/NEJMs0800310)
- 23 Goddard M, Mannion R, Smith P. Enhancing performance in health care: a theoretical perspective on agency and the role of information. *Health Econ* 2000; 9: 95–107. doi:[10.1002/\(SICI\)1099-1050\(200003\)9:2<95::AID-HEC488>3.0.CO;2-A](https://doi.org/10.1002/(SICI)1099-1050(200003)9:2<95::AID-HEC488>3.0.CO;2-A)
- 24 Frey BS, Jegen R. Motivation crowding theory: a survey of empirical evidence. *J Econ Surv* 2001; 15: 589–611. doi:[10.1111/1467-6419.00150](https://doi.org/10.1111/1467-6419.00150)

Manuscript received 29 March 2010, accepted 4 January 2011