



# **Transforming primary care in Ireland: information, incentives, and provider capabilities**

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## I – Introduction

Ireland's health system is at a key turning point. The Irish government was newly elected in February 2011, and the policy directions adopted over the coming months will likely exert a major impact on system performance for many years. Drawing on recent international experience with performance measurement and financial incentives, this paper examines strategies for enhancing quality and value in the Irish health system, focusing predominantly on the role of primary care<sup>1</sup>.

Three take-home messages emerge from the literature. First, substantial improvements in quality of care often can be attained at a reasonable cost, such as through the use of checklists and evidence-based clinical pathways, or by better aligning the skills of health care providers to patients' need. Second, rigorous performance measurement is a vital tool for quality improvement that is lacking in Ireland, and this could be particularly powerful if underpinned by risk-adjustment to enable reliable evaluation of clinical outcomes. Pilot projects are required to examine the feasibility of these techniques in the Irish context. Third, although pay-for-performance is a prominent quality improvement strategy, little evidence exists to support its purported benefits and it can exert negative effects. Incentives are unlikely to be effective if providers lack the capability to respond appropriately, therefore it is imperative to foster professionalism and pride in high-quality care, and to develop the managerial and clinical skills necessary for high performance.

### Why is Ireland noteworthy?

Ireland's health system stands out from many other countries in some key ways. Irish society has been conceptualised as “between Boston and Berlin” (Wren 2003), manifesting in the health service as tensions between the role of private health insurance and the European welfare state model. Most of the population pay sizeable out-of-pocket payments to visit a primary care physician (around US\$70 per visit), and differential access to services based on private health insurance status leads to what some analysts term a “two-tier system.” Enrollees in private health insurance (approximately 50% of the population) are entitled to faster access to some essential services, which is important as waiting lists are often lengthy (Thomas, Normand et al. 2008; McDaid, Wiley et al. 2009).

Irish primary care providers have strong ethical motivations to offer the best possible care to their patients and are highly trained, with general practitioners (GPs, or PCPs in US terminology) having undertaken 6 years of medical school training followed by 4 years of

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<sup>1</sup> Optimisation of patient care requires clinical integration across traditional work boundaries, hence a sharp demarcation between primary and hospital care may be inappropriate. This paper occasionally draws on examples from hospital care to illustrate the challenges of performance improvement.

primary care training (Purcell and McHugh 2010). The health service, however, suffers from major systemic problems and does not facilitate optimal standards of care, for reasons such as fragmented care pathways, inadequate inter-professional communication (DOHC 2001), and capacity constraints (Thomas and Layte 2009).

Scant attention has been paid to performance measurement or benchmarking, and patients have almost no objective quality information on which to base provider choice (McDaid, Wiley et al. 2009). External incentives for quality are weak, with primary care physicians reimbursed by fee-for-service for a majority of patients (usually out-of-pocket) and by capitation (free at the point of use) for certain patient groups such as low-earners, despite the fact that more nuanced “blended” payment schemes are perceived to instil superior incentives (Brick, Nolan et al. 2010).

Therefore it is perhaps unsurprising that clinical outcomes are sub-optimal. Deficiencies in quality are evident around chronic disease management, manifesting in significant rates of avoidable complications for conditions such as diabetes and chronic obstructive pulmonary disease (Nolan, O'Halloran et al. 2006; Brennan, McCormack et al. 2008) while one study found that systolic blood pressure exceeded recommended guidelines in at least 33% of patients with coronary heart disease and diabetes (Mansia, Laurent et al. 2009; Murphy, Cupples et al. 2009). Irish providers may adhere weakly to antihypertensive prescribing guidelines (Okechukwu, Mahmud et al. 2007) but limited data availability precludes firm inferences, while recent evidence suggests there is significant underdiagnosis of hypertension and osteoporosis among individuals aged over sixty (TILDA 2011).

## Primary Care Teams in Ireland

The Irish government plans to create multidisciplinary primary care teams (PCTs) throughout the country with compulsory enrolment for all citizens (Department of the Taoiseach 2011) in an effort to mitigate systemic defects. In fact, PCTs were placed at the forefront of Irish health policy ten years ago when the incumbent government set out to establish between 600 and 1,000 PCTs, but by 2009 only 222 had been established (Houses of the Oireachtas 2010), many of which are “virtual” teams lacking a base primary care centre (PCC) and offering limited care coordination. The newly elected government now seeks to reinvigorate this policy (Department of the Taoiseach 2011), which should be supported by a recent expansion in the number of annual GP training places (Health Service Executive 2010) to offset capacity constraints, and secondly by increasing numbers of multi-partner physician practices (Purcell and McHugh 2010) which may prove a useful starting point for assembling PCTs.

According to the 2001 Primary Care Strategy, each PCC would be staffed with multiple GPs and nurse/midwives, as well as allied health professionals including physiotherapists,

occupational therapists, social workers, health care assistants, and home help workers<sup>2</sup>. This core team would be supported by a wider “primary care network” including pharmacists, dieticians, psychologists, and speech and language therapists<sup>3</sup> (DOHC 2001). In practice, however, “network” members such as pharmacists and dieticians are now based in some PCCs, reflecting their vital role in patient care.

The 2001 policy paid scant attention to incentive mechanisms and the distribution of provider roles and responsibilities. A relatively small population of around 3,000 to 7,000 was to be served by each PCT (DOHC 2001), but in practice some PCTs now serve far greater populations. Funding arrangements can vary, but government’s stated policy is that PCCs will be developed by the HSE and subsequently leased to the private sector, while those in socioeconomically disadvantaged and rural areas will be funded through the Exchequer<sup>4</sup> (Houses of the Oireachtas 2011).

## Overview of this paper

The overarching objective is for primary care teams to undergo continuous cycles of performance measurement and quality improvement, and ultimately to enhance population wellbeing, equity, and health care sustainability throughout Ireland. The remainder of this paper explores ways of achieving these goals, focusing in particular on the role of primary care teams.

It is worth revisiting the three key messages. The first, that superior quality need not be significantly more expensive, arises because preventing medical errors and effectively managing chronic illnesses can reduce downstream expenditures, and because existing resources can be better employed by restructuring working and organisational patterns. In the hospital sector, the Institute for Healthcare Improvement (IHI) in the United States promoted the adoption of six evidence-based interventions, three of which pertained to infection control, and prevented an estimated 120,000 mortalities over eighteen months (Berwick, Calkins et al. 2006; Tanne 2006). This was probably accompanied by a substantial reduction in iatrogenic costs. Moreover, a recently developed safety checklist taking two minutes to use prior to surgical operations was found to reduce mortality and major complications by approximately 50% and 30% respectively, as well as potentially reducing

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<sup>2</sup> Core Primary Care Team as specified in the 2001 Primary Care Strategy: GP; Nurse/midwife; Health care assistant; Home help; Physiotherapist; Occupational therapist; Social worker; Receptionist; Clerical officer; Administrator.

Source: DOHC (2001). Primary Care - A New Direction. Dublin, Department of Health and Children.

<sup>3</sup> Primary Care Network: Chiropodist; Community welfare officer; Community pharmacist; Dentist; Dietician; Psychologist; Speech and language therapist. Source: *ibid*.

<sup>4</sup> While ideological public versus private debates were a defining feature of European health policy throughout the 1980s and 1990s, this has given way to a more pragmatic debate about the appropriate mix of public and private tools for achieving the social goals of equitable and efficient health care. Source: Saltman, R. (2009). "The Rise of Pragmatism in State/ Market Debate." *Health Economics Policy and Law* 4(4): 509-511.

net health care expenditure (Haynes, Weiser et al. 2009; Semel, Resch et al. 2010). Comparable achievements may be possible in primary care, as the use of evidence-based protocols to manage chronic conditions such as diabetes and cardiovascular disease could substantially reduce morbidity and suffering, as well as potentially lowering hospitalisation rates and expenditure.

The second key message is that rigorous performance measurement can be a crucial tool for quality improvement, as demonstrated by the dramatic turnaround of the Veteran's Health Administration in the United States (see Section II). Performance data can be confidentially fed back to providers to enable the identification of areas of sub-optimal quality, or may be used to identify leading centres of excellence whose techniques may be emulated by other providers. Alternatively, performance data can be shared and monitored by providers at regular collaborative meetings, and if providers are reasonably satisfied with data validity it may be used as a basis for pay-for-performance or public reporting. Performance measurement could be particularly powerful if underpinned by risk-adjustment to enable valid comparison of clinical outcomes between providers, therefore piloting these techniques in the Irish context should be a government priority.

The third message is that although financial incentives are without doubt a powerful determinant of provider behaviour, too narrow a reliance on financial incentives is unlikely to optimise clinical outcomes. There is as yet little evidence to support the purported benefits of pay-for-performance (P4P), and it may exert negative effects such as diverting attention from equally important but unrewarded measures of quality. Moreover, P4P may reward existing high-performers while further demotivating providers that struggle to achieve high-quality, without resolving the underlying causes of poor quality. Professionalism and pride in high-quality care must be nurtured, as well as the managerial and clinical capabilities necessary for high performance, and consequently P4P is best deployed within a broader quality improvement strategy.

The following section discusses the role of performance measurement in enhancing quality of care, while Section III focuses on the role of innovation in the delivery of services. Pay-for-performance is discussed in Section IV, the role of market mechanisms in Section V, and a concluding section sets out some policy recommendations and some general inferences from the international literature.



## II – Performance Measurement as a tool for Quality Improvement

Internationally there is evidence of extensive variation in health care quality, both within and between countries (Fisher and Wennberg 2003; Hussey, Anderson et al. 2004; Wennberg, Fisher et al. 2008). The performance spectrum has been characterised as a “bell curve”, with a few providers delivering markedly sub-standard care, a few achieving markedly superior outcomes, and a large majority clustered around the median performance level (Gawande 2007). Given this context, effective quality improvement initiatives are of vital importance, and performance measurement can serve as a cornerstone of these initiatives. This section discusses the role of performance measurement in health care, articulates the potential importance of risk-adjustment, and draws on the example of diabetes to illuminate some key challenges.

Performance measurement was a critical factor in the transformation of the Veteran’s Health Administration from a system of widely acknowledged care deficiencies into a world leader in quality (Longman 2007; Oliver 2007). Effective measurement can be employed as a learning tool to enable providers to pinpoint areas needing improvement, and to identify high-achievers in specific clinical areas from whom other providers can learn. It may be used to monitor patient safety, enable provider accountability, or as a basis for pay-for-performance. By rigorously applying performance measurement, evidence indicates that quality of care in the Veteran’s system surpassed commercial managed care plans for many performance indicators (Kerr and Fleming 2007). This was achieved without a significant role for provider pay-for-performance.

But not all performance measurement schemes have enjoyed the same success as the Veterans’. Evidence suggests that, on balance, only small to moderate improvements have been generated by feeding back relative performance information to providers (Epstein 2009). Effects are positively associated with feedback frequency, and tend to be greater for practices with poor baseline performance (Jamtvedt, Young et al. 2006), while in some instances performance measurement may provoke resentment among providers and ultimately be counterproductive.

Key to the Veterans’ success was the adoption of a wide-scale, multifactorial quality improvement strategy, underpinned by performance measurement. The Veterans invested heavily in information systems (see Section III), a sense of competition was fostered between competing regions, and, crucially, improvement was driven by a core group of idealistic and motivated clinical leaders. In general, adept managerial skills in conjunction with clinician leadership and commitment are perhaps equally as important as the specific quality improvement strategy pursued (Ham 2010).

Another important point is that rich clinical detail may be needed for performance measurement to fulfil its promise. Staff in one New York hospital responded with scepticism

when publicly reported performance data indicated relatively high mortality rates among their cardiac surgery patients. Following detailed statistical analysis, however, the excess mortality was found to occur in a distinct subset of high-acuity patients, which served to focus quality improvement efforts, and significantly improved outcomes were achieved the following year (Dziuban Jr, McIlduff et al. 1994). Without sufficient detail for nuanced statistical analysis, this may have been another example of ineffective performance measurement.

## What to measure?

The selection of performance measures is a contentious task, not least as production processes comprise numerous inputs and multidimensional outcomes. Existing sets of measures used in primary care may serve as a useful point of departure, such as the Comprehensive Care Project (Holmboe, Weng et al. 2010) and the Quality and Outcomes Framework (BMA and NHS Employers 2011), but it is important to proceed in manageable steps and measures should be continuously updated and refined (Hsiao, Kappel et al. 2011).

Health care quality is a complex, multifaceted concept incorporating subjective as well as objective aspects. Drawing on the seminal work of Avedis Donabedian (Donabedian 1966), performance measures can be characterised in terms of structures, processes, and outcomes. Structures comprise inputs such as trained staff, equipment, and patient records; processes are activities, such as diagnostic tests, patient monitoring, and medical interventions; while outcomes are the results achieved, such as patient satisfaction, stroke, or death. Each has distinct advantages and disadvantages (see Smith, Mossialos et al. 2009). The Veterans' system initially focused heavily on measures of preventive and chronic care (Ham 2010), measuring across multiple dimensions of quality including functional status, patient satisfaction, and access to services (Kerr and Fleming 2007).

Ultimately health outcomes (such as stroke, death) are what matter most to patients, but long time lags can inhibit their usefulness as routine performance measures. Moreover, a defining feature of health care is uncertainty and outcomes are influenced by an array of factors beyond the control of providers. The incidence of stroke, for example, is heavily dependent on largely unobservable patient attributes such as genetic disposition and lifestyle choices. Performance may be more immediately reflected by processes, structural measures, and "surrogate" or intermediate outcomes such as control of blood pressure or cholesterol levels (Iezzoni 2009), however it can be difficult to identify the precise features that significantly affect health outcomes (Hsiao, Kappel et al. 2011).

Many process measures may do little to stimulate innovation, for example rewarding physicians on the basis of medicines adherence counselling could comprise a box-ticking exercise rather than a concerted effort to enhance patient outcomes. Performance evaluation based on measured patient adherence to medication would be problematic, as

adherence monitoring strategies such as medication possession ratios and patient self-report (Krousel-Wood, Islam et al. 2009) all have weaknesses (Osterberg and Blaschke 2005).

Measures should focus on areas of high-value care and address widely used clinical areas, while limiting incentives for risk-selection and capacity to “game” the system (see Section V). It may be best to adopt a range of measures across structures, processes, and outcomes, as important information can be conveyed by each category, and composite measures representing a number of measures as a single index figure are increasingly common (Iezzoni 2009). Ultimately the decision to focus on process or outcome measures will depend on the specific context and goals.

It is argued that condition-specific outcome measures are most relevant for patients (Porter 2010) and relatively robust risk-adjustment mechanisms exist for the outcomes of certain conditions (Iezzoni 2009). Porter argues that hospital-wide measures such as standardised mortality ratios (SMRs) may be too broad to hold much relevance for patients selecting a hospital (Porter 2010), and moreover the complexity and vagaries of risk-adjustment mechanisms render hospital-wide SMRs unreliable (Black 2010; Shahian, Wolf et al. 2010).

Ideally a strong evidence base would support the validity of each measure (Smith, Mossialos et al. 2009), yet this criterion is not fulfilled in many clinical areas (Iezzoni 2009). Performance evaluation is particularly difficult in the presence of multiple, interacting clinical conditions, as providers must often deviate from disease-specific clinical guidelines in order to optimise care (Boyd, Darer et al. 2005). Moreover it is argued that defining optimal care is difficult for certain health care problems due to their ambiguous nature (Bohmer 2009). Measurement may be further complicated by individual patient preferences for care, as illustrated by different hospital policies for the provision of palliative care at a patient’s request, which if not taken into account when calculating mortality rates will result in a distorted perception of quality (Holloway and Quill 2007).

Performance measurement can motivate providers, but it may equally be resented and resisted, particularly if outcomes are not considered to reflect fairly on a provider’s efforts. Measures should therefore be relevant and acceptable from the providers’ perspective. Negative consequences of performance measurement overlap heavily with the risks of public reporting outlined in Section V, such as risk-selection whereby providers seek to enroll or avoid certain categories of patients in order to bolster measured performance. Excessive treatment of patients may occur, and moreover equally important but unmeasured aspects of care may be neglected (“multi-tasking”) (Kerr and Fleming 2007).

## Data quality and sources

Successful performance measurement depends heavily on valid and reliable data. Performance data can be collated from various sources such as administrative or medical records, or directly from patients, and stakeholders should objectively agree upon the optimal source(s). Regrettably, data standards are often poor in health services, with frequently extensive under-reporting of complications and patient risk-factors (Romano, Chan et al. 2002), and indeed even clinical data coded according to international best practice may be inadequate to enable sophisticated risk-adjustment and outcomes measurement (Iezzoni 2009).

Measurement error has been problematic for conditions such as diabetes, with significant differences existing between “real” values and measured values, but standards of reproducibility and accuracy have improved (Weykamp, John et al. 2008). Deliberate misrepresentation of performance (“gaming”) is another key problem (see Section V).

In the US, the public sector Veterans Health Administration contracts the task of data collection to an external agency in an effort to optimise efficiency. Data is audited on a quarterly basis from a sample of electronic patient records to gather richly detailed clinical data. This data is triangulated with patient surveys pertaining to health status, health experiences, and satisfaction (Kerr and Fleming 2007).

Ireland’s health system is at present ill-prepared for clinical performance measurement. Hospitals generally use paper-based (rather than electronic) clinical records, compounding the difficulties of data collation, and although electronic patient records are routinely used by GPs the standard of coding of clinical diagnoses and interventions is unclear. The implications of data protection legislation on performance measurement also merit consideration.

## Diabetes - illustrating the challenges

The case of diabetes serves to illustrate many difficulties that arise in performance measurement. Despite a substantial body of evidence on this clinical condition, and in HbA1c a fairly robust clinical measure, routine evaluation of diabetes management poses significant difficulties.

Clinical guidelines are a sensible point of departure for establishing diabetes performance targets (e.g. National Institute for health and Clinical Excellence 2009; American Diabetes Association 2011). These emphasise the importance of HbA1c levels, demonstrated in the UK Prospective Diabetes Study (UKPDS) to have strong predictive power for microvascular complications such as retinopathy and nephropathy (Stratton, Adler et al. 2000), although its impact on cardiovascular outcomes is less clearly understood (Del Prato 2009).

An important discrepancy is that interventions conferring equivalent improvement in clinical risk factor control may ultimately confer significantly different benefits to patients. For example, patient weight is an important risk factor for adverse cardiovascular events, and a 10kg weight loss can confer a reduction of approximately 6 mmHg systolic blood pressure (Aucott, Poobalan et al. 2005). Yet the weight loss drug Sibutramine elevated rather than diminished the risk of cardiovascular mortality, despite conferring significant weight loss (Williams 2010). The benefits of weight loss achieved from exercise may differ quantitatively than from drug interventions, while drugs themselves may differ in terms of safety and cardiovascular risk profiles. In diabetes care, for example, evidence suggests that the drug Rosiglitazone may increase the risk of cardiovascular events relative to other treatments (Graham, Ouellet-Hellstrom et al. 2010). The task of performance measurement is complicated by such inherent discrepancies.

The point in time at which measurements are conducted can be important. The occurrence of a “legacy effect” was noted in the UKPDS trial, whereby the benefits of improved risk factor control persisted even after control of risk factors deteriorated to previous levels. The UKPDS intervention group had significantly better HbA1c control at the completion of the intervention period, but despite HbA1c levels subsequently deteriorating to match the comparator group, all-cause mortality remained superior over the longer-term (Chalmers and Cooper 2008). The timing of testing for elevated blood sugar levels, a marker for the presence and control of diabetes, is also important as sugar levels vary throughout the day and are heavily influenced by the duration since one’s last meal. HbA1c, by contrast, remains relatively steady over the duration of a few weeks.

Variability in blood sugar levels may not be captured by periodic assessment of HbA1c or sugar levels, thus significantly fluctuating sugar levels may be wrongfully considered equivalent to blood sugar levels that are maintained consistently within the desired range. Furthermore, trade-offs can render it difficult to specify an exact target, with reductions in HbA1c levels for instance raising the likelihood of hypoglycaemic episodes (Colette and Monnier 2007; Siegelaar, Holleman et al. 2010).

Much is unknown about the effect of various biomarkers on diabetes outcomes. Evidence indicates that elevated cortisol levels are associated with poorer outcomes in diabetes, but the precise relationship remains ambiguous (Reynolds, Labad et al. 2010). Cortisol levels undergo significant diurnal variation (i.e. throughout 24 hours) and are impacted by many disease processes, underscoring the difficulties involved in quantifying the purported relationship with diabetes outcomes, let alone establishing routine cortisol targets that reflect the quality of care. Routine data collection in primary care is often inadequate to quantify the effects of such risk factors on clinical outcomes.

In sum, well-validated performance measures offer an important reflection of clinical performance for diabetes, yet despite a body of clinical evidence exceeding many other conditions, performance measurement remains a complex task with significant uncertainty.

## Risk-adjustment of clinical performance

Clinical outcomes are systematically influenced by many factors beyond the direct control of providers. For example, outcomes may be predictably poorer for elderly patients or those with co-morbidities (Smith, Mossialos et al. 2009), thus by judging performance on the basis of outcomes, doctors treating a higher proportion of these patients could be mistakenly perceived to offer low-quality care. Risk-adjustment uses statistical techniques to control for such factors, seeking to create a “level playing field” whereby providers are validly assessed on the merits of their performance rather than factors beyond their control. Despite its relatively simple underlying rationale, in practice this is a highly technically challenging process.<sup>5</sup>

A danger of risk adjustment is that lower standards of care may inadvertently be set for patients who are difficult to treat (Cromwell, Trisolini et al. 2011). However, by identifying patients at elevated risk of uncoordinated care and poor outcomes (Goroll 2011), as well as facilitating broader quality improvement and enabling the detection of superior outcomes achieved through innovation, risk adjustment can be a powerful instrument for quality improvement. In the aforementioned New York cardiac surgery example, risk adjustment was crucial to enable the comparison of clinical outcomes and the reduction of mortality levels (Dziuban Jr, McIllduff et al. 1994).

Risk adjustment is pertinent mostly for clinical outcomes rather than process measures, as providers exert greater control over processes. Risk factors that affect clinical outcomes can be divided into categories such as demographic (e.g. age, ethnicity), clinical (e.g. severity, co-morbidities), and socio-economic factors (e.g. education, employment). In addition, patient health-related behaviours and attitudes (e.g. preferences and expectations) are often important determinants of clinical outcomes (Smith, Mossialos et al. 2009). The complexity and uncertainty of health care inevitably renders a “perfect” risk-adjustment model unattainable, therefore a threshold of predictive power can be specified such that its benefits (quality improvement) are deemed likely to outweigh the disadvantages (such as gaming, unfair remuneration or reputational damage to providers). Risk adjusted outcomes can be confidentially disclosed to individual providers or shared at collaborative provider meetings and, if clinicians are reasonably satisfied with the model’s robustness, risk-

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<sup>5</sup> A second form of risk-adjustment involves actuarially predicting patient resource consumption (expenditure levels) using socio-demographic and morbidity variables, which can be used to determine the levels of payment to insurance companies or health care providers Chernew, M. E., R. E. Mechanic, et al. (2011). "Private-payer innovation in massachusetts: the 'alternative quality contract'." *Health Aff (Millwood)* **30**(1): 51-61, Mikkers, M. C. and P. Ryan (2011). "Managed Competition" for Ireland?, Tilburg University - TILEC Discussion Paper. This important tool for incentivising efficiency is discussed in Sections IV (Case study 3), V and VI, but in this section the term “risk-adjustment” pertains to clinical outcomes.

adjustment may facilitate public performance reporting, quality-competition, or pay-for-performance (P4P).

Rather than risk-adjust, it may be deemed more appropriate to exclude certain patient subgroups from a performance measure. For example, when the administration of aspirin following acute myocardial infarction is employed as a performance indicator, patients for whom aspirin is contraindicated can be excluded from calculations. Such exception reporting is a prominent feature of the UK's Quality and Outcomes Framework (QOF) (see Section IV), which, like the majority of pay-for-performance (P4P) schemes, does not incorporate risk adjustment and has emphasised processes and structures rather than clinical outcomes. Risk-adjustment may enable an expanded role for clinical outcomes in P4P.

Each risk factor should be underpinned by a clear conceptual justification as well as a statistically significant association with the outcome of interest, to minimise technical difficulties such as endogeneity. For example, when comparing mortality rates between hospitals in the United Kingdom, re-admission rates were selected as a risk-adjustment factor to reflect patient severity. This may have inadvertently masked poor quality care, as the same care deficiencies that increase re-admission rates may simultaneously increase mortality (Smith, Mossialos et al. 2009).

### **Risk-adjustment in primary care**

Risk-adjustment of primary care clinical performance has to date received scant empirical attention (Ash, Ellis et al. 2010). A key difficulty is that outcomes often hinge on the efforts of overlapping clinical teams and social services (Smith 2009), and moreover a “sample size” problem may diminish statistical validity due to relatively small numbers of patients with a clinical condition in each practice (specialist services, by contrast, may have more patients with a particular condition). Recent empirical evidence nonetheless suggests that valid risk-adjustment is feasible within primary care.

Holmboe et al developed risk-adjustment algorithms for seven chronic conditions including diabetes and hypertension, as well as six preventive services such as influenza vaccinations and colorectal cancer screening. Surrogate outcome measures included HbA1c levels for diabetic patients, and blood pressure control, while risk-adjustment variables included age, gender, ethnicity, and co-morbidities. Composite performance scores were calculated for each condition and general care type (e.g. chronic care) as well as the numbers of patients with a particular condition in a single practice required for statistical significance. The most encouraging results were generated by chronic disease and preventive care, and an estimated 18 diabetic patients for example was required in each practice to reliably ascertain the appropriate measurement of HbA1c levels. Significant correlations were found between measured performance and physician scores on Internal Medicine Board

certification examinations (Holmboe, Weng et al. 2010). In another empirical study, Sequist et al found that less than 200 patients per site were needed to achieve reliability of 0.70 for four preventive care measures, four process measures and two outcome measures of diabetes care (Sequist, Schneider et al. 2011).

A distinctive challenge in primary care is that patient behaviours and lifestyle choices can impact substantially on clinical outcomes, and effective chronic disease care may modify patient preferences to better align them with clinical need. Obesity, a key contributor to the rising prevalence of diabetes, serves as a useful example. Although the high incidence of obesity can be attributed to the ineffectiveness of intersectoral government policies (Smith, Mossialos et al. 2009), health care providers nonetheless can influence patients' health and dietary behaviours and some Irish health care providers offer weight control programmes. If a risk-adjustment algorithm completely controls for obesity as a risk factor for poor outcomes, this may dampen provider incentives to develop clinically effective weight control programmes.

### **Commentary: Developing a risk-adjustment model in Ireland**

Recent evidence that valid risk-adjustment may be achievable in primary care begs the questions, can this be achieved in Ireland and how best should policy makers proceed? A sensible starting point is to attempt to adapt existing risk-adjustment models for use in the Irish setting, by conducting pilot projects in collaboration with leading international experts. Pilots should be carried out in a subset of primary care centres with the requisite enthusiasm and infrastructural capacity (see Section VI).

A multidisciplinary approach involving both internal and external stakeholders should be pursued. Clinical experts would conceptualise relationships between predictors and dependent variables, statistical significance would be gauged by statisticians, and an independent expert body should validate models using a separate data set (Iezzoni 2009). Transparency is important therefore risk-factor specification and weighting should be freely accessible, although often this must be balanced against commercial sensitivity considerations (Iezzoni 2009).

The appropriate unit of analysis may be the primary care team (PCT) rather than individual physicians, so as to surmount the sample size problem whereby validity is weakened due to small numbers of patients with a given condition. PCTs are intended to provide services to populations of 3,000 – 7,000 (DOHC 2001; Thomas and Layte 2009), but some now serve significantly larger populations. Although validity can be enhanced by merging data from individual physicians, this shifts the focus of analysis from a single to multiple sources of variation. With regard to statistical analysis, hierarchical models accounting for clustering effects within provider subgroups appear to increase validity over traditional linear regression models. Summary statistical measures (such as R squared) indicate the predictive



power of the risk adjustment algorithm, but can be misleading or perhaps even deliberately manipulated, and do not shed light on model performance for different patient subgroups (Iezzoni 2009). Even if a model does not predict high levels of variance among individual patients, it may function effectively if risks are relatively evenly distributed between practices.

Investigating the feasibility of valid risk-adjustment within Irish primary care would be a technically demanding process requiring support from political and clinical stakeholders. Given its potential importance in enabling providers to benchmark clinical performance against their peers, implementing pilot studies of performance measurement underpinned by risk adjustment should be a key focus of clinicians and policy makers.

### III - The Role of Innovation

Innovation involves the implementation of creative ideas with the aim of improving performance. Innovation occurs frequently in health services as providers seek to solve clinical or organisational problems, and represents a fertile source of information that can supplement existing evidence. Although the solutions generated are frequently specific to a patient's individual circumstances, occasionally more generalisable insights arise that can enable broader health system improvement (Bohmer 2009). Regrettably, much of this learning remains tacit at the level of individuals rather than being systematically collated and integrated with existing knowledge (Edmondson 2004). It is possible to reorganise health services in a way that minimises this "lost learning", as demonstrated by Richard Bohmer in his analysis of the Intermountain Healthcare system in the United States (Bohmer 2009).

The concept of a "learning system" that detects, evaluates, and learns from frontline innovation is exemplified by Intermountain. For instance, one clinical team independently devised a method of effectively treating pneumonia in the community at a time when clinical protocols dictated that treatment should be confined to hospital settings. This innovation was detected through central statistical analysis of clinical processes and outcomes, and subsequently led to organisation-wide protocol revision. This stands in sharp contrast to Ireland, which lacks rich data on the processes and outcomes of care that might enable the routine detection and clinical evaluation of innovations.

Drawing on the analysis of Richard Bohmer, some key technical aspects of Intermountain's framework for identifying and evaluating innovations are discussed in the following section.

#### Bohmer's "Anatomy of a learning system"

The components of Intermountain's learning system are classified into three subsystems in Bohmer's analysis, with the first two serving to standardise much of clinical care in line with best practice, and the third responsible for detecting and evaluating deviations from standard processes. In the first subsystem, standardised care processes and performance measures are devised by clinical experts based on existing evidence. In the second, these standardised processes are implemented using tools such as clinical decision support systems, protocols, physician group meetings, and incentives. Standardised processes serve to reduce the level of background variability and thus facilitate the detection of noteworthy variations in clinical care, while bolstering reproducibility and testability, although as we shall see the system is designed to learn from variation rather than to minimise it.

The third subsystem, the "system for managing learning", detects noteworthy variations. Control charts are a key tool in capturing clinical variation, while another important feature

is the pooling of data from multiple observers such as in team meetings or at a wider level. Crucially, the aim is to learn from variation rather than to minimise it, therefore clinicians are encouraged to override clinical protocols as they see fit, with override rates generally ranging from 5 - 15%. The reasons for overriding a protocol are fed back to the monitoring team, subjected to evaluation, and in many cases used to refine and update clinical protocols. Thus clinical protocols are works-in-progress rather than definitive artifacts, with updates reflecting within-organisation process variation and learning in addition to broader developments in the medical community (Bohmer 2009).

Rigorous evaluation of local innovations and insights is vital, as learning systems must surmount the problem of “erroneous learning” (learning the wrong thing) as well as lost learning (Argyris 1999). Erroneous learning is a common and far-reaching problem in health care (Skrabanek and McCormick 1990; Bohmer 2009). A dedicated research unit is employed by Intermountain, of whom statisticians comprise 11 of 19 staff members, to oversee data management and to rapidly analyse data in order to test clinical hypotheses. Sophisticated information-technology systems collect the richly detailed clinical and performance information that is a cornerstone of this system, setting a benchmark that Ireland should seek to emulate.

But even in the absence of comprehensive information systems, reorganised management practices in Ireland could substantially boost organisational learning and realise many of the benefits of innovation. An important step is to frame routine care partly as a learning activity rather than entirely as a production activity, while fostering a climate of psychological safety among team members. The process of innovation can be embedded within a simple “Plan-Do-Study-Act” framework, which in simple terms means having an idea, trying it out, and learning from the experience (Bohmer 2009).

In sum, two beneficial effects emerge from rigorously applying this aggregated learning process in conjunction with outcomes measurement. First, the implementation of best practice and superior quality is enabled. Second, the scientific harnessing of innovation may allow health care to be restructured to advance beyond existing knowledge and best practice.

### **A note on Information systems**

The experience of the Veterans Affairs health system in the United States suggests that sophisticated information technology (IT) infrastructure could be available to Ireland at a relatively low cost. Known as VistA, this IT system has been a key factor in the Veterans turnaround from generally acknowledged poor-quality into one of the world’s most admired integrated health systems (Longman 2007; Oliver 2007). An estimated \$4 Billion has been invested in developing VistA (Byrne, Mercincavage et al. 2010), but crucially the system is “open-source” therefore the bulk of programming is available free-of-charge for use in the

Irish system (Herbsleb, MüllerBirn et al. 2010). Illustrating the magnitude of potential cost savings associated with open-source, an Irish study estimated that €13 Million could be saved over 5 years by switching to open-source software in Beaumont Hospital (Fitzgerald and Kenny 2003).

Physicians have been intimately involved in the development of VistA since its inception (Evans, Nichol et al. 2006), which is important to ensure practicality and ease of use. No matter how technically sophisticated the underlying computer programming, an information system will be of little use unless it functions smoothly in the often frantic health care environment. Information systems that are cumbersome to operate may increase mortality, as demonstrated empirically in the emergency department of an American paediatric hospital following the introduction of a new computer system (Han, Carcillo et al. 2005). Policy makers and technical experts should objectively weigh up all potential strategies, both proprietary and open-source, on their merits. It should also be noted that the underlying care processes need to be efficiently organised “on paper”, so to speak, rather than narrowly relying on IT to rectify existing process deficiencies.

Another noteworthy IT system is “Diraya” of the Andalusia region of Spain (Protti, Johansen et al. 2009). Diraya’s electronic patient record is underpinned by a unique patient identifier and contains medical history, demographic, and administrative data, with a level of detail including provider attendances, diagnostic tests and therapeutic interventions. Clinical decision support systems support the provision of personalised care plans and enhance quality (Vatter, Jones et al. 2009).

Notably, the record is patient-centred (rather than provider-centred) as patients are empowered to authorise health care providers, such as pharmacists or medical specialists, to access their personal data. Hospital emergency department staff and primary care physicians have automatic access, the latter for every patient enrolled with their primary care centre. Diraya required extra finance of approximately €169 Million over 7 years from 2004, with the resultant benefits amounting to €771 Million, of which €135 Million consisted of reduced expenditures and €636 Million comprised redeployed resources and non-financial benefits. The aggregate cost-benefit ratio of this system has been improving steadily each year (Vatter, Jones et al. 2009), demonstrating that time and patience may be needed before the full benefits of reforms are achieved.

It is worth reiterating that although systems such as Diraya can be important to underpin efficiency gains and improvements of this nature, sophisticated IT systems will be insufficient to enhance performance unless accompanied by an outcomes-oriented culture and style of management. Moreover, clinicians must be intimately involved in the development of any IT system, and piloting is important to identify and resolve problems before they occur on a broader scale. Diraya illustrates the importance of proceeding through carefully planned, manageable phases; the system was initiated in primary care,

then in hospital outpatient and emergency department services, and since mid-2009 has operated in the acute hospital setting (Vatter, Jones et al. 2009).

Ireland's health IT system contrasts starkly with VistA and Diraya, with most communication between primary care and hospitals (apart from telephone contact) occurring via the national postal service, and hospitals generally maintaining paper-based rather than electronic records. Commendable progress in setting out a path for improvement has been made by the Health Information and Quality Authority (e.g. HIQA 2009; HIQA 2010; HIQA 2011). Empowering all stakeholders to share communications in an efficient, secure, and clinically appropriate manner is a significant challenge, while a key decision will be whether to seek to emulate Diraya in adopting a patient-centred information architecture allowing patients to assign access to data to various providers.

### **Some spheres of innovation in Ireland**

Innovation occurs in numerous forms and in disparate parts of the health system. A hospital may reduce its readmission rate by enhancing communication channels and planning with community services, another may implement a system to reduce medication errors or the rate of hospital acquired infections, while a third may increase the efficiency of nursing turnover between shifts. Ideally, routine information systems would meticulously document clinical processes and outcomes to enable the detection and evaluation of these and other innovations, drawing on the principles outlined in the foregoing.

Primary care is a fertile source of innovation, a notable example in Ireland being the delivery of pharmaceutical care to high-risk patients in their homes, including mentally ill, physically disabled, and elderly patients. This innovative approach arose in the private community pharmacy sector, and is anecdotally reported to have enhanced medicines adherence, reduced emergency department attendances, and reduced expenditure on social support (McDonagh 2010). A thorough evaluation has yet to be carried out, and the innovation appears as yet confined to a geographically limited area.

The following sections examine two classes of innovation of particular importance for primary care in Ireland. The first is the development of primary care teams, a key stated policy of the Irish government, and the second pertains to strategies for enhancing patient adherence to medicines.

### **Primary Care teams**

It was noted in the introduction that formal enrolment with a primary care team may become compulsory for all Irish citizens. Some advantages and pitfalls of a team-based approach are outlined here.

## **Advantages**

Published evidence strongly suggests that multidisciplinary teams are the optimal structure for managing chronic disease (Coleman, Austin et al. 2009; Nolte, Knai et al. 2009; Ham 2010; Jenkins and Kirk 2010; Kithas and Supiano 2010). Empirical evidence indicates that effective multidisciplinary management of chronic diseases can enhance health outcomes in a cost-effective manner (e.g. Stock, Drabik et al. 2010). Teams may increase motivation and internal incentives while facilitating improved communication, coordination, and shared learning, and theory suggests that small teams and multidisciplinary teams within a single organization may be most effective (Ratto, Burgess et al. 2001).

Teams offer a means of dividing labour to appropriately match provider expertise with the diverse needs of chronically ill patients. Nurses can manage chronic diseases to a standard that is equivalent to physicians in certain circumstances (Clark, Smith et al. 2010; Clark, Smith et al. 2011), and nurse practitioners may play a cost-effective role in protocol-driven management of minor ailments (Pitts, Carrier et al. 2010). Moreover, pharmacists are highly trained medicines experts who meet patients more often than any other healthcare professional, and are consequently well placed to provide the frequent, structured contact required for chronic disease management. Evidence suggests that pharmacists may play an effective role in managing asthma (Bunting and Cranor 2006), hypertension (Chabot, Moisan et al. 2003; Zillich, Sutherland et al. 2005; Fahey, Schroeder et al. 2006; Bunting, Smith et al. 2008), and cholesterol levels (Tsuyuki, Johnson et al. 2002; Aslani, Rose et al. 2010).

The treatment of chronic obstructive pulmonary disease (COPD) exemplifies the importance of multidisciplinary care. The GP's pivotal role can be usefully supported by the dietitian, whose role in promoting nutritional wellbeing can assist in functional improvement (Oostenbrink and Rutten-van Molken 2004; Slinde and Svantesson 2007), while physiotherapy can increase exercise tolerance and enhance mobility and is an important component of pulmonary rehabilitation (Global Initiative for Chronic Obstructive Lung Disease 2007). Occupational therapy aims to enhance patient functioning and independence and can improve the outcomes of severely ill patients (Lorenzi, Cilione et al. 2004), while important roles can also be played by social workers, respiratory nurse specialists, pharmacists, and hospital consultants (Currie 2011).

## **Disadvantages**

Achieving a high-performing team is a challenging process, and interdependence amongst multiple health care professions may exert negative as well as positive effects. Sensitivities may exist around traditional professional boundaries (Ghaye 2006; Ham 2010), the

assignment of roles, responsibilities and accountability among team members can impose difficulties, and active and passive resistance may be encountered (Hartmann, Goldfarb et al. 2006). Incongruous skill levels within a team may demotivate team members, tensions may arise between individual and team priorities, and in addition shared learning and mutual monitoring may be weaker within a multidisciplinary team (Ratto, Burgess et al. 2001). High-quality care cannot be assumed to follow inevitably from the establishment of clinical teams.

“Moral hazard” arises when a third-party pays for the consumption of services and has little recourse to prevent excessive consumption. Internationally, there is evidence of over-prescribing (a form of moral hazard) when physicians are financially rewarded for dispensing medicines, for example in the form of dispensing fees (Lundin 2000; Liu, Yang et al. 2009). In an effort to separate firmly the financial interests of prescribers and pharmacists, Ireland’s Pharmacy Act 2007 mandates separate ownership of GP and pharmacy practices that are co-located within primary care centres (Oireachtas na hEireann 2007).

### Patient adherence to medication

A large body of evidence demonstrates that patient adherence to medication is often far from optimal. According to one systematic review, patients “typically take less than half” of their prescribed medicines, and improved adherence to medication could have a far greater impact on health than any treatment (Haynes, Ackloo et al. 2008). In Italy, a study of over 18,000 hypertensive patients classified more than half as low-adherence and only 8% as high-adherence (Mazzaglia, Ambrosioni et al. 2009), while in the United States, medication non-adherence causes approximately 89,000 premature deaths (Cutler, Long et al. 2007) and imposes over \$100 Billion of avoidable hospitalisations costs annually (Osterberg and Blaschke 2005).

Given this backdrop, substantial health gains may be achieved by a primary care system that seeks to systematically enhance medicines adherence. Strategies that successfully enhance adherence<sup>6</sup> could dramatically improve quality of care and prevent debilitating, resource-intensive complications of chronic conditions. Rigorously addressing non-adherence poses particular challenges in the Irish primary care sector due to under-capacity and providers’ difficulties in meeting rising demand for services, although as we shall see indications are emerging that some centres of excellence may be taking strides towards this goal.

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<sup>6</sup> Effective primary care can be characterised as a therapeutic partnership between the patient and health care professional(s). The term medicines “compliance” is somewhat defunct, since it implies passive acceptance of a provider’s unilateral decisions. Instead the term adherence is preferred, reflecting the patient’s input into therapeutic decisions. Source: Horne, R. (2006). "Compliance, Adherence, and Concordance\*." *Chest* **130**(1 suppl): 65S.

The underlying reasons for non-adherence can be categorised as intentional and non-intentional. Intentional non-adherence often arises due to a poor understanding of medicines or the disease process (Horne, Weinman et al. 1999), or may be related to actual or expected unpleasant side-effects. Patient mood may be a useful indicator, as evidence indicates that depressive symptoms can be associated with poorer medicines adherence (Gonzalez, Safren et al. 2007; Cukor, Rosenthal et al. 2009). Non-intentional non-adherence is often caused by practical difficulties such as forgetfulness or confusion regarding complex medication regimens. Evidently, non-adherence often represents a rational reaction to medication-related problems, rather than irrational and wayward patient behaviour.

It is worth noting that the concept of self-management is intimately linked with adherence strategies. It is argued that patients are the most important providers of primary care and that facilitating patients to monitor and manage their conditions may enhance clinical outcomes while enhancing efficiency (Sobel 1995; Von Korff, Gruman et al. 1997), although evidence to date is mixed (Clar, Barnard et al. 2010).

### *What enhances adherence?*

A diverse range of strategies can be employed to enhance adherence, and multifactorial strategies may be required in some circumstances. Strategies include delivery system changes, patient education and counselling, and the use of health information technology such as electronic patient reminder systems. Patient forgetfulness and practical difficulties may be addressed by using pill boxes, blister-packing medicines or reminder systems (Haynes, Ackloo et al. 2008), or by reducing medication regimen complexity such as by using multi-dose combinations to reduce the frequency of tablet taking (Pan, Chernew et al. 2008).

Technological advances open promising new avenues for improving adherence (Krishna, Boren et al. 2009; Stinson, Wilson et al. 2009). One review found electronic patient reminders to be an effective intervention, but other strategies conducted through the medium of health informatics, such as education and counselling, were less effective (Misono, Cutrona et al. 2010). The role of technology in enhancing adherence is likely to be a notable sphere of innovation over the coming years.

Regrettably, randomised controlled trials (RCTs) have generally failed to identify consistently effective interventions (Haynes, Ackloo et al. 2008). This may have arisen as most RCTs pursued a rigid approach without tailoring interventions to the specific needs of patients, delivering instead a uniform intervention to all patients (Nunes, Neilson et al. 2009). By contrast, clinical guidelines now recommend a flexible and responsive strategy that tailors interventions for patients' specific needs (NICE 2009). Elliott et al conducted a randomised controlled trial and found empirical evidence in favour of a flexible approach, first ascertaining the underlying causes of non-adherence, and second designing and



implementing an adherence-enhancing strategy in concordance with patients to meet specific needs. The median time required to deliver this flexible intervention was around 12 minutes (Elliott, Barber et al. 2008), meaning its routine feasibility is questionable in a busy community pharmacy setting. Larger primary care teams employing multiple pharmacists may be better equipped to divert a pharmacist from dispensing duties to implement this strategy.

Another issue is that efficacy rather than effectiveness was assessed by many trials, meaning that dedicated research staff administered the intervention rather than frontline providers. The consequences of this are hard to predict. Effectiveness could be enhanced, as dedicated researchers may have specialised training as well as more time to spend with patients. Yet on the other hand, adherence is a sensitive issue that touches on patient autonomy and preferences, and external research staff may lack the bonds of patient trust and familiarity needed to tackle this optimally. Many studies suggest that a good personal relationship between physician and patient can enhance adherence (Schneider, Kaplan et al. 2004; Stavropoulou 2010; Tsiantou, Pantzou et al. 2010), and these bonds should be developed and nurtured by health care professionals over time. The net effects of this are unclear, but in the interests of generalisability, robust studies are needed that employ frontline providers. Moreover, the trial follow-up period should be sufficient to assess the durability of effective interventions (Haynes, Ackloo et al. 2008).

Anecdotal indications are emerging that a systematic and effective approach to enhancing adherence is feasible within Ireland's primary care sector. Touchstone, an innovative primary care centre in Cork, is seeking to optimise clinical outcomes by systematically empowering patients to self-manage their conditions and rigorously addressing non-adherence, as well as holistically addressing lifestyle factors such as exercise and diet.

Patient education is reportedly rigorous and in some instances pharmaceutical care interventions of up to 30 – 40 minutes duration are provided by pharmacists, addressing issues such as lifestyle, beliefs about medicines and illness, and medicines adherence. Peer-counselling from a patient in an advanced stage of chronic illness has been implemented in some cases, while cognitive behaviour therapy and neurolinguistic programming address intransigent obesity or support smoking cessation. A monthly peer-support group for diabetic patients is organised by a diabetes nurse specialist, echoing the SPHERE intervention that conferred modest benefits to patients during a randomised controlled trial (Murphy, Cupples et al. 2009), but differs from that intervention by having a healthcare professional present at each event to improve the veracity of health information.

Outcomes and risk-adjusters are reportedly systematically documented to enable the identification of effective interventions, and this model of primary care thus comprises a learning system designed not only to implement evidence but to create new evidence through innovation. Rigorous clinical and economic evaluation will be required to quantify the benefits of the Touchstone model (Personal Communication 2011).

## IV – Paying for Performance

Ethics, professionalism, and clinical expertise are the most important determinants of provider behaviour. But alongside these, provider payment mechanisms exert an important influence on system performance. A prominent attempt to sharpen incentives for high-quality care is pay-for-performance (P4P), whereby payment to providers is varied according to measured performance against specified criteria. This serves to compensate providers for the cost of investing in quality improvement processes while rewarding and incentivising high-quality. The P4P paradigm has flourished in recent years, but may instil negative incentives such as diverting attention from equally important but unrewarded aspects of quality, and moreover there is limited empirical evidence of its effectiveness. This section first discusses more basic mechanisms of provider payment in primary care, then scrutinises the case for P4P.

### Basic provider payment mechanisms

The three basic provider payment mechanisms are salary, fee-for-service, and capitation. Salaried providers are periodically paid a fixed wage, fee-for-service pays providers on the basis of service volume, and capitation periodically pays providers a specified amount for each enrolled patient irrespective of actual utilisation levels. Blended schemes that combine these payment mechanisms are perceived as the most theoretically robust (Brick, Nolan et al. 2010; Chernew 2010).

Fee-for-service (FFS) distorts patterns of primary care in much of the USA by over-compensating for procedures and volume, while detracting from the crucial role of cognitive services and care coordination (Goroll 2011). Moreover, FFS instils incentives for increased utilisation and is regarded as a driver of cost escalation. Another key influence on spending is the balance of power between payers and providers, as a single payer may use its monopsony (buying) power to reduce provider prices (Marmor, Oberlander et al. 2009), in contrast to the fragmented array of purchasers in the USA. On a cautionary note, while price reductions can reduce spending, excessive reductions can in theory compromise efficiency if they reduce morale and the capacity to deliver high-quality care.

A shift towards capitation as the principal form of general practitioner (GP) payment was recently announced by the Irish government (Department of the Taoiseach 2011). Bundled payments such as capitation can incentivise cost-reducing innovations (Luft 2009) but may also encourage sub-optimal quality of care and have strong negative connotations amongst providers in the United States, not least because capitation has often under-compensated providers for caring for patients with high needs. Therefore a risk-adjustment mechanism is needed to weigh payments according to patients' predicted need for services, which can be

actuarially calculated based on existing care patterns or based on “optimal” evidence-based care patterns.

If capitation rates are specified according to existing patterns of use, providers that deliver more intense care in line with best practice may be under-compensated. In general, it is regarded as important to incorporate quality measures into capitated contracts to offset potential incentives for sub-optimal quality. In a capitated system, one might wish to retain FFS for specific services to encourage provision by GPs, and some analysts have made the argument that GP FFS may be used for services usually delivered within a hospital setting (Goroll, Berenson et al. 2007), potentially offering a means of transferring specified services to the community in a cost-effective manner.

In the US, FFS remains the predominant form of PCP (GP) reimbursement despite its detrimental effects on primary care (Goroll 2011). “Patient centred medical homes” (PCMHs) are a prominent development aiming to surmount these difficulties, and a number of pilot trials of innovative payment mechanisms are underway (Goroll, Bagley et al. 2010), such as “mixed” payment incorporating FFS, pay-for-performance and management fees (Goroll 2011), with the aim of providing and coordinating timely, accessible and evidence-based primary care (Berenson, Hammons et al. 2008; Merrell and Berenson 2010).

A noteworthy model undergoing piloting is the “comprehensive care programme” (CCP) payment model, which pays medical homes through capitation and P4P. A substantial salary (\$250,000) is paid to primary care providers in addition to performance incentives (amounting to 15-25% of total payments), and a team-based approach to primary care is emphasised. The substantial payments reflect increased value achieved within primary care, and payment is administered on a monthly basis to reflect continuous patient care. The CCP finances a multidisciplinary team including nursing staff, medical assistant, data manager, and part-time nutritionists and social workers, as well as infrastructural developments such as interoperable electronic patient records incorporating clinical decision support (Goroll, Berenson et al. 2007).

Accountable care organisations (ACOs) are another organisational form undergoing piloting in the United States. Some common features are shared by ACOs and Ireland’s proposed PCTs, with both aiming to deliver structured, multidisciplinary care. However ACOs incorporate a broad range of specialties beyond primary care and, crucially, can integrate financing and delivery of healthcare, which may sharpen incentives for overall cost control and effective chronic disease management (Guterman, Schoenbaum et al. 2011) (see Case Study 3 in this section, and Sections V and VI). PCTs in Ireland, by contrast, are not exposed to financial risk for excessive treatment of patients in more costly settings, such as

admissions to hospitals or emergency department visits, therefore expert planning is needed to align PCT incentives with broader cost-control efforts.<sup>7</sup>

## Pay-for-performance

The pay-for-performance (P4P) paradigm adjusts provider income according to measured performance on specified quality indicators. Thus it advances beyond the basic payment mechanisms, sensitising reimbursement levels to the quality of care. A widely used instrument in the United States and numerous other countries, the popularity of P4P has been partly motivated by the modest impact of public performance reporting and numerous other quality improvement initiatives.<sup>8</sup>

However, only limited empirical evidence exists to support the purported benefits of P4P (Rosenthal and Frank 2006; Mullen, Frank et al. 2010; Van Herck, De Smedt et al. 2010). Many P4P evaluations found no benefits, while some even found negative effects on the incentivized performance measures (implying inferior performance relative to a control group, rather than a deterioration in quality) (Van Herck, De Smedt et al. 2010). A P4P programme within Kaiser Permanente achieved modest increases in screening rates for cervical cancer and diabetic retinopathy, but following the discontinuation of these incentives the screening rates dropped below their original levels (Lester, Schmitt diel et al. 2010), illustrating some of the difficulties that may arise. Most P4P programmes have not been robustly evaluated, and the concurrent implementation of other quality-improvement initiatives often precludes valid inferences from evaluations (Mullen, Frank et al. 2010). Consequently, although P4P may succeed in delivering some quality improvements, it should not be viewed as a simple solution to quality deficiencies.

“Positive spillovers” arise if improved P4P measures are accompanied by improvements in unrewarded measures, in what is essentially the corollary of the multi-tasking problem discussed later in Section V. In practice little evidence exists of this, but it is hypothesized to be more likely for services with greater “commonality”, such as those relying on common

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<sup>7</sup> Although the term “accountable care organization” (ACO) is a relatively recent addition to the health policy lexicon, the concepts that embody ACOs have been with us for some time. Notably, Alain Enthoven has advocated this approach under the term “prepaid practice groups” Enthoven, A. and L. Tollen (2004). *Toward a twenty-first century health care system: The contributions and promise of prepaid group practice*, San Francisco: Jossey-Bass.

<sup>8</sup> Educating providers on evidence-based health care and best practice is a common quality improvement strategy. However evidence suggests that little improvement is attained by “passive” education such as mailing of educational materials to physicians or continuing professional education. “Active” education is more effective, such as interactive educational workshops, although greater resources tend to be required Epstein, A. M. (2009). *Performance measurement and professional improvement. Performance Measurement for Health System Improvement - Experiences, Challenges, and Prospects*. P. Smith, E. Mossialos, I. Papanicolas and S. Leatherman. Cambridge, Cambridge University Press..

technology and organizational systems. Consider, for example, services heavily reliant on patient follow-up, referred to as “Identification-Scheduling”, such as the periodic recall of patients for diabetic eye examinations. If providers invest in electronic reminder systems to meet this P4P target, positive effects may be observed on unrewarded identification-scheduling measures (such as patient recall for periodic cancer screening) by diminishing the associated marginal cost or effort. It is worth reemphasizing that, to date, little empirical evidence has been found in favour of this (Mullen, Frank et al. 2010).

### Unintended effects

P4P may instil a host of negative incentives, depending on its design characteristics. Many negative consequences of public performance reporting that are discussed in Section V, such as gaming and multi-tasking, are also possible consequences of P4P. P4P measures requiring lengthier physician consultations might be more susceptible to the multi-tasking problem (Mullen, Frank et al. 2010), whereby important but unrewarded aspects of quality are neglected. In a P4P programme focusing mostly on identification-scheduling measures, performance levels deteriorated for measures requiring lengthy physician consultations, despite being linked to P4P rewards. Another form of the multi-tasking problem can arise when providers contribute to multiple teams, as providers may direct their efforts to the team whose activities are measured and rewarded. High-performing providers might also converge to the same teams and resist working with relatively poor quality providers, so as to receive greater rewards (Ratto, Burgess et al. 2001).

Depending on its design, P4P can impose regulatory and administration costs and may be highly susceptible to gaming (Hsiao 2011), such as the exaggeration of clinical severity or co-morbidities to bolster perceived performance. It is also argued that P4P may “commodify” health care (Mullen, Frank et al. 2010) and thus “crowd-out” providers’ professional motivation and ethical sense of duty to patients (Le Grand 2006; Wynia 2009).<sup>9</sup> Provider commitment is essential for successful quality improvement (Ham and Dickinson 2008) and initiatives such as P4P should strive to elicit commitment from providers by reinforcing existing motivation.

### Designing incentive structures

Some important lessons on P4P design and implementation can be drawn from the substantial body of literature on this topic. Crucially, P4P’s effectiveness depends on numerous implementation features apart from the magnitude of incentive. In this section

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<sup>9</sup> Monetary incentives may exert unpredictable effects, and outside the health sphere there is some evidence that small financial incentives can under certain circumstances be detrimental to performance Gneezy, U. and A. Rustichini (2000). “Pay Enough or Don’t Pay at All\*.” *Quarterly Journal of Economics* **115**(3): 791-810..

some of the key lessons are explored, followed by three case studies that underscore the key design issues.

### **1. Magnitude of Reward**

A key design feature is the magnitude of the financial incentive, and a few overarching points bear emphasis. First, although incentive magnitude is agreed to be an important determinant of provider response (Mullen, Frank et al. 2010), there is little understanding of the precise dose-response relationship (Rosenthal and Frank 2006; Van Herck, De Smedt et al. 2010). Second, any dose-response relationship in the United States (where most P4P programmes have been implemented) may have only tenuous implications for settings such as Ireland and the United Kingdom, due to the vastly different payer and provider systems.

The magnitude of rewards has broadly tended to increase in recent years. In the early years of P4P, bonus payments tended to comprise 5 – 10% of the basic payment (Cromwell, Trisolini et al. 2011), perhaps guided by the viewpoint that incentives of lesser magnitude would be too weak, while larger incentives might adversely distort patterns of care. In the United States some analysts now perceive such rewards to be insufficient, and performance incentives have more recently ranged from 15 – 25% of basic payments (Goroll, Berenson et al. 2007).

It is noteworthy that P4P administered by a large public payer (such as Ireland's HSE or the UK's NHS) could be significantly more powerful than many P4P schemes in the United States, *ceteris paribus*. "Common agency" (Bernheim and Whinston 1986) is widespread in the USA, whereby providers tend to contract with multiple payers administering diverse payment modalities. This may dilute the power of incentives from individual contracts (Rosenthal and Frank 2006), and indeed some evidence suggests that physician behaviour is influenced mostly by the dominant payment mechanism and that this occurs in a somewhat linear dose-response fashion (Glied and Zivin 2002). Moreover, providers may face practical difficulties addressing the disparate demands of multiple payers. In an effort to mitigate such difficulties, some purchasing coalitions (such as Bridges To Excellence) have been established in the United States (de Brantes, Galvin et al. 2003).

Ultimately, the magnitude of reward may depend on a range of factors including providers' perceived sensitivity to incentives (the dose-response relationship), baseline provider payment levels, the marginal cost to providers of implementing quality improvement programmes, and the anticipated return on investment from the payer's perspective. For example, return on investment may be realised through downstream reductions in hospital utilisation and greater workforce productivity, and these should be estimated *a priori*. Other key factors include political expediency, ideology, and resource constraints. To determine its cost-effectiveness, the clinical benefits (if any) of P4P should be weighed against any potential negative effects, as well as implementation costs and opportunity cost.

## *2. Performance measures*

The advantages and disadvantages of various types of performance measures were discussed in Section II. It may be advisable to select measures tentatively (Perkins and Seddon 2006), perhaps commencing with relatively straightforward measures such as immunisations and screening. The Veteran's Health Administration achieved notable success **without** a major role for provider P4P by focusing heavily on preventive and chronic disease measures during the early stages of performance measurement (Kerr and Fleming 2007).

Health outcomes are most important (Hsiao, Kappel et al. 2011), although as noted previously they can be influenced by many factors other than provider quality and can lead to avoidance of high-risk patients. Some argue that to date excessive emphasis may have been placed on process measures rather than outcomes and efficiency (Rosenthal 2008).

A key variable is the performance threshold at which providers are rewarded. In most P4P programmes, providers are rewarded for achieving a specified threshold, therefore existing high-performers may receive the bulk of rewards while poor performers may be further demotivated, without stimulating substantive quality improvements. "Pay-for-improvement", by contrast, would reward providers on the basis of improvement from baseline performance. Directing significant rewards to relatively poor performers may lack appeal for policy makers, but nonetheless the greatest population health gains may be realised by this method, therefore some element of pay-for-improvement may be appropriate. A theoretical drawback is that providers may understate current performance levels (or even deliberately under-perform) in order to achieve greater "improvement" and rewards.

## *3. Efficiency*

There is scant evidence of the cost-effectiveness of P4P (Rosenthal and Frank 2006; Van Herck, De Smedt et al. 2010). Ideally P4P would reduce net health expenditure by improving health status and attenuating downstream expenditures, and indeed cost-savings are possible for certain P4P programmes. Empirical evidence, for example, indicates that better chronic disease management can reduce downstream health care costs (e.g. Stock, Drabik et al. 2010) and some P4P chronic disease outcome measures are potentially highly cost-effective (Walker, Mason et al. 2010). Expenditure may be reduced by lowering the incidence of avoidable complications in hospitals, such as by refusing to reimburse providers for specified "never events" such as wrong-limb surgery, referred to as non-payment for performance (Rosenthal 2007; Wise 2009), although in practice such financial savings may be negligible due to the rarity of these events (Wachter, Foster et al. 2008). Moreover,

providers may be paid on the basis of efficiency measures such as the quality-adjusted cost per episode, and P4P can seek to lower costs by incentivising reduced rates of hospital readmissions, although assigning financial risk for readmissions can be challenging.

#### *4. Integration with other Policy Instruments*

P4P is more likely to succeed when embedded within a broader quality improvement strategy (Mandel and Kotagal 2007; Hsiao, Kappel et al. 2011). A multifactorial approach may mitigate the risk of adverse effects, such as dampening of professionalism and sense of duty to patients and diverting attention from equally important but unrewarded aspects of quality. Possible complementary quality improvement instruments include interactive provider education, infrastructural support such as clinical decision support, and the development of collaborative innovation networks. Unless support and commitment are elicited from providers, P4P may stimulate little positive effects, and the Cincinnati approach (described later in this section) sets out one potential strategy for motivating providers to enhance quality through the use of collaborative meetings and transparent performance measurement.

#### *5. Who is rewarded?*

Rewards should be distributed among team-members so as to encourage coordinated care that is clinically appropriate and cost-effective, but little agreement exists on how best to accomplish this. All team members, from administrators through physicians, should participate in optimising patient care, and some innovative practices in the US direct new monies to teams (Goroll 2011). In some cases financial incentives are offered to non-clinically trained administrators based on clinical performance (Bohmer 2009). Regional directors in the Veterans' Health Administration were exposed to incentives of around 10% of salary for fulfilling quality goals, and were empowered to hold managers and clinicians to account. Underpinned by rigorous and transparent performance measurement, but without a significant role for provider P4P, this led to quality competition between regions and between provider facilities culminating in the Veterans' transformation into an integrated system of highly-regarded quality (Kerr and Fleming 2007; Oliver 2007).

Team-based incentives can internalise the monitoring costs of a contract as some degree of mutual monitoring is likely (Bloor and Maynard 1998), and sharing of common resources may increase efficiency. Paying by capitation and outcomes may give PCTs flexibility to use resources in a cost-effective manner, whereas basing payment on team structure could encourage specific structures rather than optimising outcomes, although there may be arguments for using "care coordination" as a P4P indicator to encourage multidisciplinary care while leaving flexibility around team composition. There is no universally agreed



definition of coordinated care although some preferred practices have been set out by the National Quality Forum in the USA, such as ensuring that the care plan is accessible by the home care team, the patient, and the patient's designees (National Quality Forum 2010). As shown in the following pages (Lessons from Cincinnati), participation in knowledge transfer networks may also constitute a P4P indicator.

Performance measurement may be more valid at the practice-level than for individual physicians (Mandel and Kotagal 2007) which could support team-incentives, as discussed in Section II. Yet even when a strong clinical rationale exists for team-based health care, it is argued that team-based financial rewards may be inappropriate as this risks eroding cohesion and undermining carers' sense of duty to patients (Ratto, Burgess et al. 2001).

In an effort to stimulate coordinated care, the UK's Quality and Outcomes Framework (QOF) targeted payments at the practice level rather than at individual providers. Nurses in some practices are rewarded for achieving high QOF scores in the form of financial bonuses or additional holidays but, nonetheless, GP salary increases appear to have significantly outweighed those of other team members, in some instances leading to a sense of injustice (McGregor, Jabareen et al. 2008). There are reports of administrative staff assuming added responsibility in some practices, often in the form of data entry and patient recall, as well as performing clinical processes such as blood pressure measurement or phlebotomy (O'Donnell, Ring et al. 2010).

The power of incentives for high-quality care may be diluted by the "free-riding" problem, which arises when output is measured at the team level. In essence, this means individuals may be more likely to shirk responsibilities if the negative repercussions are distributed among team members, and in a similar manner the rewards for achieving high-quality care can be diluted as a result of distribution among team members. The free-riding problem is likely to be more pronounced in larger teams or organisations (Holmstrom 1982), and may be attenuated in multidisciplinary teams where contributions are more distinguishable (Ratto, Burgess et al. 2001). Group cohesion and mutual monitoring (perhaps more likely in small teams) can also attenuate this problem, therefore team-building exercises are important.

Costs can be increased by greater teamwork if GPs are paid by capitation and serve a fixed number of patients, because GP capitation acts as a "fixed cost" onto which the costs of other team members are added. Such a cost increase could augment or diminish efficiency, depending on its cost-effectiveness. A potential response might be adjustment of GP capitation rates to reflect the level of contribution to team care, although the merits of this and how it might operate in practice are unclear. This problem should not arise if teams are well-structured and efficiently serve appropriate numbers of patients.

### **Case Study 1: Lessons from Cincinnati – incentivising Knowledge Transfer**

An innovative programme in Cincinnati achieved impressive results by using P4P to catalyse a culture of inter-organisational teamwork, shared learning and diffusion of innovations. The P4P was closely integrated with a broad quality improvement initiative for paediatric asthma patients, emphasising capability to develop and test interventions for redesigning care delivery. At the same time, communication channels were developed for the dissemination of innovations, drawing on collaborative principles developed by the IHI (Institute for Healthcare Improvement 2003). The percentage of patients receiving “perfect care” increased from 4% to 88% (as defined by standards of diagnosis, pharmaceutical therapy, and self-management) while the percentage administered an influenza vaccination increased from 22% to 62% over two years (Mandel and Kotagal 2007), suggesting that the IHI’s collaborative structures in conjunction with P4P can be a powerful and perhaps synergistic strategy for change.

In the first of three phases, individual providers were rewarded for developing quality improvement structures and processes, but rewards were not linked to performance. In the second phase, providers were collectively judged on aggregate performance, meaning that rewards were not disbursed until a specified threshold of aggregate performance was reached across all participating practices. This established a business case for inter-organisational knowledge transfer and incentivised high-performers to disseminate effective intervention strategies among their peers during collaborative meetings. By contrast, most P4P programmes or competitive markets do not financially motivate providers to improve peer performance. In the third and final phase of incentives, practices delivering outstanding quality were individually rewarded, but not until the collective target threshold had been attained (Mandel and Kotagal 2007; Mandel 2010). The design of the incentive regime is explored in greater detail in the following pages.

#### **Level 1 Incentives**

In Level 1, practices were offered a 2% fee schedule increase for investing in quality improvement capability, irrespective of performance levels (Level 2 offered 2% also, Level 3 offered 3%, giving a maximum of up to 7%). By generating quality improvement capabilities, it was hoped that practices would be empowered to achieve sustained benefits across multiple disease areas, not just the clinical condition (asthma) addressed in this programme (see “Positive Spillovers” earlier in this section). These initial activities serve to mitigate the key risk of moral hazard that emerges in Level 2. Level 1 activities undertaken by each practice are presented below (Mandel and Kotagal 2007).

**Phase 1 quality improvement activities**

- Multidisciplinary leadership team appointed to oversee quality improvement within each practice
- Data collection standards specified for patient population records, processes, and outcome measures
- Practice workflow redesign to improve systems and quality of care
- Decision support tool to provide realtime, evidence-based clinical advice to physicians
- Sharing of comparative practice data
- Monthly meetings and multiple conference calls to discuss performance and promote collaboration (Mandel and Kotagal 2007)
- Collaboratives focused on patient self-management and the delivery of influenza vaccinations. A collaborative can be defined as a short-term learning system comprising many teams focused on improving performance in a specified area (Institute for Healthcare Improvement 2003; Oldham 2005; Mandel and Kotagal 2007)

**Level 2 Incentives**

The second level of incentives administered a 2% fee-schedule increase based upon collective performance across all practices, irrespective of individual practice-level performance. Two process measures were assessed for paediatric asthma patients: influenza vaccination rates and the prescribing of asthma controller medication. Collective rewards are designed to encourage communication and shared learning between practices, to reward high-performers for disseminating effective intervention strategies, and to motivate substantial improvement amongst low-performers...

The obvious risk of “free-riding” (moral hazard) arises because if providers judge their quality improvement efforts to have little bearing on the magnitude of their P4P rewards, this may dampen incentives to vigorously pursue improvement. Thus, while collective rewards on the one hand encourage knowledge-transfer and shared learning, in general this approach is a double-edged sword as it largely disconnects rewards from individual performance, raising the risk of providers passively relying on the effort of peers to achieve P4P rewards. To mitigate this risk, collective rewards were preceded by eligibility criteria (a first hurdle) to build commitment to quality, in this programme comprising data collection standards (structure), quality improvement capability and inter-practice collaboration (processes) in Level 1.

**Level 3 Incentives**

Level 3 shifted the focus of incentives to individual practices, with rewards administered for outstanding performance. These rewards were not administered until after the collective targets of Level 2 were fulfilled, so as to encourage knowledge transfer. Performance was

judged upon three process measures<sup>10</sup>, each linked to an additional 1% fee schedule increase, and targets were designed to challenge even existing high-performers.

This focus on individual performance might detract from Level 2 incentives, which set out to encourage shared motivation and learning across practices. A balance must be struck between rewarding high-performers to encourage outstanding quality, and, on the other hand, the danger of weakening the culture of transparency and peer-support engendered in Level 2. Furthermore, Level 3 may incentivise risk-selection if rewards are based on outcomes.

## Discussion

Identifying high performers and understanding the subtleties of their techniques is an important strategy for quality improvement (Gawande 2007), as demonstrated by substantial improvements in cystic fibrosis care in the United States (Gawande 2003). The Cincinnati Model may represent a useful incentive framework within which to embed this strategy.

Although the analysis of this study was modestly robust and did not include a comparator group, the substantial improvements indicate this was an effective intervention. A number of barriers may hinder emulation of this success in other settings, such as resistance from providers already receiving P4P rewards, broader resistance to provider income levels being determined by peer performance, and a prevailing provider culture that does not actively promote collaboration or shared learning across organisations. Moreover, this project was driven by an auspicious blend of strong clinician leadership and well-crafted financial incentives (Mandel 2010).

It is worth noting that the financial rewards may have been deceptively large in some practices, as although performance measures applied only to asthma patients<sup>11</sup>, fees were increased for all individuals enrolled with Anthem insurance company. Fee schedule increases could therefore represent a sizeable return on investment for providers, depending on the proportion of patients enrolled with Anthem. Moreover, a lump-sum bonus may have been preferable to a fee increase, as fee increases may in theory induce over-supply of services.

If performance is judged on clinical outcomes, two additional advantages of collective measurement arise in that robust risk-adjustment may become less crucial, and incentives for risk-selection by providers are diminished, as rewards are shared amongst providers irrespective of any mismeasure of individual provider performance. The risk of “gaming” in the form of deliberate data misrepresentation may be dampened in the less adversarial

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<sup>10</sup> Influenza vaccine, pharmaceutical therapy, and self-management.

<sup>11</sup> Practices in this study only deliver paediatric services.

context of collective targets, as this might confer fewer benefits than if practices were judged on individual performance. Data in this programme was sourced directly from providers rather than from payer claims databases, and in general it is important that all stakeholders objectively agree to use the optimal source of data.

In sum, this programme demonstrates the importance of structured communication and transparent performance reporting between providers. Whether aggregate targets and rewards are a feasible means of achieving this on a wider scale is unknown, but this is a promising strategy that merits further testing and evaluation.

### **Case Study 2: Quality and Outcomes Framework**

The quality and outcomes framework (QOF) scheme was introduced to the United Kingdom in 2004. The subject of intense debate, the QOF awards performance bonuses totalling approximately £1 Billion each year, yet empirical evidence of quality improvement is sparse (Walker, Mason et al. 2010; Serumaga, Ross-Degnan et al. 2011). As discussed previously, bonuses are paid to practices rather than to individual GPs reflecting the multidisciplinary needs of patients, but nonetheless, GP salaries increased by approximately 30% within two years of the QOF's introduction and P4P bonuses constitute approximately 25% of some GPs' salaries (Maynard 2007; Gillam and Siriwardena 2010).

The QOF incorporates approximately 140 performance measures, emphasising structures and processes of care rather than clinical outcomes. A handful of surrogate outcome measures (e.g. blood pressure and blood glucose levels) are potentially highly cost-effective but a lack of baseline data renders firm conclusions elusive (Walker, Mason et al. 2010). Measures regularly undergo review and refinement, and rewards often shift to new measures as existing measures become part of usual practice. The performance of every GP practice is publicly reported via the internet (Lester and Roland 2009).

"Exception reporting" is used in place of risk-adjustment for surrogate outcomes, whereby patients can be excluded from performance measures for reasons such as patient preferences and clinical inappropriateness (Doran, Fullwood et al. 2008). Greater levels of exception reporting were reported for relatively poorly-performing GP practices in the second year of the QOF, raising some concerns over gaming.

The vast majority of providers achieve full or close to full points each year, leading some to question whether targets were set too low (Gillam and Siriwardena 2010). Clinical targets fall short of official guidelines, with "full points" for blood pressure control in diabetic patients achieved once 55% of patients reach 145/85 mmHg or less (Iezzoni 2009), compared to a recommended target of 130/80 mmHg in clinical guidelines (Chobanian, Bakris et al. 2003). Once these relatively low targets are fulfilled, external incentives for performance improvement dissipate.

Low targets may have succeeded in reducing disparities as poor-performers improved more than high performers, and another benefit is to attenuate incentives for risk-selection. However the importance of attaining clinical guideline targets where appropriate is illustrated by the physiological effects of elevated blood pressure, with a 5 mmHg decrease in diastolic blood pressure lowering the risk of stroke by approximately 34% and the risk of ischaemic heart disease by 21%, irrespective of a patient's initial blood pressure (Law, Wald et al. 2003). While the absolute risk difference for an individual patient may be small, at the population level such differences could have a major impact on health status.

### **Case study 3: Alternative Quality Contract – Towards Integrated, Accountable Care**

The Alternative Quality Contract (AQC), introduced in the State of Massachusetts by Blue Cross Blue Shield in 2009, is in some respects more sophisticated than the QOF. The contract seeks to encourage clinically integrated care by bundling global payments across the primary-specialty interface, and quality bonuses place significant emphasis on clinical outcomes. Payment is weighted according to patients' disease characteristics and predicted resource use, and risk-sharing arrangements between providers and payer aim to temper expenditure growth (Chernew, Mechanic et al. 2011).

During the 1990s, many organisations that underwent vertical and horizontal integration did not achieve genuine clinical integration (Burns and Pauly 2002). The AQC seeks to integrate care by bundling payments across the continuum of care needs, using the Diagnosis Cost Groups (DxCG) risk-adjustment model to weight payments according to patients' predicted needs. Participating AQC organisations may comprise large multispecialty groups or collaborating hospitals and physician groups, with the condition that a primary care practice(s) serving at least 5,000 Blue Cross Blue Shield patients must be included. In some instances, mental health and substance abuse treatments are excluded from the global payment and reimbursed on a fee-for-service basis.

"Risk-sharing" seeks to control spending by financially rewarding providers whose spending levels are below a pre-specified target and by penalising providers who exceed the spending target, with the intent of controlling future spending growth rather than reducing current spending levels. The proportion of financial risk borne by providers ranged from 50 to 100% in 2011, and this risk is attenuated by a number of features such as the DxCG risk-adjustment model, as well as a "unit-cost corridor" and an "overall-cost trend corridor" that enable modification of the global budget in line with significant changes in unit costs and overall cost trends respectively. Moreover, reinsurance of providers is mandatory and the contract operates prospectively over 5 years, enhancing providers' financial security for investment planning.

Performance bonuses are awarded for outcomes and other measures and constitute up to 10% of total payments per member per month. If a large portion of this was administered to primary care practices, this would comprise a substantial salary increase. Performance is divided into five “gates” with incremental increases in financial rewards; Gate 1 corresponds to the median performance level in the Blue Cross Blue Shield “network”, and Gate 5 consists of optimal performers (Chernew, Mechanic et al. 2011). Because AQC participants constitute just a small subset of the network’s providers, this is effectively an absolute (rather than relative) target, and the targets remain unchanged throughout the entire contract (Song et al 2011).

If a similar scheme was introduced for all primary care teams (PCTs) in Ireland, the targets would be relative and half of PCTs, by definition, would not be financially rewarded. On the one hand, continuous improvement could be stimulated by relative rewards, as providers compete to outdo one another, ideally resulting in innovative quality improvement strategies, including strategies to promote medicines adherence and avoid inappropriate therapeutic inertia. However relative rewards may do little to improve poorly-performing providers if the targets are perceived as beyond their reach, and if the underlying causes of low quality are not explicitly addressed. All participating provider groups earned significant bonuses in year 1 of the AQC, signifying that high-performers are more likely to enrol. As discussed in the foregoing, the bulk of health gains may result from improvements among low-quality providers.

## V – The potential role of Market Mechanisms in delivery and financing

The role of markets in health care is a contentious and sometimes emotive issue. Essentially a market can be conceptualised as an arrangement with buyers and sellers, in which buyers (e.g. patients) choose a seller (e.g. primary care centre) according to their personal preferences and willingness to pay. Market-based strategies are frequently pursued in health care in an effort to enhance quality or price, but often with ideological overtones and inadequate consideration paid to the complex empirical nature of the underlying arguments (Roberts, Hsiao et al. 2004; Hsiao 2008; McPake and Normand 2008). Unfettered markets function poorly for reasons such as patients' (buyers) limited ability to judge the quality or appropriateness of care, and the unpredictable and often catastrophic nature of health care needs and expenditures (Hodgson 2009), therefore competition must be carefully regulated if serious market failures are to be avoided.

The experience of hospitals in the USA during the 1970s serves to illustrate the potential dangers of markets. In order to attract patients in a competitive market, hospitals tried to outdo one another by purchasing expensive new technologies as visible indicators of quality. This led to a "medical arms race" whereby substantial sums of money were squandered in an uncoordinated manner on medical technologies, contributing to sharp cost escalation across the nation (Dranove 2003).<sup>12</sup>

A few disparate points on the role of markets bear emphasis. First, arguments in favour of competition may blur with arguments for patients' right to access clinical performance information, as public performance reporting serves to inform patients and hold providers accountable as well as facilitating provider competition on the basis of quality of care. Second, although intimately associated with privatisation, competition can be instilled among public sector providers. Thus the debate on competition can transcend the public-private debate. Third, although many forms of competition have exerted damaging effects on equity (fairness), this is not inevitable, and policy makers can carefully design market mechanisms to mitigate this risk. Moreover, it is conceivable that by increasing efficiency and quality, competition could benefit those worst-off in society by enhancing access to high-quality services. Fourth, competition can be instilled at multiple levels of a health system such as between primary care centres, hospitals, or insurance companies, and policy makers should carefully analyse at which (if any) level net beneficial effects are most likely.

Competition often seeks to enhance price and quality, which together form the hybrid concept of value. In the first instance, price competition aims to increase efficiency (reduce waste) by enabling patients (or third-party purchasers acting on their behalf) to purchase

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<sup>12</sup> In Ireland, it is proposed to shift certain investigative procedures (such as X-rays) to the community in order to improve cost-effectiveness and access, but this must be carefully planned to avoid overuse by patients as well as unnecessary investment by primary care centres seeking to attract patients.



care from less costly providers, and evidence suggests that efficiency gains can be achieved in some circumstances (Pollack, Gidengil et al. 2010; Carey, Burgess et al. 2011; Siciliani, Sivey et al. 2011). However, price competition may trigger providers to enrol patients on the basis of profitability rather than clinical need (Porter and Teisberg 2006).

This raises the critical question, who will recognise and opt for less costly providers? This dilemma is keenly felt in the hospital sector as patients are generally shielded from the full price of services by collective financing arrangements (Dranove 2003), meaning they are as likely to choose an inefficient and wasteful hospital as a highly efficient hospital, *ceteris paribus*.

This insensitivity to cost might in theory be overcome by waiving co-payments for more efficient providers, but this raises equity concerns and moreover patients often do not have a realistic choice of hospitals in their local area (Mikkers and Ryan 2011). Accordingly, “quasi-market” mechanisms are a more promising means of enhancing hospital efficiency, such as activity-based payment whose tariffs are benchmarked against the efficiency levels of other hospitals. These can be refined over time to augment efficiency, potentially circumventing patients’ insensitivity to cost.

Another promising means of stimulating efficiency is “Accountable Care”, described in Section IV (Case study 3), whereby primary care centres and hospitals can enter into joint ventures caring for the spectrum of patient health care needs. Incentives for high-quality at low cost are instilled by global payments across the primary – secondary interface, based on actuarially predicted expenditure levels for each patient and incorporating pay-for-performance to encourage high quality, with the crucial feature that providers bear some or all financial risk. Thus providers are financially rewarded if expenditure falls below predicted levels (shared savings), but financially penalised if expenditure exceeds predicted levels.

If these incentives function as intended, the provider enterprise can prosper financially by devising effective disease prevention strategies, managing existing chronic disease to prevent costly complications, preventing admissions to high-cost settings such as hospitals, and enhancing efficiency throughout the system. Accountable Care thus contrasts sharply with existing arrangements in Ireland whereby financial rewards for administrators or provider organisations are largely disconnected from performance. Negative consequences may also arise, such as quality deficiencies, risk-selection, and provider insolvency (Rosenthal et al 2011).

A potential strategy is for Accountable Care Organisations (ACOs) to compete against one another, with patients choosing an ACO on the basis of cost and quality, underpinned by a standardised benefits package. But Ireland’s relatively low population density means that a genuine choice of ACO is unlikely in many parts of the country, as population health needs may be inadequate to support multiple competing hospitals within a reasonable travel distance of patients’ homes (Mikkers and Ryan 2011), necessitating significant overlapping

of provider networks. Detailed analysis of service configuration and population health needs would be required to clarify this concern. Perhaps more promisingly, Accountable Care could be delivered within the framework of a national single payer, and if incentives are carefully designed may potentially constitute a driver for system-wide performance improvement. Nonetheless, substantial infrastructural and information improvement would likely be required before this becomes a viable strategy.

In Ireland's primary care sector, many patients are sensitive to price due to sizeable out-of-pocket payments (often \$70 to visit a primary care physician). Such out-of-pocket payments are undesirable for numerous reasons (Brick, Nolan et al. 2010), but one potential benefit is that a MinuteClinic (nurse-led) model of care offering safe and effective primary care services at lower cost might flourish in this environment. This involves nurses treating a specified list of minor ailments, such as bronchitis and wart removal, following strict evidence-based protocols, and research suggests that quality can equal that of physicians. If out-of-pocket payments are phased out, expert planning will be needed to ensure a third-party purchaser is sensitive to cost-lowering innovations such as MinuteClinic (Thygeson, Van Vorst et al. 2008; Pollack, Gidengil et al. 2010).

Competition on the basis of quality is possible for some but not all medical conditions, depending on factors such as the existence of precise, evidence-based diagnosis and treatment and the ability to validly measure performance (Christensen, Grossman et al. 2009). In the Netherlands, insurance companies compete on the basis of price and quality, but trade-offs between these factors can be difficult to measure and value (Mikkers and Ryan 2011). An eminent concern is that some aspects of quality may be sacrificed in order to reduce production costs, which may be avoided by setting prices at a fixed level and disseminating information on provider quality to patients (public performance reporting). In such a system, incentives for quality improvement can be instilled by "money follows the patient" whereby providers attain greater revenues for treating additional patients assuming that marginal revenue exceeds marginal cost per patient.

With regard to competition between financial intermediaries, a major reform proposal in Ireland is to replace many functions of the public sector financing and purchasing body (the HSE) with competing insurance companies. The most detailed analyses conducted to date suggest this extreme strategy may be counterproductive in the Irish context (Thomas, Ryan et al. 2010; Mikkers and Ryan 2011), and in general instilling competition directly between providers appears more promising than between insurance companies (Hsiao 2007). To mitigate the problems associated with the HSE as a public sector monopoly, policy-makers could investigate the merits and feasibility of competitively tendering some HSE functions such as administration and information-technology to the private insurance sector (Thomas et al 2010), as proposed for the State of Vermont by Professor William Hsiao of Harvard University (Hsiao, Kappel et al. 2011). It is unclear whether this would alleviate or exacerbate existing difficulties, and careful execution and monitoring would be critical. It is

noteworthy that while private hospital development in Ireland was expected to be more rapid than for public hospitals, the opposite may have been the case (Maarse and Normand 2009), and private sector involvement cannot be assumed to invariably improve administrative efficiency.

### **TransforMED: A commercial model of knowledge-transfer**

In a competitive environment, a provider who innovatively improves patient care may have little incentive to disclose to rival providers the precise details of how this was achieved, as this may weaken a dominant market position. Therefore a competitive system must balance the conflicting needs for, on the one hand, achieving optimal health care for all patients irrespective of their provider, versus instilling financial incentives for innovative health care improvements by medical entrepreneurs. Achieving this balance could enable the harnessing of market forces to enhance quality and efficiency while supporting egalitarian principles.

Worthy of note is the “TransforMED” initiative that arose in the United States as a commercial model of knowledge transfer between providers<sup>13</sup>. TransforMED disseminates best practice by enabling innovations in health care quality and practice management to be sold as proprietary products. Professional facilitators design and implement improvement strategies to meet the specific needs of practices, taking the form of evaluations, goal setting and training over an ongoing period. For example guidance may advance the use of electronic patient records and other technologies, or involve training to expand the range of clinical services offered by a practice. In a manner similar to the Cincinnati Programme (Section IV), practices can participate in regional collaborative meetings or an online social-network learning platform (TransforMED 2011).

Initiatives such as TransforMED may potentially represent an important source of performance improvement, irrespective of broader policies towards market mechanisms. Moreover, if care processes, performance measurement and knowledge transfer in Ireland can be enhanced in line with international best practice, commercial initiatives of this nature may arise that export services to develop primary care systems in other countries.

### **Public Performance Reporting**

Public reporting of provider performance is an important tool for enabling providers to compete on quality. Considering the vast sums of money paid by the public to providers, it can be argued that patients have an inherent right to an informed choice of provider

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<sup>13</sup> TransforMED is a subsidiary of the American Academy of Family Physicians

facilitated by public reporting (Brennan and Berwick 1996). On balance, the beneficial effects of public reporting appear to have been inconsistent and often quite limited, in part because patients may have little faith in the validity of measures. A relatively successful example is outcomes reporting of cardiac surgery<sup>14</sup> in New York and Pennsylvania which generated significant quality improvements that appear to have outweighed negative effects such as risk-selection by providers (Dranove 2003). Quite broad quality improvements have also been associated with public reporting of HEDIS data (Epstein 2009).

Disagreement exists around the relative effectiveness of confidential performance disclosure to providers versus public performance reporting. Some evidence suggests that confidential disclosure can be as effective (Guru, Fries et al. 2006), but a more robust empirical study in the United States found public reporting to be superior (Hibbard, Stockard et al. 2003; Hibbard, Stockard et al. 2005), and many initiatives involving provider audit coupled with confidential feedback have exerted modest effects (Epstein 2009).

Some empirical studies found that providers with relatively poor outcomes are penalised by lower utilisation rates (Mukamel and Mushlin 1998; Wang, Hockenberry et al. 2010), and one programme found that a 3% differential in mortality rates was associated with a 5% drop in patient demand (Dranove 2003). On balance, however, evidence on the effects of public reporting on referral patterns is mixed (Epstein 2010). A large majority of surgeons in one Canadian survey believed that referral patterns and patient choices are influenced by performance reporting (Guru, Naylor et al. 2009), and perhaps this perception alone can add vigour to quality improvement efforts.

### Negative Effects: Gaming and Multi-tasking

Two key potential negative effects of public reporting are “gaming” and “multi-tasking” (Mikkers and Ryan 2011). Gaming arises when providers deliberately avoid patients who achieve predictably worse outcomes (risk-selection), and there is evidence of surgical treatment being denied to high-risk patient categories following public performance reporting (Burack, Impellizzeri et al. 1999; Dranove 2003). A second form of gaming arises when providers deliberately misrepresent data in order to bolster perceived performance (Dranove 2003; Pitches, Burls et al. 2003; Werner and Asch 2007). In one Canadian study 84% of surgeons believed that data upcoding occurs routinely (Guru, Naylor et al. 2009), while in New York the reported rate of co-morbidities increased significantly following reporting of risk-adjusted outcomes of cardiac surgery, some of which may constitute gaming<sup>15</sup> (Epstein 2009). Broad concerns exist around data reliability, and hospital

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<sup>14</sup> Risk-adjusted mortality in coronary-artery bypass grafting operations.

<sup>15</sup> Data quality is a widespread concern. One study in the US estimated that 15% of Medicare costs for certain types of care are attributable to up-coding Brunt, C. (2010). "CPT fee differentials and visit upcoding under Medicare Part B." *Health Economics* **20**(7): 831-841.

employees may enter nonsense data in order to complete quickly their work duties (Perkins and Seddon 2006).

Another major concern is “multi-tasking” (Holmstrom and Milgrom 1991), whereby providers may be inadvertently encouraged to neglect equally important but unreported clinical activities. Moreover, providers may focus excessively on narrow short-term performance objectives rather than longer-term, strategic goals such as inter-organisational care coordination and may be discouraged from trying out innovative techniques for fear of poor outcomes. It has also been stated that public reporting may encourage the attainment of satisfactory rather than outstanding performance levels (Mason and Street 2006). Additionally, if the performance data underpinning public reporting is of dubious validity, patients may be misled and encouraged to choose providers of inferior quality, and similarly, providers of corresponding quality may not be recognised as such.

In sum, competition and public reporting may have a positive role to play in improving Ireland’s health system, but this would require careful structuring of incentives and vigorous regulatory oversight. Policy makers should be cognisant of the potential negative consequences as well as beneficial effects on quality, price and patient empowerment.

## **VI – Discussion: Catalysing high-performance in Ireland**

Policy-makers in Ireland are confronted with a range of diverse reform options, as well as context-specific local circumstances to which policies and evidence must be adapted. This report casts light on options for improving the quality and value of primary care and the wider health system, and demonstrates that significant performance improvements are attainable even in straitened financial circumstances. Indeed, the first overarching message of this report is that by restructuring our approach to health care in a way that best matches provider skills to patient need, substantial improvements in health care can be achieved at a reasonable cost.

The second key message is that performance measurement is a cornerstone of quality improvement, and that this should be welcomed by providers as a valuable tool for learning. While there is no unique answer as to how best to improve quality, the information generated by performance measurement is fundamentally important for enabling providers to identify areas of sub-optimal performance, and for detecting centres of excellence whose innovative approaches may offer valuable lessons for the broader health system.

The third key message is that although pay-for-performance (P4P) may incentivise and offset the cost of investing in quality improvement, it is no panacea for quality deficiencies. Moreover, P4P may exert undesired effects, such as diverting attention from equally important but unincentivised measures of quality, and caution is essential on the part of policy makers. To maximise improvement, professionalism and pride in high quality care should be fostered, and any P4P scheme should be integrated with a broader quality improvement strategy.

An important step towards a high-performing health system would be to establish pilot trials of performance measurement in primary care, and to examine the feasibility of risk-adjusting clinical outcomes. These should be carried out in a subset of primary care centres with the necessary enthusiasm and infrastructural capabilities. After briefly analysing some key lessons from the international evidence in the following section, a concluding section will elaborate further on this and other policy recommendations.

### **Revisiting some major findings**

Some of the great scope for innovatively improving the quality of primary care in Ireland was outlined in Section III, such as enhancing medicines adherence, or modifying skillmix and patterns of care. Innovation and performance measurement are intimately interlinked in the Intermountain Healthcare system, with measurement serving to detect innovations and facilitate their evaluation. There is much to admire in the Intermountain system, and ultimately Ireland should strive to develop a learning system of this calibre.

The role of pay-for-performance (P4P) was analysed in Section IV. Policy-makers should be tentative about pursuing this strategy, as despite its prominence in recent years, only limited empirical evidence supports its effectiveness and negative effects are possible. To optimise its effectiveness P4P should be embedded within a broader quality improvement strategy, and even if P4P can deliver quality improvements, its cost-effectiveness must be weighed against alternative strategies. Given the current economic climate it is untenable to inject provider salary increases in the manner of the UK's Quality and Outcomes Framework, therefore any P4P scheme may require a budget neutral approach that reallocates existing resources within primary care budgets.

In the Cincinnati programme, incentives were structured predominantly to reward collective performance rather than individual performance. This had the effect of stimulating transparency and shared learning across provider organisations, whilst reducing incentives for risk-selection. The obvious risk of moral hazard in the form of free-riding was mitigated by stringent eligibility criteria (essentially a first-hurdle stipulating engagement with quality improvement) as well as peer pressure and group dynamics between providers (Mandel and Kotagal 2007).

The results suggest that provider "collaboratives" are a potentially powerful vehicle for quality improvement. Whilst the Cincinnati programme may be difficult to replicate given its auspicious blend of clinician leadership, information infrastructure, and well-aligned financial incentives (Mandel and Kotagal 2007), collaboratives nonetheless constitute a powerful model for spreading innovations through a system and may prove beneficial in the Irish context. A blueprint for widescale implementation of collaboratives was implemented by Sir John Oldham (Oldham 2005), who built on existing knowledge-transfer techniques (Institute for Healthcare Improvement 2003) to redesign the organisation of primary care practices in the English National Health Service.

The notion of a competitive market in health care encompasses numerous forms as described in Section V. "Market mechanisms" can constitute public performance reporting coupled with empowerment of patients to choose their provider. It can be argued that the public have an inherent right to an informed choice of provider, particularly as providers are ultimately financed by the public's money, and there is evidence that public reporting may enhance quality. To dampen the risk of negative consequences, market mechanisms must be astutely designed to align the incentives of private enterprise with patient need, and must be underpinned by nimble and powerful regulatory agencies that monitor and enforce market conditions, such as the concentration of providers in local geographical markets.

The effects of market mechanisms on equity and health outcomes should be evaluated dispassionately, and it would be important to balance competitive forces with cooperation and shared learning where possible, ideally through a culture of transparency that enables providers to learn from one another's successes and failures.

## Policy Recommendations

Dramatic transformations of entire health systems are possible, as demonstrated by the public sector Veteran's Health Administration in the US. This transformation was achieved through relentless performance measurement, a clinically integrated single payer system, and a core group of idealistic and motivated clinical leaders. Moreover, these components were augmented by fostering competition between regional directors and quasi-market pressure built upon fear of replacement by the private sector (Longman 2007; Oliver 2007).

The challenge is to replicate such transformative improvement throughout Ireland. To achieve this, the principal policy recommendation of this report is the implementation of pilot trials in performance measurement in primary care. This recommendation is explored in greater detail on the following pages, along with six other policy options that may hold promise in the Irish context.

### **1. Pilot trials of performance measurement and risk-adjustment of clinical outcomes**

Establishing pilot trials to assess the feasibility of performance measurement underpinned by risk-adjustment of clinical outcomes is an important step towards a high-performing health system. It is important to proceed in manageable steps, and pilot projects are important to identify and address problems before they occur on a broader scale. Pilots should be carried out in collaboration with international experts, in a subset of primary care centres that are motivated and possess robust infrastructural capacity.

An independent expert body should be created to guide the development of performance measures in the domains of structures, processes and outcomes, with the focus on outcomes where possible. Existing sets of measures such as HEDIS (US) and the Quality and Outcomes Framework (UK) may prove a useful starting point, but technical specifications should be modified for the Irish context. Patient reported outcome measures are an important dimension of quality, and any effects on patterns of health services utilisation and costs should also be monitored where possible.

It is difficult to overstate the potential importance of clinical risk-adjustment, as this may enable the valid comparison of clinical outcomes between providers. Statistical analysis should be conducted across multiple sites to identify and quantify the systematic influence of patient risk factors on clinical outcomes, drawing on principles outlined in Section II. It may be feasible to modify existing risk-adjustment algorithms in the United States for the Irish context.

Provider satisfaction levels should be assessed during pilots, and in general performance measurement should be implemented in a transparent manner in collaboration with providers so as to optimize its technical aspects and to minimize antipathy or resistance. Clinician leadership and pride in high-quality care has been a key driver of the success of



Kaiser Permanente and the Veteran's Health Administration (Ham 2010), and this will prove vital in Ireland also.

Performance measurement is a fundamental building block for any pay-for-performance scheme. If pilots are to be conducted in pay-for-performance, a small number of payment mechanisms could be tested against one another in primary care centres matched on the basis of factors such as patient sociodemographics.

Pilots would require some government investment in pilots, such as funding of information infrastructure, a research team involving leading international experts, and perhaps investment in bonus payments if pay-for-performance is tested. These expenditures are likely to be meagre in comparison to the potentially substantial savings attainable through a high-performing primary care sector.

If pilot projects are successful, policy makers could put in place incentives and structural support for expansion to other primary care centres. The willingness to adopt innovations such as performance measurement can be presumed to vary significantly across a provider population, with a spectrum encompassing early adopters, the early majority, late majority, and laggards. Some primary care centres would embrace new models of working, viewing them as an opportunity to deliver superior patient care, while other centres might be tentative or resistant, thus providers should be given an understanding of the practical benefits and rewarding aspects of innovative work practices.

If performance measurement or payment reform is introduced more widely, a rigid top-down approach may be inappropriate. The best means of unlocking primary care's dormant value may be an incentive framework that rewards providers for high quality care while allowing some flexibility around implementation strategies and perhaps instilling different payment modalities in disparate settings (Goroll 2011). Moreover, some fluidity will be required from health care professionals in relation to traditional boundaries, ideally in conjunction with a culture of transparency that encourages providers to learn from one another's successes and failures. A critical step for improvement is the establishment of pilot projects in performance measurement underpinned by risk-adjustment of clinical outcomes.

## **2. MinuteClinic model for primary care**

It may be possible to expand nurses' role in primary care in a cost-effective manner, drawing on the MinuteClinic model in the US (Section V). In this model, nurses treat a specified list of minor ailments following strict evidence-based protocols, and research suggests that quality equals that of physicians while lowering costs. The diverse range of minor ailments treated includes bronchitis, influenza diagnosis, wart removal, and athlete's foot. This model may

have a role to play in enhancing efficiency in Ireland, although caution would be needed to ensure high-quality and to avoid further fragmentation within primary care.

### **3. Patient safety checklists**

The clinical challenges facing health providers are dauntingly complex, therefore a broadly welcome development is the emergence of patient safety checklists that can effectively improve the quality of care at low cost. A checklist developed by the World Health Organisation, for example, takes 2 minutes to use prior to surgical operations and appears to reduce mortality and major complications by approximately 50% and 30% respectively, while potentially lowering net expenditures. It should be noted that despite their great promise, over-reliance on checklists may exert some detrimental effects (Bosk, Dixon-Woods et al. 2009). The American State of Nevada recently passed legislation mandating the adoption of many proven checklists, while leaving providers flexibility to tailor checklists to context-specific circumstances (Tocknell 2011), but experts argue that such attempts to enforce their use can be counterproductive (Gawande 2009). The Irish government should in conjunction with the medical profession evaluate strategies to promote the clinically appropriate adoption of checklists.

### **4. Accreditation**

Policy makers should investigate whether accreditation constitutes a useful lever for building quality improvement capability within primary care centres. For example, it may be possible to define an “innovative quality centre” on the basis of standards of performance measurement, quality improvement and learning capacity, and inter-organisational collaboration and channels for the dissemination of effective interventions and innovations, taking into account best practice internationally and in Ireland. In the United States, primary care practices can undergo accreditation to reach “patient-centred medical home” status (AMA 2009), and this template may be adaptable to Ireland. In addition, practice improvement modules are now incorporated into some forms of physician training and recertification processes (Caverzagie, Bernabeo et al. 2009; Shunk, Dulay et al. 2010).

If such a strategy is deemed worthy of implementation, providers fulfilling the accreditation requirements could be rewarded with a bonus payment<sup>16</sup>, or accreditation status could indirectly generate return on investment by serving to attract additional patients. However numerous accreditation systems have been criticized for excessively favouring the status

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<sup>16</sup> In the US, providers are financially rewarded for gaining membership of a “provider recognition” programme run by the American Diabetes Association Rosenthal, M. B. and R. G. Frank (2006). “What is the empirical basis for paying for quality in health care?” *Medical Care Research and Review* **63**(2): 135..

quo and discouraging innovation, therefore extreme caution would be essential to avoid these dangers (Brennan and Berwick 1996).

## **5. Universal Health Coverage**

Universal, “single-tier” health coverage is a laudable goal of the newly elected government, and it is important to objectively scrutinise all options for achieving this. According to the most in-depth analyses to date, the extreme strategy of shifting much of the running of the health system to competing health insurance companies may be counterproductive (Thomas et al 2010, Mikkers & Ryan 2011), therefore modification of existing incentives within a single payer model may be the optimal strategy. Competitively tendering some functions such as administration or information-technology services to the private sector may be feasible (Thomas et al 2010), as recently proposed for the American State of Vermont (Hsiao et al 2011), to mitigate limitations of the existing public sector monopoly (the HSE). Expert analysis is required to assess the viability of this and all other reform options.

## **6. Integration and Accountable Care**

Clinical integration across the primary-secondary interface is important to optimise patient outcomes, but Ireland’s health system is markedly fragmented compared to systems such as Kaiser Permanente and the Veterans Health Administration. The “Accountable Care Organisation” model developed in the US is a notable strategy seeking to enhance integration (see Section IV). Primary care centres and hospitals can enter into joint ventures to provide the full spectrum of care requirements, and global capitated payments are administered based on patients’ actuarially predicted health care utilisation. Providers are financially rewarded if expenditure is less than target levels and penalised if expenditure exceeds targets, and incentives are instilled for high quality clinical outcomes. If this model functions as intended, providers prosper by optimising patient health status, effectively managing chronic disease, and by preventing treatment in high-cost settings such as hospitals. The possibility of negative consequences should not be overlooked, including quality deficiencies, risk-selection, and provider insolvency (Rosenthal et al 2011). At present, information infrastructure levels in Ireland are inadequate to support sophisticated payment mechanisms of this nature, but this barrier may be overcome during the coming years.

## **7. Unique Patient Identifier**

The introduction of a unique patient identifier (UPI) could facilitate significant quality improvement if it extends the usability of data by clinicians and health researchers (HIQA 2009). For example, data on hospital readmission rates is important for identifying patients at high risk of poor quality, uncoordinated care, and for devising quality improvement strategies that can reduce hospitalisations and expenditure. Data on hospital discharges, collated by the ESRI, has proved a valuable resource for the research community (Wiley 2005) but the identification of readmissions from this data source is inhibited by the absence of a UPI. The effective implementation of a UPI must be a government priority.

### **Concluding comments**

Primary care must play a pivotal, clinically effective and efficient role if we are to achieve a high-performing health system in Ireland. While universal enrolment with a primary care team would constitute a commendable step in the right direction, this should be underpinned by rigorous clinical performance measurement as a fundamental tool for learning and quality improvement. If policy makers and clinical stakeholders demonstrate determination, idealism and willingness to learn from the lessons of other countries, we can succeed in greatly enhancing the health system and the wellbeing of Irish citizens.

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## **Appendix: Abbreviations**

ACO = Accountable Care Organisation

AQC = Alternative Quality Contract

CCP = Comprehensive Care Program

ESRI = Economic and Social Research Institute

GP = General Practitioner

HSE = Health Service Executive

IT = Information Technology

P4P = Pay-for-performance

PCC = Primary Care Centre

PCP = Primary Care Physician

PCT = Primary Care Team

QOF = Quality and Outcomes Framework

VistA = Veterans Health Information Systems and Technology Architecture