

Supplementary Briefing

Joint Working Party: Safety and Quality

Table of contents

1. Introduction	5
1.1 Context	5
2. Defining 'quality' in health care	6
2.1 Context	6
2.2 Proposed definitions	6
2.3 References	8
3. Update on recent literature	9
4. International examples.....	34
4.1 Context	34
4.2 Overview.....	34
4.3 Funding and quality mechanisms: UK health care system.....	35
4.4 Funding and quality mechanisms: German health care system.....	41
4.5 Funding and quality mechanisms: Kaiser Permanente (US) health care system.....	49
5. Why financial incentives may not deliver the intended effects in health care.....	52
5.1 Learnings from other academic disciplines and settings.....	52
5.2 Key aspects of 'successful' schemes.....	56
5.3 References	57
6. Australian Refine Diagnosis Related Groups v7.0	59
6.1 Context	59
6.2 Background.....	59
Appendix 1. Variations and flexibilities within the NHS Payment by Results initiative	60

Glossary

AQ	Advancing Quality initiative (UK)
BPTs	Best Practice Tariffs (UK)
BQS	Bundesgeschäftsstelle Qualitätssicherung: Insitut für Qualität & Patientensicherheit (National Institute for Quality and Patient Safety in Health Care, Germany)
CAUTI	Catheter Associated Urinary Tract Infection
CLABSI	Central Line Associated Bloodstream Infection
Commission	Australian Commission on Safety and Quality in Health Care
CCGs	Clinical Commission Groups
CQUIN	Commissioning for Quality Innovation payment framework (UK)
HAI	Healthcare Associated Infection
DMPs	Disease Management Programs (Germany)
HRGs	Healthcare Resource Groups (in the UK National Health Service, HRGs are a grouping consisting of patient events that have been judged to consume a similar level of resource)
IHPA	Independent Hospital Pricing Authority
IOM	Institute of Medicine
JWP	Joint Working Party: Safety and Quality
KP	Kaiser Permanente health system (US)
NHS	National Health Service (publicly funded health care system of the United Kingdom)
NICE	National Institute for Health and Clinical Excellence
OECD	Organisation for Economic Cooperation and Development
PbR	Payment by Results (UK)

PHI	Private Health Insurance
PHQID	Premier Hospital Quality Improvement Demonstration (US)
P4P	Pay for Performance
SHI	Statutory health insurance (SHI)
UK	United Kingdom
VBP	Value-based Purchasing (US)
WHO	World Health Organisation

1. Introduction

1.1 Context

In 2012 the Commission and IHPA undertook a literature review to identify Australian and international hospital pricing systems that integrates quality and safety. The *Literature Review on Integrating Quality and safety into Hospital Pricing Systems* (literature review) was based on the electronic searches of available literature published prior to October 2012.

The national and international evidence will be considered and incorporated into a discussion paper for widespread public consideration and feedback in late 2013. The Commission and IHPA have set up processes to continually monitor published literature and provide updates at each JWP meeting.

1.2 Purpose

This paper has been prepared by the Commission and IHPA to supplement the research undertaken to date with regards to pricing for safety and quality in health care.

1.3 Objective

The objective of this paper is to inform discussion among the JWP by:

- a) providing an overview of definitions of 'quality' in health care in the literature;
- b) summarising the findings of the recent literature (October 2012 to February 2013);
- c) providing additional information on healthcare systems which have implemented large scale quality improvement mechanisms, including linking funding and quality (e.g. UK, Germany and Kaiser Permanente);
- d) outlining whether financial incentives have genuine potential for application in health care and driving clinical behaviour, or whether there are more effective approaches based on review of other industries; and
- e) providing a high level overview of the current limitations of the acute admitted classification system (AR-DRG v7.0) which results in the allocation to higher resource DRGs for some complications.

2. Defining ‘quality’ in health care

2.1 Context

Action #1 from the 30 October 2012 JWP meeting was to define what is meant by ‘quality’ in health care.

Extract of the 30 October 2012 minutes

Action 1: JWP to agree on a definition of ‘quality’

Members were of the view that the purpose of the JWP is to advise IHPA on the options / incentives that could be incorporated into pricing to drive quality improvement (i.e. to drive quality and safety through ABF).

Distinction between ‘safety’ and ‘quality’. Safety is an obvious one and this group should focus on ‘quality’ as a multi-dimensional concept. An agreed definition of quality is required.

Developing an agreed definition is important for three two key reasons:

- Firstly, it will assist the JWP, the Commission and IHPA in articulating the goals and objectives of incorporating quality into hospital pricing systems.
- Secondly, it will support meaningful and structured evaluation of any mechanisms that may be considered.

2.2 Proposed definitions

There is no agreed definition of ‘quality’ in literature. Four definitions are provided for discussion: (1) the current definition used by Commission, (2) the World Health Organisation (WHO), (3) the Institute of Medicine (IOM), and (4) the German definition.

2.2.1 The Commission

The Commission defines patient safety as ‘the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum’, and quality as ‘the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge’.¹

2.2.2 WHO definition

The WHO Framework for the International Classification for Patient Safety² expands on the Runciman and Hibbert definition defines ‘quality’ and ‘quality of care’ as follows.

Quality	The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.
---------	--

Quality of care	<p>The degree of conformity with accepted principles and practices (standards), the degree of fitness for the patient's needs, and the degree of attainment of achievable outcomes (results), consonant with the appropriate allocation or use of resources.</p> <p>The phrase carries the concept that quality is not equivalent to “more” or “higher technology” or higher cost.</p> <p>The degree of conformity with standards focuses on the provider's performance, while the degree of fitness for the patient's needs indicates that the patient may present conditions that override strict conformity with otherwise prescribed procedures.</p>
-----------------	--

2.2.3 Institute of Medicine definition

The Institute of Medicine (IOM), in its 2001 report ³ defines quality as consisting of six dimensions. These are listed below.

1. Safety	<ul style="list-style-type: none"> ▪ avoiding injuries to patients from the care that is intended to help them ▪ minimising risks and harm to service users
2. Effectiveness	<ul style="list-style-type: none"> ▪ providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit ▪ taking into account the preferences and aspirations of individual service users and the cultures of their communities
3. Patient-centeredness	<ul style="list-style-type: none"> ▪ providing care that is respectful and responsive to individual patient preferences, needs, and values ▪ taking into account the preferences and aspirations of individual service users and the cultures of their communities
4. Timeliness & accessibility	<ul style="list-style-type: none"> ▪ reducing waits and sometimes harmful delays for both those who receive and those who give care ▪ health care that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need
5. Efficiency	<ul style="list-style-type: none"> ▪ avoiding waste, including waste of equipment, supplies, ideas, and energy ▪ delivering care in a manner which maximizes resource use and avoids waste
6. Equity	<ul style="list-style-type: none"> ▪ providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status ▪ delivering care which does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status

The IOM definition explicitly includes safety as a dimension and disaggregates 'quality' into six distinct domains. This may provide a sound framework for the development and evaluation of any schemes adopted in the Australian context

2.2.4 BQS definition (Germany)

A recent report on applying 'pay for performance' (P4P) in health care, produced by the German National Institute for Quality and Patient Safety in Health Care (BQS) defines quality as comprising:⁴

- attainment of individual medical objectives, including:
 - minimizing the impact and effects of illness, and freedom from its symptoms
 - re-establishment of normal physical and psychosocial function
 - healing and improvement of quality of life
- avoidance of preventable complications (patient safety)
- level patient experience and satisfaction.

2.3 References

1. Australian Commission on Safety and Quality in Health Care Annual Report 2011/12. Sydney. ACSQHC, 2012.
2. World Health Organisation. The International Classification for Patient Safety WHO, 2009.
3. US Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century*. Washington: National Academy Press, 2001.
4. Veit C, Hertle D, Bungard S, Trummer A, Ganske V, Meyer-Hoffmann B. Pay-for-Performance im Gesundheitswesen: Sachstandsbericht zu Evidenz und Realisierung sowie Darlegung der Grundlagen für eine künftige Weiterentwicklung [P4P in health care: Review of the evidence and basis for future development]. Dusseldorf. BQS Institut für Qualität & Patientensicherheit [BQS Institute for Quality and Patient Safety], 2012.

3. Update on recent literature

3.1 Overview

The Commission and IHPA provide an update on recent, relevant literature published at each JWP meeting. There is continued international interest in this area both in terms of research and commentary. The summary provided here below focuses on research and evaluation papers of quality pricing and pay-for-performance schemes across entire healthcare systems or in the acute care sector. Literature published on primary care and population health has not been included as they are considered out of scope of the work of the JWP.

The recent literature aligns broadly with the conclusions of the Literature Review and is summarised as follows:

- Context and implementation (the 'where' and the 'how') are important factors: financial incentives appear to have the desired effect in some settings but not others.
- Convincing evidence for any particular approach continues to be weak and subject to evaluations (with some exceptions).
- Despite the lack of conclusive evidence, the application of financial incentive levers to influence quality continues, especially in the USA.
- The unintended consequences of such schemes are of concern to researchers and commentators.
- Of particular noting is the report published in German (see item 6 below), which contains a literature review and discussion of how P4P can be developed further. The findings of the German report align closely with those of the literature review, and the report raises similar issues to those discussed by the JWP (see Section 4.5 for more detail on the findings of this report).
- The utility and value of benchmarking continues to be supported both empirically and in the commentary.
- An evaluation of the Commissioning for Quality and Innovation (CQUIN) Framework concluded that its impact has been disappointing, predominantly due to excessive local variation and lack of clinician engagement (see No. 4 in the Table, Section 2). This appears to be an interesting example where the focus on local control and adaptation has created its own set of problems, and reduced the impact of the initiative as a whole.
- The importance of stakeholder engagement, particularly clinicians, is a strong theme in the literature presented.
- More discussion is emerging on normative mechanisms (e.g. bundled payments, physician remuneration) to take care out of the acute setting, use more cost effective modalities, and foster innovation (NB there is a lot of literature emerging from the US focusing on cost containment).
- The mixed results of pricing, pay-for-performance and other financial incentive schemes (or, more precisely, their evaluations) are becoming accepted as the norm. The literature and commentary has shifted towards examining the determinants of success, particularly factors regarding context, design and implementation. More thoughtful analysis is emerging, including acceptance that the behavioural assumptions underpinning P4P schemes may be too simplistic for the health care context, and the critical importance of:
 - nuanced design
 - gradual implementation
 - careful communication
 - aligning/incorporating schemes with/into broader quality improvement (QI) frameworks, and policy objectives.
- Comparisons between the Premier Hospital Quality Demonstration (PHQID) in the US, and the Advancing Quality scheme in northern England are again made to illustrate the importance of context and implementation.
- Isolated cases of successful local schemes continue to be reported. However, these generally tend to concern incentivizing a particular discrete activity that is performed by a practitioner in isolation (e.g. discharge summaries) as opposed to a multi-dimensional notion of quality requiring complex team-based tasks requiring proxy measures or indicators.
- The Commissioning for Quality and Innovation (CQUIN) program continues to be judged unfavourably. The emphasis on local design and implementation has generally failed to involve important stakeholder groups, especially clinicians. The lack of central coordination and overarching design of the scheme, particularly regarding the technical aspects of indicators and measures is thought to be a major drawback of the scheme.
- Non-financial levers such as benchmarked performance reporting continue to be regarded as powerful drivers of quality, both in combination with financial incentives and in their own right.
- Overall, there continues to be a lack of quality studies on this topic, and there are calls for need for healthcare systems to introduce schemes gradually in order to allow better evaluation through traditional experimental designs.

Literature published over the period 1 October 2012 to 31 January 2013 is presented in Section 3.2. The period 1 February 2013 to 26 April 2013 is presented in Section 3.3. The period 1 May 2013 to 30 September 2013 is presented in Section 3.4, and so on.

3.2 Summary of literature 1 October 2012 – 31 January 2013

	Article name	Authors	Publication	Study design	Model(s) investigated	Funding mechanism	Country	Area of focus	Context & setting	Magnitude of the incentive	Results / impact	Key points
1	Hospital Pay-For-Performance Programs In Maryland Produced Strong Results, Including Reduced Hospital-Acquired Conditions (2012) ¹	Calikoglu S Murray R Feeney D	Health Affairs	Before-after comparison	Tournament-based P4P; Bonuses / penalties for results based on (a) process measures (b) 64 hospital acquired conditions	Revenue neutral Total re-distribution: USD7.5M	USA	Acute care - process and outcomes	Hospital	Penalty 0.5% revenue for worst-performers; Bonus 0.6% for best; Distributed by hospital ranking	Significant increase in compliance with process measures 15% reduction in hospital acquired conditions	Successful application of national scheme Outcome measures by way of hospital acquired conditions derived from administrative data
2	Does Performance-Based Remuneration for Individual Health Care Practitioners Affect Patient Care? A systematic Review(2012) ²	Houle S McAlister F Jackevicius C Chuck A Tsuyuki R	Annals of Internal Medicine	Systematic review	P4P direct to individual practitioners	Various	Various	Screening & chronic disease care	Mainly primary care	Various	Conflicting results: small incentives effective in some settings; large ineffective in others; Seems context and implementation dependent; Unintended consequences observed.	P4P models should be considered experimental and not yet evidence-based; Role of organisation factors must be examined
3	Perceived impact of the Medicare policy to adjust payment for health care-associated infections (2012a) ³	Lee GM Hartmann C Graham D et al	American Journal of Infection Control	Qualitative survey	P4P	Non-payment for HAI	USA	Acute care - HAI	Hospital	Not stated	More attention on HAIs targeted and less attention to non-targeted HAI; Reported change in behaviour as a result of policy; resource shifting in large hospitals	Non-payment policy has changed attention and behaviour, which may result in both positive and negative consequences for overall quality
4	Effect of Nonpayment for Preventable Infections in U.S. Hospitals (2012b) ⁴	Lee G Kleinman K Soumerai S et al	New England Journal of Medicine	Quasi-experimental interrupted time series	P4P	Non-payment for HAI	USA	Acute care - HAI (CAUTI & CLABSI)	Hospital	<2% revenue	No significant changes or difference observed; decreasing secular trends observed; no evidence that non-payment policy has measurable effect	Disincentive of non-payment appears not have any effect on reducing the two HAIs examined in this study
4a	Nonpayment for preventable Infections in US hospitals ⁵	<i>Correspondence to Lee et al (2012b)</i>	New England Journal of Medicine	<i>Commentary</i>	-	-	-	-	-	-	DRG payment system can be 'gamed' to achieve maximum reimbursement despite presence of HAI Hospitals commenced strategies to reduce HAI before the study baseline period	
5	A Qualitative and Quantitative Evaluation of the Introduction of Best Practice Tariffs (2012) ⁶	McDonald R Allen T Zaidi S Sutton M et al	Report (Nottingham University)	Qualitative survey; difference-in-difference quantitative analysis	P4P Normative pricing	Best practice tariffs (BPTs)	UK	Acute care, surgery, day procedures, diabetes care	Hospital and outpatient	Bonuses up to 24%	Widespread support for BPTs; Significant increase in response to increase tariff for daycase cholecystectomy; no additional impact observed in stroke care; modest improvements in outcomes in management of hip # observed	BPT is shown to incentivise quality improvement Structuring of the tariff appear to affect the results
6	Best practice tariffs and their impact (2012) ⁷	Audit Commission	Report	Qualitative & quantitative evaluation (process measures)	P4P Normative pricing	BPTs	UK	Acute care, surgery, day procedures, diabetes care	Hospital and outpatient	Bonuses up to 24%	BPTs have had a variable impact: <ul style="list-style-type: none"> across the various BPTs between hospitals. Financial incentives just one of several factors considered by providers Complexity of BPTs was a barrier Higher performing hospitals had: <ul style="list-style-type: none"> strong clinical engagement, understanding and support senior management and board involvement frequent and accurate reporting of activity and financial data follow-up of individual cases where best practice had not been delivered 	

7	Pay-for-performance (P4P) in health care: Review of the evidence and basis for future development ⁸	Veit C Hertle D Bungard S et al	Bundes- geschaf- stelle Qalitats- sicherung ¹ (BQS)	Report: literature review and discussion	P4P P4-structure P4-competence P4-transparency	Various	Germany	Entire healthcare system	All	Various	Evidence equivocal; P4P is effective in some settings; size of incentive matters <u>but</u> P4P is but one of many levers to affect behaviour; difficulties with chronic illness management; Risk of unintended consequences	Findings similar to other reviews and reports. More research and evidence required
8	Pay-for-Performance in Health Care: What Can We Learn From International Experience? (2013) ⁹	Wilson KJ	Quality Management in Health Care	Opinion piece Summary	N/A	N/A	various	N/A	N/A	N/A	Despite broad international experience with pay-for-performance, evidence of its impact is limited, frequently conflicting, focuses largely on improvements in the provision and structure of care rather than health outcomes, and tends to generate more questions than it does answers.	
9	Managing Pay for Performance: Aligning social science research with budget predictability (2012) ¹⁰	Rosenau PV Lal LS Lako C	Journal of Healthcare Management	Synopsis of research on P4P implement- tation	P4P	Various	USA	Individual health service organisations	All	Various	P4P is a 'blunt tool' Evidence for its efficacy is inconclusive Implementation difficult in resource-constrained environment and fixed budgets Evidence from other disciplines presented Ideally P4P systems should focus on (a) rewards not penalties and (b) align quality improvement with cost reduction Mainly focused on applying P4P <i>within</i> organisation	
10	Time to Get Serious About Pay for Performance (2013) ¹¹	Jha AK	Journal of the American Medical Association	Opinion piece	P4P	Various	USA	Acute care	Hospitals	Various	This is a review/opinion piece on P4P by a prominent researcher in this area. Key points include: <ul style="list-style-type: none"> ▪ Incentives need to be more rationally designed when they target organizations (as opposed to individuals). ▪ Incentive structures need to be as simple as possible. Complex formulas that are not intuitively easy to understand or implement are unlikely to engage clinicians in quality improvement and reduce the transparency of an already opaque payment system. ▪ Metrics chosen for incentives represent important aspects of hospital care and be clinically meaningful. Both clinicians and patients need to determine which metrics matter most to them. ▪ Performance and the payment losses associated with that performance should be published in as close to real time as possible. ▪ Clinicians should be provided with that information. 	
11	Tension Between Quality Measurement, Public Quality Reporting, and Pay for Performance (2013) ¹²	Farmer SA Black B Bonow RO	Journal of the American Medical Association	Opinion citing studies on data reliability	P4P Public reporting	Various	USA	Acute care	Hospitals	Various	There are inherent risks of gaming when using administrative data for 'performance' purposes. Questions hang over the reliability of these data to accurately reflect outcomes when also used to indicate performance. Coding for foreign objects left in the body (PSI-5) and CLABSI (PSI-7) both reduced by 50% when non-payment for these outcomes was introduced in 2008. However, independent audit indicates no change in PSI-5 and a slight increase in PSI-7 at that time. Subjecting coded data to P4P and/or public reporting can undermine the accuracy of information if no alternatives are available. This can undermine the aim of quality improvement.	

¹ National Institute for Quality and Patient Safety (Germany)

	Article name	Authors	Publication	Study design	Model(s) investigated	Funding mechanism	Country	Area of focus	Context & setting	Magnitude of the incentive	Results / impact	Key points
12	Effects of pay for performance in health care: A systematic review of systematic reviews (2013) ¹³	Eijkenaar F Emmert M Scheppach M Schoffski	Health Policy	Systematic review : (Note: Jan '00 to Jun '11)	P4P	Various	Various (mainly USA & UK)	Various	Various	Various	There is insufficient evidence to support the use of P4P. Initiatives are more effective when: <ul style="list-style-type: none"> measures with more room for improvement are used, that are easy to track directed at individual physicians or small groups rewards are based on providers' absolute performance the program is designed collaboratively with providers larger payments are used use 'new money' (i.e. are not revenue neutral) Important preconditions need to be fulfilled including: <ul style="list-style-type: none"> provider engagement and support risk adjustment transparent information and data system context-specific design 	
13	Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry (2013) ¹⁴	Francis R	Stationery Office, London	Report	n/a	n/a	UK	Acute care	Hospitals	n/a	A report of the inquiry into systemic safety and quality lapses in the main hospital of Stafford (UK). Several of the report's 290 recommendations address <i>transparency, use and sharing of information</i> including Recommendation 102: <ul style="list-style-type: none"> Data held by the National Patient Safety Agency or its successor should be open to analysis for a particular purpose, or others facilitated in that task. 	

3.2.1 References

- Calikoglu S, Murray R, Feeney D. Hospital Pay-For-Performance Programs In Maryland Produced Strong Results, Including Reduced Hospital-Acquired Conditions. *Health Affairs* 2012;31(12):2649-2658.
- Houle SKD, McAlister FA, Jackevicius CA, Chuck AW, Tsuyuki RT. Does Performance-Based Remuneration for Individual Health Care Practitioners Affect Patient Care?: A Systematic Review. *Annals of Internal Medicine* 2012;157(12):889-899.
- Lee GM, Hartmann CW, Graham D, Kassler W, Dutta Linn M, Krein S, et al. Perceived impact of the Medicare policy to adjust payment for health care-associated infections. *Am J Infect Control* 2012;40(4):314-319.
- Lee GM, Kleinman K, Soumerai SB, Tse A, Cole D, Fridkin SK, et al. Effect of Nonpayment for Preventable Infections in U.S. Hospitals. *New England Journal of Medicine* 2012;367(15):1428-1437.
- Nonpayment for Preventable Infections in U.S. Hospitals. *New England Journal of Medicine* 2013;368(2):191-192.
- McDonald R, Allen T, Zaidi S, Sutton M, Todd S, Fichera E, et al. A Qualitative and Quantitative Evaluation of the Introduction of Best Practice Tariffs. University of Nottingham, 2012.
- Audit Commission. Best practice tariffs and their impact. London, 2012.
- Veit C, Hertle D, Bungard S, Trummer A, Ganske V, Meyer-Hoffmann B. Pay-for-Performance im Gesundheitswesen: Sachstandsbericht zu Evidenz und Realisierung sowie Darlegung der Grundlagen fur eine kunftige Weiterentwicklung [P4P in health care: Review of the evidence and basis for future development]. Dusseldorf. BQS Institut fur Qualitat & Patientensicherheit [BQS Institute for Quality and Patient Safety], 2012.
- Wilson KJ. Pay-for-Performance in Health Care: What Can We Learn From International Experience? *Quality Management in Health Care* 2013;22(1):2-15.
- Rosenau PV, Lal LS, Lako C. Managing Pay for Performance: Aligning Social Science Research with Budget Predictability. *Journal of Healthcare Management* 2012;57(6):391-404.
- Jha AK. Time to Get Serious About Pay for Performance. *Journal of the American Medical Association* 2013;309(4):347-348.
- Farmer SA, Black B, Bonow RO. Tension Between Quality Measurement, Public Quality Reporting, and Pay for Performance. *Journal of the American Medical Association* 2013;309(4):349-350.
- Eijkenaar F, Emmert M, Scheppach M, Schöffski O. Effects of pay for performance in health care: A systematic review of systematic reviews. *Health Policy* 2013;in print.
- Francis R. Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry. London. The Stationery Office, 2013.

3.3 Summary of literature 1 February 2013 – 26 April 2013

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Area, context & setting	Results / impact	Key points
1	Ethical Physician Incentives — From Carrots and Sticks to Shared Purpose ¹	Biller-Andorno N, Lee TH.	<i>New England Journal of Medicine</i>	Theoretical / commentary	Incentives / disincentives	USA	All	<ul style="list-style-type: none"> Examines the value and potential effects of financial incentives as part of a broader incentive scheme using the four dimensions of Max Weber's typology of motives as a framework: (1) traditional (2) self-interest (3) affective, and (4) shared purpose motives. Argues for a shift away from simple, one lever-models. A successful scheme should comprise all four dimensions, especially 'shared purpose'. Financial (dis)incentives are valuable tools that can enhance a scheme. In isolation, they can have deleterious effects. Local design and adaptation of schemes is critical to ensure shared-purpose is generated. 	
2	What can we learn from the U.S. expanded end-stage renal disease (ESRD) bundle ²	Chambers JD, Weiner DE, Bliss SK, Neumann PJ.	<i>Health Policy</i>	Retrospective review / analysis	Bundled payment for care: best-practice & normative pricing	USA	Dialysis: inpatient, outpatient and domiciliary	<p>Considers the lessons 2 years after implementation of the ESRD payment bundle. While much of the paper is out of scope, the following points are noteworthy:</p> <ul style="list-style-type: none"> Expensive services have been substituted with cheaper, equally effective ones. Bundling is likely to change the location of care delivery. Monitoring of clinical outcomes is critical. Metrics must be objective, unambiguous, real time and not burdensome. Stakeholder (esp clinician) input in the design of schemes is critical. Implementation of schemes should be slow and phased. Implementation also creates opportunities for research. There may be unintended, system-wide consequences (e.g. cost shifting), which should be considered and monitored. Bundling may be a transitional step towards more comprehensive reforms such as capitated payment systems. 	
3	Paying for Value: Replacing Medicare's Sustainable Growth Rate Formula with incentives to improve care ³	Guterman S, Zezza MA, Schoen C.	Common-wealth Fund	Analysis and modelling	Various	USA	All	<p>Proposes the following payment system reforms to encourage value-based purchasing to cultivate innovation and care coordination:</p> <ol style="list-style-type: none"> Replace the Medicare 'Sustainable growth rate' (SGR) with a payment system focused on value through a variety of policies including: <ul style="list-style-type: none"> recalibrating costs and outcomes periodically normative pricing to encourage lower-cost alternatives stricter inclusion/exclusion criteria for some payment rates encourage the use of generic drugs Support for primary care, health care teams and innovative delivery: <ul style="list-style-type: none"> Bonus payments for care delivered in non-acute settings Additional payment for innovation such as bundling in non-acute services Bundled payments for coordinated acute care: <ul style="list-style-type: none"> Incorporate post-acute care and transition to other care settings Including related readmissions Coordination across public and private sectors <p>Estimated impacts of these changes are \$1.3 trillion nation wide over ten years.</p>	

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Area, context & setting	Results / impact	Key points
4	Evaluation of the Commissioning for Quality and Innovation (CQUIN) Framework: Final Report ⁴	McDonald R, Kristensen SR, Zaidi S, Sutton M, Todd S, Konteh F, et al.	University Nottingham University Manchester	Realistic Evaluation: qualitative & quantitative analysis	P4P (2.5% of budget 'at risk')	UK	NHS: mainly inpatient setting	<p>This evaluation concludes that the CQUIN Framework's "impact has been disappointing". Poor implementation is the overarching factor among a series of global and local problems. Limited clinician engagement and ownership is blamed for many of these. Notably, the local nature of the scheme is criticised. Among the reasons cited is that predicted standardisation of indicators did not eventuate, and unique, local goals make benchmarking impossible.</p> <p>Findings from a similar analysis of Best Practice Tariffs (BPTs) and the Advancing Quality (AQ) initiative are also presented. ²</p> <p>The collective lessons from CQUIN, BPTs and AQ are:</p> <ol style="list-style-type: none"> 1. Longer horizon "Schemes and indicators should adopt a longer terms perspective than the current annual cycle" 2. Avoid local indicators "Where possible, local indicator development should be avoided" 3. Less is more "A small number of indicators linked to high impact changes are preferable to a large number of indicators covering a wide range of conditions" 4. Clinician engagement "Mechanisms for engaging clinicians should be clearly identified" 5. Align incentives "Indicators and reward structures should be designed and used in a way which complements other incentives and levers in the system" 6. Modulated payments "'All or nothing' payment rules should be avoided" 7. Weighing of rewards "Careful thought needs to be given to weighting of rewards" 8. Data collection "Careful thought needs to be given to costs and benefits of data collection, monitoring and feedback" 9. Designing for turbulence "Implementation is not threatened by changes in organisational structure and personnel" 10. Benchmarking "Local ownership does not necessarily have to entail lots of people developing their own indicators. The wide range of schemes meant that meaningful comparisons across providers were difficult. This makes it difficult to use feedback on performance, relative to other providers, as a spur to improvement." 11. Care with financial risk "Introducing financial risk may inhibit, as opposed to encourage, innovation" 12. Evidence-based "Financial incentive initiatives should build on evidence of 'what works'" 	

^A The full report was presented to the Joint Working Party at the meeting of 26 February 2013.

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Area, context & setting	Results / impact	Key points
5	Report of the National Commission on Physician Payment Reform ⁵	Frist W, Schroeder SA, et al.	National Commission on Physician Payment Reform	Report: analysis and recommendations	Fee-for-service remuneration	USA	Various	<p>This report is predicated on the unsustainable nature of US health care spending. The overarching message is that fee-for-service payments should be phased out, and replaced with a remuneration model focused on quality and value. Normative remuneration is a strong theme throughout.</p> <p>The report makes 12 recommendations; the more relevant of these in the ‘pricing’ context are:</p> <ul style="list-style-type: none"> Over time, payers should largely eliminate stand-alone fee-for-service payment to medical practices because of its inherent inefficiencies and problematic financial incentives (Recommendation 1) The transition to a approach based on quality and value should start with testing new models of care over a 5-year period and incorporating them into increasing numbers of practices, with the goal of broad adoption by the end of the decade (Recommendation 2) Fees should be increased for evaluation-and-management codes, which are currently undervalued. Fees for procedural diagnosis codes, which are generally overvalued and thus create incentives for overuse, should be frozen for 3 years. During this period, efforts should continue to improve the accuracy of relative values, which may result in some increases as well as some decreases in payments for specific services (Recommendation 4). Increased payment for facility-based services that can be performed in a lower-cost setting should be eliminated. In addition, the payment mechanism for physicians should be transparent and provide physicians with roughly equal reimbursement for equivalent services, regardless of specialty or setting (Recommendation 5). Fee-for-service contracts should always include a component of quality or outcome-based performance reimbursement at a level sufficient to motivate a substantial change in behaviour (Recommendation 6). Measures should be put in place to safeguard access to high-quality care, assess the adequacy of risk-adjustment indicators, and promote strong physician commitment to patients (Recommendation 9) Medicare's sustainable growth rate (SGR) adjustment should be eliminated (Recommendation 10) Cost-saving measures to offset the elimination of the SGR should come not only from reduced physician payment but also from the Medicare program as a whole. Medicare should also look for savings from reductions in inappropriate utilisation of services (Recommendation 11) 	
6	Hospital payment based on diagnosis-related groups (DRGs) differs in europe and holds lessons for the United States. ⁶	Quentin W, Scheller-Kreinsen D, Blumel M, Geissler A, Busse R.	<i>Health Affairs</i>	Discursive comparison of payment models	DRG-based payment system & Activity Based Funding	USA, Germany Sweden France England Netherlands	Hospital	<p>Examines the various approaches to hospital payment in Europe and makes recommendations for the US system. Essentially describes the ABF approach, but the following observations are notable in relation to the next phase of work of the Joint Working Party (harnessing administrative data):</p> <ul style="list-style-type: none"> With the exception of the UK Best Practice Tariffs (BPTs), none of the systems have ‘priced-in’ quality (Advancing Quality (AQ) initiative and CQUIN Framework are acknowledged, but these are technically a P4P schemes) DRG payments in Europe countries cover readmissions (Germany: 30 days; Sweden: 2 years for some procedures), which this could be viewed as a lever to enhance safety and quality. The importance of accounting for comorbidities and complications on case complexity and payment adjustment are acknowledged (Germany has up to 9 ‘severity levels’ for its DRGs); however, there was no comment on the notion of partitioning comorbidity from complications in secondary diagnoses for either monitoring, or payment purposes. 	

3.3.1 References

1. Biller-Andorno N, Lee TH. Ethical Physician Incentives — From Carrots and Sticks to Shared Purpose. *New England Journal of Medicine* 2013;368(11):980-982.
2. Chambers JD, Weiner DE, Bliss SK, Neumann PJ. What can we learn from the U.S. expanded end-stage renal disease bundle? *Health Policy* 2013;110(2–3):164-171.
3. Guterman S, Zezza MA, Schoen C. Paying for Value: Replacing Medicare's Sustainable Growth Rate Formula with incentives to improve care. Commonwealth Fund, 2013.
4. McDonald R, Kristensen SR, Zaidi S, Sutton M, Todd S, Konteh F, et al. Evaluation of the Commissioning for Quality and Innovation Framework: Final Report. Nottingham. University of Nottingham & University of Manchester, 2013.
5. Frist W, Schroeder SA et al. Report of the National Commission on Physician Payment Reform, 2013.
6. Quentin W, Scheller-Kreinsen D, Blumel M, Geissler A, Busse R. Hospital payment based on diagnosis-related groups differs in europe and holds lessons for the United States. *Health Aff (Millwood)* 2013;32(4):713-723.

3.4 Summary of literature 1 May 2013 – 30 September 2013

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
1	Uptake and patient outcomes of laparoscopic colon and rectal cancer surgery in a publicly funded system following financial incentives ¹	Simunovic M, Baxter NN, Sutradhar R, Liu N et al.	Annals of Surgical Oncology	Data analysis	Normative pricing	Canada (Ontario)	Hospital	In 2005 the Ontario physician billing schedule instituted a 25% premium payment for colon surgery using laparoscopic techniques. Between the years 2002 and 2009 the rate of laparoscopic colon surgery rose from 8.7 to 39%, with a noticeable increase immediately following the introduction of the premium. Rate of laparoscopic rectal surgery (not covered under the premium) rose from 4.8 to 20%. Increased rates were associated with: <ul style="list-style-type: none"> Minimal decrease in hospital length of stay No changes in 30-day mortality, overall survival and cancer-specific survival
2	Who to pay for performance? The choice of organisational level for hospital performance incentives ²	Kristensen SR, Bech M, Lauridsen J	Health Economics Papers	Data analysis	Pay for performance	Denmark	Hospitals	This paper supports the findings of the literature review. Comparing Danish hospitals within the same P4P scheme, the analysis indicates that hospital departments with P4P scheme where payment is distributed to the department level direct s increased performance by approximately 5 % compared to departments at hospitals where performance payment was retained at hospital level.
3	Is the quality of hospital care price sensitive? Regression kink estimates from a volume dependent price setting ³	Kristensen SR, Fe E, Bech M, Mainz J	Health Economics Papers	Regression modelling	Marginal tariff reduction	Denmark	Hospitals	When Danish hospitals reach a production target, marginal tariffs for treating acute stroke patients falls by 50%-100%. A rich data set of the process quality of stroke care permits detection of minor changes in the quality of care that are important for the long term outcomes but do not lead to death or readmission captured by commonly employed outcome indicators. Hospitals exposed to reductions in the marginal tariff of less than 100% did not appear to respond in quality to reductions in tariffs. In hospitals for which the marginal tariff for acute stroke patients dropped to 0 a 1% decrease in the level of quality for acute stroke care patients. The estimated size of the effect is minor but robust to various sensitivity tests.
4	The cost-effectiveness of using financial incentives to improve provider quality: a framework and application ⁴	Meacock R, Kristensen SR, Sutton M	Health Economics	Cost-effectiveness study	Pay-for-performance	England	Hospitals	There are few studies investigating the cost-effectiveness of financial incentive schemes in health care, particularly where costs beyond the incentive payments themselves are considered (e.g. administrative costs). This paper develops a more comprehensive analytical framework, and applied this to the <i>Advancing Quality</i> initiative in northern England (previously summarised and presented below) which was one of the few P4P schemes found to have a measurable impact on patient outcomes. ⁵ The analysis found that, by generating approximately 5,200 QALYs and savings of GBP4.4 million from reduced length of stay, the AQ initiative was a cost-effective use of resources in the first 18 months.
5	Health care–associated infections (HAIs): a meta-analysis of costs and financial impact on the US health care system ⁶	Zimlichman E, Henderson D, Tamir O, Franz C, Song P, Yamin CK, et al	JAMA Internal Medicine	Modelling based on systematic literature review and analysis of National Healthcare Safety Network data	N/A	USA	Hospitals	This paper estimated costs associated with the most significant and targetable HAIs, and aligns with the recent work analysing the impact of hospital acquired conditions on case complexity and cost. The most costly HAIs were: central line–associated bloodstream infections (\$45,814), ventilator-associated pneumonia (\$40,144), surgical site infections (\$20,785) Clostridium difficile infections (\$11,285) and catheter-associated urinary tract infections (\$896). Aggregate costs were for surgical site infections (33.7%), ventilator-associated pneumonia (31.6%), central line–associated bloodstream infections (18.9%), C difficile infections (15.4%), and catheter-associated urinary tract infections (<1%). The authors estimate that the five most common HAIs have an annual cost to the US health care system of nearly \$10 billion.
6	Relationship between occurrence of surgical complications and hospital finances ⁷	Eappen S, Lane BH, Roesnberg B et al.	Journal of the American Medical Association	Analysis of administrative and cost data	Hospital costs and revenues were compared for patients with and without surgical complications	USA	Hospitals	Incremental revenue due to surgical complications in a hospital system was estimated based on 2010 administrative and cost data <ul style="list-style-type: none"> 5.3% of 34,256 surgical cases examined had at least one complication; an overall mortality rate of 1.25% was observed (12.3% for patients with a complication) Median length of stay was 4 times higher in patients with complications For privately insured patients (40%), a marginal revenue of \$39,017 was associated with a surgical complication For Medicare (publicly funded) patients (45%) this figure was \$1,794 The lower margin in Medicare patients is attributed to the bundled DRG payments instituted in the 1980s as a measure to avoid financial reimbursement for potentially avoidable mistakes.

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
7	Quality improvement and pay for performance ⁸	Cohen RI, Jaffrey F, Reitzner JB et al.	Chest	Comment	Various	N/A	Various	<p>Paper articulates several concerns with pay-for-performance including:</p> <ul style="list-style-type: none"> Excessive focus on metrics Exacerbation of disparities in quality and equity Assumption that clinicians know how to improve quality and all that is needed is a monetary incentive. <p>The authors argue that changing behaviour to raise quality in a complex adaptive system healthcare system is best pursued through the science of improvement. A key component of this is timely feedback to facilitate the iterative nature of quality improvement.</p>
8	How can the NHS payment system do more for patients? ⁹	NHS England & Monitor	Publications Gateway	Discussion paper	Pricing and pay for performance	UK	Hospital	<p>This is the first publication to come from NHS England and Monitor's partnership on extending Payment by Results (PbR) into a comprehensive payment system for NHS services, and sets out what Commissioners can expect from the 2014/15 National Tariff.</p> <p>While the paper does not cite any results or evidence to support continued application of PbR, and a "case for change" is made, based on the following rationale:</p> <ul style="list-style-type: none"> Providers need support to change patterns of care in the interests of patients Payment influences behaviour Payment is one of many levers for change Trade-offs are inevitable The payment system should support continuous quality improvement, sustainably delivered, with appropriate allocation and management of risk <p>The paper lists the following foundations as necessary for a successful system:</p> <ul style="list-style-type: none"> Improved cost and quality information leads to better decisions More simplicity may bring benefits Predictability is important Legitimacy is essential Clear rules underline incentives
9	Exploring payment schemes used to promote integrated chronic care in Europe ¹⁰	Tsiachristas A, Dikkers C, Boland MRS, Rutten-van Mölken MP	Health Policy	Systematic review and expert interviews	Pay-for-coordination pay-for-performance bundled payment	Europe	Hospital and primary care	<p>The potential to consider the growing burden of chronic illness in hospital pricing and funding was discussed at earlier JWP meetings. This paper reports that several European countries have implemented payment schemes using financial incentives to promote integrated chronic care: Austria, Germany, England, France and Netherlands (aspects of the German scheme were covered in the Supplementary Briefing tabled at the meeting of 26 February 2013). These schemes are adaptations of:</p> <ul style="list-style-type: none"> Pay-for-coordination (PFC): payments to one or more providers to coordinate care between services/sectors, seeking to provide an incentive for the extra effort required by providers to cooperate with one another. Pay-for-performance (P4P): direct payments to providers for achieving defined goals related to improvements in the process and/or outcomes of chronic care delivery. Bundled payment. a single fee for all multidisciplinary care required by a patient for one particular chronic disease during a predefined period of time, aiming to control unnecessary utilization and promote integration between providers. It provides a direct incentive to health care providers to increase their profit margin by reducing inefficiencies. <p>Barriers, enablers and perceived impacts of each country's scheme are explored. While the schemes depend on the healthcare system structure, a common barrier was opposition by physicians attributable to concerns about reduced autonomy. Shared savings schemes are suggested as a way of reducing the risks of gaming and misaligned incentives. The authors conclude that these schemes are valuable tools in stimulating the integration of chronic care. Initiating collaborations in chronic care can be stimulated with PFC payments and further integration of care can be facilitated by adding other payment schemes such as bundled payments.</p>

3.4.1 References

1. Simunovic M, Baxter NN, Sutradhar R, Liu N, Cadeddu M, Urbach D. Uptake and Patient Outcomes of Laparoscopic Colon and Rectal Cancer Surgery in a Publicly Funded System and Following Financial Incentives. *Ann Surg Oncol* 2013.
2. Kristensen SR, Bech M, Lauridsen J. Who to pay for performance? The choice of organisational level for hospital performance incentives. *Health Economics Papers*. University of Southern Denmark, 2013.
3. Kristensen SR, Fe E, Bech M, Mainz J. Is the quality of hospital care price sensitive? Regression kink estimates from a volume dependent price setting. *Health Economics Papers*. University of Southern Denmark, 2013.
4. Meacock R, Kristensen SR, Sutton M. The cost-effectiveness of using financial incentives to improve provider quality: a framework and application. *Health Economics* 2013;n/a-n/a.
5. Sutton M, Nikolova S, Boaden R, Lester H, McDonald R, Roland M. Reduced Mortality with Hospital Pay for Performance in England. *New England Journal of Medicine* 2012;367(19):1821-1828.
6. Zimlichman E, Henderson D, Tamir O, et al. Health care-associated infections: A meta-analysis of costs and financial impact on the us health care system. *JAMA Internal Medicine* 2013:-.
7. Eappen S, Lane BH, Rosenberg B, Lipsitz SA, Sadoff D, Matheson D, et al. Relationship between occurrence of surgical complications and hospital finances. *JAMA* 2013;309(15):1599-1606.
8. Cohen RI, Jaffrey F, Bruno J, Baumann MH. Quality Improvement and Pay for Performance: Barriers to and Strategies for Success. *Chest* 2013;143(6):1542-1547.
9. How can the NHS payment system do more for patients? NHS England and Monitor, 2013.
10. Tsiachristas A, Dikkers C, Boland MRS, Rutten-van Mölken MPMH. Exploring payment schemes used to promote integrated chronic care in Europe. *Health Policy* 2013.

3.5 Summary of literature 1 October 2013 – 21 May 2014

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
1.	The NHS payment system: evolving policy and emerging evidence ¹	Marshall L, Charlesworth A, Hurst J	Nuffield Trust	Report	Best practice tariffs; Payment by results; pay for performance	UK	National Health Service	<p>This report analysed the effectiveness of different healthcare payment approaches in the NHS in terms of meeting their objectives. Key findings germane to this review include:</p> <ul style="list-style-type: none"> The structure of incentives across services does little to support policy ambitions to shift care out of the hospital setting, with the payment systems often giving conflicting signals. The predominance of activity-based payment in the acute sector, introduced at a time of long waiting lists, encourages activity in hospitals; at the same time, block budgets in community services and capitated budgets in primary care offer little incentive to increase activity or efficiency in these settings. For something to be incentivised, it must be both measurable and directly attributed to the provider. Outcomes are often difficult to measure, distant in time from the care activity, and influenced by multiple determinants, including many outside the control of the health sector, making attribution to specific provider actions problematic. There are also inherent risks to incentivising outcomes, including to equity of access to care. Features associated with the success of pay-for-performance schemes in the NHS have been: (a) a clear evidence base (b) clinical engagement and support (c) sufficient longevity to encourage investment in change by providers (d) feasibility in practice (e) simplicity. The most successful schemes have also included non-payment quality improvement measures, such as shared learning and public reporting of data. Pay-for-performance schemes have not been universally successful; the evaluation of Commissioning for Quality and Innovation (CQUIN) schemes has been more negative (the definition of goals and targets can often be done best at a local level, and may help clinical engagement, developing the technical aspects of payment and pricing requires specific expertise and use of evidence, which may not be available locally). Best practice care for many conditions, including long-term chronic conditions, requires coordinated action across multiple health and non-health organisations and individuals. In its current form, the payment system does not support joint working between organisations within the health service, let alone more widely. Different services will need different payment methods. While it may be appropriate to incentivise a process where it is directly linked to an outcome, more complex outcomes with multiple determinants will need a different approach. In addition to financial incentives, thought should be given as to whether objectives are better achieved through other levers.
2.	NHS payment reform: lessons from the past and directions for the future ²	Charlesworth A, Hawkins L, Marshall L,	Nuffield Trust	Report	Best practice tariffs; Payment by results; pay for performance	UK	National Health Service	<p>Companion the above Report; presents longer-term recommendations for the NHS payment system. Key points and recommendations germane to this review include:</p> <ul style="list-style-type: none"> Fundamental reform the payment system for emergency care, shifting away from Payment by Results towards global budgets for capacity, informed by standardised benchmarks Developing nationally priced currencies for a wider range of non-emergency services, including community health services, to make it easier for clinical commissioning groups to commission bundles or packages of care for pathways or patient groups spanning hospital- and community-based services Refocusing the pay-for-performance elements of the payment system towards improving the integration and coordination of care. Improving the efficiency incentives in the payment system through significant extension of best practice tariffs to more planned care Sustained focus on improving costing information across the NHS. Incentives can only operate if they are clear, consistent and transparent.
3.	Paying for improvements in quality: recent experience in the NHS in England ³	Meacock R, Kristensen SR, Sutton M	Nordic Journal of Health Economics	Review and analysis of literature	Best practice tariffs; Payment by results; pay for performance	UK	National Health Service	<p>This paper (in a Scandinavian journal) summarises the results of the various financial incentive schemes that have been applied in the NHS (Advancing Quality; CQUIN; QOF; non-payment for never events and readmissions).</p> <ul style="list-style-type: none"> P4P programs are more effective when introduced as part of a wider QI initiative Publishing results can enhance outcomes by potentially harnessing reputational incentive Clinicians view schemes not as financial incentives but as an offer of supporting investment in QI, which can be used in negotiations with finance directors. Context, implementation and change management are important determinants of successful schemes; preparatory work and slow implementation is recommended There is not much evidence of widespread unintended consequences or diversion of effort Schemes can be cost effective There is still a considerable evidence and knowledge gap in this area. <p>Notably, there is more caution in the Nordic countries to link healthcare remuneration to performance (similar to Germany) compared to other countries. However, Norway is launching a NOK 500M (AUD 90M) initiative based on performance on process, outcome and patient experience indicators.</p>

4.	Should pay-for-performance schemes be locally designed? Evidence from the Commissioning for Quality and Innovation (CQUIN) Framework ⁴	Kristensen SR, McDonald R, Sutton M.	Journal of Health Service Research and Policy	Mixed method analysis	Pay for performance	UK	National Health Service	<ul style="list-style-type: none"> The English Department of Health introduced the CQUIN Framework from April 2009. In 2010/2011, these schemes covered 1.5% (£ 1.0B) of NHS expenditure. Local design was intended to offer flexibility to local priorities and generate local enthusiasm, focusing on outcomes and processes with a clear link to quality, using established indicators, and covering three key domains (safety; effectiveness; patient experience). The local development process was successful in identifying variation in local needs and priorities for quality improvement. The involvement of frontline clinical staff was insufficient to generate local enthusiasm around the schemes. The schemes generally did not meet objectives for the CQUIN framework. While there is clearly an important case for local strategic and clinical input into the design of pay-for-performance schemes, this should be kept separate from the technical design process, which requires expertise that is unlikely to exist in each locality. A firmer national framework would be preferable to a fully locally designed framework.
5.	Massachusetts General Physicians Organization's Quality Incentive Program Produces Encouraging Results ⁵	Torchiana DF, Colton DG, Rao SK, Lenz SK, Meyer GS, Ferris TG	Health Affairs	Mixed-method longitudinal evaluation	Pay for performance	USA	Hospital	<ul style="list-style-type: none"> Evaluation of a major US hospital incentive payment scheme for salaried physicians Key elements: <ul style="list-style-type: none"> Short (6-month) cycle times Linking measures to organisational and departmental priorities Careful attention to data integrity and procedural fairness Clear, consistent communication with physicians The program facilitated the adoption of an electronic health record, improved hand hygiene compliance, increased efficiency in radiology and the cancer centre, and decreased emergency department use. Authors concluded that "small incentives tied to carefully structured metrics, priority setting, and clear communication can help change salaried physicians' behaviour and ease the physicians' sense of administrative burden."
6.	Effect of Modest Pay-for-Performance Financial Incentive on Time-to-Discharge Summary Dictation Among Medical Residents ⁶	Wolk A, Wang E, Horak B. et al	Quality Management in Health Care	Pre-and post-intervention analysis	Pay for Performance	USA	Hospital	<ul style="list-style-type: none"> This study sought to evaluate the effect of a modest financial incentive on time-to-discharge summary dictation among medical residents. Those with the lowest average discharge-to-dictation time during their 1-month inpatient medicine ward rotation were rewarded with a \$50 gift card. Discharge data were captured using an auto-populating electronic database. The average discharge-to-dictation time was reduced from 7.44 to 1.84 days, representing a 75.3% decrease. Almost 90% of discharge summary dictations were performed on the day of discharge. This aligns with previous findings that financial incentives can be effective in improving individual tasks that do not require collaboration and team work.
7.	Engaging Residents and Fellows to Improve Institution-Wide Quality: The First Six Years of a Novel Financial Incentive Program ⁷	Vidarthi AR, Green AL, Rosenbluth G, Baron RB	Academic Medicine	Longitudinal quantitative analysis	Pay for performance	USA	Hospital	<ul style="list-style-type: none"> The aim of this program was to engage residents and fellows in hospital-wide QI efforts by providing financial incentives 5,275 residents and fellows participated in the QI program over six years. Residents and fellows earned an average of \$800 in bonuses per fiscal year for achieving these goals. Agreed goals were achieved for 39 of 55 QI projects that formed part of the incentive scheme. Absence of a control group is a major limitation of this study.
8.	British Columbia's pay-for-performance experiment: Part of the solution to reduce emergency department crowding? ⁸	Cheng AY, Sutherland JM	Health Policy	Pre- and post-intervention analysis	Pay for performance	Canada	Hospital (ED)	<ul style="list-style-type: none"> In British Columbia an ED pay-for-performance program was initiated in 2007 to create financial incentives for hospitals to reduce patients' ED length of stay (ED LOS). Size of the incentives ranged from \$100 to \$600 per patient. There was association between the implementation of ED P4P and ED LOS time data in some hospitals, but overall the study reveals mixed results, which, according to the authors, 'should give the government pause'
9.	The impact of a pay-for-performance system on timing to hip fracture surgery: experience from the Lazio Region (Italy) ⁹	Colais P, Pinnarelli L, Fusco D, et al.	BMC Health Services Research	Pre- and post-intervention analysis, regression modelling	Pay for performance	Italy	Hospital	<ul style="list-style-type: none"> In 2010 Hospitals in Lazio adopted a clinical pathway for elderly patients with hip fracture and introduced a pay-for-performance model payment system based on the quality of care. This study used surgery within 48 hours as the main outcome indicator to gauge the effect of the scheme. The share of patients that had surgery within 48 hours was 11.7% before the introduction of the pay-for-performance and 22.2% after. The proportion of early hip fracture operations increased after the pay-for-performance act, regardless of hospital payment type. The largest increase of surgery within 48h occurred in private hospitals.
10.	Optimal price-setting in pay for performance schemes in health care ¹⁰	Kristensen SR, Siciliani L, Sutton M.	University of York	Economic modelling	Best practice tariffs	UK	Hospital	<ul style="list-style-type: none"> The size of incentive payments or tariffs in P4P schemes is often set arbitrarily. Drawing on extensive regulation theory literature his theoretical paper develops a model for setting prices for pay for performance schemes reflecting: <ul style="list-style-type: none"> Marginal benefit of health gains Provider altruism Opportunity cost of public funds The model is then applied to derive optimal prices in the Best Practice Tariffs scheme for stroke care in the NHS, finding that these tariffs were lower than optimal, relied on implausible high levels of altruism, or implied a lower social value of health gains.

11.	Measuring the incidence of hospital-acquired complications and their effect on length of stay using CHADx ¹¹	Trentino KM, Swain SG, Burrows SA, et al	MJA	Retrospective analysis of hospital morbidity data	N/A	Australia	Hospital	<ul style="list-style-type: none"> The Classification of Hospital Acquired Conditions (CHADx) was applied to administrative data of a West Australian LHN for calendar years 2010 and 2011 (436,841 separations) 6.68% of separations had at least one hospital-acquired conditions assigned. Following regression modelling to adjust for potential confounders, length of stay for episodes with hospital acquired conditions was almost 4 times the mean of episodes without complications. The authors highlight the potential utility of administrative data for clinicians and administrators set priorities and “target resources to areas where care could be improved.”
12.	Controlling costly care: a billion dollar hospital opportunity ¹²	Duckett S, Breadon P	Grattan Institute	Analysis of hospital morbidity data	N/A	Australia	Hospital	<ul style="list-style-type: none"> There is considerable variation in cost of hospital services between Australian hospitals. This report attempts to quantify ‘unexplained costs’ implying that services could potentially be provided more efficiently. Within states and territories, the variation between the most and least expensive hospitals is more than \$1,500 per admission. Measurable legitimate differences among hospitals are accounted for, and a further ‘buffer’ built into the model, these costs are said to be avoidable. Nationally, the aggregate for these costs is estimated at just under \$1B. The authors suggest, <i>inter alia</i>: <ul style="list-style-type: none"> Moving towards best practice pricing by, in the first instance, removing unexplained costs in the price-determination for hospital services (paying what care <i>should</i> cost) Providing cost data to hospitals to enable comparison with peer institutions
13.	Challenges of payment-for-performance in health care and other public services – design, implementation and evaluation ¹³	Lagarde M, Wright M, Nossiter J, Mays N.	Policy Innovation Research Unit	Summary of evidence and literature	Pay for performance	Inter-national	All	<p>A good synopsis of financial incentives to drive quality in health care. Key findings and insights mirror those of the University of Wollongong Literature Review and Supplementary JWP Briefings, and include:</p> <ul style="list-style-type: none"> Design is challenging in the public sector because production of services usually involves the pursuit of several different objectives simultaneously that may be more or less easy to identify, measure and trade off. The potential effects of a P4P scheme in the public sector depend on the interactions between: (1) who is rewarded: individuals, teams, or organisations; (2) what is rewarded and how is performance measured; and (3) how is the payment structured? There are several key issues in relation to the payment structure, such as the relative size of the conditional payments, and their target. The way P4P programmes are implemented can influence the likelihood of success. The context in which a P4P programme is being introduced can influence the success of implementation. Effective communication of the rationale for the P4P program is crucial to successful implementation. The right balance needs to be found between providing accurate data and ensure that the program is credible, and limiting additional administrative burden on providers. To date, the evaluation of P4P schemes in public services has produced limited and mixed evidence of their effects. There is very little evidence on the cost-effectiveness of schemes. There is also evidence of perverse effects of P4P. It is not possible to generalise about the effects associated with P4P since these are linked to the many ways in which the design of schemes can vary. The body of evidence is further limited by a frequent lack of political willingness and/or technical ability to introduce P4P on an experimental basis.
14.	Will Value-Based Purchasing Increase Disparities in Care? ¹⁴	Ryan AM.	NEJM	Analysis of Medicare payment data	Pay for performance	USA	Hospital	<ul style="list-style-type: none"> To mitigate punishing hospitals treating more disadvantaged patients, the Medicare and Medicaid Hospital Value-based purchasing (HVBP) scheme rewards both absolute performance and improvement (in addition to Casemix adjustment). This paper examines if there is a link between payments and patient demographics, by comparing the payments issued to hospitals and the Disproportionate Share Hospital index. Results indicate that in the first year of HVBP hospitals caring for disadvantaged patients did fare worse than their counterparts. Hospitals with higher DSH indices received lower points for both achievement and improvement.
15.	Grading a Physician's Value — The Misapplication of Performance Measurement. ¹⁵	Berenson RA, Kaye DR	NEJM	Commentary	Pay for performance	USA	Hospital	<ul style="list-style-type: none"> Another paper warning of the pitfalls of applying financial incentive models to complex, team-based tasks, focusing on the Physician Quality Reporting System (PQRS). The authors warn that the reductionist nature of the PQRS will miss important features of quality (such as appropriateness and value) in complex clinical domains such as surgery. Based on behavioural economics literature, P4P is unlikely to have an impact in professions that involve creative problem solving and team-work.

16.	Take the money and run: the challenges of designing and evaluating financial incentives in health care. ¹⁶	Mannion R	International Journal of Health Policy and Management	Commentary	Pay for performance	Inter-national	All	<ul style="list-style-type: none"> • Another piece examining the tenuous assumptions and evidence for P4P schemes. This paper lists some unintended consequences including: <ul style="list-style-type: none"> ◦ Tunnel vision (excessive focus on indicators linked to P4P) ◦ Bullying and intimidation ◦ Adverse selection ◦ Crowding out of intrinsic motivation ◦ Inequity ◦ Over-compensation ◦ Gaming and fraud
17.	Paying for performance in healthcare organisations ¹⁷	McDonald R	International Journal of Health Policy and Management	Commentary	Pay for performance	Inter-national	All	<ul style="list-style-type: none"> • This paper explores the potential reasons why P4P schemes fail to deliver intended outcomes. • To a large extent, initiatives fail to consider design and implementation with regard to social, cultural and historical contexts. Schemes appear to work better if accompanied by mechanisms to enable change in behaviour (e.g. electronic health records). • The failure of the US PHQID scheme, compared with the success of <i>Advancing Quality</i> in northern England (two very similar initiatives in terms of design) is used to highlight the importance of implementation. • Shortcomings in the implementation of CQUIN are also discussed, particularly the lack of genuine clinician engagement.
18.	Vergütungssysteme und Wettbewerb im Gesundheitssystem (<i>Payment mechanisms and competition in health care</i>) ¹⁸	Krauth C, Jensen S, Wolf S, Amelung V	Public Health Forum	Summary of evidence and literature	Various	Germany	All	<ul style="list-style-type: none"> • Another paper providing a useful perspective from Germany, building on previously presented material from that country (Veit et al 2012). • The enthusiasm for P4P in English-speaking countries is noted, whereas such interventions are merely at the discussion stage in Germany. • The literature cited suggests that while P4P can deliver desired increase in quality, unintended consequences are also common. • The following conclusions are made: <ul style="list-style-type: none"> ◦ More nuanced and rigorous evaluation of P4P schemes is necessary ◦ Implementation of P4P should be coupled with other payment mechanisms ◦ Unintended consequences should be balanced with non-financial structures and controls ◦ Financial incentives should not crowd out intrinsic motivations for quality care.
19.	Ergebnisorientierte Vergütung: Pay for Performance ¹⁹	Gopffahrt D	Public Health Forum	Commentary; summary	Various	Germany	All	<p>Another German perspective, confirming the overall caution to financial incentivisation in health care. This piece reiterates the themes and findings of other literature, including issues of:</p> <ul style="list-style-type: none"> • measurement • accountability • method/structure • coordination versus cooperation • context-dependency <p>The author recommends experimental pilot schemes to develop a stronger empirical base for their broader application.</p>
20.	Variation in Surgical-Readmission Rates and Quality of Hospital Care ²⁰	Thomas C. Tsai, Karen E. Joynt, John Orav, D., Atul A. Gawande, Ashish K. Jha	New England Journal of Medicine	Analysis of hospital data	N/A	USA	Hospital	<ul style="list-style-type: none"> • The relationship between 30-day readmission rates after surgery and other measures of surgical quality, including adherence to surgical process measures, procedure volume, and mortality was calculated using Medicare (US) data. • Procedures included coronary-artery bypass grafting, pulmonary lobectomy, endovascular repair of abdominal aortic aneurysm, open repair of abdominal aortic aneurysm, colectomy, and hip replacement. • Data comprised 479,471 separations from 3,004 hospitals. • Nearly one in seven patients hospitalized for a major surgical procedure is readmitted to the hospital within 30 days after discharge. Hospitals with high surgical volume and low surgical mortality have lower rates of surgical readmission than other hospitals.

3.5.1 References

- 1.Marshall L, Charlesworth A, Hurst J. The NHS payment system: evolving policy and emerging evidence. Nuffield Trust, 2014.
- 2.Charlesworth A, Hawkins L, Marshall L. NHS payment reform: lessons from the past and directions for the future. Nuffield Trust, 2014.
- 3.Meacock R, Kristensen SR, M S. Paying for improvements in quality: recent experience in the NHS in England. *Nordic Journal of Health Economics* 2014;March:239-255.
- 4.Kristensen SR, McDonald R, Sutton M. Should pay-for-performance schemes be locally designed? Evidence from the Commissioning for Quality and Innovation (CQUIN) Framework. *Journal of Health Service Research and Policy* 2013;18(2 Suppl):38-49.
- 5.Torchiana DF, Colton DG, Rao SK, Lenz SK, Meyer GS, Ferris TG. Massachusetts General Physicians Organization's Quality Incentive Program Produces Encouraging Results. *Health Affairs* 2013;32(10):1748-1756.
- 6.Wolk A, Wang E, Horak B, Cloonan P, Adams M, Moore E, et al. Effect of Modest Pay-for-Performance Financial Incentive on Time-to-Discharge Summary Dictation Among Medical Residents. *Quality Management in Healthcare* 2013;22(4):272-275 210.1097/QMH.0000000000000008.
- 7.Vidarthi AR, Green AL, Rosenbluth G, Baron RB. Engaging Residents and Fellows to Improve Institution-Wide Quality: The First Six Years of a Novel Financial Incentive Program. *Academic Medicine* 2014;89(3):460-468 410.1097/ACM.0000000000000159.
- 8.Cheng AHY, Sutherland JM. British Columbia's pay-for-performance experiment: Part of the solution to reduce emergency department crowding? *Health Policy* 2013;113(1–2):86-92.
- 9.Colais P, Pinnarelli L, Fusco D, Davoli M, Braga M, Perucci C. The impact of a pay-for-performance system on timing to hip fracture surgery: experience from the Lazio Region (Italy). *BMC Health Services Research* 2013;13(1):1-7.
- 10.Kristensen SR, Siciliani L, Sutton M. Optimal price-setting in pay for performance schemes in health care. *Discussion Papers in Economics*. University of York, 2014.
- 11.Trentino KM, Swain SG, Burrows SA, Sprivulis PC, Daly FF. Measuring the incidence of hospital-acquired complications and their effect on length of stay using CHADx. *Med J Aust* 2013;199(8):543-547.
- 12.Duckett S, Breadon P. Controlling costly care: a billion dollar hospital opportunity. Grattan Institute, 2014.
- 13.Lagarde M, Wright M, Nossiter J, Mays N. Challenges of payment-for-performance in health care and other public services – design, implementation and evaluation. Policy Innovation Research Unit, London School of Hygiene and Tropical Medicine, 2013.
- 14.Ryan AM. Will Value-Based Purchasing Increase Disparities in Care? *New England Journal of Medicine* 2013;369(26):2472-2474.
- 15.Berenson RA, Kaye DR. Grading a Physician's Value — The Misapplication of Performance Measurement. *New England Journal of Medicine*;0(0):null.
- 16.Mannion R. Take the money and run: the challenges of designing and evaluating financial incentives in health care. *International Journal of Health Policy and Management* 2014;2(x):1-2.
- 17.McDonald R. Paying for performance in healthcare organisations. *International Journal of Health Policy and Management* 2014;2(2):59-60.
- 18.Krauth C, Jensen S, Wolf S, Amelung V. Vergütungssysteme und Wettbewerb im Gesundheitssystem (Payment mechanisms and competition in the healthcare system). *Public Health Forum* 2013.
- 19.Göpffarth D. Ergebnisorientierte Vergütung: Pay for performance. *Public Health Forum* 2014;22(2):16.e11-16.e13.
- 20.Tsai TC, Joynt KE, Orav EJ, Gawande AA, Jha AK. Variation in Surgical-Readmission Rates and Quality of Hospital Care. *New England Journal of Medicine* 2013;369(12):1134-1142.

3.6 Summary of literature 21 May – 10 November 2014

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
1.	Long-Term Effect of Hospital Pay for Performance on Mortality in England ¹	Kristensen SR, Meacock R, Turner AJ, et al.	New England Journal of Medicine.	Difference-in-differences analysis	Pay-for-performance	NHS	Hospital	<ul style="list-style-type: none">• The <i>Advancing Quality</i> hospital pay-for-performance was program introduced in the northwest region of England in 2008. An initial evaluation found an 18-month reduction in risk-adjusted mortality.• Here, the 24 participating hospitals and 137 non-participants for eight conditions, three of which were part of the P4P initiative for 42 months following its commencement.• The performance of hospitals in the incentive program continued to improve, and mortality for the three conditions covered by the program continued to fall. By the end of the 42-month period, the reduced mortality in the participating hospitals was no longer significant.• The authors conclude that “short-term relative reductions in mortality for conditions linked to financial incentives in hospitals participating in a pay-for-performance program in England were not maintained.”• Interestingly, the mortality for conditions not covered by the program fell more in the participating hospitals than in the control hospitals (by 1.2 percentage points; 95% CI, 0.4 to 2.0), raising the possibility of a spillover effect on care for conditions not covered by the program.
2.	The Early Effects of Medicare's Mandatory Hospital Pay-for-Performance Program ²	Ryan AM Burgess JF Pesko MF Borden WB Dimick JB	Health Services Research	Difference-in-differences analysis	Pay-for-performance	USA	Hospital	<ul style="list-style-type: none">• This study sought to evaluate the impact of hospital value-based purchasing program (HVBP) on clinical quality and patient experience during its initial implementation period (July 2011–March 2012).• Hospital-level data were used from Hospital Compare from up to 5 years before, and three quarters after HVBP was initiated. Maryland hospitals (not participating in HVBP) served as a control.• Hospitals that were exposed to HVBP did not show greater improvement for either the clinical process or patient experience measures during the program's first implementation period.• There was some evidence that hospitals improved performance on clinical process measures prior to the start of HVBP, but not on patient experience measures. It is unclear whether this was driven by the expectation of the program or was the result of other factors.
3.	Does Pay-for-Performance Improve Surgical Outcomes? An Evaluation of Phase 2 of the Premier Hospital Quality Incentive Demonstration ³	Shih T Nicholas LH Thumma JR Birkmeyer JD Dimick JB	Annals of Surgery	Difference-in-differences analysis	Pay-for-performance	USA	Hospital	<ul style="list-style-type: none">• Medicare’s Premier Hospital Quality Incentive Demonstration (PHQID) was initiated in 2003 to reward high-performing hospitals. The program redesigned its incentive structure in 2006 to also reward hospitals that achieved significant improvement.• This study sought to determine if the changes in incentive design in phase 2 of PHQID reduced surgical 30-day mortality or complication rates for coronary artery bypass (CABG), hip replacement, and knee replacement at participating hospitals in 12 states. Non-participating hospitals served as a control.• No improvements were identified for surgical outcomes at participating hospitals.
4.	Does Winning a Pay-for-Performance Bonus Improve Subsequent Quality Performance? Evidence from the Hospital Quality Incentive Demonstration ⁴	Ryan A Sutton M Doran T	Health Services Research	Regression modelling	Pay-for-performance	USA	Hospital	<ul style="list-style-type: none">• This study sought to test whether receiving a financial bonus for quality in the PHQID stimulated subsequent quality improvement. Hospitals received a 1 percent bonus on Medicare payments for scoring between the 80th and 90th percentiles on a composite quality measure, and a 2 percent bonus for scoring at the 90th percentile or above.• Hospital-level data from 2004 to 2006 were analysed on process-of-care quality for acute myocardial infarction (AMI), heart failure, and pneumonia for 260 participating hospitals.• The study found little evidence that hospitals' receipt of quality bonuses was associated with subsequent improvement in performance, raising questions about flow-on effects of pay-for-performance programs.
5.	Payment Reform in Massachusetts: Health Care Spending and Quality in Accountable Care Organizations Four Years into Global Payment ⁵	Song Z	Harvard Medical School (PhD Thesis)	Difference-in-differences analysis	Global (capitated) population based payment; Pay-for-performance	USA	Hospital	<ul style="list-style-type: none">• This thesis studied the effect on spending and quality of the first 4 years of the Blue Cross Blue Shield of Massachusetts Alternative Quality Contract (AQC) that began in 2009. The AQC pays providers a risk-adjusted global budget for the entire continuum of care for a defined population of enrollees insured by Blue Cross Blue Shield. It also awards substantial pay-for-performance incentives for organizations meeting performance thresholds on quality measures.• Data for enrollees in Blue Cross Blue Shield of Massachusetts plans were compared with data from other commercial employer-sponsored plans across 5 comparison states (control group).• Results show modest slowing of the growth rate of health care spending, and improvements in the quality of care for AQC enrollees compared to controls.
6.	Changing Physician Incentives for Affordable, Quality Cancer Care: Results of an Episode Payment Model ⁶	Newcomer LN, Gould B, Page RD, Donelan SA Perkins M	Journal of Oncology Practice	Difference-in-differences analysis				<ul style="list-style-type: none">• This study tested the combination of single payment (as opposed to fee for service) coupled with data provision as an incentive to improve quality and reduce costs in oncology. Medical oncologists were paid a single fee, in lieu of any drug margin, to treat their patients. Chemotherapy medications were reimbursed at the average sales price, a proxy for actual cost.• Five medical groups were compared with a large national payer registry of fee-for-service patients with cancer to examine the difference in cost before and after the initiation of the payment change in 2009. The five groups treated 810 patients with breast, colon, and lung cancer using the episode payments. The actual cost per episode was \$33,361 (34%) lower than the predicted cost (\$64,760,116 vs. \$98,121,388). However, the actual cost of chemotherapy drugs per episode was \$13,460 higher (\$20,979,417 vs. \$7,519,504).• There was no difference between the groups on multiple quality measures.

7.	Maryland’s Bold Experiment In Reversing Fee-For-Service Incentives ⁷	Murray R ^A	Health Affairs Blog	Commentary	Fee-for-service (FFS)	USA (Maryland)	Hospital	<ul style="list-style-type: none"> Maryland is the only US state with an all-payer hospital payment system. For nearly 4 decades, Maryland has financed its hospitals under a FFS model, and has achieved significantly lower per-case cost growth than the rest of the nation. However, while unit costs have been controlled, volumes have escalated at a higher rate than in other States. In January 2014, CMS approved the piloting of a new funding model in Maryland, aiming to shift its hospital funding system toward population health, and the total cost of hospital care per capita. Under the terms negotiated with CMS, Maryland must transition at least 80 percent of hospital revenue to a global budget structure for suburban and urban hospitals. The growth in total hospital revenue will now be subject to two specific per capita constraints: <ol style="list-style-type: none"> limitation on per capita hospital charge growth to a fixed 3.58 percent annually, reflecting the ten-year average annual growth in Maryland’s Gross State Product (GSP). limitation on the growth in hospital expenditures per Medicare FFS beneficiary to the national rate of growth, less enough to generate cumulative Medicare savings of at least \$330 million over the five-year Model. Maryland, with its powerful all-payer rate-setting authority, has a mechanism to achieve this result on a sustained basis. It will test the ability of all-payer hospital population-based payment models to reduce hospital expenditures while maintaining or improving the quality of care.
8.	United States: Maryland hospital acquired conditions programme ⁸	Murray R ^B	Cashin C, Chi Y et al, (eds.) <i>Paying for Performance in Health Care.</i>	Review	Tournament-based P4P	USA (Maryland)	Hospital	<p><i>Also reported to JWP in 2013 – see Item 9.</i></p> <ul style="list-style-type: none"> In 2009 Maryland instituted a Hospital Acquired Conditions (MHAC) program linking remuneration of its 46 acute care facilities to performance on a set of 49 potentially preventable complications (a subset of the 64 potentially preventable complications)PPCs) developed by CMS) derived from administrative data (which permits up to 30 secondary diagnoses per admission) using a ‘present on admission’ indicator. The 49 complications are not condition- or procedure-specific (i.e. they can occur in any type of patient). They correlate reasonably well with the Australian national set of hospital complications developed through the JWP. MHAC measures rates of actual versus expected complications, calculated according to hospitals’ casemix (interestingly, clinicians and managers preferred this method to the ‘DRG payment denial’ approach of the CMS; stakeholders reportedly have confidence in the casemix-adjustment method of Maryland authorities). The scheme is also revenue-neutral, apportioning rewards/penalties in a tournament-type arrangement. USD21M was reallocated in in 2011. Performance data is provided to hospitals quarterly with a 60-day lag. Over the first 2 years, complication rates declined by 15% (resulting in USD111M in savings). The largest decline was in infection-related HACs. In parallel, Maryland developed the Quality Based Reimbursement (QBR) program, which financially rewards/penalties based on hospitals’ performance against measures of processes of care for AMI, heart failure, pneumonia and SSI prevention. Under the QBR money is redistributed from poorly- to well-performing hospitals in a revenue neutral manner. 0.5% of revenue is lost by the worst performer. In 2012, USD\$7.5M was reallocated. While there was overall improvement in adherence to processes of care, no evidence regarding impact on patient outcomes is reported. The key differences are (a) MHAC focuses on outcomes (i.e. complications) in all types of patients, (b) QBR measures adherence to processes for a specified set of procedures / conditions. Both were based on the larger, federal schemes implemented by CMS. The success factors of MHAC can be summarised thus: <ul style="list-style-type: none"> The inclusive and deliberative process in which it was developed. Its broad scope: minimised unintended consequences such as misallocation of resources towards the conditions/procedures measured. The provision of quarterly performance data to hospitals. Strong institutional foundations: data infrastructure and stakeholder trust in processes and methods.
9.	<i>Hospital Pay-For-Performance Programs In Maryland Produced Strong Results, Including Reduced Hospital-Acquired Conditions (2012)</i> ⁹	Calikoglu S Murray R Feeney D	<i>Health Affairs</i>	<i>Before-after comparison</i>	<i>Tournament-based P4P</i>	USA (Maryland)	<i>Hospital</i>	<ul style="list-style-type: none"> <i>Bonuses and penalties were calculated based on 49 hospital acquired conditions</i> <i>These were revenue neutral: Distributed by hospital ranking with a total re-distribution of USD7.5M</i> <i>Achieved a 15% reduction in hospital acquired conditions</i>
10.	Measuring Success in Health Care Value-Based Purchasing Programs: Findings from an Environmental Scan, Literature Review, and Expert Panel Discussions ¹⁰	RAND Corporation	RAND Corporation	Review	Various	Various	All	<p>A comprehensive review of international financial incentive schemes to improve quality of health care. The report concludes that “we still know very little about how best to design and implement VBP programs to achieve stated goals and what constitutes a successful program. The published evidence regarding improvements in performance from the P4P experiments of the past decade is mixed (i.e., positive and null effects); where observed, improvements were typically modest.” The following features of successful programs are identified:</p> <ol style="list-style-type: none"> Sizable incentives Alignment of measures with priorities and broader policy objectives (i.e. measures are meaningful) Provider engagement Performance targets (e.g. 20th percentile of performers) in preference to tournament schemes Data and other quality improvement support <p>These align with the common elements of successful initiatives identified at the JWP’s request.</p>

11.	Emerging Lessons From Regional and State Innovation in Value-Based Payment Reform: Balancing Collaboration and Disruptive Innovation ¹¹	Conrad DA, Grembowski D, Hernandez SE, Lau B and Marcus-Smith M	Millbank Quarterly	Review	Value-based purchasing	USA	Hospital	<p>Evaluates value-based payment reform projects in 6 states and 3 regions of the United States funded by the Robert Wood Johnson Foundation. The results echo findings from other reports and evaluations.</p> <ul style="list-style-type: none"> To achieve the objectives of reduced cost and improved quality, payment innovation must overcome such barriers as incompatible information systems, the technical difficulties and transaction costs of altering existing billing and payment systems, competing stakeholder priorities, insufficient scale to bear population health risk, providers’ limited experience with risk-bearing payment models, and the failure to align care delivery models with the form of payment. A defined set of quality, outcomes, and cost performance measures and the interoperable information systems to support data collection and reporting of value-based payment schemes.
12.	Access to Coronary Artery Bypass Graft Surgery Under Pay for Performance: Evidence From the Premier Hospital Quality Incentive Demonstration ¹²	Epstein AM, Joynt KE, Jha AK and Orav EJ	Circulation: Cardiovascular Quality and Outcomes	Comparative analysis	P4P	USA	Hospital	<p>Using Medicare data, authors compared changes in rates of coronary artery bypass graft surgery between 2002 to 2003 and 2008 to 2009 among patients with AMI admitted to hospitals participating in Medicare’s Premier Hospital Quality Incentive Demonstration P4P program with patients control hospitals.</p> <ul style="list-style-type: none"> Coronary artery bypass graft surgery rates for patients with AMI decreased similarly for Premier hospitals and in non-Premier hospitals. Similar results were observed for coronary artery bypass graft surgery rates for high-risk patients. Results indicate no evidence of a deleterious effect of P4P on access to coronary artery bypass graft surgery for high-risk patients with AMI.
13.	Physician integration revisited—An exploratory study of monetary and professional incentives in three countries ¹³	Janus K and Brown LD	Health Policy	Qualitative exploratory survey	Various	USA, England, Germany	Various	<ul style="list-style-type: none"> This paper explores the mix of monetary and professional inducements these organizations employ to attract and retain physicians in 151 integrated care organizations in the U.S., England, and Germany. The organizations sampled do not rely exclusively on selective monetary incentives, but rather employ a composite portfolio of the two types. Despite the considerable “macro” differences, these incentives appear with remarkable consistency at the “micro” level of organisations in the three nations. Findings call for closer attention to the ‘big motivational picture’, and especially to the importance of professional considerations within it, if healthcare organisations hope to deploy effectively the whole spectrum of available incentives for physicians.
14.	How do Non-Monetary Performance Incentives for Physicians Affect the Quality of Medical Care? – A Laboratory Experiment ¹⁴	Kairies-Schwarz N, Krieger M	Ruhr Economic Papers	Controlled experiment	Performance reporting	Various	Various	<ul style="list-style-type: none"> This study used a controlled laboratory experiment to isolate the impact of nonmonetary performance incentives – performance reporting. Subjects (medical and other faculty students) made hypothetical treatment decisions for patients, receiving feedback on the quality of their treatment. The subjects’ decisions resulted in payments to real patients. The authors postulate that by giving either private or public feedback enabled disentangling the intrinsic motivational effects such as self-esteem and social reputation. Results indicate a strong correlation between public feedback incentives with positive effect on the quality of care that is provided. Private feedback, on the other hand, had no impact on treatment quality. These results hold for both medical students and for other students.
15.	Value-based purchasing and hospital acquired conditions: Are we seeing improvement? ¹⁵	Spaulding A, Zhao M and Haley DR	Health Policy	Negative binomial regression	Value-based purchasing	USA	Hospital	<ul style="list-style-type: none"> This study sought to determine if the Value-Based Purchasing Performance Scoring system correlates with hospital acquired condition quality indicators. Databases used: the American Hospital Association (AHA) annual survey and the Centers for Medicare and Medicaid (CMS) Value-Based Purchasing and Hospital Acquired Conditions. Value-based purchasing does not appear to correlate with improved quality and patient safety as indicated by Hospital Acquired Condition (HAC) scores, leading the authors to conclude that either the total performance score does not measure what it should, or the quality outcome measurements do not reflect the quality of the total performance scores measure.
16.	A Strategy for Successful Implementation of Bundled Payments in Orthopaedic Surgery ¹⁶	Bozic KJ and Ward L	JBJS Reviews	Review	Bundled payment	USA	Hospital	<ul style="list-style-type: none"> ‘Bundled payment’ describes a healthcare remuneration model in which an agreed, single payment is made to all providers responsible for the care of a patient with a condition/ undergoing a procedure. It is a response to rising costs and questionable outcomes associated with fragmented payments to specialty providers. This paper outlines a stepwise approach to implementing ‘based on learnings from an initiative covering total joint arthroplasty. While written in the US context, there are parallels with the ‘best practice pricing’ model in other jurisdictions. Successful implementation of a bundled payment system requires clinical and administrative leaders who are committed to developing new systems of delivering care and willing to hold themselves accountable for both the costs and clinical outcomes associated with the care they deliver. Key factors include: (a) choosing a conditions/procedure with sufficient volume/cost; (b) defining the episode in terms of trigger and end-point; (c) robust measurement tools and performance metrics; (d) pricing and costing; and (e) evaluation.
17.	Can Bundled Payment Improve Quality and Efficiency of Care for Patients with Hip Fractures? ¹⁷	Antonova E, Boye M, Sen N, O’Sullivan A, Burge R	Journal of Aging & Social Policy	Review	Bundled payment	USA	Hospital	<ul style="list-style-type: none"> Another paper canvassing the benefits of bundled payment in improving care and reducing costs. A key advantage cited here is that it promotes shared accountability for the patient among the various providers and facilities involved in the patient’s care. It aligns incentives – both financial and patient-related. According to the evidence, hip fracture care is often associated with poor quality and patient harm. Surgical delay is the largest determinant of outcome in patients admitted for hip fracture.

18.	Designing smarter pay-for-performance programs ¹⁸	McKethan A and Jha AK	JAMA	Commentary	P4P	USA	Various	<ul style="list-style-type: none"> • Thoughtful piece (a) reflecting on the so-far disappointing results of P4P, and (b) proposing an alternative to current schemes, which focus on selecting on specific conditions, processes and measures, but pay little regard to patient suitability. • This paper suggests incentives should target ‘at risk’ patients who would benefit from additional resources and attention (i.e. those with multiple-morbidities, poor social support systems, poor access to primary care etc.). • A predictive model is suggested as the technical platform to profile patients, going beyond casemix adjustment to incorporating any factors that increases the likelihood of a poor clinical outcome [remoteness, SES for example]. • Such a scheme would “reward high-quality health care professionals, not health care professionals whose patients are likely to do well irrespective of incentives.” • A common reservation about P4P is the risk of patient selection bias, which the suggested approach could perhaps mitigate.
-----	--	-----------------------	------	------------	-----	-----	---------	--

3.6.1 References

1.Kristensen SR, Meacock R, Turner AJ, Boaden R, McDonald R, Roland M, et al. Long-Term Effect of Hospital Pay for Performance on Mortality in England. *New England Journal of Medicine* 2014;371(6):540-548.

2.Ryan AM, Burgess JF, Pesko MF, Borden WB, Dimick JB. The Early Effects of Medicare's Mandatory Hospital Pay-for-Performance Program. *Health Services Research* 2014;n/a-n/a.

3.Shih T, Nicholas LH, Thumma JR, Birkmeyer JD, Dimick JB. Does Pay-for-Performance Improve Surgical Outcomes? An Evaluation of Phase 2 of the Premier Hospital Quality Incentive Demonstration. *Annals of Surgery* 2014;259(4):677-681 610.1097/SLA.0000000000000425.

4.Ryan A, Sutton M, Doran T. Does Winning a Pay-for-Performance Bonus Improve Subsequent Quality Performance? Evidence from the Hospital Quality Incentive Demonstration. *Health Services Research* 2014;49(2):568-587.

5.Song Z. Payment Reform in Massachusetts: Health Care Spending and Quality in Accountable Care Organizations Four Years into Global Payment. Harvard University, 2014.

6.Newcomer LN, Gould B, Page RD, Donelan SA, Perkins M. Changing Physician Incentives for Affordable, Quality Cancer Care: Results of an Episode Payment Model. *Journal of Oncology Practice* 2014.

7.Murray R. Maryland’s Bold Experiment In Reversing Fee-For-Service Incentives. In: Health Affairs, editor. *Health Affairs Blog*, 2014.

8.Murray R. United States: Maryland hospital acquired conditions programme. In: Cashin C, Chi Y, Smith P, Borowitz M, Thomson S, editors. *Paying for Performance in Health Care*. Berkshire, England: McGraw Hill, 2014:265-285.

9.Calikoglu S, Murray R, Feeney D. Hospital Pay-For-Performance Programs In Maryland Produced Strong Results, Including Reduced Hospital-Acquired Conditions. *Health Affairs* 2012;31(12):2649-2658.

10.RAND Corporation. Measuring Success in Health Care Value-Based Purchasing Programs: Findings from an Environmental Scan, Literature Review, and Expert Panel Discussions. Washington DC. RAND Corporation, 2014.

11.Conrad DA, Grembowski D, Hernandez SE, Lau B, Marcus-Smith M. Emerging Lessons From Regional and State Innovation in Value-Based Payment Reform: Balancing Collaboration and Disruptive Innovation. *Milbank Quarterly* 2014;92(3):568-623.

12.Epstein AM, Joynt KE, Jha AK, Orav EJ. Access to Coronary Artery Bypass Graft Surgery Under Pay for Performance: Evidence From the Premier Hospital Quality Incentive Demonstration. *Circulation: Cardiovascular Quality and Outcomes* 2014.

13.Janus K, Brown LD. Physician integration revisited—An exploratory study of monetary and professional incentives in three countries. *Health Policy* (0).

14.Kairies-Schwarz N, Krieger M. How do Non-Monetary Performance Incentives for Physicians Affect the Quality of Medical Care? – A Laboratory Experiment. *Beiträge zur Jahrestagung des Vereins für Socialpolitik 1014: Evidenzbasierte Wirtschaftspolitik - Session: Health I, No. A10-V2* 2014.

15.Spaulding A, Zhao M, Haley DR. Value-based purchasing and hospital acquired conditions: Are we seeing improvement? *Health Policy* (0).

16.Bozic KJ, Ward L. A Strategy for Successful Implementation of Bundled Payments in Orthopaedic Surgery. *JBJS Reviews* 2014;2(10).

17.Antonova E, Boye ME, Sen N, O’Sullivan AK, Burge R. Can Bundled Payment Improve Quality and Efficiency of Care for Patients with Hip Fractures? *Journal of Aging & Social Policy* 2014:null-null.

18.McKethan A, Jha AK. Designing smarter pay-for-performance programs. *JAMA* 2014.

3.6 Summary of literature January 2015 – June 2015

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
1.	Leaders experiences and perceptions implementing activity-based funding (ABF) and pay-for-performance (P4P) hospital funding models: A systematic review	Baxter PE, Hewko SJ, Pfaff KA, Cleghorn L, Cunningham BJ, Elston D, Cummings GG.	Health Policy	Systematic Review	Thematic analysis to describe experiences of hospital leaders in implementing funding reforms	Canada	Health care leaders within OECD countries implementin g funding reforms OECD	<ul style="list-style-type: none"> ABF and P4P are the two most widely adopted funding models in the OECD. They operate under two assumptions: <ul style="list-style-type: none"> i. money motivates individuals to change behaviour ii. behavioural change will result in quality improvement 2 mixed methods and 12 qualitative studies were included with thematic analysis use to synthesise results Five common themes emerged: <ul style="list-style-type: none"> i. Prerequisites for success – organisational factors and presence of committed leadership ii. Perceived benefits – improved efficiency, greater emphasis on accountability, improved data accuracy iii. Barriers/challenges – lack of resources (staffing, training, data collection), lack of leader commitment iv. Unintended consequences – opportunistic behaviour and gaming, risk selection of patients, up-coding v. Leader recommendations – garnering support from organisational and program unit levels to implement Regardless of the type of hospital funding reform, health care leaders described similar experiences in implementation. It was described as a complex process. It requires organisational commitment; adequate infrastructure; human, financial and information technology resources; change champions and a personal commitment to quality care.
2.	Should fee-for-service be for all guideline-advocated acute coronary syndrome (ACS) care? Observations from the Snapshot ACS study	Briffa TG, Hammett CJ, Cross DB, Macisaac AI, Rankin JM, Board N, Carr B, Hyun KK, French J, Brieger DB, Chew DP	Australian Health Review	Descriptive and logistic regression analysis	Explores association between health insurance status and provision of ACS care	Australia	Hospitalisati ons of suspected ACS were enrolled in this study of	<ul style="list-style-type: none"> This study explored the association of health insurance status on the provision of guideline-advocated ACS care in Australia Privately-insured patients were more likely to receive services which attract a potential fee for service. More undergo inpatient echocardiography and receive early angiography compared with public patients. Privately insured patients with a discharge diagnosis of ACS also had a higher rate of revascularisation ($P < 0.001$) Fewer privately insured ACS patients were discharged on guideline therapies or be referred to a secondary prevention program. Neither of these interventions directly attract a fee In conclusion, fee-for-service could explain the differences in the provision of selected ACS guideline therapies between privately insured and public patients.
3.	Quality Improvement and Patient Safety	Martinez EA, Varughese AM, Buck DW, Heitmiller ES	Miller's Anesthesia	Book chapter			Textbook published for anaesthesiol ogists	<ul style="list-style-type: none"> A textbook chapter which describes that improving the quality of care requires measuring performance. But many in healthcare do not have access to performance data and consequently do not know what results they achieve Frameworks for improvement include the Model for Improvement (Plan, Study, Do Act cycle), Lean Methodology , Six Sigma.
4.	The forest through the trees: maximising value in an evolving healthcare system	Seidman J, Staloff J, Coppage M, Jagun D, Valladares A	Avalere Health	Literature review and expert interviews	Exploratory study to determine which innovations contribute the most value to healthcare	USA	Report published online	<ul style="list-style-type: none"> This study aimed to determine which innovations contribute the most value to healthcare. This is in the context of the US healthcare system transition, moving from rewarding volumes to value It identified five salient lessons in maximising value in the evolving healthcare system <ul style="list-style-type: none"> i. Payment models that achieve the greatest value share three characteristics: <ul style="list-style-type: none"> ▪ Hold providers broadly accountable for population health against a global budget ▪ Empower providers by giving resources and supports necessary for long-term success ▪ Grant autonomy to providers in defining the 'how' of delivering value in healthcare ii. Successful care delivery changes consider both the clinical and non-clinical needs of a population, employing non-traditional providers and workflows to meet population needs throughout the care continuum iii. Consumers are most engaged with their health and healthcare when payers and providers engage with and value their individual needs, and innovations are most impactful when targeting high-risk, high-need individuals iv. Data and technological infrastructure are essential for both measuring and achieving value in population health management, but the need for additional research on how to best leverage these resources is equally essential v. Payment and delivery models must take into account the unique circumstances of individual markets in order to maximise value, instead of pursuing rigid models across disparate settings Current evidence on bundled payment models is promising but inconclusive. The study references a systematic review of low-quality evidence which found bundled payments are effective for cost containment and can improve quality of care.

5.	Do financial incentives trump clinical guidance? Hip replacement treatment in England and Scotland	Papanicolas I, McGuire A	Office of Health Economics	Natural experiment using difference in difference methodology	Seminar presented at the Office of Health Economics	United Kingdom	Focus on uncemented v cemented approaches to hip prosthese	<ul style="list-style-type: none"> A seminar was presented by Dr Papanicolas and Professor McGuire on the impact of difference payment policies on activity for hip replacement at the Office of Health Economics Since 2005, Scotland and England have followed difference healthcare financing policies (with England introducing case based payment systems). Scotland was therefore used as a control to test the effects of the introduction of a case based payment in England They focused on uncemented v cemented hip prostheses because clinical guidance says that the two procedures have similar clinical outcomes. There is also no long term evidence to recommend one over the other In England, the uncemented procedure has a higher reimbursement value than the cemented (accounting for average cots). This creates a financial incentive for hospitals to perform the uncemented procedure Using a difference in difference method and adjusting for hospital and patient characteristics, NHS England undertook more uncemented hip replacements than Scotland after case based payments were introduced This study inference that the choice of hip replacement procedure in English NHS hospitals was influenced by financial incentives, rather than by clinical guidance or evidence.
6.	Hospital Quality Reporting by US News & World Report: Why, How, and What's Ahead	Rice S	Journal of American Medical Association	Development of performance rating system	Development of quality indices	USA	for inpatient procedures	<ul style="list-style-type: none"> For 25 years, US News & World Report has published indices of hospital quality to provide health care consumers with decision support. US News annually ranks hospitals in 16 adult and 10 paediatric specialties US News recently developed novel composite quality indices for more than a dozen frequently performed inpatient procedures and prevalent medical conditions. This is known as the “Common Care” rating system. A subset of the results, expressed as hospital-level ratings in hip replacement, knee replacement, coronary artery bypass surgery, heart failure, and chronic obstructive pulmonary disease (COPD), have just been published online More than 4300 US acute care hospitals have been evaluated and each is rated as high performing, average, or below average in 1 or more of the 5 initial cohorts Approximately 10% of the hospitals rated in each condition were ‘high-performing’ and another 10% were ‘below average’.
7.	A qualitative and quantitative evaluation of the Advancing Quality pay-for-performance program in the National Health System North West	McDonald R, Boaden R, Roland M, Kristensen SR, Meacock R, Lau YS, Mason T, Turner AJ, Sutton M	Health Services and Delivery Research	Difference in difference analyses comparing performance on incentivised conditions and impact on mortality	Introduction of a voluntary quality improvement financial reward program	United Kingdom	Advancing Quality provides financial incentives for improvement in NHS north-west England	<ul style="list-style-type: none"> In 2008, the NHS in North West region of England introduced a voluntary scheme offering the potential for health-care providers to earn financial rewards by improving quality After the first 18 months of the scheme, there was a reduction in risk-adjusted mortality for three clinical conditions included in the scheme (pneumonia, heart failure and myocardial infarction). This was larger than reductions elsewhere in the NHS and significantly larger than other non-incentivised conditions in the North West However, at 42 months the risk-adjusted mortality for the three incentivised conditions fell in both the North West and the rest of England. The reduction in the rest of England was larger than in the North West and was mainly in pneumonia. However, the reductions in mortality were larger for the non-incentivised conditions in the North West than in the rest of England between 18 months and 42 months The Advancing Quality program was relatively cost-effective in its first 18 months, however it is open to interpretation over the longer term (42 months). Perhaps the short-term improvements were not sustained and the observations were unrelated – or, perhaps these improvements are related to the positive spillover effect of the program.
8.	The impact of providing feedback under negative financial incentives: Evidence from a field experiment	Lourenco SM, Greenberg JO, Spinks M, Bates D, Narayanan VG	European Accounting Association Annual Congress 2015	Field experiment	Using negative financial incentives	North America	181 physicians from a North American hospital implementing e-prescribing	<ul style="list-style-type: none"> This field experiment studies the effect of feedback in the context of negative financial incentives Prior research has shown that people react differently to losses and gains. The use of feedback in conjunction with monetary incentives is usually used positively i.e. money is given as a reward for good performance This study uses negative financial incentives whereby there was clear formal evaluation that could lead to contract termination Physicians were split into two groups, where treatment group received performance feedback about their e-prescribing rate and could access a web page providing a display of historical performance. The control group did not receive any direct information about their performance Results showed that low performers in the treatment group improved their e-prescribing rates less and later than low performers in the control group who received no tangible reference to the distance from their goal. For low performers in the treatment group, feedback had a counterproductive effect as performance only increased in response to feedback reports in the post-evaluation periods In summary, this study shows that feedback can delay performance improvements when negative financial incentives are present. However, caution should be taking about generalising these results to tasks with high on-going efforts as this was an implementation study.
9.	Use of provider-level dashboards and P4P in venous thromboembolism prophylaxis	Michtalik HJ, Carolan HT, Haut ER, Lau BD, Streiff MB, Finkelstein J, Pronovost PJ, Durkin N, Brotman DJ	J Hosp Medicine	Comparative analysis	Using dashboards and P4P programs	Maryland, USA	Retrospective analysis of Maryland inpatient admissions	<ul style="list-style-type: none"> This study sequentially examined an individualized physician dashboard and P4P programs to improve VTE prophylaxis rates among hospitalists 3144 inpatient admissions were analysed retrospectively for VTE prophylaxis compliance against the American College of Chest Physicians’ guidelines After a baseline observation period of web-based hospitalist dashboard feedback only, a P4P program was incorporated. Graduated payouts were made for compliance rates of 80% to 100%. The results showed that compliance significantly improved with the dashboard use and addition of the P4P program. The highest rate of improvement occurred with the dashboard (1.58% per month, P = 0.01) Annual individual physician performance payments ranged from \$53 USD to \$1244 USD (mean \$633, SD \$350) This study suggests that real-time dashboards and physician-level incentives may assist hospitals in achieving higher safety and quality benchmarks.

10.	Setting Value-Based Payment Goals — Department of Health and Human Services (DHHS) Efforts to Improve U.S. Health Care	Burwell SM	New England Journal of Medicine	New Medicare target policy	Tying fee-for-service payments to quality	USA		<ul style="list-style-type: none"> Medicare is the largest health purchaser in the US The DHHS goals are to have 85% of all Medicare fee-for-service payments tied to quality or value by 2016, and 90% by 2018 Additionally, the target is to have 30% of Medicare payments tied to quality or value through alternative payment models by the end of 2016, and 50% of payments by the end of 2018. Alternative payment models include accountable care organizations and bundled-payment arrangements under which health care providers are accountable for the quality and cost of the care they deliver to patients This is the first time that Medicare is setting explicit goals for alternative payment models and value-based payments.
11.	Payment Reform Is About to Become a Reality	Cutler, DM	The JAMA Forum	New Medicare target policy	Tying fee-for-service payments to quality	USA		<ul style="list-style-type: none"> Follow on article from number 10 above Specifics about new payment models were not announced This lack of specificity may explain the cautious reaction of professional societies to the news.
12.	Incentives to follow best-practice in health care	Schaffer SK, Sussex J, Feng Y	Office of Health Economics Research	Review of empirical evidence about the impact of incentives using PubMed		United Kingdom	Focuses on use of incentives in the English NHS and other international literature from 2004 onwards	<ul style="list-style-type: none"> P4P programs appear, more often than not, to have a beneficial effect in primary and secondary care. This includes positive results in: <ul style="list-style-type: none"> i. Use of P4P in chronic care (rather than acute care) ii. Use of P4P for diabetes, smoking cessation and asthma iii. Programs with clinical outcomes (rather than patient experience measures) iv. The use of process indicators (rather than outcome measures) v. Lower baseline levels of quality vi. Use of positive incentives for all participants (rather than schemes creating ‘winners’ and ‘losers’) vii. Use of incentives for individual providers and teams (rather than whole hospitals) viii. New funds being made available (rather than a redistribution of existing funds) There appears to be scope for introduction of additional policies and modification of current NHS incentives to reduce variation in adherence to best-practice guidance.
13.	A Picture of Progress on Hospital Errors	Cohn, J	The Milbank Quarterly	Review of government and hospital policies for improving health care quality	Examination of government policies and private sector initiatives	USA	Examination of payment reforms designed to minimize medication errors and readmission.	<ul style="list-style-type: none"> The Department of Health and Human Services (USA) released data in December 2014 showing that the number of hospital-acquired conditions fell by 17% over 3 years “Obamacare” and “Partnership for Patients” introduced payment reforms where large hospitals were rewarded financial incentives that prioritized the reduction of errors The “Affordable Care Act” saw changes in Medicare payments, penalizing hospitals with high rates of readmission for certain conditions Opposing arguments have arisen suggesting that improvements in the quality of healthcare are due to a combination of public policy and private initiatives, and not solely the introduction of government financial incentives. Forward-thinking hospitals all put a high priority on patient care, and forward-thinking corporations are eager to support these initiatives. Forward-thinking hospitals are bound by their own initiative programs for quality improvement, where as other hospitals won’t change their ways unless real financial incentives are on the line
14.	Improving the care of patients with a hip fracture: a quality improvement report	Hawkes D, Bater J, Bailey C, Holland G, Ruddlesdin J, Wall A, Wykes P	BMJ Qual Saf	Audit cycle charting achievements against best-practice in hip fracture care	Two audit cycles of the national hip fracture database	England	An audit of patients at Royal Bolton Hospital in North West of England	<ul style="list-style-type: none"> The Best practice Tariff for hip fracture care was introduced by the UK Department of Health in April 2010. The United Kingdom’s National Hip Fracture Database and Best Practice Tariff were audited in two cycles in a district general hospital in the North West of England. The primary audit criterion was operative intervention within 36 hours of admission The first cycle audit comprised 379 patients (admitted between May 2012 and April 2013) and there was a prospective re-audit of 162 patients (admitted between January 2013 and June 2014) The proportion of patients undergoing operative intervention within 36 hours of admission improved from 41% to 78% (p<0.001). Overall achievement of the Best Practice Tariff was significantly higher during the second cycle going from 28% to 73% (p,0.001). Significant improvements in the quality of hip fracture care were achieved following this audit. It demonstrates that targeted interventions can be introduced to address local specific problems in service provision.
15.	Hospitals to lose if veterans’ care lacking	Parnell S	The Australian	Newspaper article	Department of Veterans’ Affairs (DVA) contracting with private hospitals	Australia	Quality and safety aspects of contracting with private hospitals	<ul style="list-style-type: none"> This article was published in the Australian newspaper by the health editor It highlights policy movements towards paying for safety and quality in the private sector The Department of Veteran’s Affairs has notified private hospitals that in their next round of contracts (2016-2020), hospitals will not be paid for: <ul style="list-style-type: none"> i. eight sentinel events including wrong site surgery and suicide in an inpatient unit ii. unplanned readmissions within 28 days for a complication related to first admission Australian Private Hospitals Association stated that the initiatives success would depend more on the definitions being intended to be used more than the willingness of the sector to comply. Bupa signed similar agreement last year with Healthscope.

References

- Baxter PE, Hewko SJ, Pfaff KA, Cleghorn L, Cunningham BJ, Elston D, Cummings GG. Leaders’ experiences and perceptions implementing activity-based funding and pay-for-performance hospital funding models: A systematic review. *Health Policy*. Forthcoming 2015 May. doi:10.1016/j.healthpol.2015.05.003
- Briffa TG, Hammett CJ, Cross DB, Macisaac AI, Rankin JM, Board N, Carr B, Hyun KK, French J, Brieger DB, Chew DP. Should fee-for-service be for all guideline-advocated acute coronary syndrome (ACS) care? Observations from the Snapshot ACS Study. *Australian Health Review*. [Internet]. 2015. Available from: <http://dx.doi.org/10.1071/AH14153>

3. Martinez EA, Varughese AM, Buck DW, Heitmiller ES. Quality Improvement and Patient Safety. In: Miller RD, Eriksson LI, Fleisher LA, Wiener-Kronish JP, Cohen NH, Young WL, editors. *Miller's Anesthesia*. Elsevier Health Sciences; 2014. vol 1 p.87-105.
4. Seidman J, Staloff J, Coppage M, Jagun D, Valladares A. The Forest Through the Trees: Maximizing Value in an Evolving Healthcare System. Washington (DC): *Avalere Health*; 2015 May. Available from: <http://uclainnovates.org/news/2015-05-13/forest-through-trees-maximizing-value-evolving-healthcare-system>
5. Papanicolas I, McGuire A. Do Financial Incentives Trump Clinical Guidance? Hip Replacement Treatment in England and Scotland. *Office of Health Economics* [Internet]. 2015 May 19 [cited 2015 Jun 3]. Available from: <https://www.ohe.org/news/do-financial-incentives-trump-clinical-guidance-hip-replacement-treatment-england-and-scotland>
6. Rice S. New rating looks at hospital performance on high-volume procedures. *Modern Healthcare* [Internet]. 2015 May 20 [cited 2015 Jun 3]; Available from: <http://www.modernhealthcare.com/article/20150520/NEWS/150519876>
7. McDonald R, Boaden R, Roland M, Kristensen SR, Meacock R, Lau Y-S, Mason T, Turner AJ, Sutton M. A qualitative and quantitative evaluation of the Advancing Quality pay-for-performance programme in the NHS North West. *Health Services and Delivery Research*. 2015;3(23).
8. Lourenco SM, Greenberg JO, Spinks M, Bates D, Narayanan VG. The impact of providing feedback under negative financial incentives: Evidence from a field experiment. Proceedings of the 38th European Accounting Association Annual Congress; 2015 Apr 28-30; Glasgow, Scotland (UK).
9. Michtalik HJ, Carolan HT, Haut ER, Lau BD, Streiff MB, Finkelstein J, Pronovost PJ, Durkin N, Brotman DJ. Use of provider-level dashboards and pay-for-performance in venous thromboembolism prophylaxis. *Journal of Hospital Medicine*. 2015 Mar 10(3):172-178.
10. Burwell SM. Setting Value-Based Payment Goals – HHS Efforts to Improve U.S. Health Care. *New England Journal of Medicine*. 2015 Mar 5;372:897-899.
11. Cutler DM. Payment Reform Is About to Become a Reality. *Journal of the American Medical Association* [Internet]. 2015 Feb 11 [cited 2015 Apr 28]. Available from: <http://newsatjama.jama.com/category/the-jama-forum/>
12. Schaffer SK, Sussex J, Feng Y. Briefing 55: Incentives to follow Best Practice in Health Care. Southside (London): *Office of Health Economics* (UK); 2015 Feb.
13. Cohn, J. A Picture of Progress on Hospital Errors. *The Milbank Quarterly*. 2015; 93(1):36-39.
14. Hawkes D, Bater J, Bailey C, Holland G, Ruddlesdin J, Wall A, Wykes P. Improving the care of patients with a hip fracture: a quality improvement report. *BMJ Qual Saf*, 2015; 0; 1-7.
15. Parnell S. Hospitals to lose if veterans' care lacking. *The Australian*. 2 June 2015.

3.7 Summary of literature June 2015 – October 2015

	Article name	Authors	Publication	Study design	Model(s) & mechanism	Country	Context & setting	Results, impact, key points
1	The Effect of Pay for Performance in the Emergency Department on Patient Waiting Times and Quality of Care in Ontario, Canada: A Difference-in-Differences Analysis (1)	Vermeulen et al	Annals of Emergency Medicine	Retrospective observational study	Using multivariable difference-in-difference analysis	Canada	P4P program in Ontario Emergency Departments	<ul style="list-style-type: none"> In 2008, the Ontario Ministry of Health launched the ED wait times strategy. This included: <ul style="list-style-type: none"> i. Public reporting of ED performance ii. Setting province-wide benchmarks and targets for length of stay iii. Lean improvement program iv. Pay for results program with annual financial incentives for improved performance on length of stay (voluntary) This study analysed ED visits from 2007 to 2011. Pay-for-performance (P4P) hospitals and control sites were selected for three waves of the wait time strategies. Outcomes were measures 1 year from implementation between program and control hospitals Short-term, modest improvements were observed as a result of greater reductions or smaller increases in ED length of stay in program vs control hospitals. This shows that voluntary P4P programs in EDs may improve performance via length of stay The study noted that the effect of P4P on ED processes and outcomes warrants further study, particularly the effect of design features and contextual factors.
2	Patients' views on pay for performance in France: a qualitative study in primary care(2)	Saint-Lary et al	British Journal of General Practice	Qualitative study	Semi-structured patient interviews	France	Primary Care through GP clinics	<ul style="list-style-type: none"> P4P was implemented in 2009 in France. Since 2012, it has been standard for most General Practitioners Forty French family practice patients were interviewed about P4P in 2013 Most patients did not know what P4P was and had stated that they did not notice any change in care since the system was introduced Some patients noted possible benefits in the quality of care (e.g. improvements in follow-up and prevention, better information) Some patients were worried about over-prescription of unnecessary medical treatments, increasing costs, patient selection and standardised consultations
3	Long-Term Effect of Hospital Pay for Performance on Mortality in England (3)	Kristensen et al	New England Journal of Medicine	Retrospective data analysis	Difference in difference regression analysis	NHS England (Northwest)	NHS Hospitals	<ul style="list-style-type: none"> Advancing Quality is a program that was implemented in Northwest England in 2008 The introduction of the program was associated with a short-term (18 month) reduction in mortality. Longer term, 30-day in-hospital mortality among 1.8 million hospital admissions for the analysis compared risk adjusted mortality for an 18 month period before the program was introduced with subsequent mortality in the first 18 months (shorter term) and then the next 24 months (longer term) Throughout the program, hospitals in the incentive program continues to improve performance. Mortality for the three conditions covered by the participating hospitals fell. However, the reduction in mortality was greater in control hospitals. By the end of the study period, the reduced mortality was no longer significant There was the possibility of a positive spillover effect to other conditions not covered by the program Short-term relative reductions in mortality for conditions linked to financial incentives were therefore not maintained Financial payments were made to the hospitals, not clinical teams directly.
4	"Never Events" and the quest for preventable harm (4)	Austin JM and Pronovost PJ	The Joint Commission Journal on Quality and Patient Safety	Discussion article	Observational	US	Centre for Medicaid Services	<ul style="list-style-type: none"> This article explores never events and their definitions by different healthcare organisations around the world Never event data are obtained through a variety of methods including self-reported, claims data and routine screening Healthcare would benefit from having one 'never event' list to standardise surveillance and reporting of these events. There are issues with timelags in reporting never event data The article contains a discussion about never event data informing hospital payment primarily in the United States Reaction to the payment policies have been mixed, however there has been limited evaluation of the never events in the US The article discusses the challenges in determining preventability and states that most entities recognise that not all events are fully preventable. It recognises that some may be 'largely preventable' or 'reasonably' preventable. Furthermore, there seems to be strong agreement in the Centre for Medicaid Services that surgical never events are almost entirely preventable, but nosocomial infections are not The article provides four recommendations to enhance the ability of never events to reduce preventable harm in the US: <ul style="list-style-type: none"> i. Agreement on a standard definition of a never event ii. Establish standards for the accuracy of never events derived from administrative data iii. Transparently report the number of never events iv. Create mechanisms to share best practices for reducing all types of never events
5	Hospital board and management practices are strongly related to hospital performance on clinical quality metrics (5)	Tsai et al	Health Affairs	Qualitative study	Data was collected from surveys (world management survey and the hospital boards survey)	US and UK hospital groups	Findings were not representative of all hospitals as it was a non-random subset of hospitals	<ul style="list-style-type: none"> The study claims that the association between hospital leadership and quality has not been explored in depth. Therefore it explores the relationships amongst hospital boards, management practices of front-line managers, and the quality of care delivered The study found that effective board practices were associated with a specific pattern of management practices: <ul style="list-style-type: none"> ➤ Hospitals with more effective management practices provided higher quality care ➤ Higher-rated hospital boards had superior performance by hospital management staff ➤ Hospitals with boards that paid greater attention to clinical quality had management that better monitored quality performance ➤ Hospitals using clinical quality metrics more effectively had higher performance by hospital management staff on target setting and operations

6	Most hospitals face 30-day readmissions penalty in fiscal 2016 (6)	Rice S	Modern Healthcare	News-letter article	Opinion piece analysing Centre for Medicaid data	US	Data analysis from national hospital admissions data	<ul style="list-style-type: none"> This article discusses the US hospital readmissions reduction program. This program, created under the Affordable Care Act in 2014, evaluated how patients with myocardial infarction, heart failure or pneumonia returned to hospital within 30 days of discharge. Two conditions were added in 2015, COPD and total hip/knee replacements. The penalty in 2015 was 3% reduction in payment per admission. It is estimated that the majority of hospitals faced fines in 2014-15 with only 799 out of 3400 receiving no penalties. No further quantum is provided The program continues to receive some criticism especially for facilities in poor communities. However, certain types of hospitals (e.g. critical-access hospitals and Maryland because of its unique all-payer rate-setting system) are exempt.
7	Bundling risk: New demo program shows CMS' eagerness to ditch fee for service (7)	Modern Healthcare	Modern Healthcare	Online article	Opinion piece on Medicare bundled payments	US	Hip and knee replacements	<ul style="list-style-type: none"> Bundled payments are used for hip and knee replacement procedures in some parts of the US Bundling starts with hospital admission and extend for 90 days Joint replacement spending after patients leave the hospital varies widely and makes up nearly half of Medicare's total spending on joint replacements Hospitals that cannot manage to hold spending within the bundled amount, need to repay Medicare the difference after the first year Potential expansions to the model include CABG and treatment for chronic conditions such as diabetes and heart failure The article surmises examples of successful local bundling programs. For example, one three year initiative in bundling for joint replacement and cardiac care reduced spending by \$319 per person (source: Advisory Board Co.)
8	Accountable care organisations: the national landscape (8)	Shortell et al	Journal of Health, Politics and Law	Review of evidence	Examines published literature and national US health data	US	Accountable care organisations (hospital and primary care)	<ul style="list-style-type: none"> This article describes the characteristics of the over 700 accountable care organisations in the US The vast majority of ACOs (84 percent) make shared savings contingent on meeting quality performance metrics, and 40 percent include additional bonus payments for quality performance The evidence to date on whether ACOs can help achieve the triple aim of improving quality and population health while reducing the rate of growth in costs is mixed Ongoing and new evaluations over the next few years will provide a more comprehensive assessment of ACO performance, but what seems clear is that there will be “winners” and “losers,” that is, higher performers and lower performers
9	Risk factors predict increased length of stay and readmission rates in revision joint arthroplasty (9)	Keswani et al	Journal of Arthroplasty	Retrospective analysis	Bivariate and multivariate analyses of risk factors for 30-day readmission and extended LOS were assessed using preoperative and intraoperative variables.	US	Data were analysed from the American College of Surgeon's National Surgical Quality Improvement Program	<ul style="list-style-type: none"> Several primary total joint replacement bundled payment programs in the US have credited reduction of inpatient LOS as a major lever for creating cost savings relative to baseline This study identified risk factors for 30-day readmission and extended length of stay (LOS) in revision total knee and hip arthroplasty patients Cohort was all patients undergoing knee or hip replacement revision in 2011-13 The most common causes for revision were mechanical (52% knee, 52% hip), infection (13% knee, 8% hip), dislocation (6% knee, 13% hip) and fracture (1% knee, 4% hip). Rate of readmission for knee patients (6.4%, 318 patients) was lower than for hip patients (8.0%, 409 patients) (p=0.002). The study recommended that P4P models must account for nonmodifiable risk factors for readmission and extended LOS by appropriate risk-adjustment, with sub stratification of patients based on revision joint replacement etiology, or exclusions.

1. Vermeulen MJ, Stukel TA, Boozary AS, Guttman A, Schull MJ. The Effect of Pay for Performance in the Emergency Department on Patient Waiting Times and Quality of Care in Ontario, Canada: A Difference-in-Differences Analysis. *Annals of Emergency Medicine*.
2. Saint-Lary O, Leroux C, Dubourdiu C, Fournier C, François-Purssell I. Patients' views on pay for performance in France: a qualitative study in primary care. *British Journal of General Practice*. 2015;65(637):e552-e9.
3. Kristensen SR, Meacock R, Turner AJ, Boaden R, McDonald R, Roland M, et al. Long-Term Effect of Hospital Pay for Performance on Mortality in England. *New England Journal of Medicine*. 2014;371(6):540-8.
4. Austin JM, Pronovost PJ. “Never Events” and the Quest to Reduce Preventable Harm. *The Joint Commission Journal on Quality and Patient Safety*. 2015;41(6).
5. Tsai TC, Jha AK, Gawande AA, Huckman RS, Bloom N, Sadun R. Hospital Board and Management Practices are Strongly Related to Hospital Performance on Clinical Quality Metrics. *Health Affairs*. 2015;34(8):1304-11.
6. Rice S. Most hospitals face 30-day readmissions penalty in fiscal 2016. *Modern Healthcare*. 2015 3 August 2015.
7. Bundling risk: New demo program shows CMS' eagerness to ditch fee for service. *Modern Healthcare*. 2015.
8. Shortell SM, Colla CH, Lewis VA, Fisher E, Kessel E, Ramsay P. Accountable Care Organizations: The National Landscape. *Journal of Health Politics, Policy and Law*. 2015;40(3).
9. Keswani A, Lovy A, Robinson J, Levy R, Chen D, Moucha C. Risk factors predict increased length of stay and readmission rates in revision joint arthroplasty. *The Journal of Arthroplasty*.

4. International examples

4.1 Context

At its 30 October 2012 meeting, JWP members requested that additional research be undertaken on several international examples on large scale quality improvement initiatives, including integrating quality with funding.

Extract of the 30 October 2012 minutes

Action 5: Additional research will be undertaken on exemplars/systems that have implemented large scale change (e.g. UK, US, Germany etc.).

The Chair recommended additional work to be undertaken. The Commission and IHPA will explore additional research around exemplars / systems having implemented large scale change (e.g. UK, US (Kaiser Permanente), Germany).

4.2 Overview

This section provides a summary of the approaches to improve quality, with particular regard to funding, in the following healthcare systems:

- UK
- Germany
- Kaiser Permanente (US)

These three systems have adopted various approaches to improve quality of care. The most enthusiasm for linking quality to healthcare funding is exhibited in the UK. Where, in addition to a large-scale P4P scheme in primary care, various elements comprising the Payment by Results (PbR) initiative aims to improve quality through financial incentives.

Germany has adopted a more cautious approach. Indeed, a recent report on P4P produced by Germany's peak safety and quality body articulates reservations about implementing such schemes citing a lack of conclusive evidence, the existence of other appropriate levers, and the possibility of unintended consequences.

Kaiser Permanente, a large healthcare system in the US, has focused on other quality improvement mechanisms including public reporting and benchmarking. Clinicians employed by Kaiser are salaried and not remunerated on a fee-for-service basis. However, clinicians are eligible to receive annual bonuses of up to 5% of salary based on performance across a range of quality measures, including patient satisfaction and group contribution.

4.3 Funding and quality mechanisms: UK health care system

4.3.1 Background

The UK has a population of about 62M. Its healthcare spend is about 9.6% GDP and it has approximately 2.6 physicians per 1000 inhabitants. The corresponding ratio is 3.6 in Germany, 2.4 in the USA and 3 in Australia.

Healthcare coverage, financing and organisation

Healthcare coverage is universal for citizens and residents, and largely free through the National Health Service (NHS). Private hospital care is financed through voluntary insurance or at point of use.

Funding comes from general taxation and payroll tax. There are co-payments imposed on prescription drugs (outpatients only) and dentistry services. Exemptions apply to children, students, over 60s and pregnant women.

Overall responsibility for health care rests with Parliament, the Secretary of State for Health and the Department of Health. Since 2012 day to day responsibility has been handed to the NHS Commissioning Board. Apart from some exceptions, Clinical Commission Groups (CCGs) are responsible for NHS services at a local level.

4.3.2 Hospitals

Public hospitals fall under either NHS trusts or Foundation trusts. A trust is afforded Foundation status when it demonstrates sustained high performance. Foundation trusts have greater flexibility such as more access to capital funding, and the capacity to run deficits and accumulate surpluses. A recent Commonwealth Fund report states that the UK Government plans for all trusts to become foundation trusts in the future.¹

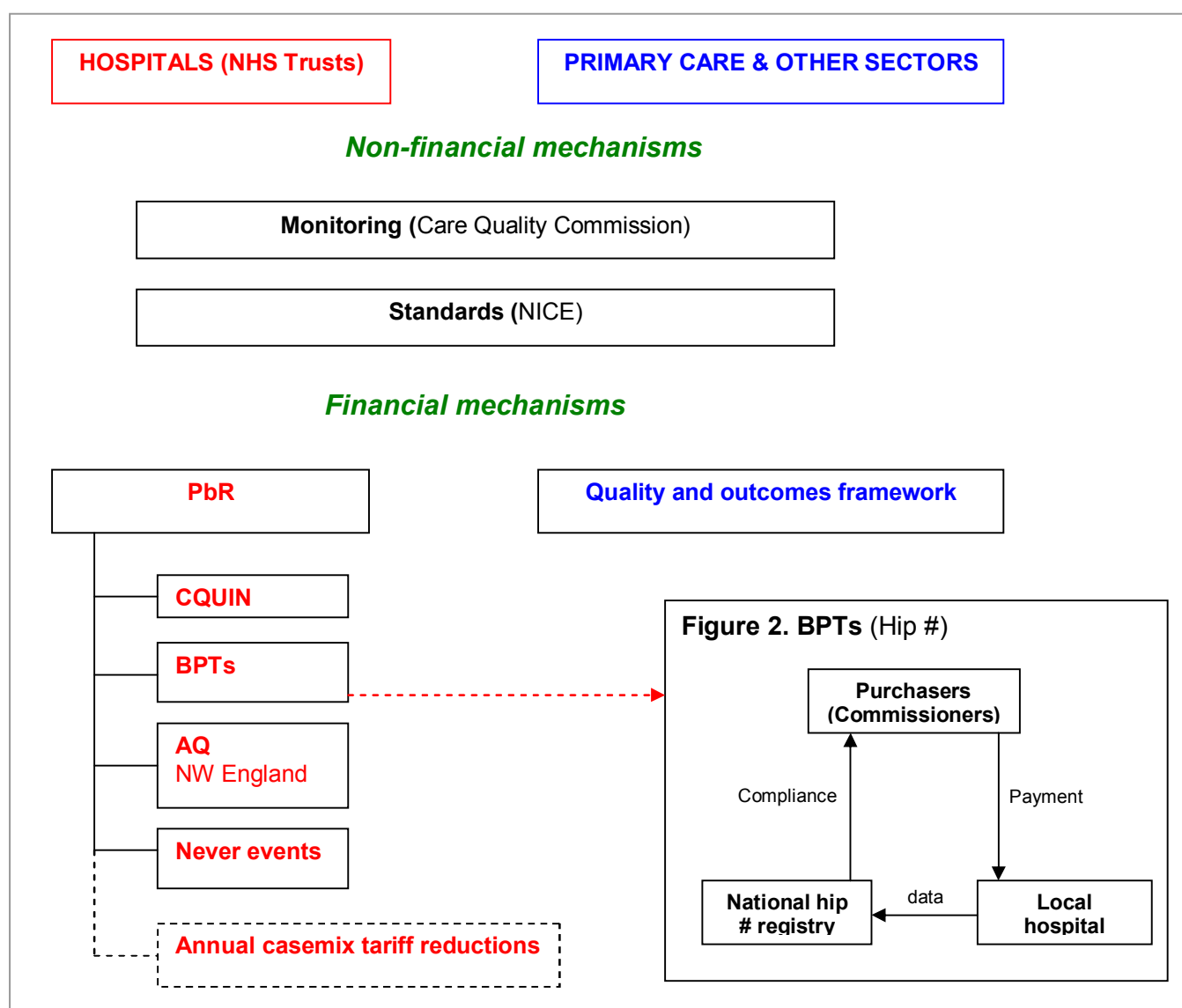
4.3.2.1 Hospital funding

Trusts contract with CCG's and the NHS Commissioning Board to provide services and are reimbursed according to nationally determined rates for diagnostic groupings (HRGs) on a casemix basis. The prices or 'tariffs' are based on national average costs and about 60% of hospital activity is funded in this manner. To promote efficiency, each year tariffs are reduced slightly each year.²

4.3.3 Quality

Explicit policy for enhancing care quality was articulated by the government in the late 1990s, comprising monitoring, standard setting and payment by results (PbR). A quality and outcomes framework for primary care was also been introduced in 2004. These elements are presented in a diagram (refer to Figure 1).

Figure 1. Summary of quality enhancement schemes in the NHS



4.3.3.1 Monitoring

Since 2009 the Care Quality Commission monitors performance of all health and adult social care in England, including hospitals, primary care, and the private and voluntary sector. It investigates healthcare services if performance concerns arise. Since 2010 acute care facilities have to provide annual 'Quality Accounts', public reports on the quality of services they provide in terms of safety, effectiveness, and patient experience. The primary aim is to provide patients with information about provider performance. According to the Commonwealth Fund, an extension of Quality Accounts to other care settings such as general practice is planned.¹

4.3.3.2 Quality Standards

The National Institute for Health and Clinical Excellence (NICE) develops clinical guidelines for a range of treatments, conditions and procedures. More recently NICE has been given the responsibility of developing quality

standards based on existing clinical guidelines. Currently, 180 clinical standards have been referred to NICE by the Department of Health.³ Fifty quality standards have been completed or are under development.⁴ Adherence to these clinical standards is voluntary.

4.3.3.3 Quality and outcomes framework (primary care)

In 2004 the Quality and Outcomes Framework was introduced as part of the new GP contract system. This scheme is based on providing financial incentives to improve patient and population health. These financial incentives make up, on average, a quarter of a GP's income.

GP practices are awarded points (the total of which determines part of their remuneration) for keeping a disease register of patients with certain diseases or conditions, managing and treating patients with those conditions, and improving the health of affected patients by (e.g. controlling their blood pressure or cholesterol levels or managing diabetes). This scheme also rewards GPs for integrating care with other sectors, good practice organisation and patient experience of care (as measured by patient surveys).

While early successes were reported, further evaluation suggests that this scheme has not generated lasting gains in improved patient outcomes.⁵

4.3.3.4 Payment by Results (PbR)

The PbR initiative for hospitals comprises four main elements: Commissioning for quality and Innovation (CQUIN)³, Best Practice Tariffs (BPTs), the Advancing Quality (AQ) initiative and the 'never events' scheme. These are outlined below.

A complete list of the other variations and flexibilities applied within the PbR scheme is provided in Appendix 1. The Kings Fund report,² which published this table, concludes that while PbR in its current form is suited to services that are easy to isolate and define (e.g. elective care), it is not 'fit for purpose' to meet objectives of, and emerging challenges for the NHS such as health promotion; chronic illness. The authors also question whether certain aspects of PbR, such as tariff reductions, are sustainable. They propose "an approach that maximises local flexibility but ensures greater transparency in pricing."

²(p42)

³ CQUIN also applies to ambulance, community and mental health services.

a. CQUIN

This scheme was introduced in 2009 and operates through a list of quality 'goals' that are periodically agreed between a hospital and local commissioner. A small portion of a hospital's revenue (1.5-2.5%) is linked to the achievement of these goals; this amount is 'at risk' should the goals not be met. In the past 2 years goals centered on national priority areas including:

- Reducing Venous Thromboembolism (VTE)
- Improving responsiveness to patient needs
- Dementia diagnosis
- Collection of data to measure harm due to pressure ulcers, falls and catheter-associated urinary tract infections (CAUTI)

There has not been a detailed evaluation of this scheme to date.

b. Best Practice Tariffs (BPTs)

Since 2010 the Department of Health has been adjusting payment for certain high-volume conditions and procedures for which an agreed best practice care path can be established. The initial four procedures / conditions were cholecystectomy, fragility hip fracture, cataracts and stroke care. The list has now been expanded to include renal dialysis, transient ischaemic attack (TIA), interventional radiology paediatric diabetes, hip and knee replacements (THR, TKR).

Adjustments are either normative settings, based on best-practice or both. For example:

- In 2010/11 reimbursement for cholecystectomy performed as a day case was 24% higher than the previous year and reimbursement for a non-day case procedure (without complications)
- In 2010/11 reimbursement for fragility hip fracture was about 7% above the base tariff (the national average cost for the procedure) if a list of criteria are met and a set care path is followed. In 2011/12 this was doubled, while the base tariff was lowered by 7%, effectively imposing a penalty for not following agreed best practice. Combined, these adjustments amount to approximately 20% of the original base tariff.

A recent evaluation of BPTs (limited to the initial list) found some evidence for effectiveness in practice change and modest to moderate improvements in processes and outcomes for some of the listed conditions.⁶

c. Advancing Quality (AQ)

This is the first P4P scheme in England, and was introduced in 2008 in all NHS hospitals in the northwest region (population approximately 6.8M). Performance was gauged by 28 quality measures based on patient-level data covering 5 clinical areas: acute myocardial infarction (AMI), coronary artery

bypass graft (CABG), heart failure, hip and knee surgery, and pneumonia. It is a tournament based scheme where the top and second quartiles of hospitals are rewarded with 4% and 2% bonuses respectively.

The scheme cost approximately £3.2 M per annum and is based on the US Medicare Premier Hospital Quality Incentive Demonstration (PHQID) project. Key differences are that AQ is not revenue neutral and delivers larger bonuses to a broader spread among participating hospitals. Another distinctions with PHQID include (a) hospital leaders agreed to reinvest the bonuses in quality programs, and (b) regular face-to-face pan-regional seminars where 'competing' hospitals shared learnings and ideas.⁷

A recent evaluation of the AQ published in the New England Journal of Medicine showed an attributable, significant clinical reduction in mortality.⁸

d. Never events

Since 2009 hospitals are only reimbursed for a list of hospital acquired conditions and adverse events at the 'discretion of commissioners'. The primary objectives of the policy include raising the profile of patient safety, increasing reporting levels and improving transparency. The initial list included eight never events and 111 such events were reported in 2009/10.⁹ It is unclear to what extent commissioners exercise their capacity to not reimburse for these events. The list of never events was recently expanded to 25.¹⁰

4.3.4 References

1. Thomson S, Osborn R, Squires D, Jun M. International Profiles of Health Care Systems. The Commonwealth Fund, 2012.
2. Appleby J, Harrison T, Hawkins L, Dixon A. Payment by results: how can payment systems help to deliver better care? London. The King's Fund, 2012.
3. www.nice.org.uk/guidance/qualitystandards/QualityStandardsLibrary.jsp accessed 17 December 2012.
4. www.nice.org.uk/guidance/qualitystandards/qualitystandards.jsp?p=off accessed 17 December 2012.
5. Cashin C. Major Developments in Results-Based Financing (RBF) in OECD Countries: United Kingdom: Quality and Outcomes Framework (QOF). The World Bank, 2011.
6. McDonald R, Allen T, Zaidi S, Sutton M, Todd S, Fichera E, et al. A Qualitative and Quantitative Evaluation of the Introduction of Best Practice Tariffs. University of Nottingham, 2012.

7. Epstein AM. Will Pay for Performance Improve Quality of Care? The Answer Is in the Details. *New England Journal of Medicine* 2012;367(19):1852-1853.
8. Sutton M, Nikolova S, Boaden R, Lester H, McDonald R, Roland M. Reduced Mortality with Hospital Pay for Performance in England. *New England Journal of Medicine* 2012;367(19):1821-1828.
9. National Patient Safety Agency. Never Events Annual Report 2009/10. NPSA, 2010.
10. Department of Health. Never events policy framework. London, 2012
www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_132352.pdf

4.4 Funding and quality mechanisms: German health care system

4.4.1 Background

Germany is a federal parliamentary representative republic comprising 16 States. The population is approximately 82M and healthcare spend is about 11% GDP (3rd in OECD).¹ There are 3.6 physicians per 1,000 inhabitants.² This ratio is 2.6 in the UK, 2.4 in the USA, and 3 in Australia.

4.4.1.1 Health care coverage & financing

Germany has one of the oldest universal healthcare systems dating back to Bismarck's social legislation of the 1880s. The central pillar is compulsory statutory health insurance (SHI) for all citizens and permanent residents. This is provided by approximately 143 competing not-for-profit 'sickness funds' and financed through a compulsory levy on wages. 85% of the population is insured through this scheme, 10% by voluntary private health insurance (PHI), and the remainder under special provisions.^{1,3}

Modest cost sharing arrangements for SHI services were introduced in 2004 (e.g. €10 per inpatient day). Total cost sharing is capped at 2% of household income per annum. Children under 18 are exempt.¹

4.4.2 Hospitals

Half of all hospital beds are in public hospitals. The remainder is provided by not-for-profit private hospitals (~35%) and for-profit private facilities. Most clinicians in all hospital types are salaried.³

4.4.2.1 Hospital funding

Funding is split between infrastructure and operating costs. Infrastructure is funded by the state government. Operating costs are financed by sickness funds through a per-episode model based on the German DRG classification system (ICD-10-GM and G-DRG). The G-DRG system was developed in 2003 and based on the AR-DRG(v4.1). It is revised annually. Pre-2003 funding was a mix of block- and per-diem reimbursement. The rationale for introducing the current model was similar to that of ABF in Australia³. Notably:

- Average costs are used to determine prices (with trimming and cleansing of data).
- Funding is purely based on casemix and does not account for hospital characteristics.
- Psychiatric and rehabilitation patients are excluded (a separate payment system is planned for 2013).
- An annual volume cap is agreed between the hospital and sickness funds. When the cap is exceeded, a lower DRG reimbursement rate becomes effective.

- An improvement in quality of coding is reported since DRGs used for payment.

4.4.3 Quality

With the exception of non-payment for readmission (see section 4.5.3.1b) and financial penalties for not submitting data to the quality assurance program (see section 4.5.3.2a), there are no financial incentives integrated, or attached, to the national hospital and healthcare funding system. There are, however, regional schemes where financial incentives are employed (see 4.5.3.2h).

The next sections outlines the built-in quality mechanisms as well as extrinsic mechanisms.

4.4.3.1 Built-in quality mechanisms

Structural mechanisms have been established to regularly check quality and promote efficiency. These can be summarised as follows:

a. Adverse selection of patients

Price weights are updated annually. Cost weights differ making it difficult, in the long run, to predict margins and adjust capacities accordingly.³

b. Inappropriate discharge

Readmission for the same diagnosis within 30 days receives no additional funding.³

c. Up-coding and data integrity

The sickness funds audit approximately 10% of all hospital cases. Financial penalties apply to breaches with regards to up-coding and integrity of data.³

4.4.3.2 Extrinsic mechanisms

a. Quality assurance program

The German *Bundesgeschäftsstelle Qualitätssicherung* (BQS) *Institut für Qualität & Patientensicherheit*, or the 'National Institute for Quality and Patient Safety in Health Care' is a statutory body responsible for the development of clinical performance improvement in Germany. The BQS collects data on 194 indicators, which (i) predominantly make up procedures and not diagnoses, and (ii) are mostly process-based. Indicators are generated manually are considered burdensome by some participants.⁴ This program is mandatory for approximately 2,000 acute hospitals. Failure to report at least 80% of required cases incurs a penalty of €150 per missing case.⁴

Data is compiled and analysed, and the findings fed back to the hospitals. Underperforming hospitals are required to explain the results and take

appropriate action through a 'structured dialogue'. Aggregate de-identified data is published annually.^{1,4}

Since 2009, this program has been expanded to include primary, ambulatory and outpatient care. There are plans to incorporate patient surveys.¹

b. 2nd generation indicators (not universal)

The linking of G-DRGs to reimbursement produces high quality administrative data. A private hospital group (HELIOS) has independently generated quality and volume indicators derived from these data. The 142 indicators cover 30 diseases, and include inpatient mortality. Some other hospitals have adopted this approach voluntarily. Hospitals underperforming against benchmarks undergo a case auditing process which is coordinated by experienced clinicians.

This approach has the pros and cons of using administrative data. Evaluation of this program indicates a greater reduction in mortality compared to the corresponding Medicare / Medicaid program in the US.⁴

c. '3rd generation' indicators (not universal)

An extension of the G-DRG based indicator system links administrative data with information held by sickness funds. The advantage is that this offers a more granular and extensive perspective of quality beyond an inpatient episode. For instance primary, hospital and outpatient care can be combined, or a start event can be linked to subsequent healthcare or mortality events (e.g. readmission for VTE following a THR at another hospital). There are also clear advantages for tracking quality in management of chronic illness.⁴

The system is being jointly developed by HELIOS, the AOK (Germany's largest sickness fund) and a federal research institute using AOK data.

d. Bi-annual quality reports

Since 2005, hospitals have been obliged to submit biennial quality reports following a mandated structure. These generally do not include outcomes but 27 indicators from the quality assurance program are required to be included. The reports are made available publicly online.^{1,4}

e. Quality management systems

Hospitals are obligated to choose between a range of accreditation-type clinical governance systems.¹

f. Minimum volume thresholds

There are annual minimum volume thresholds set for certain elective procedures (kidney, liver, stem cell transplantation, complex oesophageal, and pancreatic interventions). A hospital loses the right to perform that

procedure if the threshold is not exceeded. These affect about a quarter of German acute hospitals and a small percentage of cases (<1%).⁵

g. Registries

In August 2012, as part of the National Cancer Plan, the federal government introduced a draft bill that proposes the implementation of a nationwide standardised cancer registry in 2018 to improve the quality of cancer care. Every hospital will be obliged to document the incidence, treatment, and course of the disease.¹

h. Regional pay-for-performance schemes (not universal)

There exist regional schemes throughout Germany that attach financial incentives to quality and performance. Some of these are linked a specific sickness fund or hospital group. These schemes are structured in various ways including: ⁶

- *pay-for-results*: for example, in an initiative to designed to improve care for low back pain, providers are paid a bonus if patients re-enter the work force within a specified time, and a penalty if time off work extends beyond a certain time frame.
- *pay-for-competence* (also referred to as 'pay-for-structure'): a financial bonus for having quality structures in place (e.g. satisfying accreditation-type criteria); bonus delivered through additional payment or a higher remuneration rate.
- *pay-for-transparency*: a financial bonus / penalty for satisfying documentation requirements and processes.
- *gain sharing*: in programs where multiple, disparate providers need to coordinate care for a patient, bonuses and penalties are distributed based on agreed rules via formally established 'networks'.

4.4.4 German examination of P4P

In August 2012 the BQS released a report titled 'Pay-for-performance (P4P) in health care: Review of the evidence and basis for future development'.⁶ The 300-page report provides an overview of the current 'state of play' with regard to P4P, including a comprehensive review of the literature and of practical experience, and discussion of instruments and concepts for potential implementation.

The similarities between the the findings and discussion in the report, and those of the literature review recently completed by the University of Wollongong (UoW) are striking. The report notes that despite P4P having been embraced enthusiastically in the Anglo-sphere, there is a relative paucity of sound evidence to support its effectiveness and efficacy. The literature cited in the report aligns with that of the UoW review.

The presence of other means to 'steer' individual and system behaviour is noted, especially the role of (a) benchmarking, (b) timely feedback of results to clinicians and management, and (c) public reporting. These are the preferred options of the authors who highlight the possibility of their negation by excessive focus on financial levers, and the potential for unintended consequences.

The report acknowledges the difficulty in applying P4P schemes to the management of chronic illnesses, especially those requiring care that spans across various sectors, and of ensuring fairness and quality in their application. Difficulties with technical requirements such as a reliable risk adjustment methodology, and issues with measurement (e.g. process vs. outcome) are discussed.

In short, the report recognises the potential of P4P but (a) calls for more high-quality research on the topic, and (b) urges caution in its application, emphasising that it should be one of a suite of several mechanisms to drive quality improvement in the German health system (i.e. it should be an intervention of 'last resort').

4.4.5 Integration with primary and ambulatory care

It has been suggested that health care delivery in Germany is fragmented and 'sectorised', focusing on acute illness or single diseases instead of managing more complex or chronic conditions, or managing the health of determined populations.⁷ Over the past decade the government has started to address efficiency concerns through the several measures. Two of these, Integrated Care Contracts and Disease Management Programs (DMPs), are outlined below.

4.4.5.1 Integrated care contracts

German physicians belong to a regional association of statutory health insurance doctors (membership is mandatory), which negotiates contracts with sickness funds. These associations negotiate collective contracts for ambulatory care with the funds that operate in their region. They receive a total budget from the health insurance funds based on historical data and distribute it among their physician members on a fee-for-service basis.

The *Reform Act of Statutory Health Insurance 2000* introduced the possibility for physicians to selectively sign contracts with health insurance funds for integrated care schemes, gatekeeper models and disease management programs. Under integrated care contracts, care is provided in provider networks that can be managed by independent management organizations. Uptake was initially very slow but grew following the introduction of financial incentives for providers. Now about 4 million patients are treated under this form of integrated care.⁷

Since 2007 long-term care providers can be included in contracts, and non-medical professionals can become the main contractual partner to health insurance funds, a position formerly restricted to physicians.

Also, integrated care contracts now focus on population-oriented integrated care, a term not defined by the lawmaker to allow for creativity in designing integrated care models. It is usually understood as proactive, patient-centred health care for a defined population with providers taking responsibility for the coordination of care and for improving or maintaining the health status of the insured population putting a focus on health promotion or prevention.

So far disease- or procedure-oriented contracts continue to constitute the bulk of the integrated care contracts signed. Only a few companies are developing ambitious models of population-oriented integrated care.⁷

4.4.5.2 Disease Management Programs (DMPs)

Legislation in 2002 introduced Disease Management Programs (DMPs) for chronic illnesses to

- (a) improve the provision of care for chronically ill patients and to improve care coordination between providers in the ambulatory sector
- (b) reduce the avoidance of chronically ill patients by sickness funds as the 'risk equalization scheme' introduced in 1996 did not account for these patients adequately.⁸

DMPs currently exist for six major chronic conditions: diabetes type 1 and 2, coronary heart disease, breast cancer, asthma and chronic obstructive pulmonary disease.

There are six requirements for DMP accreditation by the German Federal Insurance Authority:

1. Treatment according to evidence-based guidelines with respect to the relevant sectors of care
2. Quality assurance measures
3. Required procedure for enrolment of insured, including duration of participation
4. Training and information for care providers and patients
5. Electronic documentation of diagnostic findings, applied therapies and outcomes
6. Evaluation of clinical outcomes and costs.

For patients and physicians DMP participation is voluntary but incentives exist for both: patients are exempt from outpatient fees and co-payments while physicians receive a lump sum payment for coordination and documentation activities. Usually, primary care physicians take on the role of coordinating care for DMP patients over time, referring them to specialists when necessary

and documenting the care process. Physicians receive an extra payment for maintaining good documentation.¹

Among diabetes type 2 patients, the largest patient group enrolled in DMPs, 90% have a primary care physician as their partner in the program.⁸

Some evidence is emerging that DMPs improve care process and clinical outcomes, particularly in diabetes management, although the evidence at this stage is inconclusive.^{6,9-10}

4.4.6 References

1. Thomson S, Osborn R, Squires D, Jun M. International Profiles of Health Care Systems. The Commonwealth Fund, 2012.
2. Szecsenyi J, Broge B, Eckhardt J, Heller G, Kaufmann-Kolle P, Wensing M. Tearing down walls: opening the border between hospital and ambulatory care for quality improvement in Germany. *International Journal for Quality in Health Care* 2012;24(2):101-104.
3. Geissler A, Scheller-Kreinsen D, Quentin W, Busse R. Germany: Understanding G-DRGs. In: Busse R, Geissler A, Quentin W, Wiley M, editors. *Diagnosis Related Groups in Europe: Moving towards transparency, efficiency and quality in hospitals*. Berkshire UK: Open University Press, 2011.
4. Busse R, Nimptsch U, Mansky T. Measuring, Monitoring, And Managing Quality In Germany's Hospitals. *Health Affairs* 2009;28(2):w294-w304.
5. de Cruppé W, Ohmann C, Blum K, Geraedts M. Evaluating compulsory minimum volume standards in Germany: how many hospitals were compliant in 2004? *BMC Health Services Research* 2007;7(1):165-165.
6. Veit C, Hertle D, Bungard S, Trummer A, Ganske V, Meyer-Hoffmann B. Pay-for-Performance im Gesundheitswesen: Sachstandsbericht zu Evidenz und Realisierung sowie Darlegung der Grundlagen für eine künftige Weiterentwicklung [P4P in health care: Review of the evidence and basis for future development]. Dusseldorf. BQS Institut für Qualität & Patientensicherheit [BQS Institute for Quality and Patient Safety], 2012.
7. Schlette S, Lisac M, Blum K. Integrated primary care in Germany: the road ahead. *Int J Integr Care* 2009;9:e14.
8. Busse R. Disease management programs in Germany's statutory health insurance system. *Health Aff (Millwood)* 2004;23(3):56-67.
9. AOK Bundesverband. Ergebnisse der gesetzlichen Evaluation der AOK-Programme für Patienten mit Koronaren Herzkrankheiten (Auswertungen der Zwischenberichte) [Interim report on evaluation results for local health care funds' DMPs for patients suffering from coronary heart disease]. Berlin. AOK, 2008.

- 10.Elkeles T, Kirschner W, Graf C, Kellermann-Mühlhoff P.
Versorgungsunterschiede zwischen DMP und Nicht-DMP aus Sicht der
Versicherten. Ergebnisse einer vergleichenden Versichertenbefragung von
Typ 2-Diabetikern der BARMER. [Representative comparative survey of
BEK insured diabetes patients]. Gesundheits- und Sozialpolitik [Politics of
Health and Society] 2008;82(1):10-18.

4.5 Funding and quality mechanisms: Kaiser Permanente (US) health care system

4.5.1 Background

Kaiser Permanente (KP) has its origin in southern California in the depression years from 1933 to 1938 when most people could not afford healthcare. Prepayment to a group of physicians in integrated clinic and hospital facilities proved to be a remarkably effective system for providing comprehensive care to workers on a completely self-sustaining basis. This model provided an alternative to the traditional medical care delivery system as it eliminated the fee for service, substituting prepayment, and it organised medical care resources into a coordinated group practice in integrated clinic and hospital facilities.

KP is an integrated managed care consortium, based in Oakland, California, United States, founded in 1945 by industrialist Henry J. Kaiser and physician Sidney Garfield. KP is made up of three distinct groups of entities:¹

- Kaiser Foundation Hospitals and their subsidiaries which includes not-for-profit corporations that own and operate or contract for hospital facilities and services for the care of Kaiser Foundation Health Plan members.
- Kaiser Foundation Health Plan Inc which includes not-for-profit regional health plans that contract with members (individuals and groups) for prepaid (capitated) comprehensive health care services.
- Permanente Medical Groups which are self-governed, multispecialty medical groups in each KP region that contract exclusively with Kaiser Foundation Health Plan and Hospitals to provide medical services to members.

KP has 8.9 million health plan members, 172,997 employees, 16,658 physicians, 37 hospitals, and 611 medical offices and other outpatient facilities. In 2011, KP reported \$2.0USD billion in net income on \$47.9USD billion in operating revenue.²

4.5.2 Quality

KP's vertically integrated system means the organisation is able to closely coordinate primary, secondary, and hospital care; placing a strong emphasis on prevention and extensively utilising care pathways and electronic medical records. For instance, KP has a system for notification and outreach to women who are due for a mammogram, as well as procedures for providing patients who experience a heart event everything from emotional support to medication to prevent a recurrence within 24 hours of discharge from the hospital.

Teamwork and coordination between clinicians is a key feature of KP's system, facilitated in part by the organisation's investment in health information technology.

KP has built information technology platforms that allow the exchange of information between practitioners and patients. The information is also used to develop clinical guidelines, using measurement to hold clinicians accountable, to ensure that patients get the care clinical evidence suggests.

Shared accountability is reflected in robust performance measurement infrastructure as well as the aligning of incentives with performance goals.

4.5.2.1 Care pathways

Care pathways are developed by multidisciplinary teams using evidence-based medicine and clearly define roles, accountabilities and protocols. Pathways are supported by documentation templates, alerts, reminders and other clinical-decision support capabilities.

Refer to 4.6.2.3(a) below with regards to monitoring and reporting undertaken by KP to support care pathways.

4.5.2.2 Disease registries

KP has more than 50 clinical registries. Patient data, such as outcomes and co-morbidities, are aggregated into disease registries which enable team members to determine how their patients are tracking in comparison with other KP patients, as well as how their patients' outcomes compare against national and international benchmarks.

Clinical registries are also used to identify the best treatment approach for patients with specific combinations of co-morbidities.

4.5.2.3 Quality incentives

KP uses two types of incentives to encourage physicians to adhere to care pathways: public reporting and financial incentives.

a. Public reporting

KP considers the strongest quality incentive is the performance data they share with the physicians.³ Performance data allows clinicians to directly examine the results of their actions and to identify ways in which they can further improve patient care.

KP has implemented a process by which physicians agree on the targets they want to achieve and the metrics that will be monitored. This process is periodically repeated to ensure that the treatment approaches remain up to date.

Performance data is supported by a strong IT system. When a patient registers at a Kaiser hospital or physician office, 'care recommendations' for the patient, such as a notification that the patient has not picked up prescriptions, are

displayed on the screen. The system also automatically gives physicians and staff specific quality indicators, such as what percentage of cardiovascular or diabetic patients are not at the target level for lipid control.⁴

Other tools such as "backsweep" reports identify when recommended care (the agreed care pathway) is not provided, tags it back to the specific physician and assistant, and asks that follow-up with the patient be done. A "re-sweep" report 30 days later is also performed to make sure the care was provided whilst a "forward sweep" report makes it easier to tack on preventive care to an upcoming appointment.

b. Financial incentives

Permanente physicians are paid market-competitive salaries (based on specialty), so there is no financial incentive for either under- or overtreatment. From its capitation payment, the medical group funds an incentive pool with rewards based on meeting quality and service goals at each organisational level: group, medical centre, department, and individual physician. Physicians are eligible to earn an annual performance incentive payment of up to 5% of salary (on average) based on measures of quality, service and patient satisfaction, workload, and group contribution.⁵

4.5.3 References

1. Kaiser Permanente: prepaid integrated delivery system. (Accessed 3 January, 2013, at <http://xnet.kp.org/kpinternational/docs/The%20KP%20Model.pdf>.)
2. Kaiser Permanente. Annual Report, 2011.
3. What health systems can learn from Kaiser Permanente: an interview with Hal Wolf. *Health International* 2009.
4. Kaiser: transparency key to optimizing data, culture. 2012. (Accessed 9 January 2013, at www.healthdatamanagement.com/issues/20_9/kaiser-data-analytics-hospital-physician-44913-1.html.)
5. McCarthy D, Mueller K, Wrenn J. Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology. *Case Study*. The Commonwealth Fund, 2009.

5. Why financial incentives may not deliver the intended effects in health care

The majority of studies evaluating the various incentive schemes in health care fail to produce conclusive evidence for their effectiveness in raising quality of care and patient outcomes.

This may be partly attributable to the design and execution of the evaluations, recognising the difficulty in scientifically evaluating the effect of an initiative across a complex, dynamic and changing system. However, it is prudent to ask the question of whether financial incentives have genuine potential for application in health care and driving clinical behaviour, or whether there are more effective approaches based on review of other industries.

This section briefly examines:

1. Learnings from other disciplines regarding P4P in health care, including
 - a. potential motivation of healthcare providers
 - b. innovation and adaptation to local context.
2. Key differences of 'successful' schemes identified in the P4P literature.

5.1 Learnings from other academic disciplines and settings

Evidence from disciplines such as behavioural economics and psychology suggests that while financial incentives improve performance in menial, repetitive tasks, their effect in complex, cognitively challenging work is far from clear. In settings that include health care they can exhibit a neutral, even detrimental effect.¹

Some useful insights can be drawn from literature on how financial incentives interact with other motivators. Most of these address how financial rewards exhibit a tendency to 'crowd out' other potential behavioural motivators:²⁻³

- Tangible rewards, particularly monetary ones, undermine motivation for tasks that are intrinsically interesting or rewarding (see 5.1.1).
- Symbolic rewards (e.g. recognition) do not crowd out intrinsic motivation, and may augment it.
- The negative effects of monetary rewards are strongest for complex cognitive tasks.
- Crowding out effects tend to reduce reciprocity and augment selfish behaviors.
- Crowding out may spread (both to other tasks and to co-workers), decreasing intrinsic motivation for work not directly incentivized by the monetary rewards.

- Crowding-out is strongest when external rewards are large; perceived as controlling; contingent on very specific task performance; or associated with surveillance, deadlines or threats.

Evidence from the education setting in the US does not support financial incentives as positively influencing professional performance. Schemes to improve high school teaching and students' academic results in the US have been unsuccessful. In some instances student achievement even declined following application of incentives.⁴⁻⁵

In health care, a key additional factor is that it is increasingly a 'team sport' where outcomes are ultimately dependent on a people and systems interacting in concert with one another. It is difficult to incentivise team work with bonus payments to individuals, which is why *how* incentives are distributed among those whose behaviour they are intended to influence is important (see Section 5.2).⁴

This may also explain why financial rewards tend to be more effective in healthcare settings when applied to tasks or objectives not contingent on collaboration (e.g. radiology reporting times; immunisation).

5.1.1 Provider motivation

While the quality improvement literature has identified many causes of failures in healthcare quality (poorly designed workflow and systems; undue commercial influence; knowledge gaps; reliance on inappropriate heuristics; poor communication and insufficient teamwork), "not trying hard enough" is rarely cited.

Yet the application financial incentives implies that a lack of motivation is seen by policy makers as a key factor in poor quality care.

This points to flaws in the economic assumptions underpinning financial incentive schemes, particularly the wholesale application of these to all aspects of human endeavour. The orthodox view that monetary reward is either the only motivator, or amplifies other, intrinsic motivators such as personal pride, professional norms and standards or altruism appears to be challenged by findings in health care and other similar domains. These arguments are not new.⁶

In reality, the behaviour of healthcare providers may be driven by a range of interacting factors including:

- Intrinsic rewards
- Competitiveness
- Professional norms and standards

⁴ This may explain why there is stronger evidence for P4P in settings where recipients work individually and where the work is discrete (e.g. immunisation rates, radiologists' reporting times).

- Reputation among peers and the community
- Remuneration.

The range of influences on the functioning and performance of a healthcare system, as well as how individuals and groups within this system interact, is illustrated in Figure 2 overleaf (adopted from Appleby et al, 2012).

The relative importance of these will vary between the healthcare professions and disciplines. However, manipulating greed as an engine for quality or other healthcare policy objectives may be too simplistic and, as conveyed by various commentators, should be approached with caution. While financial incentives may play a role, they should not supplant other behavioural incentives which may include:

- Timely feedback of performance data to stimulate improvement
- Providing information on performance in comparison with peers and benchmarks
- Encouraging and supporting opportunity for local innovation
- Providing granular information on how systems and processes can be improved in a local context
- Harnessing other motivators such as collaboration, team work and collective achievement of results (see Section 5.2)

5.1.2 Innovation local context

The findings of Appleby and colleagues stress the need for adaptability and local innovation. Harnessing local ingenuity and innovation is promoted by organisations such as the Institute for Healthcare Improvement (IHI), and empirically supported in large system transformation.⁷

An Australian example of local practice improvement resulting in both better patient outcomes and efficiency is provided in the box below.

Door to balloon times at Sir Charles Gairdner Hospital (SCGH) ⁸

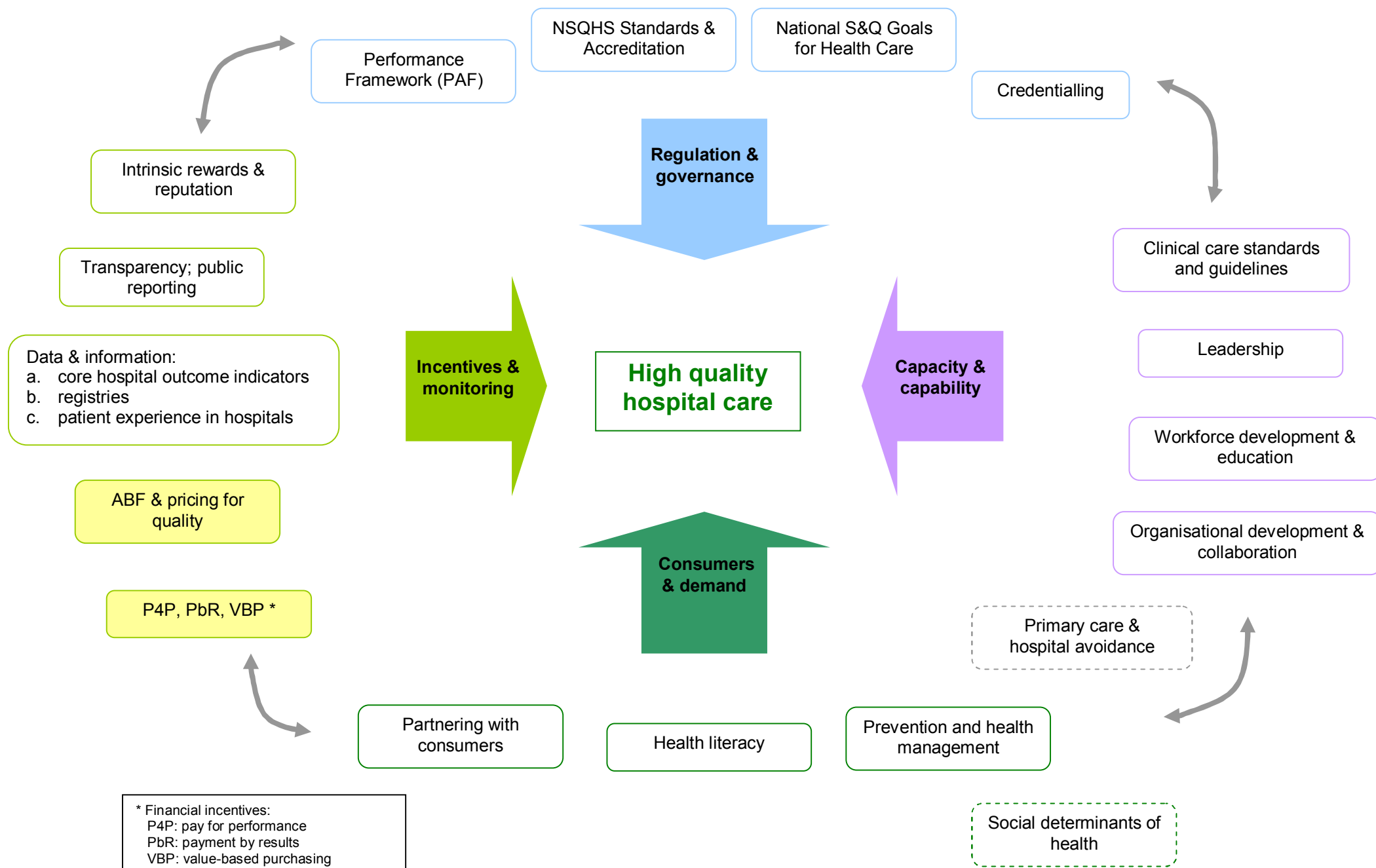
Timely primary percutaneous coronary intervention (PCI) has proven mortality benefits over thrombolysis for treating ST-elevation myocardial infarction (STEMI). These benefits are time dependent with longer door-to-balloon (DTB) times associated with higher mortality. Guidelines recommend DTB times < 90 minutes in 75% of cases presenting to institutions providing primary PCI. Australian registry data suggest these targets are rarely achieved.

A team at SCGH implemented an interdepartmental protocol of patient transfer from ED to the Cardiac Catheterisation Laboratory (CCL). Two important steps of the primary angioplasty pathway were improved: the decision-making process and transfer of the patient to the CCL.

The change in the admission and transfer system through ED resulted in immediate and sustained improvements with a highly significant 20-minute reduction in median DTB time and a marked increase in the proportion of patients with < 90 minute DTB times. Secondary outcomes are likely to include reduced morbidity and complications, shortened NOS and earlier discharge.

This illustrates an effective process redesign at clinical microsystem level to ensure consistent evidence-based care. ⁸

Figure 2. Factors in health system performance and provider behaviour



5.2 Key aspects of ‘successful’ schemes

There are some common traits of P4P schemes demonstrating a desirable effect. These include *inter alia*:

- engagement of key stakeholders in the design of schemes
- use of reliable data and metrics that are ‘accepted’ by the those whose behaviour is being influenced
- adaptation to local requirements and context
- the targeted activity not excessively dependent on collaboration and team work.

5.2.1 Comparing the Advancing Quality (UK) with PHQID (US) schemes

Comparing the evaluation of the Premier Hospital Quality Improvement Demonstration (PHQID) project with the ‘Advancing Quality’ (AQ) scheme provides some useful insights. Both are fundamentally similar, and both function on a ‘tournament’ basis.^E PHQID evaluations have repeatedly failed to demonstrate outcome benefits⁹⁻¹² whereas positive results associated with the UK scheme are emerging.¹³⁻¹⁴

What are the key differences? Firstly, the incentives in AQ are larger and distributed among a wider spread of high performing hospitals. Whether this is the key is debatable as there is no clear consensus in the literature.

Second is the way in which participants implemented and applied the schemes. From the outset, CEOs of AQ participating hospitals agreed that bonuses would not be taken as personal income but “would be allocated internally to clinical teams whose performance had earned the bonus”^{13(p1822)}. The bonuses were re-invested in quality improvement activity such as:

- Employment of specialist nurses
- Development of new or improved data collection systems for regular feedback to clinical personnel about local performance

Moreover, despite the competitive nature of the scheme, staff from all participating hospitals in northern England regularly met face-to-face to discuss issues and share learnings.¹³ No such re-investment of bonuses, or collaboration with peers (with the exception of ‘webinars’) was evident in the PHQID scheme.

It could be argued that financial incentives alone are perhaps not sufficient unless coupled with other interventions which tap into other motivational factors listed in section 5.1.1. Indeed, financial bonuses could be seen as a facilitator of these.

^E PHQID participation is voluntary whereas AQ is compulsory.

It is clear that the success of financial incentive schemes in complex healthcare organisations depends strongly on implementation and application, as well as their design and theoretical underpinnings.

5.2.2 A checklist for implementation of financial incentive schemes

Glasziou and colleagues note that while financial incentive schemes can sometimes improve the quality of care, such schemes can also be an 'expensive distraction'.¹⁵ They propose a checklist to prevent inappropriate implementation and unintended consequences of such schemes.

A. Planning
<ol style="list-style-type: none"> 1. Does the desired clinical action improve patient outcomes? 2. Will undesirable clinical behaviour persist without intervention? 3. Are there valid, reliable, and practical measures of the desired clinical behaviour? 4. Have the barriers and enablers to improving clinical behaviour been assessed? 5. Will financial incentives work, and better than other interventions to change behaviour, and why? 6. Will benefits clearly outweigh any unintended harmful effects, and at an acceptable cost?
B. Implementation
<ol style="list-style-type: none"> 7. Are systems and structures needed for the change in place? 8. How much should be paid, to whom, and for how long? 9. How will the financial incentives be delivered?

5.3 References

1. Woolhandler S, Ariely D, Himmelstein DU. Why pay for performance may be incompatible with quality improvement. *BMJ* 2012;345.
2. Deci EL, Koestner R, Ryan RM. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychol Bull* 1999;125(6):627-668; discussion 692-700.
3. Productivity Commission. Behavioural Economics and Public Policy, Roundtable Proceedings. Canberra. Productivity Commission, 2008.
4. Springer MG, Ballou D, Hamilton L, Le V, Lockwood JR, McCaffrey D, et al. Teacher Pay for Performance: Experimental Evidence from the Project on Incentives in Teaching. Nashville, TN. National Center on Performance Incentives at Vanderbilt University, 2010.

5. Fryer RG. Teacher Incentives and Student Achievement: Evidence from New York City Public Schools. Cambridge MA. National Bureau of Economic Research, 2011.
6. Sen A. Rational Fools: A Critique of the Behavioral Foundations of Economic Theory. *Philosophy & Public Affairs* 1977;6(4):317-344.
7. Best A, Greenhalgh T, Lewis S, Saul JE, Carroll S, J B. Large-System Transformation in Health Care: A Realist Review. *The Milbank Quarterly* 2012;90(3):421-456.
8. Willson AB, Mountain D, et al. Door-to-balloon times are reduced in ST-elevation myocardial infarction by emergency physician activation of the cardiac catheterisation laboratory and immediate patient transfer. *Medical Journal of Australia* 2010;193(4):207-212.
9. Jha AK, Joynt KE, Orav EJ, Epstein AM. The long-term effect of premier pay for performance on patient outcomes. *N Engl J Med* 2012;366(17):1606-1615.
10. Ryan A, Blustein J. Making the best of hospital pay for performance. *N Engl J Med* 2012;366(17):1557-1559.
11. Ryan AM, Blustein J, Casalino LP. Medicare's flagship test of pay-for-performance did not spur more rapid quality improvement among low-performing hospitals. *Health Aff (Millwood)* 2012;31(4):797-805.
12. Lee GM, Kleinman K, Soumerai SB, Tse A, Cole D, Fridkin SK, et al. Effect of Nonpayment for Preventable Infections in U.S. Hospitals. *New England Journal of Medicine* 2012;367(15):1428-1437.
13. Sutton M, Nikolova S, Boaden R, Lester H, McDonald R, Roland M. Reduced Mortality with Hospital Pay for Performance in England. *New England Journal of Medicine* 2012;367(19):1821-1828.
14. Appleby J, Harrison T, Hawkins L, Dixon A. Payment by results: how can payment systems help to deliver better care? London. The King's Fund, 2012.
15. Glasziou PP, Buchan H, Mar CD, Doust J, Harris M, Knight R, et al. When financial incentives do more good than harm: a checklist. *BMJ* 2012;345.

6. Australian Refine Diagnosis Related Groups v7.0

6.1 Context

Diagnosis related groups (DRGs) are a patient classification system that provides a clinically meaningful way of relating the types of patients treated by a hospital to the resources required by a hospital. DRGs provide a manageable number of diagnosis based classes that are differentiated on the basis of clinical content and resource consumption.

6.2 Background

Patient episodes of care are allocated to DRGs on the basis of patient diagnosis and procedures undertaken during the episode of care. With the exception of some high cost procedures, episodes are assigned into a major diagnostic category (MDC) which reflects the body system or aetiology connected to the patient's principal diagnosis. Within each MDC, partitioning usually occurs on the basis of surgical procedures, other procedures or medical cases. The majority of DRGs are then further split on the basis of resource consumption.

DRGs account for differing resource consumption in a number of ways. For example, dividing on the basis of:

- other procedures performed
- patient comorbidities which are present during the episode of care
- complications which occur during the episode of care
- length of stay.

Therefore, a patient who undergoes a procedure is likely to be allocated to a higher weighted DRG than another patient with a similar diagnosis who does not undergo a procedure. Similarly, a patient with comorbidities which impact on the episode of care, or a patient who has experienced complications during their episode of care is likely to be allocated to a higher weighted DRG than another patient with a similar diagnosis who does not have any comorbidities or complications.

Appendix 1. Variations and flexibilities within the NHS Payment by Results initiative^F

Variation/ flexibility	Payment variation	Contract models	Flexibility to shift resources across settings	Extent of implementation
CQUIN	Penalty of up to 1.5% of whole contract for failure to deliver on set quality goals and targets, rising to 2.5% in 2012	Locally prioritised national targets annually renegotiated	None	Universal
Payments for local service improvement	Other 'consequences' (penalties or rewards) for other mandatory quality requirements, contract breaches, planned service improvements; can include risk-sharing for service redesign	Locally negotiated. In principle could be multi-year if commissioner can be confident of financial flexibility for any rewards/risk-sharing. Can be built into tenders for service redesign	Possible for service redesign	Not well documented. Few examples identified of payment innovation by commissioners for service redesign
Best practice tariffs	Case payment set at day case rate for some procedures. Extra payment conditional on use of specialised units	Same as for other elective or emergency admissions	None	Widespread though modified by block contracts
Penalties	No payment for emergency readmission within 30 days. No payment for occurrence of 'never events'	Mandatory part of standard contract	None	Variation in rigour of enforcement
Unavoidable costs	Market Forces Factor modifies individual hospital income (but not commissioner payment)	Nationally determined and applied	None	Universal within Payment by Results
'Cherry-picking'	Commissioners adjust tariff downwards if provider limits types of patients treated, resulting in lower costs	Optional part of standard contract	N/a	Not known
Outpatient procedures and day cases	Outpatient tariff adjusted locally to reflect actual costs of movement of service from day case to outpatient setting	Commissioners and providers agree variation. Flexibility is time limited	Yes; shift from day case to outpatient or other setting	Not known
Bundling for pathways	Payment for agreed bundling based on aggregation of payments for separate elements of bundled service	Agreed locally	Yes	Not known
Unbundling	Payment based on cost of unbundled elements of care	Agreed locally; certain conditions apply (eg. case needs to be made that unbundling necessary 'to achieve significant policy objectives')	Yes	Not Known
Innovation payments	Additional payments for new devices, drugs, treatments etc over and above tariff	Agreed locally. Time limited	None	Not known
Specialised cardiac top-ups	Additional payments for specific specialised services eg. 24 hour primary percutaneous coronary intervention	Agreed locally	None	Not known

^F From: Appleby J, Harrison T, Hawkins L, Dixon A. Payment by results: how can payment systems help to deliver better care? London. The King's Fund, 2012.