

# BMJ Open Perceptions and experiences of financial incentives: a qualitative study of dialysis care in England

Inger Abma,<sup>1</sup> Anuradha Jayanti,<sup>2</sup> Steffen Bayer,<sup>3</sup> Sandip Mitra,<sup>2</sup> James Barlow<sup>1</sup>

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<sup>1</sup>Imperial College Business School, South Kensington Campus, London, UK

<sup>2</sup>Manchester Institute of Nephrology & Transplantation, Manchester Royal Infirmary, Manchester, UK

<sup>3</sup>Duke-NUS Graduate Medical School Singapore, Singapore, Singapore

## Correspondence to

Professor James Barlow; [j.barlow@imperial.ac.uk](mailto:j.barlow@imperial.ac.uk)

## ABSTRACT

**Objective:** The objective of the study was to understand the extent to which financial incentives such as Payment by Results and other payment mechanisms motivate kidney centres in England to change their practices.

**Design:** The study followed a qualitative design. Data collection involved 32 in-depth semistructured interviews with healthcare professionals and managers, focusing on their subjective experience of payment structures.

**Participants:** Participants were kidney healthcare professionals, clinical directors, kidney centre managers and finance managers. Healthcare commissioners from different parts of England were also interviewed.

**Setting:** Participants worked at five kidney centres from across England. The selection was based on the prevalence of home haemodialysis, ranging from low (<3%), medium (5–8%) and high (>8%) prevalence, with at least one centre in each one of these categories at the time of selection.

**Results:** While the tariff for home haemodialysis is not a clear incentive for its adoption due to uncertainty about operational costs, Commissioning for Quality and Innovation (CQUIN) targets and the Best Practice Tariff for vascular access were seen by our case study centres as a motivator to change practices.

**Conclusions:** The impact of financial incentives designed at a policy level is influenced by the understanding of cost and benefits at the local operational level. In a situation where costs are unclear, incentives which are based on the improvement of profit margins have a smaller impact than incentives which provide an additional direct payment, even if this extra financial support is relatively small.

## INTRODUCTION

It is a major challenge for policymakers worldwide to ensure that healthcare systems provide good quality care at affordable costs. Governments have been implementing payment structures which are intended as incentives for improving quality in healthcare

## Strengths and limitations of this study

- Qualitative research provides unique insight into how financial incentives for quality improvement are perceived by kidney centres; this is important in helping understand better how financial incentives function in practice.
- Interviews at five kidney centres purposely selected to represent variable prevalence of home haemodialysis; however, does not give a comprehensive overview of perceptions across all kidney centres in England.
- Does not examine the actual costs and financial benefits of different dialysis modalities or the influences of patient preferences and wider organisational factors in decision-making around kidney care treatment modalities.

provision. In this study we looked at financial incentives in kidney care. As of 2011, more than 53 000 people (0.08% of the population) are in receipt of kidney replacement therapy in the UK.<sup>1</sup> This has been reported to take up 2% of the National Health Service (NHS) budget.<sup>2</sup> New financial incentives have been aimed at kidney care in the past few years to improve quality of delivered care and to take care closer to people's homes. This is in line with the current general goals within the NHS<sup>3</sup> and specifically in kidney care.<sup>4</sup> These developments make kidney care an interesting case for the study of the relationship between incentives and the uptake of different methods of providing expensive long-term care.

## Evidence on incentives in healthcare

One of the ways health systems worldwide strive to improve quality in healthcare is by the use of 'pay for performance', linking quality targets to provider revenues. This can either involve a financial reward or a penalty. There has been considerable research into the effectiveness of using monetary incentives to improve quality in healthcare, largely in the US context.<sup>5 6</sup> Reviews of published



evaluations have concluded that the research shows either no, or only modest, positive impacts of pay for performance on quality.<sup>7</sup> A recent review of systematic reviews shows that there is inconclusive evidence on whether pay for performance has an effect on practice.<sup>8</sup> Study results range from very positive to negative, with most studies of insufficient quality from which to draw firm conclusions, and problems in comparability due to the diversity in the design of pay for performance programmes. Eijkenaar<sup>9</sup> discusses the different design elements of pay for performance programmes, concluding that they should be broad but comprehensible, involve healthcare providers in the design, give incentives to groups rather than individuals, and should ideally be decoupled from the base payment for the service.

### Pay for performance in England

Despite inconclusive evidence on their effectiveness, governments in many countries have in recent years employed financial incentives to improve quality. In England, the Department of Health has employed several forms of financial incentives. In the primary care sector, the Quality and Outcomes Framework (QOF) was introduced in 2004. This comprised an incentive system paying up to 20% of the income of a general practitioner's practice,<sup>7</sup> spanning both clinical and organisational aspects of care, as well as patient experience.<sup>10</sup>

At the same time the Department of Health also started replacing the previous system of block contracts in the secondary care sector with Payment by Results, an activity-based payment system with tariffs based on national average costs, adjusted for casemix. On average about 60% of a hospital's activity is reimbursed via the tariff.<sup>11</sup> The tariff rewards providers for increasing productivity, should encourage them to improve efficiency and hold tighter control of costs, and also gives the Department of Health the opportunity to incentivise high quality care by paying a higher tariff price: the Best Practice Tariff. There were 15 Best Practice Tariffs active in 2012, rewarding those practicing the best clinical care in, for example, acute stroke care or total hip and knee replacements.<sup>11</sup>

A number of concerns have been raised over the use of Payment by Results and Best Practice Tariffs, notably the cost information on which the tariff is based. A recent report<sup>12</sup> found that reported unit costs can differ substantially between providers without clarity on whether this is due to real differences in costs or differences in allocation of costs or data collection. In addition, substantial annual variations in the reported unit costs on which the tariff is based mean that providers are discouraged from making decisions based on the cost-income balance of individual services, offsetting a loss in one service by a profit in another. Both these features make the tariff less likely to achieve the intended improvements in efficiency of services.

The Best Practice Tariff has been shown to have an impact on achieving improvements in the areas of cholecystectomies and hip fractures, but not in the case of

stroke care, possibly because providers needed more time to implement the incentivised changes in practice.<sup>13</sup> The same evaluation found that clinicians tended to be receptive to the Best Practice Tariffs, but to increase the chance of success it is important that the rewards outweigh the increased collection burden.

Another form of pay for performance is the Commissioning for Quality and Innovation (CQUIN) scheme, introduced in 2009 with the intention to 'support a cultural shift to make quality and innovation part of the commissioner-provider discussion everywhere'.<sup>14</sup> Clinical commissioners in local trusts—who purchase a majority of healthcare services in the NHS—play an active role in developing CQUIN goals for each provider. CQUIN makes a proportion of a provider's yearly income conditional on reaching quality targets agreed between the commissioner and provider. Most of these targets are agreed locally, based on what the provider and the commissioner both find important, but there are also a limited number of national and regional targets. CQUIN goals should include indicators on four domains: safety, effectiveness, patient experience and innovation.<sup>15</sup> The proportion of the provider's income that is conditional on achieving the CQUIN target has grown from 0.5% in 2009 to 2.5% in 2012.<sup>15</sup>

A recent evaluation of CQUIN<sup>15</sup> concluded that while it has helped commissioners and providers to identify and prioritise local needs for quality improvement, the impact on quality has been minimal. Several problems were identified, including clinician dissatisfaction over the way CQUIN goals were developed, and unclear and imprecise outcome measures, which emphasised processes rather than clinical outcomes. Freedom to use local indicators, though potentially useful for engaging clinicians, has also resulted in a lack of standardised outcome measures. The short-term nature of the CQUIN goals was also found to limit the motivation for Trusts to make investment in measures to improve performance. A quantitative analysis shows that of the nine CQUIN goals analysed, only hip fracture returns show an improvement.<sup>15</sup>

### Kidney care

While for some patients with advanced kidney failure conservative care is the preferred option, the majority will opt for dialysis, as it remains an effective life-saving and life-sustaining therapy. Although transplantation is considered the gold standard for kidney replacement therapy, available donor organs are a limited resource with an average waiting time of 3.2 years for a kidney transplant in the UK.<sup>16</sup>

Dialysis can be administered by a healthcare professional (typically a skilled nurse) in a hospital, or self-administered in the patients' own homes, independently or with minimal assistance. It is administered using an artificial kidney with access to the patient's blood (haemodialysis) or to the patient's abdomen (peritoneal dialysis (PD)). The management of advanced kidney

failure in a patient might involve either form of dialysis at home depending on their general health and personal preference. In Europe and North America, in-centre or hospital-based haemodialysis, 3 times/week for 4 h, is by far the most common therapy.<sup>1 17 18</sup>

Home haemodialysis (HHD) offers the flexibility of more frequent (5–6 times/week) and longer (7–8 h overnight) dialysis sessions, and is conveniently and comfortably performed in the patient's own home according to their preferred schedule. Current evidence suggests that more frequent or longer HHD is more physiological and likely to improve clinical outcomes,<sup>19–21</sup> and patients report an improved quality of life.<sup>22</sup> HHD may not, however, be the right option for all patients. Choice of dialysis modality is personal and contextual for each patient and may change over time. It is a lifestyle choice as well as a medical one, and decisions involve input from the patient, the informal caregiver and healthcare professionals.

There is a potential to save costs with HHD. Most economic studies show that HHD is less costly than in-centre haemodialysis,<sup>23–27</sup> with all studies showing reduced nursing costs for home dialysis patients. A comprehensive economic analysis will require consideration not only of treatment costs, but also of costs associated with home adaptations (eg, changes in the water supply) and of benefits such as reductions in travel and earlier return to work. Whether there are cost savings when performing frequent HHD is less clear, as more consumables (ie, dialysers, needles, etc) may offset savings on resource and infrastructure.<sup>28</sup>

In 2002 the National Institute for Health and Care Excellence (NICE) produced guidelines on home compared with hospital haemodialysis for patients with end-stage kidney disease.<sup>29</sup> It is recommended that all patients who are suitable for HHD should be offered the choice of undertaking haemodialysis in the home or in a hospital kidney centre. It was estimated that up to 15% of dialysis patients may choose to undertake HHD. In 2004, the Department of Health published the National Service Framework (NSF) for renal services, which promotes patient-centred provision of kidney services, including choice over HHD.<sup>30</sup> In 2011, 1.7% of patients on kidney replacement therapy (3.3% of all dialysis patients) were on HHD.<sup>1</sup>

Another topic of interest in kidney care is the type of vascular access that is used for patients on haemodialysis. Access type for chronic haemodialysis can be permanent, such as a native arteriovenous (AV) fistula or an AV graft surgically created in the lower arm, or semipermanent, in the form of a tunnelled venous catheter. Patients with an AV fistula or graft are generally believed to have better health outcomes than those with a catheter,<sup>31</sup> and suffer from fewer complications such as methicillin-resistant *Staphylococcus aureus* (MRSA) infections.<sup>32</sup> In recent years there has been considerable emphasis on increasing the use of permanent access via fistula. The zero tolerance approach in the NHS towards MRSA and

the fact that incidences of MRSA are one of the national measures to calculate financial bonuses (Quality Premiums) for NHS clinical commissioning groups, potentially influences the uptake of permanent vascular access.<sup>33</sup> Clinical practice guidelines published in 2011 by the Renal Association and the Vascular Society of Great Britain and Ireland also promote the use of AV fistulas and grafts over catheters.<sup>34</sup> Moreover, timely and appropriate surgery for permanent vascular access is one of five standards to be achieved in the NHS for 2014 as stated in the NSF for renal services.<sup>30</sup> Additionally, a National Kidney Care Audit was undertaken in both 2009 and 2010 to determine the extent of fistula use in the UK.<sup>35 36</sup>

### Financial incentives in kidney care

As of 2011–2012, dialysis modalities (excluding acute dialysis and paediatric dialysis) have been paid for by a mandatory tariff under Payment by Results. Transport and some medication costs are not included in this tariff and covered by a different mechanism. PD, as a continuous technique, is paid on a per day basis; in-centre haemodialysis is paid per dialysis session.<sup>37</sup> Trusts receive the Best Practice Tariff for patients who receive in-centre dialysis with an AV fistula or graft, as opposed to dialysis via a venous catheter,<sup>1</sup> to create an incentive in line with the current guidelines on vascular access. The Best Practice Tariff for vascular access is an incentive towards using fistulas/grafts for haemodialysis, as the tariff is higher and the costs are lower than for dialysis with a catheter. If the Trust reaches a predetermined proportion of patients undergoing in-centre haemodialysis on a fistula, then its income for haemodialysis is comparable to a situation in which there is no Best Practice Tariff and prices are set at the national average cost. The proportion of patients needed for equal income has gone up from 75% in 2011–2012 to 80% in 2012–2013.<sup>38</sup>

In April 2012 HHD was given its own mandatory tariff; previously a non-mandatory tariff was in place.<sup>38 39</sup> This tariff is paid on a per week basis, and amounts to the same sum of money as the in-centre Best Practice Tariff (ie, three in-centre dialysis sessions on an AV fistula or graft). This makes the income for HHD and in-centre dialysis on a fistula the same on a weekly basis. The HHD tariff is meant as an incentive for providers to expand their home programme, as the modality now provides a consistent income<sup>39</sup> which does not depend on negotiations between the kidney centre and its commissioner; and the overall costs for HHD are presumed to be lower than for in-centre haemodialysis. The tariff for HHD is the same irrespective of the nature of vascular access and frequency of dialysis sessions performed at home—typically 4 sessions/week, but ranging from 3 to 7 sessions/week.

<sup>1</sup>The tariff is also higher in patients with blood-borne viruses<sup>37</sup>

Since 2010 there have been several CQUIN targets relating to home therapies (HHD and PD), in which a locally negotiated proportion of patients have to be on home therapy for a Trust to gain the reward.<sup>40</sup> There have also been other CQUIN targets in kidney care, for example, aiming to reduce the time between a patient starting on dialysis and being referred for a transplant. In 2010 eleven hospitals had explicit CQUIN targets for home therapies. We used Renal Registry data to compare the percentages of patients on HHD and PD in December 2009 and December 2010, for hospitals in England with and without a CQUIN target for home therapies. A Mann-Whitney U test shows a significantly higher increase in the percentage of patients on HHD in the hospitals with a home therapies CQUIN target. While this correlation does not prove a causal link, it suggests that the relationship between CQUIN targets and the uptake of HHD is worth investigating. For PD there is a decline in percentage for both groups, with the percentage declining at a lower rate in the kidney centres which have a home therapies CQUIN target, although this does not reach significance. [Table 1](#) shows the changing percentage of prevalent patients on home therapy before and after the introduction of the CQUIN targets.<sup>41 42</sup>

In summary, the tariff for HHD should function as an incentive, by design, because it generates the same income as the more expensive alternative (in-centre haemodialysis); the Best Practice Tariff should function as an incentive for AV fistula access for haemodialysis because it pays more *and* is cheaper than the alternative (dialysis via a catheter); and CQUIN is an incentive because it provides additional (albeit relatively small) payment when a certain percentage of patients remain on a home therapy.

### Aims of this study

Through this study we wish to understand the extent to which the financial drivers, such as the tariff and the other payment mechanisms, motivate clinical kidney centres in England to change their practices in dialysis. We looked at all the payment structures in this single clinical area in the study sites, in order to gain an in-depth understanding of the relationship between these structures and clinical decision-making.

We adopted a qualitative approach to investigate the subjective experience of health professionals and managers on payment structures that aim to improve quality of kidney care. The subjective experience is important as it correlates well with change behaviour, ultimately informing whether payment structures could act as incentives in the way policymakers have intended.

### METHODS

We performed a qualitative study in the form of 45–60 min in-depth semistructured interviews with 27 healthcare professionals and managers in five kidney centres from

across England, serving a total of roughly 5.3 million catchment population. We also conducted five background interviews with commissioners and industry experts.

The five kidney centres were selected based on their prevalence of HHD. This ranged between low (<3%), medium (5–8%) and high (>8%) prevalence, with at least one centre in each one of these categories at the time of selection. Of the two centres with a prevalence below 3%, one had a total dialysis population of over 600, the other less than 200. The larger centre had only set up their HHD programme in the past few years. Those centres with a prevalence of 5–8% had total dialysis populations of approximately 250 and 500. Each had historically had a small HHD programme but had recently started developing it further. The centre with a prevalence of HHD of over 8% had around 600 dialysis patients, and had been growing their programme for over 10 years.

For each kidney centre we interviewed at least the following: one or more nurses, one or more consultant nephrologists involved in HHD, and one or more of the following: clinical director, financial manager and general manager. Interviews covered the organisation of the dialysis service (with a focus on HHD), the tariff and financial aspects of dialysis provision, as well as attitudes towards and opinions about the different dialysis modalities.

The transcribed interviews were analysed by two researchers using thematic analysis, a methodologically and epistemologically flexible approach. The analysis was guided by the aims and the research questions of the project and by the researcher's active identification of themes, based on the accounts of the participants' own views and experience.

This study was part of the BArriers to Successful Implementation of Care in Home HaemoDialysis (BASIC-HHD)<sup>43</sup> study which includes an in-depth organisational study which informs and provides a context for this work.

## RESULTS

### Dialysis tariff

In order to understand the impact of the tariff on kidney care, it is important to first consider the way in which costs are perceived in various kidney centres and across NHS Trusts. Staff from the case study Trusts held a range of opinions on whether the different tariffs were sufficient to cover the costs of the dialysis modalities (see box 1). However, not all of the kidney centres had sufficient detail and clarity of the costs involved in different modalities; rather, they were only aware of the costs and income of the kidney centre as a whole and only had partial knowledge of the costs of the individual treatment modalities (even though Trusts have to submit costs of each modality to the Department of Health as a basis for the tariff). This makes it difficult for these centres to compare tariffs against the true costs of these

**Table 1** CQUIN target (April 2010) and change in proportion of kidney patients on home therapy based on Renal Registry data.<sup>41 42</sup>

	CQUIN target for 2011 unless stated differently		Home haemodialysis (%)			Peritoneal dialysis (%)		
	Home haemodialysis	Peritoneal dialysis	December 2009	December 2010	Difference	December 2009	December 2010	Difference
Birmingham Heart of England	Total 35% by 2015*		2.8	3.6	0.8	7.1	9.2	2.1
Birmingham QEH	Total 35% by 2015*		2.0	2.9	0.9	15.6	15.1	-0.5
Dudley Group of Hospitals	Total 35% by 2015*		0.9	0.9	0	26.4	28.2	1.8
Liverpool Aintree University Hospitals	+1.7%	+5.0%	2.1	4.4	2.3	4.8	4.4	-0.4
Liverpool Royal Infirmary	+2.0%	20% total	2.6	3.8	1.2	17.9	14.5	-3.4
Royal Preston Hospital	+1.0%	+2.0%	4.7	4.8	0.1	13.8	11.2	-2.6
Salford Royal Infirmary	+1.3%	20% total	N/A	N/A	N/A	N/A	N/A	N/A
Shrewsbury & Telford Hospital	Total 35% by 2015*		1.3	2.7	1.4	13	9.9	-3.1
University Hospital of North Staffordshire	Total 35% by 2015*		1.6	4.4	2.8	19.3	19.9	0.6
Wirral University Teaching Hospital	+2.3%	+1.3%	1.4	1.8	0.4	15.8	16.6	0.8
Royal Wolverhampton Hospitals	Total 35% by 2015*		0.9	1.3	0.4	14.6	18.6	4
Average England hospitals with CQUIN			2.03	3.06	1.03	14.83	14.76	-0.07
Average England hospitals no CQUIN			2.08	2.29	0.21	16.28	15.67	-0.61
Difference in averages					0.82†			0.54‡

\*20% PD and 10% HHD.

†Significant difference at 0.05 level of significance (Mann-Whitney U test).

‡Non-significant difference at 0.05 level of significance (Mann-Whitney U test).

CQUIN, Commissioning for Quality and Innovation; HHD, home haemodialysis; N/A, not applicable; QEH, Queen Elizabeth Hospital.

**Box 1**

"Because we haven't devolved the costs down on each modality, I couldn't tell you whether PD [peritoneal dialysis] or haemo[dialysis] or whatever was more profitable for us at the moment." (Centre 4, interviewee 1)

"If we don't get beyond 2 years with a patient that's gone home [onto home haemodialysis], as is often the case because they tend to be the healthier ones that are far more likely to get a transplant,...we never get past that 2-year point to be able to start seeing some return on all the investment that we've made. So, if the turnover of patients is high, it actually is very detrimental, financially, to the service." (Centre 2, interviewee 4)

"Our profitability starts when they're at home and anything that prepares them for home is integrated into the main haemodialysis programme. Maybe it's a matter of just how you view it." (Centre 1, interviewee 6)

"We lose money...on those patients for the first 2 years because we invest so much time in their training, so much manpower and the home visits, etc., buying the machines, the technician support. And all those things added up, it's not until you get past that 2-year stage that we actually start seeing a little bit of a comparison with in-centre patients." (Centre 2, interviewee 4)

modalities. An assessment such as whether a specific modality is financially beneficial or loss-making is therefore a best estimate rather than a proven fact.

Opinions on the cost/income balance of HHD ranged widely, from it generating a significant profit to it being financially detrimental to the kidney centre. Centres differed in how they accounted for the costs of training patients for HHD. Training for HHD typically takes place in-centre while the patient is dialysed. Extra costs are incurred when training patients at the time of in-centre dialysis, because of additional nursing input that may be required in teaching. Some centres do not consider the costs of training separately at all, viewing it as part of in-centre dialysis expenses. Others see training patients in self-care as additional expenditure, the costs of which have to be recovered when patients start dialysing at home. As most patients on HHD are also the patients who are most likely to receive a transplant, it can be seen as a loss of investment if they get a transplant relatively soon after starting on HHD.

Interviewees' perceptions on how long it takes for HHD to bring in the same amount of money for the Trust as in-centre dialysis ranged from a few weeks to 2 years. These differences were partly due to differences in how long it takes to recoup the total upfront investment (training, home adaptations, and the costs of the dialysis machine for centres which make an outright purchase rather than lease). They were also the result of real or assumed differences in operational costs of HHD, and therefore the amount of money left for paying for the upfront costs under the current tariff (see box 1). Commissioners differed in opinion with regard to whether HHD is cost saving and were aware of the

risk centres face if patients drop out of the programme early (see box 2).

Another issue is the frequency of dialysis at home. In one centre cost considerations influenced the frequency of HHD sessions that were prescribed, but this was less the case in other centres. While the weekly tariff for HHD is fixed, the costs for some HHD patients will be higher than for others, depending on how often they dialyse and consequently how many consumables they use per week. In some of our case study Trusts the acceptable frequency of dialysis for HHD patients had been discussed, with some centres concluding that the HHD patients who dialyse 3 times/week balance out the costs of those choosing to dialyse 6 times/week in the programme as a whole. One centre was convinced that the Trust was losing money on frequent dialysis but refused to let cost influence the quality of patient care. In another centre patients were not allowed to dialyse more than 4 times/week because of cost constraints under the current tariff. Centres differed in their estimation of how much money is saved by reduced nursing time, and how many extra dialysis sessions this would cover in terms of consumables (see box 3).

Other uncertainties and local differences in the cost of HHD arise from how in-centre respite care or patient retraining for HHD is accounted for, how overheads from the kidney centres for different modalities are calculated, and whether the dedicated dialysis machine that each individual patient will need at home is purchased or leased.

In summary, there appears to be no consistency among kidney centres in the way the costs of HHD are understood. It is therefore unclear whether the apparent cost differences in HHD were still applicable, if the cost calculations were uniform in each centre.

**Best Practice Tariff**

The Best Practice Tariff for patients doing haemodialysis in-centre via fistula/graft had led the case study centres to put considerable emphasis on making sure patients get fistula surgery well before they start dialysis, as well

**Box 2**

"Although there's been a lot of talk about home haemodialysis, when I came to starting to look at the evidence base for this, it isn't really that strong as in the economics of it" (Commissioner 1)  
 "It's cheaper. It is a lot cheaper to dialyse at home." (Commissioner 2)

"So you set up somebody's home, you put the machine in, and get them trained, you start them off and 3 months down the road they have a transplant. ...You lose quite a lot of money." (Commissioner 1)

"So probably the first year the Trust won't be making a profit on that tariff but after that they would be, so it's a good tariff." (Commissioner 2)

## Box 3

“There are a lot of people doing three times, three and a half times, four times a week. Even if you had 10% or 20% patients doing five or six times a week, you’ve made enough savings here to offset that.” (Centre 1, interviewee 6)

“If they dialyse more than three times a week, it’s not enough because the tariff...only... gives you three times a week.” (Centre 2, interviewee 4)

“Patients can have a maximum four sessions of home haemodialysis a week. So if somebody needs a fifth session it’s not paid for, so they can’t have a fifth session.” (Centre 5, interviewee 2)

as trying to aim for patients who dialyse using a vascular catheter to switch to a fistula (see box 4).

The opinions of interviewees on the Best Practice Tariff were generally negative. The 80% target for patients on a fistula was seen as very high and there were concerns that it encourages centres to create AV fistulae in patients who might not benefit more from the surgery. There were also ethical concerns around patient choice—some patients may not want surgery for a fistula to avoid the need for cannulation. The interviewees emphasised that kidney centres should not direct patients to have vascular surgery for dialysis, conflicted by the higher Best Practice Tariff (see box 5).

### Commissioning for Quality and Innovation schemes

The kidney centres we interviewed were all making efforts to reach their home therapy CQUIN targets, for instance by improving patient education in the predialysis phase. One commissioner stressed the positive impact CQUIN schemes have had on the uptake of home therapies:

We put CQUINS in to help push the home therapy percentages,...working with the network on what percentages they should be. And it has made a big difference...

## Box 4

“The only tariff I’m sort of aware of at the minute is looking at their access because...they get more money, I think, for a fistula rather than a line, so there’s a massive push towards trying to get their access sorted so we do get that tariff in” (Centre 1, interviewee 8)

“The surgeons say, there’s no such thing as an emergency fistula. They’re now changing their minds and actually thinking, no, we need to actually bring somebody forward and do their operation sooner otherwise they’re going to end up with a line. So we’re much, much tighter about putting lines into people and putting tunnelled lines in when it’s going to be long term” (Centre 3, interviewee 5)

“There is an industry of looking at why patients start dialysis on lines, why patients are on lines, what can we do for the patients that are on lines to get them a fistula, what can we do with patients with fistulas to prevent them needing a line whereas that maybe time that’s spent doing that, could be better spent doing something else.” (Centre 3, interviewee 1)

## Box 5

“The one that possibly is lunacy is the use of lines versus fistula in the Best Practice Tariff...It could be a slight perverse tariff that you’ve got elderly people who are actually going to go for an operation...one or 2 years before they’re end-stage when it’s difficult to predict and could start dialysis perfectly adequately and safely on a line, but the Best Practice Tariff suggests that we lose money if we try to do that. So there may be an issue around putting fistulas in people who probably aren’t going to benefit..., you may have multiple attempts of forming a fistula and then fail and setup on a line, when you could probably predict that that would happen and they should really just start on a line.” (Centre 3, interviewee 1)

“The tariff is working towards incentivising more patients to have a fistula, but at the end of the day you’ve still got that patient choice which you can’t force somebody...We shouldn’t be saying, well, you ought to have this done because it gives us more money. The idea is to provide a quality service that the patient is happy and this is the way we can treat the patient and that’s the way it should be.” (Centre 1, interviewee 7)

You can see that Trusts are now more in tune with [this approach] (Commissioner 2).

However, the clinical centres raised concerns about these targets. Since it is usually the younger, healthier patients who go onto home therapies, these are also the patients most likely to receive a kidney transplant. A centre with a high transplant rate might therefore find it more challenging to reach or sustain its home therapy CQUIN target. As one interviewee put it, *Should I stop transplantation to meet the CQUINs?* (Centre 5, interviewee 2).

Just as with the Best Practice Tariff, another important factor is patient choice. Setting a CQUIN target on an issue that is based to a great extent on patient choice and their perceptions of the modality and its implications means that a Trust risks being penalised if insufficient patients wish to dialyse at home (see box 6). This may lead to encouragement of patients towards home therapy mainly for financial reasons, potentially with inadequate support structures and set up. One of the centres had discussed this issue with their commissioner, and they agreed on a more flexible target. They would receive the reward for reaching their home therapies target, or if a questionnaire showed that new patients were given the opportunity to make an educated choice. According to one commissioner, providing it was clear that the centre was making ‘active positive changes’, it would be awarded the CQUIN payment even if it was failing to meet the target.

However, it was also clear that flexibility was possible under the CQUIN framework. One of the centres had agreed a 5-year CQUIN plan with their commissioner, with the target proportion of patients who should be on home therapies increasing each year, clearly focusing on a longer term sustainable model, beyond the life of the CQUIN.



## Box 6

"The CQUIN targets drive our practice. They're again, a bit of a double-edged sword. You can be under the microscope if you're not achieving. And you can be sending patients home, but there can be things happening outside your control, like transplants and death, and things like this." (Centre 2, interviewee 1)

"When we were asked before about CQUIN targets, I said, if we've been round and canvassed every single patient in our unit, and they are doing what they should be doing, and we haven't hit targets because they are doing what they want to do...I don't think we should be penalised for that." (Centre 4, interviewee 2)

"If there is feasibility without affecting people and patient care... you should meet the CQUIN." (Centre 5, interviewee 2)

"Concerns were expressed about the length of time required to make changes to centres to meet the target, compared with the size and duration of the resulting CQUIN rewards. Moreover, because CQUINs only give a monetary reward for 1 year, this was seen by some as insufficient incentive for the effort of changing local practices. According to one interviewee,

"[we] soon realised that what [we] were signing up for was actually a very short-term deal ... Why do we want to worry about this amount of money? We might just be doing fine. Is it worth it?" (Centre 1, interviewee 6)

## DISCUSSION

Our interviews have shown that not all kidney centres in England look at the costs of the different dialysis modalities in detail, focusing mainly on the *total* costs and income of the centre. This in itself is not surprising. Until April 2011 kidney care was covered by block contracts between the Trust and its commissioner. In this arrangement, the kidney centre usually received a predetermined sum of money per patient, regardless of the modality.<sup>44</sup> There are no reference costs for HHD, but a financial audit by the Kidney Dialysis Project Group in preparation for the reference costs exercise showed that Trusts report costs for HHD ranging from £28 to £133 per session.<sup>45</sup> This may reflect an actual difference in costs or a difference in how providers disaggregate and record costs.<sup>12</sup> The costing studies available in the literature do also not necessarily reflect the method by which kidney centres in our study sample calculate their costs.

The HHD tariff was intended as an incentive for this modality<sup>39</sup> and the unexplained variation in estimated costs impacts on how a certain modality can be incentivised with a tariff. One of the centres did not see the tariff for HHD as an incentive because it is not until the second year of a HHD patient's treatment that the net income from in-centre and HHD is the same. There was also concern about the turnover of patients on HHD and its adverse impact on costs as upfront investment is lost.

Some kidney centres struggle to know whether the HHD tariff is an incentive or not: if they do not know the costs of a specific modality, they are unlikely to understand the additional value of the tariffs. This is similar to a finding in an early study of Payment by

Results<sup>46</sup> where it was observed that there was 'evident uncertainty about the reliability of price signals given by the Payment by Results tariff' to incentivise providers to select services with a high price-cost margin.

While the national tariff for HHD was not seen as an incentive by all participants in our study, CQUIN targets were seen as an encouragement to improve numbers of patients on HHD, even though the payment is relatively small compared to the total income a Trust earns for dialysis services. It gives centres an extra, very visible sum of money for the current year. Even the case study kidney centre that perceived HHD as financially detrimental has expanded its home programme in order to reach the CQUIN target and receive the additional income. It seems that the additional income outweighs any prevailing uncertainty around the costs of HHD. As CQUIN is an additional incentive decoupled from the base payment, this may contribute to the effectiveness of the model. The benefits of such incentives have been suggested in previous works.<sup>8</sup> The positive results of both our quantitative analysis (see [table 1](#)) and our qualitative findings on the CQUIN target and uptake of HHD are in contrast to a quantitative evaluation of CQUIN which shows a relative improvement in only one out of nine studied CQUIN goals.<sup>15</sup>

The Best Practice Tariff for vascular access is also seen as a clear incentive because dialysis with an AV fistula or graft attracts the higher tariff and is regarded as the cheaper longer term option for vascular access. The Best Practice Tariff was implemented when improvements in vascular access were widely considered as a crucial issue in the care for dialysis patients and it was made the subject of an NSF standard<sup>30</sup> and a national audit.<sup>35 36</sup> This might have given additional impetus to the uptake of AV fistulae.

The evaluation of the introduction of Best Practice Tariffs for the Department of Health<sup>13</sup> exposed criticism on the vascular access Best Practice Tariff that is similar to that encountered in our study. The required percentage set in the Best Practice Tariff should in theory take into account issues around patient choice and the unsuitability of some patients for a particular treatment modality.<sup>31</sup> In practice, however, concerns were reported in our study over the tension between patient choice and the Best Practice Tariff, from fears that a centre may be financially 'penalised' if patients do not want an AV fistula or graft to concerns that the incentive to create AV fistula may be based on the financial incentive and not only on clinical suitability and selection process.

We also found an ethical dilemma between CQUIN targets for home therapies and patient choice. As one participant said, if a CQUIN target for HHD has not been attained but patients have made educated choices then the centre does not deserve to be penalised. In this case, the centre and commissioner bypassed the potential pitfall by making educated patient choice an equally important indicator for reaching the CQUIN target. CQUIN targets are generally used to reach a specific

target over 1 year. Some commissioners have, however, negotiated a multiyear home therapy CQUIN target, with the target percentage increasing each year. This overcomes the potential problem, raised in our interviews and in a recent evaluation of CQUIN,<sup>15</sup> that there might be less of an incentive to invest in a relatively small, short-term target.

While decoupling incentives from the base payment appears to be promising (ie, via CQUIN type payment structures), changes to the tariff might also foster the uptake of HHD. To make the tariff for HHD a true incentive for kidney centres, they could be reimbursed per HHD session. This would be an approach somewhat similar to the Best Practice Tariff for vascular access in that the cost advantage becomes clearer. Because expenses for more frequent dialysis sessions would be covered, an equal payment for HHD and hospital haemodialysis sessions would be a clearer incentive. However, in a resource-constrained NHS this will increase the immediate expenditure by commissioning bodies.

According to the 2008 Payment by Results Interim Report commissioners are likely to view paying per HHD session as undesirable because the costs are not linear due to the investment in a dedicated dialysis machine for each patient and variable depreciation.<sup>45</sup> On the other hand it has been argued that the long-term health benefits of frequent haemodialysis, such as lower hospitalisation rates, may outweigh the initial costs. And even though some kidney centres are not convinced that HHD is financially beneficial for their Trust, others claim that their Trust is already making a significant profit on HHD under the current tariff. If anything, this strongly suggests that more research into actual costs breakdown by modality at a unit level is needed in order to provide suitable tariff.

A specific feature of HHD is that a significant initial (and individual) investment in a specific patient has to be made upfront, but the income to cover this expense is only earned back over time as long as that patient receives HHD. A potential approach to reduce the risk for Trusts would therefore be to unbundle the initial investment costs such as home conversions and extra training, and pay separately for them.

### Strengths and weaknesses of the study

Our qualitative study involved five kidney centres. We are unable to present a comprehensive evaluation of pay for performance in kidney care in general. We believe that variable prevalence of HHD in these geographically distinct study sites provide credible data and insight into the issues involved that need further research, on a wider scale. This paper does not examine the actual costs and financial benefits of different dialysis modalities or the influences of patient preferences and wider organisational factors in decision-making around kidney care treatment modalities. While these factors will shape the uptake of a treatment modality, we are confident

that the highlighted issues are of importance and also of relevance beyond the case study centres, and point to concerns which should be taken into account in developing financial frameworks for kidney care.

### Future research

In order for the tariff to be set in a way that it acts as an incentive, it will be important to better understand actual and perceived costs in kidney centres in England.

### CONCLUSION

The impact of financial incentives designed at a policy level is influenced by the understanding of cost and benefits at the operational level. In a situation where costs are unclear, incentives which are based on the improvement of profit margins have a smaller impact than incentives which provide an additional direct payment, even if this extra financial support is relatively small.

When trying to provide an incentive by paying the same amount of money for a service that is assumed to be cheaper by policymakers, it is important that local decision-makers have a clear view of the costs and agree that this service is cheaper. Because kidney centres in England are not clear on the costs of HHD, being paid the same amount of money as in-centre haemodialysis is not seen as an incentive.

Paying a higher tariff for a service that is clearly cheaper, or giving an additional sum of money when a specific target is reached, is seen as an incentive. This can be observed in the cases of the Best Practice Tariff for in-centre dialysis on a fistula or graft, and the CQUIN targets for home therapies.

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## REFERENCES

- Shaw C, Pruthi R, Pitcher D, *et al*. UK Renal Registry 15th Annual Report: Chapter 2 UK RRT Prevalence in 2011: national and centre-specific analyses. 2012. <http://www.renalreg.com/Reports/2012.html>
- NHS Kidney Care. England Dialysis Capacity Survey as at October 2011. 2011. [http://www.kidneycare.nhs.uk/our\\_work\\_programmes/commissioning/dialysis\\_capacity\\_survey/#](http://www.kidneycare.nhs.uk/our_work_programmes/commissioning/dialysis_capacity_survey/#)
- Department of Health. Delivering care closer to home: meeting the challenge. 2008. [http://icn.csp.org.uk/\\_library/Delivering\\_care\\_closer\\_to\\_home.pdf](http://icn.csp.org.uk/_library/Delivering_care_closer_to_home.pdf)
- Beard C. *No place like home: increasing access to home dialysis*. NHS Kidney Care, 2013. [http://www.kidneycare.nhs.uk/our\\_work\\_programmes/improving\\_choice\\_for\\_kidney\\_patients/home\\_therapies/](http://www.kidneycare.nhs.uk/our_work_programmes/improving_choice_for_kidney_patients/home_therapies/)
- Dudley RA, Frolich A, Robinowitz DL, *et al*. *Strategies to support quality-based purchasing: a review of the evidence*. Rockville, MD, 2004.
- Petersen LA, Woodard LD, Urech T, *et al*. Does pay-for-performance improve the quality of health care? *Ann Intern Med* 2006;145:265–72.
- Sussex J. Paying for better outcomes—the English way. *J Health Serv Res Policy* 2009;14:131–2.
- Eijkenaar F, Emmert M, Scheppach M, *et al*. Effects of pay for performance in health care: a systematic review of systematic reviews. *Health Policy* 2013;110:115–30.
- Eijkenaar F. Key issues in the design of pay for performance programs. *Eur J Health Econ* 2011;14:117–31.
- Gillam SJ, Siriwardena AN, Steel N. Pay-for-performance in the United Kingdom: impact of the quality and outcomes framework—a systematic review. *Ann Fam Med* 2012;14:461–68.
- Appleby J, Harrison T, Hawkins L, *et al*. Payment by Results: How can payment systems help to deliver better care? *King's Fund*, 2012. <http://www.kingsfund.org.uk/publications/payment-results-0>
- PricewaterhouseCoopers LLP. An evaluation of the reimbursement system for NHS-funded care. Report for monitor. 2012. <http://www.monitor-nhsft.gov.uk/home/news-events-publications/our-publications/browse-category/guidance-health-care-providers-and-co-15>
- McDonald R, Zaidi S, Todd S, *et al*. *A qualitative and quantitative evaluation of the introduction of Best Practice Tariffs*. 2012. <https://www.gov.uk/government/news/introduction-of-best-practice-tariffs-qualitative-and-quantitative-evaluation>
- Department of Health. *Using the Commissioning for Quality and Innovation (CQUIN) payment framework*. 2009.
- McDonald R, Zaidi S, Todd S, *et al*. Evaluation of the Commissioning for Quality and Innovation Framework: final report. 2013. <http://www.nottingham.ac.uk/business/documents/news-documents/evaluation-of-the-commissioning-for-quality-and-innovation-framework—final-report—feb-2013.pdf>
- NHS Blood & Transplant. *Median waiting time to kidney transplant*. 2013. [http://www.organdonation.nhs.uk/statistics/centre-specific\\_reports/kidney\\_centre-specific\\_reports.asp](http://www.organdonation.nhs.uk/statistics/centre-specific_reports/kidney_centre-specific_reports.asp)
- US Renal Data System. USRDS annual Data Report, volume 2, chapter 1: incidence, prevalence, patient characteristics, & modality. 2012. <http://www.usrds.org/atlas.aspx>
- Just PM, de Charro FT, Tschosik EA, *et al*. Reimbursement and economic factors influencing dialysis modality choice around the world. *Nephrol Dial Transplant* 2008;23:2365–73.
- Zimmerman DL, Nesrallah GE, Chan CT, *et al*. Dialysate calcium concentration and mineral metabolism in long and long-frequent hemodialysis: a systematic review and meta-analysis for a Canadian Society of Nephrology Clinical Practice Guideline. *Am J Kidney Dis* 2013;62:97–111.
- Curran SP, Chan CT. Intensive hemodialysis: normalizing the 'unphysiology' of conventional hemodialysis? *Semin Dial* 2011;24:607–13.
- Rocco MV. Short daily and nocturnal hemodialysis: new therapies for a new century? *Saudi J Kidney Dis Transpl* 2009;20:1–11.
- Miller J. Does home haemodialysis produce better outcomes for patients? *Br J Nurs* 2010;19:1275–6, 1278–80.
- Baboolal K, McEwan P, Sondhi S, *et al*. The cost of renal dialysis in a UK setting—a multicentre study. *Nephrol Dial Transplant* 2008;23:1982–9.
- McFarlane PA, Pierratos A, Redelmeier DA. Cost savings of home nocturnal versus conventional in-center hemodialysis. *Kidney Int* 2002;62:2216–22.
- Kroeker A, Clark WF, Heidenheim AP, *et al*. An operating cost comparison between conventional and home quotidian hemodialysis. *Am J Kidney Dis* 2003;42(1 Suppl):49–55.
- Agar JW, Knight RJ, Simmonds RE, *et al*. Nocturnal haemodialysis: an Australian cost comparison with conventional satellite haemodialysis. *Nephrology (Carlton)* 2005;10:557–70.
- Mohr PE, Neumann PJ, Franco SJ, *et al*. The case for daily dialysis: its impact on costs and quality of life. *Am J Kidney Dis* 2001;37:777–89.
- Komenda P, Gavaghan MB, Garfield SS, *et al*. An economic assessment model for in-center, conventional home, and more frequent home hemodialysis. *Kidney Int* 2012;81:307–13.
- National Institute for Clinical Excellence. *Guidance on home compared with hospital haemodialysis for patients with end-stage renal failure*. 2002. <http://publications.nice.org.uk/guidance-on-home-compared-with-hospital-haemodialysis-for-patients-with-end-stage-renal-failure-ta48>
- National Service Framework for Renal Services. *Part one—dialysis and transplantation*. Department of Health, 2004. <https://www.gov.uk/government/publications/national-service-framework-kidney-disease>
- NHS Kidney Care. *Frequently asked questions: payment by results (PbR)—renal dialysis*. 2011. [http://www.kidneycare.nhs.uk/resources\\_old/faqs/](http://www.kidneycare.nhs.uk/resources_old/faqs/)
- Patel PR, Kallen AJ, Arduino MJ. Epidemiology, surveillance, and prevention of bloodstream infections in hemodialysis patients. *Am J Kidney Dis* 56:566–77.
- NHS Commissioning Board. *Everyone counts: planning for patients 2013–2014*. 2012. <http://www.england.nhs.uk/wp-content/uploads/2012/12/everyonecounts-planning.pdf>
- Fluck R, Kumwenda M. *Clinical practice guidelines—vascular access for haemodialysis*. 2011. <http://www.renal.org/Clinical/GuidelinesSection/VascularAccess.aspx#downloads>
- NHS Information Centre. *National Kidney Care Audit Vascular Access Report 2010*. 2011. <http://www.hqip.org.uk/assets/NCAPOP-Library/National-Kidney-Care-Audit-Vascular-Access-Report-2010.pdf>
- NHS Information Centre. *National Kidney Care Audit Vascular Access Report 2011*. 2012. <http://www.hqip.org.uk/assets/NCAPOP-Library/VARReport2011Interactive03082011-FINAL.pdf>
- Department of Health. *Tariff information spreadsheet*. 2012. <https://www.gov.uk/government/publications/confirmation-of-payment-by-results-pbr-arrangements-for-2012-13>
- Department of Health. *Payment by Results Guidance for 2011–12*. 2011. <http://gp.dh.gov.uk/2011/03/28/updated-payment-by-results-pbr-arrangements-for-2011-12/>
- Department of Health. *Payment by Results Guidance 2012-13*. 2012. <https://www.gov.uk/government/publications/confirmation-of-payment-by-results-pbr-arrangements-for-2012-13>
- NHS Institute for Innovation and Improvement. *Commissioning for Quality and Innovation (CQUIN) payment framework—summary of indicators 2010-2011*. 2010. [http://www.institute.nhs.uk/world\\_class\\_commissioning/pct\\_portal/cquin.html](http://www.institute.nhs.uk/world_class_commissioning/pct_portal/cquin.html)
- Castledine C, Casula A, Fogarty D. *UK Renal Registry 14th Annual Report: chapter 2 UK RRT Prevalence in 2010: national and centre-specific analyses*. 2011. <http://www.renalreg.com/Reports/2011.html>
- Steenkamp R, Castledine C, Feest T, *et al*. *UK Renal Registry 13th Annual Report: chapter 2 UK RRT Prevalence in 2009: national and centre-specific analyses*. 2010. <http://www.renalreg.com/Reports/2010.html>
- Jayanti A, Weiriden AJ, Morris J, *et al*. Barriers to successful implementation of care in home haemodialysis (BASIC-HHD):1. Study design, methods and rationale. *BMC Nephrology* 2013;14:197.
- NHS Kidney Care. *Adult kidney dialysis care best practice tariff/ payment by results—FAQs for patients*. Carers and non-clinicians. 2011.
- Department of Health. Interim Report of the PbR for Renal Dialysis Project Group. 2008.
- Sussex J, Farrar S. Activity-based funding for National Health Service hospitals in England: managers' experience and expectations. *Eur J Health Econ* 2009;10:197–206.