Medical Revalidation – Costs and Benefits

Analysis of the costs and benefits of medical revalidation in England

Prepared by the Department of Health, Professional Standards Team

Executive Summary

Medical revalidation is intended to commence in December 2012, strengthening the regulation of licensed doctors in the UK. Revalidation is a five-yearly process which gives doctors a clear framework to reflect on and improve their quality of care, as well as providing assurance to patients and the public that doctors are keeping up to date and remain fit to practise.

Through revalidation, doctors are required to demonstrate that they are working in a way that meets the values and principles set out in the General Medical Council's (GMC's) 'Good Medical Practice' guidance in order to renew their licence to practise. The evidence that doctors will bring to support revalidation will include participation in a process of annual appraisal, feedback from patients and colleagues, evidence of continuing professional development, reviews of complaints and information about clinical outcomes, where appropriate. The new system will apply to all doctors in all settings in the UK and will be implemented and overseen by the GMC.

This report presents the evidence underpinning the development of the policy and considers the impact and value for money of implementing the planned system. The analysis concludes that revalidation, when undertaken according to the recommended appraisal model, carries benefits which are shown to outweigh the costs. Overall, revalidation is shown to be a proportionate and cost-effective means of delivering the policy objectives.

Revalidation carries two main, broad sets of costs: those associated with undertaking appraisal and those associated with making revalidation decisions. The first set is expected to be significantly greater than the second, because appraisal requires a considerable undertaking that will be conducted by all doctors on an annual basis. This includes the time spent by doctors in collecting evidence, time of appraisers, as well as the organisational resources of designated bodies (for example administrative and clinical governance mechanisms). Given that appraisal has been a mandatory component of NHS contracts with doctors since 2001, it already takes place for the large majority of doctors. Therefore, the additional appraisal costs associated with revalidation are the costs of appraisals for the minority of doctors who currently do not undertake appraisal. The second set of costs mostly relate to the activity of around 700 responsible officers and the GMC, which is conducted on a five-yearly basis for each doctor. As such, these costs are expected to be relatively low.

Extensive testing and piloting has shown that the policy is expected to result in average overall costs of around £97 million per year in England, over the ten-year period starting in 2013. The large majority of these costs result from 'opportunity costs' in terms of doctors' time. Most doctors will already have time allocated to non-

clinical activities and will be regularly reflecting on and improving their practice – revalidation provides a framework to enable that time to be used more effectively.

The benefits that will result as a consequence of revalidation are:

- increased public trust and confidence in doctors;
- improved patient safety, outcomes and quality of care;
- a reduction in the costs of support for the minority of doctors whose medical practice is poor, through earlier identification of performance issues;
- a reduction in malpractice and litigation costs;
- improvement in the quality of information about medical care; and
- supporting positive cultural change in the medical profession.

To support implementation, a more streamlined and focussed appraisal process – the *Medical Appraisal Guide* (MAG) – has been developed. Use of this approach has been shown to deliver productivity improvements compared to existing processes, especially for appraisers.

Quantifying the benefits of revalidation is challenging. For example, while it is clear that public trust and confidence in doctors is an essential component of any health system, putting a monetary value on this is not possible. Similarly, the value of better information about the medical care and the emergence of a culture which is more responsive to patient experience are equally difficult to quantify.

When quantifying benefits, a smaller range of benefits for which the monetary value can be estimated, based on available evidence, is therefore considered. Specifically, these benefits relate to the appraisal process and its role in improving patient safety and the quality of care by:

- identifying the instances where the capabilities or actions of a small minority of doctors fall below the standard required; and
- reflection by all doctors towards improving their overall performance.

In the analysis that follows, these benefits are shown to outweigh the expected costs. When taking into account the non-quantifiable benefits, revalidation is shown to provide a cost-effective means of delivering the policy objectives.

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Problem under consideration

1.1. The high level of trust that patients and the public currently have in their doctors is based on the premise that regulators and policy makers have a broad system in place to assure an individual doctor's fitness to practise. The existing system relies on two broad policy instruments:

i. a system of checks to ensure that the doctor has qualified, following training and testing from an approved institution; and

ii. a system for patients, the public and local medical providers to report and investigate concerns raised about a doctor's fitness to practise.

1.2. Currently, there is no proactive regulatory policy to assess a doctor's fitness to practise following qualification. The existing system is reactive only when extreme cases of poor quality of care occur and concerns are raised about doctors. Revalidation is the additional policy instrument that bridges this gap by mandating a routine check of a doctor's practice to provide assurance that he or she remains fit to practise medicine.

1.3. A regulatory change brought forward by the General Medical Council (GMC) will introduce measures relating to medical revalidation and re-enact (with modifications) the General Medical Council (Licence to Practise) Regulations 2009. This analysis focuses on the measures relating to revalidation, as it is those elements of the regulations which will have a substantive impact. The analysis has been prepared by the Department of Health and shows the impact of revalidation, based on an extensive programme of testing and piloting, for doctors practising in England. This has been done even though, as the regulations are made by the GMC, a formal departmental impact assessment is not required.

Rationale for intervention

1.4. The rationale for the proposed intervention can be summarised as follows:

- The purpose of revalidation is to provide a proactive system of assurance that all licensed doctors are fit to practise and meet the minimum requirements of the GMC's Good Medical Practice (GMP) guidelines. Appraisal provides the most appropriate and cost-effective means of delivering this assurance;

- Independent of revalidation, appraisal, when undertaken well, is assumed to have a positive net benefit in terms of patient safety and quality of care;

- Appraisals are currently mandatory for doctors in the NHS and are being undertaken within most organisations, but the consistency and quality of appraisal varies. The introduction of revalidation and the Responsible Officer[1] (RO) role will lead to an increase in both the quality and quantity of appraisals that take place, with an explicit link to the GMP Framework;

- Overall, revalidation will lead to a positive change, as long as the value of the benefits of the changes required exceed the costs.

Background

1.5. Plans for the revalidation of doctors in the UK have been under discussion for more than a quarter of a century. The doctors' regulator, the General Medical Council (GMC), initially committed to introduce revalidation in 1999-2000 in the immediate aftermath of the hearings of allegations of serious professional misconduct against three doctors at the Bristol Royal Infirmary[2].

1.6. At the same time as the GMC was consulting on plans for revalidation, the practice of ensuring that doctors undertook an annual review and were able to reflect upon their own practice was formally introduced into the NHS. In 2001, medical appraisal became mandatory for all NHS doctors in both primary care and secondary care via the General Medical Services (GMS), Personal Medical Services (PMS) and consultant contracts. Appraisal of doctors was designed to provide a structure within which doctors could demonstrate they were practising in accordance with Good Medical Practice (GMP) – the guidelines which set out what is expected of all doctors registered with the GMC.

1.7. In December 2004, the fifth report from the inquiry into the murders of hundreds of patients by Dr Harold Shipman concluded that the plans outlined by the GMC for revalidation as proposed were not sufficiently robust to protect patients[3]. It recommended a complete review of both appraisal and revalidation so that revalidation would provide more effective safeguards for patients. The Secretary of State at the time suspended implementation of revalidation until this recommendation had been addressed.

1.8. In November 2009, the GMC introduced the licence to practise for all doctors, in accordance with *The GMC (Licence to Practise) Regulations Order of Council 2009*[4]. This licence will be revalidated as the culmination of the proposed revalidation process.

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[1] Responsible Officers are locally-based senior doctors with specific responsibility for overseeing the performance and conduct of doctors working for healthcare organisations.
[2] http://www.bristol-inquiry.org.uk/final_report/index.htm
[3] http://www.shipman-inquiry.org.uk/fifthreport.asp
[4] http://www.gmc-uk.org/LtP_Regulations.pdf_28140415.pdf

1.9. In response to further consultation, the GMC published the current proposed revalidation process in July 2010. This was followed by the publication in October 2010 of a *Statement of Intent*[5] by the Chair of the GMC, the Medical Director for NHS (England), the Chief Medical Officers for England, Northern Ireland and Wales, and the Deputy Chief Medical Officer for Scotland. This outlined their clear commitment to revalidation and the move into implementation to make revalidation a reality, subject to an assessment of readiness by the Secretary of State in the summer of 2012.

1.10. During 2011-12, the NHS Revalidation Support Team (RST), which is the delivery arm for revalidation in England, oversaw the completion of an Organisational Readiness Self-Assessment (ORSA) exercise[6]. The ORSA was completed by the large majority of organisations in the English healthcare system and provided a benchmark for progress. Specifically, it identified the areas in which local employers and commissioners had further work to do to ensure that they were ready to implement revalidation effectively. Significantly, it also highlighted that, despite appraisal being mandatory since 2001, only 73% of doctors were participating in an effective annual appraisal process.

1.11. We know from regular surveys that public trust and confidence in the medical profession is high. It is important that the assurance systems in place to underpin the quality and safety of medical practice are sufficient to maintain these high levels of trust. In 2005, MORI[7] found that nearly half of the public believed that all doctors were already regularly assessed to ensure that they were performing well, with one in five believing that this took place every year. A more recent study[8] showed that the majority of the public believed this form of regulation was in place and when they understood the limitations of the current systems, they expected revalidation to be introduced in a timely fashion.

Policy objectives

1.12. The objectives of the policy are as follows:

- to ensure that existing high levels of public trust and confidence in the medical profession are maintained and to demonstrate to the public that all licensed doctors are up to date and fit to practise;

[5] http://www.gmc-uk.org/Revalidation_A_Statement_of_Intent_October_2010__Final_version___web_version_.pdf_35982397.pdf
[6] http://www.revalidationsupport.nhs.uk/about_the_rst/rst_projects/Implementation-Support/ORSA/ORSA-report-2011-12.php
[7] http://mori-ireland.com/researchpublications/researcharchive/poll.aspx?oItemId=433
[8] IPSOS/MORI Social Research Institute/Kings Fund - Public & Patient Involvement in Revalidation Assuring Confidence in Revalidation Research conducted by IPSOS MORI and Kings Fund for DH/RST – March 2012 (unpublished)

- to provide a system that is protective of patient safety by ensuring it is effective in detecting and addressing poor performance among doctors at an earlier stage, thus reducing harmful and costly actions that result from poor quality practice;

- to provide a system that facilitates the continual development of doctors' skills above the standards of GMP, to enable quality, as well as safety gains to be achieved and to support doctors in meeting their personal and professional commitment to continually develop their skills;

- to provide a system that is equitable for all doctors, patients and the public, by providing a level playing field for all doctors and ensuring no groups are unfairly advantaged or disadvantaged by the system. The system should be performed fairly and transparently, such that sufficiently consistent assurance of standards can be achieved across the United Kingdom, whatever the practice model;

- to enable more respectful care by providing a system which allows patient participation and feedback, and ensures that patient views are taken into account in evaluating whether doctors are up to date and fit to practise; and

- to provide a system that reduces the cost of tackling poor medical practice through:

    - earlier detection of performance or behavioural problems, leading to reduced suspension, litigation and fitness to practise costs;

    - earlier addressing of health issues, resulting in reduced sickness absence and ensuring doctors can be more quickly restored to effective and productive care;

    - increased capability of employers and commissioners to tackle concerns about doctors, thereby reducing referrals to the GMC; and

    - improving the amount and transparency of information about the quality of care of individual doctors and the organisations for which they work.

Description of options considered (including do nothing)

1.13. A wide range of policy options to deliver the above objectives has been considered according to five dimensions: scoping, service solution, service delivery, implementation and funding options. These are summarised in table 1.

Table 1: Options Evaluation Summary

1. Scoping options (who will be revalidated?)	**2. Service solutions** (how will revalidation be enforced?)	**3. Content and timing** (of revalidation in steady state)	**4. Who delivers the service?**	**5. Initial implementation of first cycle of revalidation**
1.0 Do Nothing				
1.1 Minimum: Limited to 'high risk' sectors and specialties only	**2.1 Positive reinforcement options:** a. Payment for improvements in quality of care b. Publication of performance information	**3.1 Variable timing / intervals:** Depending on 'performance' at checks (doctors identified as 'high performing' through appraisal get checked less frequently)	**4.1 Care Quality Commission (CQC)**	**5.1 Big bang:** All doctors simultaneously
1.2 Intermediate: All doctors requiring a licence to practise	**2.2 Statutory revalidation:** Requirement to demonstrate Good Medical Practice (GMP) with the sanction of losing licence to practise upon failure to co-operate or through fitness to practise proceedings	**3.2 Fixed timing / intervals:** All doctors face the same intervals	**4.2 GMC** (with medical royal colleges providing advice on application of GMC guidance to specialty practice)	**5.2 Phased approach:** Rolled out over 3 years
1.3 Maximum: All doctors on the GMC register, whether practising or not	**2.3 Voluntary revalidation:** System whereby those who voluntarily demonstrate GMP through the agreed process would receive accreditation or a required kite-mark, with failure to do so potentially resulting in investigation by the relevant authority	**3.3 Fixed content:** All doctors undergo a very similar process of evaluation for GMP		**5.3 Phased approach:** Rolled out over 5 years

1.14. From a scoping point of view (column 1), the minimum option (1.1) of limiting to 'high-risk' sectors and specialties only was not regarded as a favourable option. Analysis of GMC data on fitness to practise referrals and recent high profile media cases show that, whilst certain groups of doctors may present a greater risk (for example, older and non-UK trained doctors), concerns can arise in any sector. There is no robust and accepted process to identify doctors who present a greater risk or to define what are 'high-risk' specialities or sectors. To do so would most likely be unacceptable to the profession and could be regarded as arbitrary, unfair, and falling short of equality and diversity best practice. Further to this, appraisals – the main cost burden to doctors in the revalidation process – are already mandatory for all doctors in all NHS sectors. As such, the marginal cost increase of going from high-risk to all doctors ought to be small. At the same time, the real concern is to be assured of an improvement to the performance of practising doctors, and as such, Option 1.3 (revalidating all registered doctors, whether practising or not) was regarded as overly burdensome with little marginal benefit in relation to non-practising doctors.

1.15. In terms of the service delivery options (column 2), positive reinforcement options such as payments for improvements in quality of care and publication of information regarding quality of care were regarded as providing incomplete assurance of all doctors, as was a system of voluntary revalidation. A voluntary system of revalidation would not result in providing the right level of confidence to the regulator of fitness to practise relating to all doctors. A statutory requirement to demonstrate the principles of *Good Medical Practice* was therefore chosen as the short-listed option.

1.16. A fixed content and timing for all doctors was regarded as the most equitable manner in which to undertake the process (column 3) and would provide a simpler approach for designated bodies to produce supporting information to inform the revalidation of all doctors. It would be challenging and more expensive to produce bespoke information for different doctors.

1.17. Regarding organisational delivery (column 4), given that the GMC rather than the CQC has the regulatory authority to oversee doctors' fitness to practise, the GMC was identified as the right agency to undertake revalidation, with medical royal colleges providing advice on the application of GMC guidance to specialty practice.

1.18. A 'big bang' implementation approach (column 5), although fairer to doctors in that every doctor would be given the same time to prepare for the initial revalidation process, was regarded as overly burdensome to the regulator and employers and considered a high-risk strategy because it would not allow for learning and improvement as the system rolls out. However, both a

three-year and a five-year phasing of implementation were short-listed for future consideration.

1.19. Regarding the model of delivery for appraisal within revalidation, the RST initially developed a model termed Strengthened Medical Appraisal (SMA), which was piloted extensively in 2010/11. The pilot findings[9], consultation by the GMC, and subsequent publication of guidance identified a number of operational problems and inefficiencies with the SMA approach, and on the back of these findings, a simpler and more focussed model of appraisal – the Medical Appraisal Guide (MAG) – was developed by the RST. The MAG was tested and refined through further extensive piloting in 2011-12.

1.20. The short-listed options are summarised in table 2.

Table 2: Short-listed options

Option	Description	Implementation
Option 1 – do nothing	Continued variation across the health system in quality and level of appraisal	N/a as already in existence.
Option 2 – MAG 3-year roll-out	Statutory revalidation for all doctors according to the Medical Appraisal Guidance (MAG) model	All doctors initially revalidated in the first three years of the five-year cycle. Following this, all doctors revalidated on a five-year cycle.
Option 3 – MAG 5-year roll-out	Statutory revalidation for all doctors according to the Medical Appraisal Guidance (MAG) model	All doctors initially revalidated within five years, and subsequently according to a five-year cycle.

1.21. The scope of options 2 and 3 is all doctors with a licence to practise, under a system operated by the GMC, with input and support from the medical royal colleges. The only difference between the options is the length of time over which the policy is rolled out (three or five years). Option 2 (three-year rollout) is considered the preferred way forward based on the analysis that follows.

Establishing an evidence base

1.22. In order to establish the best possible evidence base to assess the costs and benefits of revalidation, three component areas were investigated:

i. The RST, in collaboration with partners, conducted pilots and surveys to establish what medical practitioners perceive to be the main costs and benefits.

[9] http://www.revalidationsupport.nhs.uk/files/DE0270-00-DH-MedRev-Summary_Report_FINAL.pdf

ii. A broad range of academic literature and sources was considered, from both the medical and the human resource management field, that relate to appraisals and performance.

iii. 'Sense-check' sessions were conducted with experts and practitioners, including doctors, ROs, policy-makers and health sector human resource managers, to test the overall findings. These built on the testing, piloting, consultation and workshop activities that were led by the RST between 2009 and April 2012. A range of stakeholders in the scheme were involved in this work, including public and private providers, regulators, professional bodies (medical royal colleges – the Academy and individual colleges and faculties – and the BMA), doctors (of all types and levels and from different geographic regions), patients and the public.

1.23. These three component areas of the evidence base are described in annex A.

Modelling assumptions

1.24. A number of general assumptions are used in the modelling of costs and benefits. These are described in annex B.

1.25. It should be noted that MAG provides a recommended approach to assist doctors to demonstrate good medical practice, but is not the only approach that will be accepted for revalidation. Where local appraisal systems exist that satisfy the GMC's requirements, these systems can be used for the purpose of generating information for revalidation. However, for the purpose of the analysis that follows, we use the MAG approach as a benchmark indicator of the time and costs associated with undertaking an effective appraisal process.

Modelling of costs

1.26. The potential costs of revalidation have been modelled using the evidence based outlined above. Detailed analysis of the outputs of the modelling can be found in annex C. Table 3 summarises the estimated costs.

Table 3: Summary of additional costs due to revalidation

Description	Cost	Cash / opportunity costs[10]
Cost of undertaking annual appraisal (doctors)	£1,200 per annual appraisal, for 27% of doctors not previously appraised	Opportunity
Cost of undertaking annual appraisal (appraisers)	£680 per annual appraisal, for 27% of doctors not previously appraised	Opportunity
Responsible Officer costs	£162 per doctor every five years	Opportunity
Training costs	£22 million over the first three years of implementation	Opportunity
Administrative, organisational and clinical governance costs	£27 per doctor	Cash
Remediation	£3,600 per intervention, for an additional 1% of doctors	Cash / Opportunity
Multi-source feedback	£458 per doctor every five years	Cash / Opportunity
Regulator costs	£6.1 million over the first two years of implementation, approximately £950k per year thereafter	Cash / Opportunity

1.27. The above costs are modelled for the three- and five-year rollout options in the analysis that follows.

Modelling of benefits

1.28. The expected benefits of revalidation are considerably more difficult to model than costs. Whereas the costs involved in revalidation are inputs that can be measured by testing and piloting of the procedures and processes of revalidation, even where benefits can be quantified, these are outputs that are experienced over a longer period, which are difficult to predict.

1.29. The expected benefits of revalidation are as follows:

- increased public trust and confidence in doctors;
- improved patient safety, outcomes and quality of care;
- a reduction in the costs of support for the minority of doctors whose medical practice is poor, through earlier identification of performance issues;

[10] Costs are separately categorised according to whether they are cash (ie having a direct financial impact on organisations) or opportunity costs (ie costs due to individuals using their time differently).

- reduced malpractice and litigation costs;
- improvement in the quality of information about medical care; and
- supporting positive cultural change in the medical profession.

1.30. Some of the above benefits are clearly not quantifiable. For example, while it is clear that public trust and confidence in doctors is an essential component of any health system, putting a monetary value on this is not possible. Similarly, the value of better information about medical care and the emergence of a culture that is more responsive to patient experience are equally difficult to quantify. However, where possible, the potential benefits have been modelled, and the assumptions applied are set out in detail in Annex D.

1.31. Table 4 summarises the estimated quantifiable benefits.

Table 4: Summary of quantifiable benefits of revalidation

Description	**Benefit**	**Cash-releasing?**
Patient Safety: Reduction in harmful practices resulting from poor quality care	0.75% of cases of death, severe harm and moderate harm per year to be avoided due to revalidation. Assumed 10, 1.7 and 0.8 QALYs gained per case of death, severe harm and moderate harm avoided respectively. QALY valued at £60,000.	N
Efficiency: Avoided suspension and a more efficient appraisal process	- Suspension avoided: 5% of the 27% of doctors who had not previously undertaken appraisal will go into remediation. Assume 10% of these doctors would have been suspended for one year without remediation. Suspension cost avoided per doctor of £100,000 per year. - Time savings of a more streamlined appraisal process for appraisers: 2.8 hours per appraisal saved for appraiser at £162 per hour.	Y N
Quality of Care: Improved patient outcomes	- 20% of 73% of appraised doctors will provide a QALY gain of 0.001 to 100 patients. - 40% of 27% of doctors who undertake appraisal due to revalidation will provide a QALY gain of 0.001 to 100 patients. - 80% of doctors who undertake remediation will provide a QALY gain of 0.001 to 100 patients.	N
Efficiency: Reduced litigation costs	Litigation savings of 3% per year from expected payouts.	Y

1.32. Optimism bias – the potential to be systematically over-optimistic about the size of the likely costs and benefits – has been controlled through the application of conservative assumptions in the modelling where uncertainty exists. Annex E contains sensitivity analysis showing the extent to which the application of different assumptions about the key components of the model affects the estimated costs and benefits.

OPTION 1 – Do nothing

1.33. It is expected that, without revalidation, there will not be any regulatory sanction applicable to individual doctors' licence status for failure to engage in the mandatory appraisal process. While local contractual obligations and sanctions have existed, there is evidence to show that these have not acted as sufficiently strong incentives to ensure appraisal takes place across the board. In the 'do nothing' scenario, therefore, it is expected that the current level of engagement in appraisal would prevail. 73% of doctors were reported to be undertaking appraisal in the 2011-12 ORSA exercise, and this is assumed to provide the baseline scenario.

OPTION 2 – Statutory revalidation, 3-year rollout

1.34. Option 2 assumes that all doctors will be revalidated for the first time within three years of implementation, and according to a five-yearly cycle thereafter. It is expected that a profile of 20%-40%-40% of doctors will be revalidated in years 1-3[11], with a timeline for benefits realisation as shown in Annex B, table 1.

1.35. The estimated costs for option 2 are summarised in Table 5, and a summary of the costs and benefits is shown in Table 6.

[11] At the time the analysis was undertaken, a rollout profile of 20%-30%-50% was assumed. More recent working assumptions are that a 20%-40%-40% profile will be applied. The modelled differences in costs and benefits under either profile are *de minimis*.

Table 5: Option 2, cost breakdown (£m, undiscounted)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		Total
Costs												
1 Cost of Full Appraisal for Appraisee (27%)	37.0	37.4	37.9	38.4	38.9	39.5	40.0	40.5	41.0	41.6		392.2
2 Cost of Full Appraisal for Appraiser (27%)	21.1	21.4	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7		223.8
3 Marginal Costs of Administration of Appraisal and Revalidation	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.4		32.5
4 Marginal Cost of Remediation	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8		77.8
5 RO Time Costs	4.9	7.4	11.9	0.6	1.2	5.3	7.5	11.2	2.2	2.4		54.5
6(a) MSF Costs (Patients)	2.4	3.6	5.8	0.3	0.6	2.6	3.7	5.5	1.1	1.2		26.7
6(b) MSF Costs (Colleagues)	3.8	5.8	9.3	0.5	0.9	4.1	5.8	8.8	1.7	1.9		42.6
6(c) MSF Costs (IT and Admin)	7.7	11.5	18.5	0.9	1.8	8.2	11.6	17.5	3.5	3.7		84.9
7(a) Training Costs Appraisees	5.3	5.3	5.3	-	-	-	-	-	-	-		15.9
7(b) Training Costs Appraisers	2.8	2.8	-	-	-	-	-	-	-	-		5.6
8 GMC Administrative Costs	3.4	2.4	1.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1		14.3
Total Cost	99.2	108.6	123.1	74.4	77.6	94.1	103.4	118.6	85.2	86.7		970.9

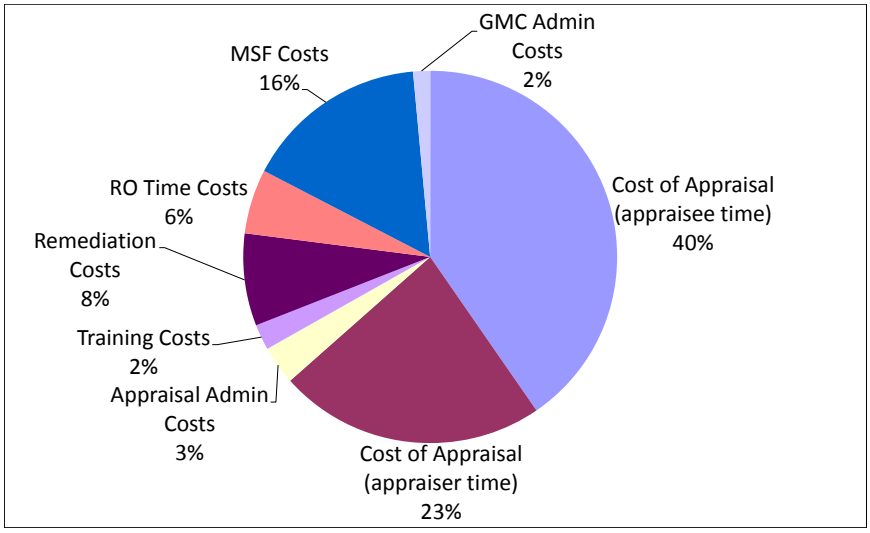
Table 6: Option 2, costs and benefits summary (£m)[12]

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		Total
Costs												
Total unadjusted costs (undiscounted)	99.2	108.6	123.1	74.4	77.6	94.1	103.4	118.6	85.2	86.7		970.9
Total adjusted cost (undiscounted)	**219.4**	**240.4**	**271.6**	**168.6**	**175.4**	**210.6**	**230.4**	**262.9**	**192.0**	**195.4**		**2,166.6**
Total adjusted cost (discounted)	**219.4**	**211.7**	**223.8**	**244.0**	**146.2**	**146.8**	**170.1**	**179.5**	**197.7**	**139.3**		**1,878.5**
Benefits												
1. QALY gained from Death and Harm Avoided	4.6	11.6	23.2	34.8	46.5	46.5	46.5	46.5	46.5	46.5		353.0
2(a) Avoided Suspension	2.1	5.4	11.1	16.8	22.7	23.0	23.3	23.6	23.8	24.0		175.9
2(b) Time Cost Savings of streamlined Appraisal for Appraisee (73%)	-	-	-	-	-	-	-	-	-	-		-
2(c) Time Cost Savings of streamlined Appraisal for Appraiser (73%)	5.3	13.4	27.2	41.5	56.0	56.8	57.4	58.1	58.6	59.2		433.6
2 (d) Litigation Savings	2.9	7.6	16.0	25.3	35.4	37.1	38.8	40.4	42.1	43.8		289.3
3(a) QALY Gained from Improved Productivity of Doctors Revalidated (73%)	5.5	13.9	28.1	42.7	57.7	58.5	59.3	60.0	60.8	61.6		448.2
3(b) QALY Gained from Improved Productivity of Doctors Revalidated (27%)	4.0	10.2	20.7	31.5	42.5	43.1	43.6	44.2	44.8	45.4		329.9
3(c) QALY gained from Remediated Doctors per Revalidated Doctor	2.3	5.9	12.0	18.2	24.6	24.9	25.3	25.6	25.9	26.3		191.0
Total Benefit	**26.8**	**68.1**	**138.3**	**210.8**	**285.5**	**289.8**	**294.1**	**298.3**	**302.5**	**306.7**		**2,220.9**
Total benefit (discounted)	**26.8**	**66.6**	**132.3**	**197.1**	**260.9**	**258.9**	**256.9**	**254.8**	**252.6**	**250.4**		**1,957.1**
Net Benefit												
Total Net Present Value	**-192.6**	**-145.1**	**- 91.6**	**- 47.0**	**114.7**	**112.2**	**86.8**	**75.2**	**54.9**	**111.0**		**78.5**

[12] Note: QALYs are valued at £60,000 and NHS costs are adjusted by a factor of 2.4 to present them on a comparable basis.

1.36. The undiscounted costs are estimated at £971 million pounds over ten years, or an average of £97.1 million per year. The composition of costs is illustrated in figure 1.

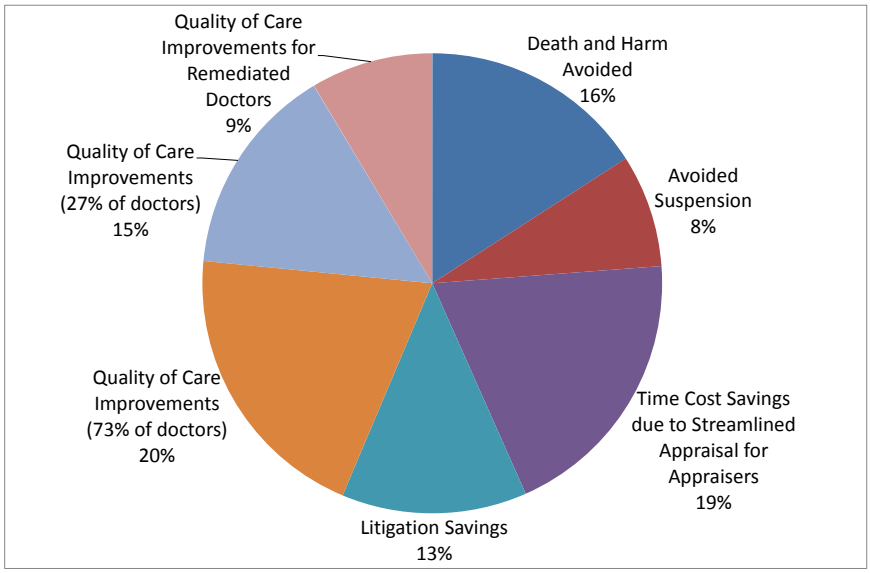
Figure 1: Cost composition, option 2



1.37. A large proportion of the total cost is due to the time costs of doctors, with nearly two thirds resulting from opportunity costs for doctors who would not have undertaken appraisal if revalidation did not happen. The next largest cost component relates to patient and colleague feedback ('Multi-Source Feedback'), which accounts for roughly one sixth of the total cost. An estimated 8% of the costs are associated with remediation for the doctors who are new to the appraisal process. Just over 20% of all costs incurred are to do specifically with 5-yearly revalidation processes.

1.38. Figure 2 illustrates the composition of benefits for option 2.

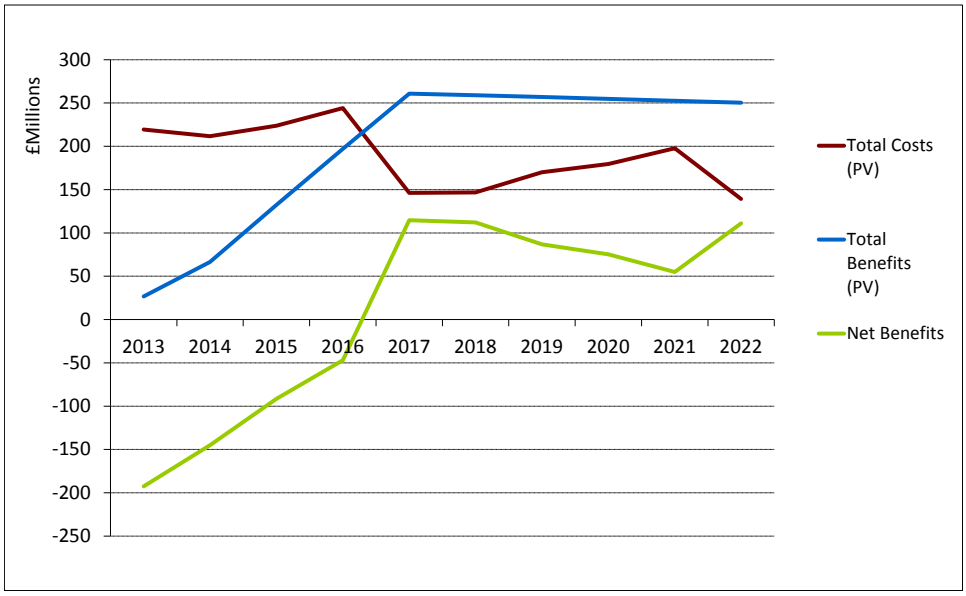
Figure 2: Benefits composition, option 2



1.39. Almost half of the estimated benefits are associated with improved patient outcomes due to quality of care improvements. Around one fifth of the benefit is expected to be derived from efficiency gains due to a more streamlined appraisal process for appraisers, with a further 16% resulting from patient safety improvements due to a reduction in cases of death and harm. The remainder of the estimated benefits are due to litigation savings (13%) and further efficiency gains through avoided cases of doctor suspension (8%).

1.40. The ten-year trend of costs, benefits and net benefit is shown in Figure 3.

Figure 3: Trends in costs, benefits and net benefit, option 2



1.41. A net cost to the system is expected in the first four years of implementation. However, from 2017 onwards, a net benefit of around £50-£100 million per year is expected to result, as revalidation beds in and the full benefits are realised.

1.42. In addition to the benefits that have been quantified, those benefits which cannot be quantified should also be taken into consideration, namely:

- **Improved public trust and confidence**. The public's trust in the medical profession and individual patients' trust in their individual doctor is an invaluable national asset that contributes to overall social satisfaction and a sense of belonging to a well-ordered and functional society. We know from regular surveys that public trust and confidence in the medical profession is high. The implementation of revalidation will bring assurance systems to underpin the quality and safety of medical practice in the UK into line with public expectations about the systems that many

believe to be in place already. Non-implementation would risk a reduction in the existing high levels of public trust and confidence, potentially leading to negative consequences for public health and the overall well-being of patients.

- **Efficiency gains**. Stronger appraisal and consequently improved personal development should result in doctors being more efficient in their practice. This will potentially lead to improvements such as more appropriate referral and treatment, improved prescribing behaviours and reduced drug wastage, enabling better outcomes for patients and reduced costs.

- **Improved quality of information about medical care**. Revalidation will lead to improved information about the care provided by both individual doctors and the organisations that they work for which, coupled with patient and colleague feedback mechanisms, will support better assurance of quality of care. Such information, within strengthened clinical governance structures, will be of value to organisations in organising care to ensure the most efficient use of resources to secure better outcomes for their patients. Accurate information will also be of use to regulators, for example to inform the CQC's Quality and Risk Profiles, and to individual doctors in medical appraisal to reflect on the quality of care and help identify where development can and should take place.

- **A change in the culture and improved professionalism of doctors**. Revalidation will encourage stronger public accountability for the medical profession. It will help to systematise elements of that developing relationship and accountability with patients and society, routinely bringing patient and colleague feedback into the appraisal process. Participation in revalidation by doctors indicates an acceptance of the legitimacy of wider public and patient participation in more transparent and systematic oversight of the quality of care that they provide.

OPTION 3 – Statutory revalidation, 5-year rollout

1.43. Option 3 is identical to option 2 in all aspects except for the initial phasing of revalidation of all doctors, which is assumed to take place over five years instead of three, with 20% of doctors being revalidated per year. Given the slower phasing of implementation, a slower timeline for the realisation of benefits is also assumed, as outlined in Annex B, table 1.

1.44. As shown in the analysis for option 2, the most significant cost of revalidation involves the opportunity cost of the time of doctors undertaking appraisal because of revalidation. This is undertaken every year, and these costs

remain the same in both options 2 and 3. The only cost differences are for the relatively small and hence less sensitive costs specific to revalidation. The costs for option 3 are summarised in Table 7, and a summary of the costs and benefits is shown in Table 8.

Table 7: Option 3, cost breakdown (£m, undiscounted)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		Total
Costs												
1 Cost of Full Appraisal for Appraisee (27%)	37.0	37.4	37.9	38.4	38.9	39.5	40.0	40.5	41.0	41.6		392.2
2 Cost of Full Appraisal for Appraiser (27%)	21.1	21.4	21.6	21.9	22.2	22.5	22.8	23.1	23.4	23.7		223.8
3 Marginal Costs of Administration of Appraisal and Revalidation	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.4		32.5
4 Marginal Cost of Remediation	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8		77.8
5 RO Time Costs	4.9	4.8	4.6	4.4	4.3	4.0	4.1	3.9	3.8	4.6		43.5
6(a) MSF Costs (Patients)	2.4	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.9	2.3		21.3
6(b) MSF Costs (Colleagues)	3.8	3.7	3.6	3.5	3.3	3.1	3.2	3.1	3.0	3.6		34.0
6(c) MSF Costs (IT and Admin)	7.7	7.4	7.2	6.9	6.7	6.2	6.4	6.1	5.9	7.2		67.7
7(a) Training Costs Appraisees	5.3	5.3	5.3	-	-	-	-	-	-	-		15.9
7(b) Training Costs Appraisers	2.8	2.8	-	-	-	-	-	-	-	-		5.6
8 GMC Administrative Costs	3.4	2.4	1.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1		14.3
Total Cost	99.2	98.5	95.2	89.2	89.5	89.2	90.4	90.8	91.2	95.3		928.6

Table 8: Option 3, costs and benefits summary (£m)[13]

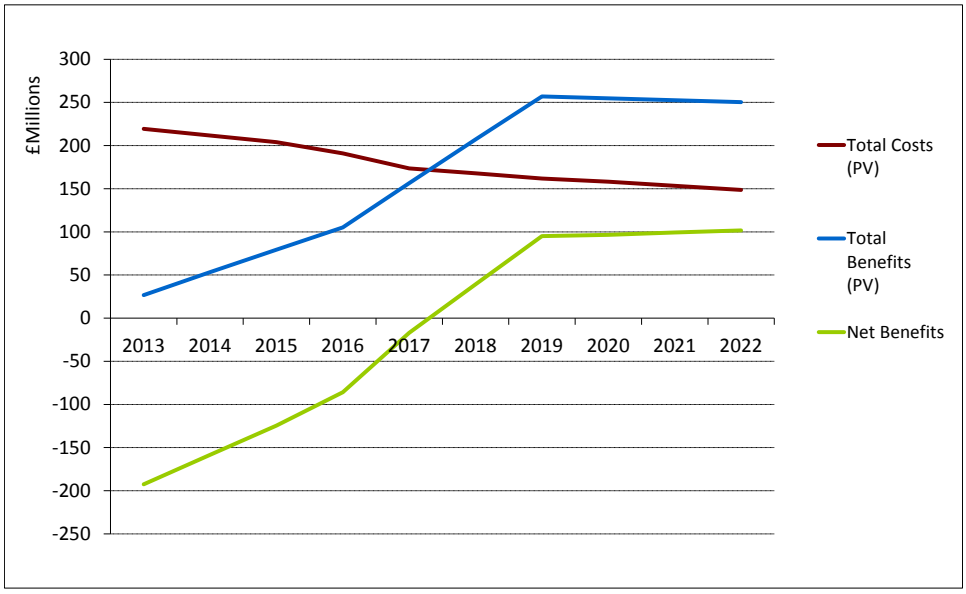
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		Total
Costs												
Total unadjusted costs (undiscounted)	99.2	98.5	95.2	89.2	89.5	89.2	90.4	90.8	91.2	95.3		928.6
Total adjusted cost (undiscounted)	**219.4**	**219.0**	**212.5**	**200.1**	**200.7**	**200.3**	**203.0**	**203.9**	**204.8**	**213.5**		**2,077.0**
Total adjusted cost (discounted)	**219.4**	**211.7**	**203.9**	**191.0**	**173.5**	**167.9**	**161.7**	**158.2**	**153.3**	**148.6**		**1,789.2**
Benefits												
1. QALY gained from Death and Harm Avoided	4.6	9.3	13.9	18.6	27.9	37.2	46.5	46.5	46.5	46.5		297.3
2(a) Avoided Suspension	2.1	4.4	6.6	9.0	13.6	18.4	23.3	23.6	23.8	24.0		148.8
2(b) Time Cost Savings of streamlined Appraisal for Appraisee (73%)	-	-	-	-	-	-	-	-	-	-		-
2(c) Time Cost Savings of streamlined Appraisal for Appraiser (73%)	5.3	10.7	16.3	22.1	33.6	45.4	57.4	58.1	58.6	59.2		366.9
2 (d) Litigation Savings	2.9	6.1	9.6	13.5	21.2	29.7	38.8	40.4	42.1	43.8		248.0
3(a) QALY Gained from Improved Productivity of Doctors Revalidated (73%)	5.5	11.1	16.9	22.8	34.6	46.8	59.3	60.0	60.8	61.6		379.5
3(b) QALY Gained from Improved Productivity of Doctors Revalidated (27%)	4.0	8.2	12.4	16.8	25.5	34.4	43.6	44.2	44.8	45.4		279.3
3(c) QALY gained from Remediated Doctors per Revalidated Doctor	2.3	4.7	7.2	9.7	14.8	19.9	25.3	25.6	25.9	26.3		161.7
Total benefit	**26.8**	**54.5**	**83.0**	**112.4**	**171.3**	**231.8**	**294.1**	**298.3**	**302.5**	**306.7**		**1,881.5**
Total benefit (discounted)	**26.8**	**53.3**	**79.4**	**105.1**	**156.5**	**207.1**	**256.9**	**254.8**	**252.6**	**250.4**		**1,642.8**
Net Benefit												
Total Net Present Value	**-192.6**	**-158.4**	**-124.6**	**- 85.9**	**- 17.0**	**39.2**	**95.2**	**96.6**	**99.3**	**101.7**		**- 146.4**

[13] Note: QALYs are valued at £60,000 and NHS costs are adjusted by a factor of 2.4 to present them on a comparable basis.

1.45. The undiscounted costs are estimated at £929 million pounds over ten years, or an average of £92.9 million per year. The compositions of costs and benefits are very similar to those in option 2, as illustrated in figures 1 and 2.

1.46. The ten-year trend of costs, benefits and net benefit is shown in Figure 4.

Figure 4: Trends in costs, benefits and net benefit, option 3



1.47. A net cost to the system is expected in the first five years of implementation. However, from 2018 onwards, a net benefit rising to £100 million per year is expected to result, as revalidation beds in and the full benefits are realised. Over the ten-year period that has been modelled, however, a net cost of around £146 million is anticipated.

1.48. As with option 2, in addition to the benefits that have been quantified, those benefits which cannot be quantified should also be taken into consideration, as noted in paragraph 1.42.

Proportionality of analysis

1.49. The analysis presented herein is founded on an evidence base that has resulted from an extensive programme of research, testing and piloting, as outlined in annex A. This was deemed appropriate given that the policy applies to the whole doctor workforce and was expected to have a large time impact on all doctors.

Risks

1.50. The table below highlights some of the overall risks associated with revalidation.

Table 9: Revalidation risks

Category of Risk	Main Risk
Cultural	Lack of positive engagement from doctors and employers: although the concept of revalidation is widely welcomed, the profession and service is currently nervous of the prospect of change that might bring more bureaucracy.
Methodological	Financial risk: can revalidation and all its components be undertaken within the budget allocated to it? Would revalidation result in a large demand for remediation which may not be affordable to the system?
Connection Methodological Logistics	Adoption of overly-bureaucratic system: risk of creating too much pressure on the profession and service, which in turn affects budget or engagement and results in poor compliance. Risk of some doctors resigning rather than revalidating.
Logistics	Unsuccessful or inconclusive pilots: risk that the policy cannot be properly developed if the correct information is not gathered or present on time.
Logistics Cultural	Different approaches across the four UK countries could restrict the ability of doctors to operate across borders, or reduce confidence in the system because a doctor revalidated in one country would be different from one revalidated in another country.
Methodological	Poor design solution: the designed solution developed is not fit for purpose or appropriately managed, which risks undermining revalidation, resulting in a breach of budget, or losing engagement of the profession or service. Revalidation is taking place within significant structural changes in the NHS following the implementation of the Health and Social Care Act. The new arrangements between suppliers and providers, as well as the organisational/regulatory structure within which they operate (eg NHS Commissioning Board, Monitor, CQC), may have an impact on revalidation.

1.51. In order to mitigate these risks, a number of activities have been undertaken:

- Pilots have been undertaken by the RST involving over 4,000 doctors to test the proposed model, encourage full engagement and challenge to build a proportionate and streamlined model. Further to this, the Academy of Medical Royal Colleges did extensive testing of the revalidation process in order to shape the specialty-specific input and to prepare the diverse specialty groups for revalidation;

- Pilots were operated under transparent and effective governance arrangements, with clear processes for identifying and resolving problems, and regular feedback on progress and findings;

- A comprehensive analysis of the costs and benefits of the policy has been undertaken and is presented herein;
- A broad range of stakeholders has been engaged in the development of the policy through formal and informal methods, including membership of Boards to influence the policy and appropriate consultation, to ensure that it can be delivered within budget constraints, maximising use of existing elements of the health service where the cost of delivery is an existing obligation;
- Numerous possible models for implementation, particularly on timescale, have been explored (as set out in paragraphs 1.13 to 1.21);
- Continuous review has ensured that the final system is focused on key objectives and does not extend into activities that are not mission critical;
- The Department of Health in England has maintained regular contact with the devolved administrations, sharing development of proposals across the four countries; and
- The Department of Health has worked closely with the NHS Commissioning Board Authority (CBA) to ensure that there is clarity about those elements of delivery for which the CBA will be responsible, including taking forward work to design a framework for remediation.

1.52. In considering the options, it should be noted that option 2 – rolling out within three years – will result in peaks and troughs of the total number of doctors up for revalidation over the first few cycles of revalidation. This potentially creates a number of risks and challenges, such as concentration of workload for ROs in particular years, administrative challenges as new systems are put in place, and financial challenges to organisations in managing peaks and troughs of expenditure.

1.53. There is, however, evidence to suggest that these risks can be mitigated and challenges overcome. Primarily, there is strong support and confidence from the SHA Cluster Boards and ROs to achieve revalidation recommendations for all current doctors in the first three years of implementation. The England Revalidation Delivery Board signed off implementation plans produced by SHA Cluster Medical Directors in May 2012. These give assurance that, at a local level, ROs will have the resources to implement revalidation over the three-year rollout. In terms of budgetary concentration, there is flexibility within the revalidation cycle to allow some of these costs to be incurred on a more regular or annual basis. For example, MSF costs can be spread across any of the five years, and do not necessarily have to be incurred in the year in which the doctor revalidates. Furthermore, while the workload may be high in the first cycle of revalidation, the overall work of the RO is not a cyclical one based on the period of revalidation. Rather, ROs are expected to ensure that the overall system of clinical governance on which revalidation rests is sound. Therefore, the work of the RO

is a continuous one rather than a cyclical one. Assuming that these clinical governance processes are in place, the revalidation decision would not result in an undue concentration of work for the RO in years where a large majority of doctors are up for revalidation.

1.54. Given the mitigations outlined above, and the greater benefits that would result from a faster rollout through better, quicker public assurances regarding the safety and effectiveness of doctors, there are strong arguments for a 3-year implementation.

Direct costs and benefits to business

1.55. As noted in Annex B, paragraph 2, of the total estimated population of 157,000 practising doctors in England within scope for revalidation, an estimated 7,800 (5%) work solely in the private sector. The ORSA data showed that there are considerably lower appraisal rates in the independent sector. Costs and benefits have therefore been separately modelled for the private sector doctors on the same basis as the preceding analysis for all doctors, but with the following assumptions:

- There are approximately 7,800 doctors working solely in the private sector;
- 56.4% of private sector doctors did not previously undertake appraisal, based on the ORSA 2011/12 findings;
- 5% of remediation costs and 5% of patient safety and litigation benefits are incurred in the private sector (in the absence of data breakdowns); and
- An unadjusted value of £25,000 per QALY is used, as the adjusted £60,000 value is used only in relation to NHS QALY gains. Accordingly, costs have not been adjusted by a factor of 2.4.

Benefits have been separated into those which are direct to business (avoided suspension, litigation savings and time cost savings for appraisers), and those which are delivered to society (QALY and patient safety gains).

1.56. On the above basis, the estimated total costs and benefits to the private sector are summarised in table 10 (based on a three-year rollout).

Table 10: Summary of costs and benefits to the private sector, option 2 (£m, unadjusted)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Costs											
Total cost (undiscounted)	**10.3**	**10.8**	**11.5**	**9.4**	**9.6**	**10.4**	**10.8**	**11.6**	**10.2**	**10.4**	**104.9**
of which:											
opportunity costs	9.5	9.8	10.2	8.9	9.1	9.5	9.9	10.3	9.6	9.8	96.6
financial costs	0.8	1.0	1.3	0.4	0.5	0.8	1.0	1.3	0.6	0.6	8.2
Total cost (discounted)	**10.3**	**10.4**	**10.7**	**8.4**	**8.3**	**8.7**	**8.8**	**9.1**	**7.8**	**7.6**	**90.2**
Benefits											
Total benefit (undiscounted)	**1.8**	**4.4**	**9.0**	**13.6**	**18.3**	**18.6**	**18.8**	**19.0**	**19.2**	**19.4**	**142.0**
of which:											
direct to private sector	0.5	1.3	2.7	4.0	5.4	5.5	5.5	5.6	5.6	5.7	41.7
direct to private sector (discounted)	0.5	1.3	2.5	3.6	4.7	4.6	4.5	4.4	4.3	4.2	34.5
benefits to society	1.2	3.1	6.3	9.6	12.9	13.1	13.3	13.4	13.6	13.7	100.3
benefits to society (discounted)	1.2	3.0	5.9	8.6	11.3	11.0	10.8	10.5	10.3	10.1	82.8
Total benefit (discounted)	**1.8**	**4.3**	**8.6**	**12.8**	**16.9**	**16.7**	**16.6**	**16.5**	**16.3**	**16.2**	**126.7**
Net benefit											
Total net benefit	**- 8.5**	**- 6.1**	**- 2.1**	**4.4**	**8.6**	**8.0**	**7.8**	**7.4**	**8.6**	**8.6**	**36.5**
Net cost to the private sector (NPV)	**- 9.8**	**- 9.2**	**- 8.2**	**- 4.8**	**- 3.6**	**- 4.1**	**- 4.3**	**- 4.7**	**- 3.5**	**- 3.4**	**- 55.7**
Equivalent Annual Net Cost to Business per year											**- 6.5**

1.57. It is important to note that the costs and benefits in table 10 are not presented on a directly comparable basis to the previous analysis for all doctors, given that figures have not been adjusted, as described in paragraph 1.55. As noted in the analysis for all doctors, a large majority of costs are opportunity costs due to the time required for doctors to complete appraisal and revalidation processes. The total cost of £90 million, or around £9 million per year, is small when considered in the context of the total turnover of the sector[14]. Of this, the direct financial cost to business accounts for around £8 million over ten years, or £0.8 million per year. A modest overall net benefit is anticipated, but when looking specifically at the direct impact to the private sector, a relatively small net cost of £56 million over ten years, or an equivalent annual net cost to business of around £6.5 million per year [15], is expected. These are costs which might be expected to be passed on to the consumer, who would in turn experience the resulting benefits.

1.58. The impact on business is caused by resources being diverted to support the responsible officers in undertaking their statutory duties and the time taken for doctors to have an appraisal and collect supporting information including Multisource Feedback. Whilst the ORSA data highlight particular challenges for independent / non-NHS organisations, it should be noted that the Responsible Officer regulations work in such a way that even if a doctor has one session a week in an NHS facility, their responsible officer is the one for the NHS facility. It is therefore likely that the NHS will incur a relatively higher proportion of the cost of the revalidation process, while the benefits around improved quality, safety, efficiency and assurance – which have been shown to outweigh the costs – will be felt across the whole system, including the

[14] The value of the private sector acute market was estimated at £7.185 billion in 2010. Source: Laing and Busson Market Review 2012.
[15] Based on Green Book methodology for EANCB calculation of EANCB = PVNCB / $a_{t,r}$
where $a_{t,r}$ is the annuity rate (value of 8.61, based on a discount rate of 3.5% over 10 years)

private sector. Hence, the ratio of benefit to cost for the private sector will be higher than that for the NHS.

1.59. Private sector healthcare representatives, who have been actively involved in the development of the policy, including through pilots, are fully aware of the associated costs, and have given their approval for the policy to proceed.

Impact on small firms

1.60. There are very few small firms providing health services and who are the sole employers of private doctors. As previously noted, the majority of doctors working in the private sector also undertake NHS work, where the majority of revalidation costs are likely to be incurred. Hence, the impact on small firms is expected to be small.

1.61. One possible impact of note for small firms is the potential need to implement systems to enable the administration of appraisal and revalidation information. Large organisations employing large numbers of doctors are likely to already have HR information systems in place, but smaller firms are more likely to have less well-developed systems and therefore seek to invest in new systems and processes. However, the revalidation process has been designed to enable a proportionate approach to managing information to be applied, including adoption of a paper-based approach if necessary.

Wider impacts

1.62. The main costs incurred are due to appraisal, which has been a mandatory component of all NHS doctor contracts since 2001. Therefore, the minority of NHS doctors who have not been fulfilling their contractual commitments will incur the largest costs. The ORSA data shows that appraisal rates are lowest in the independent sector, including locum agencies, meaning that the impact will be greatest for these organisations. However, the ORSA data also shows that most of these organisations are on track to deliver systems that are ready for revalidation by December 2012. Moreover, as the evidence base shows, when undertaken properly, appraisal is beneficial for doctors and leads to a positive net benefit in terms of patient safety and quality of care. The new locum framework arrangements that are expected to be in place by the end of 2012 will require locum agencies to be ORSA-compliant, which will carry positive benefits for locum doctors in ensuring that they have their rightful access to the activities underpinning revalidation, including appraisal, and so will experience the associated benefits. There will be further benefits to commissioners, as revalidation will provide them with increased assurance regarding the standards of the locum services that they commission.

1.63. One possible consequence of revalidation, as noted in the analysis of risks, is that some doctors may choose to leave the system rather than undergo appraisal and revalidation processes that would be new to them. This may particularly be the case

for older doctors, who would take with them many years of experience and expertise. This could have a disproportionate impact on sectors that are more likely to employ older doctors. However, a counterpoint to this is that those doctors who are more unwilling to engage in appraisal and revalidation activities, which entail reflection on their practice, are those for which the most significant concerns around performance and patient safety exist, so there may be an overall gain to the system.

Specific Impact Tests

Equality Assessment

1.64. A separate analysis of equality impacts has been produced and can be found on the Department of Health website. The measures are considered to be a proportionate means of achieving a legitimate aim. In terms of equality, they are likely to deliver positive benefits and the aim will be to address issues through monitoring and appropriate arrangements and adjustments where possible.

Health Impact Assessment

1.65. Revalidation will potentially have a positive impact on the health and well-being of doctors. The policy will ensure that all doctors undertake an annual appraisal and engage in other related processes, such as multi-source feedback. As well as enabling the identification of performance issues, the processes should result in the earlier identification of health and well-being issues affecting doctors, allowing them to be addressed more effectively. This is likely to be particularly beneficial to doctors who, prior to revalidation, have not been engaging in appraisal and related processes.

One-In-One-Out

1.66. The regulatory changes necessary to enable revalidation to commence are out of scope for One-In-One-Out (OIOO), given that the independent professional regulator for doctors – the General Medical Council (GMC) – is making them under powers assigned to them in statute. While there is a cost impact on the private sector, identified in this analysis, this is not a direct consequence of a policy being introduced by central Government.

Sunset provisions

1.67. The requirement for a sunsetting provision does not apply to the GMC, as it is an independent regulator. The GMC propose to continually monitor implementation and keep the policy under review.

Summary and preferred option with description of implementation plan

1.68. The preferred option is option 2, ie to implement statutory revalidation rolled out over three years. Whilst there are risks to this approach compared to the slower 5-year

rollout considered in option 3, as discussed in paragraphs 1.52 to 1.53, these are felt to be manageable.

1.69. The most significant cost of revalidation involves the opportunity cost of the time of doctors undertaking appraisal because of revalidation. This is undertaken every year, and these costs remain the same in both the five- and three-year approaches. Those costs specific to revalidation, particularly those involving ROs, MSF and the GMC, are slightly higher for the three-year approach. However, over the ten-year project cycle, this amounts to less than a 5% difference in total costs. This is shown in the table below.

Table 11: Comparison of 3- and 5-year rollout options

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Costs (unadjusted, undiscounted)											
3-year roll-out	99.2	108.6	123.1	74.4	77.6	94.1	103.4	118.6	85.2	86.7	970.9
5-year roll-out	99.2	98.5	95.2	89.2	89.5	89.2	90.4	90.8	91.2	95.3	928.6
Costs (adjusted, discounted)											
3-year roll-out	219.4	211.7	223.8	244.0	146.2	146.8	170.1	179.5	197.7	139.3	1,878.5
5-year roll-out	219.4	211.7	203.9	191.0	173.5	167.9	161.7	158.2	153.3	148.6	1,789.2
Benefits (discounted)											
3-year roll-out	26.8	66.6	132.3	197.1	260.9	258.9	256.9	254.8	252.6	250.4	1,957.1
5-year roll-out	26.8	53.3	79.4	105.1	156.5	207.1	256.9	254.8	252.6	250.4	1,642.8
Net Benefit											
3-year roll-out	-192.6	-145.1	- 91.6	- 47.0	114.7	112.2	86.8	75.2	54.9	111.0	78.5
5-year roll-out	-192.6	-158.4	-124.6	- 85.9	- 17.0	39.2	95.2	96.6	99.3	101.7	- 146.4

1.70. At the same time, given that certain benefits (such as those from multi-source feedback) arise for all doctors by year five rather than by year three, the five-year approach will not realise the full benefits of revalidation until two years later than the baseline case. Consequently, the estimated benefits are likely to be greater for the three-year approach by approximately 15%, thereby outweighing the cost increase. The three-year option results in a small positive net present value, while the five-year option incurs a small net cost over the ten-year period that has been modelled.

1.71. In addition to the above cost-benefit exercise, there may be reasons why those doctors who have avoided undertaking appraisals are also those with the most significant performance concerns. Identifying and remediating these concerns is likely to carry the largest benefits in terms of patient safety and quality of care. The cost savings generated from a slower phasing of the introduction of appraisal may therefore be significantly less than the additional benefits that are generated from identifying these concerns early.

1.72. When taking into account the further qualitative benefits that revalidation will generate, in particular improved public and patient trust and assurance, a more rapid implementation is preferred.

Annex A – Evidence base for costs and benefits of revalidation

Sources of evidence 1: Surveys

1. The results of two key exercises – the 'MAG pilot study' and the 'BC2 survey' – were used to inform the economic modelling of the costs and benefits of revalidation. The two exercises are described in Table 1:

Table 1: Overview of the MAG pilot and BC2 exercises

	BC2 survey	**MAG pilot**
Method	Online survey	Pilot exercise
Scope	ROs and appraisers	All doctor groups
Response	82 ROs, 368 appraisers	1,262 doctors, 514 appraisers
Timing	Dec 2011 – Feb 2012	October – December 2011
Content	Subjective questions regarding current practice and likely future consequences of revalidation	Live pilot of MAG appraisal process, including making of mock recommendations, post-pilot evaluation and focus groups
Purpose	To provide inputs to the modelling of costs and benefits	Follow-up to the 2010/11 Pathfinder Pilot exercise, to enable development of MAG and inform the modelling of costs and benefits

2. The MAG pilot was run across eight sites (Table 2). Although the sample of sites was not designed to provide representative data for every different type of organisation or specialty, they were selected to ensure coverage of a range of different types of doctors and to reflect organisations with known different levels of sophistication in their appraisal processes.

Table 2: MAG pilot sites and doctor types

Pilot Site	**Types of doctor appraised**
NHS London	SAS grade / mental health / primary and secondary care
NHS Leicester City	Primary care
Newcastle Hospitals NHS Foundation Trust	Secondary care
Independent Healthcare Advisory Services (IHAS)	Independent healthcare
Medacs	Locum doctors in secondary care
West Suffolk Hospital NHS Trust	SAS and trust grade doctors
DRC Locums	Doctors who have qualified outside of the UK and practise in England
Leeds Teaching Hospitals NHS Trust	Clinical academics

3. Responses were received for a good cross-section of sectors, as shown in Table 3. While not every specialty was represented, Table 4 shows that the respondents covered a good range of specialty settings.

Table 3: MAG pilot respondents by sector

Sector	Number of doctors	Number of appraisers
Primary	393	187
Secondary	546	250
Mental Health	166	47
Independent	148	19
Not Stated	9	11
Total	1,262	514

Table 4: MAG pilot respondents by main area of practice

Main area of practice	Number of doctors	Number of appraisers
General Practice	393	186
Psychiatry	177	50
Physician	136	68
Surgeon	109	33
Anaesthetics	94	44
Paediatrics	41	16
Obstetrics and Gynaecology	30	19
Radiology	29	14
Ophthalmology	27	12
Pathology	25	10
Emergency Medicine	22	7
Clinical Academia	18	5
Management	4	1
Occupational Health	4	0
Public Health	1	0
Not Stated	152	49
Total	1,262	514

4. The MAG pilot involved doctors collecting a set of supporting information as defined in the GMC's supporting information document, the appraiser reviewing this information before an appraisal, the doctor and appraiser having an appraisal, the appraiser signing off on four output statements, and this information being sent to the pilot site's RO. For the purpose of the pilot, ROs were asked to make a mock recommendation for each of their doctors who were appraised in the pilot process. The data collected therefore provides information on the time costs to undertake the constituent parts of the appraisal and revalidation processes, as well as data on expected outcomes.

5. BC2 consisted of two web-based surveys of ROs and appraisers to understand existing appraisal practices and clinical views about a range of expected consequences of revalidation. The surveys were advertised through the RST's newsletter and networks, and via a range of other RST communications channels. Valid responses were received from 82 ROs and 368 appraisers. Whilst the sample had not been specifically designed to ensure representation according to equality characteristics and factors such as specialty or setting, the analysis showed that the responses provided a good level of representation of doctors across gender, age and sector.

6. A distinction between these two datasets has important implications for the analysis in this economic case. The MAG pilot data is from selected organisations that have undertaken a pilot exercise to conduct appraisal as per the proposed MAG guidelines. In the BC2 survey, while some of the respondents had taken part in such a pilot exercise, the majority of them had not. The results from the two surveys act as the only available indication of the differences between MAG appraisal and current local appraisal processes, and the changes that may arise from introducing revalidation.

Survey findings

7. The MAG pilot survey questioned the participants of the pilot as to whether they felt that the appraisal exercise was 'an efficient use of their time' and whether they found the appraisal exercise 'helpful in thinking about their role'. The participants were asked to rank their score from 0 to 5, with 5 being a very efficient use of their time. Almost 60% of those who were questioned agreed that it was an efficient use of their time, with a mean score of 3.6. Almost 70% felt that it was helpful in thinking about their roles, with a mean score of 3.8.

8. The MAG pilot participants were also asked whether they were planning to change an area of their practice or behaviour as a result of their pilot appraisal discussion. Of the participants, 60% agreed this to be the case, with particular attention to the following:
    - developing their professional role, specific skills and knowledge;
    - improving and prioritising goals for next year as part of their PDP;
    - increasing awareness and preparation for revalidation;
    - consolidating and improving records;
    - improving reflection skills and time given to reflection;
    - learning from both positive and negative experiences;
    - improving personal skills and relationships;
    - addressing work/life balance issues.

9. BC2 also surveyed opinions of doctors about the potential benefits of appraisal and revalidation. The results here were mixed. In terms of public confidence, approximately 60% of ROs and almost 50% of appraisers agreed that revalidation will contribute positively to how the public perceive doctors. About 40% of ROs questioned felt that revalidation will contribute positively to patient outcomes and health experience, and will also contribute to better doctor performance. However, the level of agreement on this was much lower for appraisers. Furthermore, a minority of ROs and appraisers (about 20%) agreed that revalidation will contribute positively to the wellbeing of doctors.

10. The above analysis highlights discrepancies in opinions between the BC2 and MAG pilot. These are potentially explained by the fact that the MAG pilots survey was conducted after participants had undertaken appraisal using MAG, which is more structured than existing appraisal processes, and therefore regarded by the majority of those surveyed as generally efficient and helpful. BC2, however, asked for opinions on the doctor's last appraisal, which may have been based on a less streamlined process than MAG. It is the aim of revalidation that a MAG-type appraisal process is introduced for every doctor, and the aim is that the benefits experienced by the doctors in the pilots can be replicated throughout the country.

11. BC2 asked ROs about the perceived magnitude of benefits in an attempt to quantify them. The median scores for these are provided in the table below:

Table 5: BC2 results on expected benefits of revalidation

	Question	Median Score
1	What percentage of cases of suspension would be avoided due to problems being picked up earlier as a result of the revalidation process?	10%
2	What percentage of sickness absences can be avoided due to addressing concerns earlier as part of the revalidation process?	0%
3a	What percentage of deaths and severe harm are due to an action of doctors that should and could have been avoided?	10%
3b	What percentage of the above can be avoided by overall improvements in performance by doctors or identifying and addressing concerns of doctors with performance issues?	10%
4a	What percentage of litigation claims are caused by an action of doctors that should and could have been avoided?	30%
4b	What percentage of the above can be avoided by overall improvements in performance by doctors or identifying and addressing concerns of doctors with performance issues?	10%

12. In conclusion, the survey results point towards the existence of positive benefits associated with a MAG-type appraisal process on doctors' performance. There is also some evidence that revalidation will improve public perception of doctors.

Sources of evidence 2: Academic literature – discussion

13. An initial literature survey on the benefits of appraisal was undertaken in 2011[16]. Table 6 highlights some of the evidence identified in this literature review.

[16] Mugweni, Kibble and Conlon (2011): Benefits of appraisal as perceived by general practitioners, Education for Primary Care (2011, 22: 393–8)

Table 6: Benefits of revalidation – results of literature review, Mugweni et al (2011)

Paper	Sample size	Benefits
Coltart, Cameron, Mckinstry et al[17]	671	- 46.6% (308/661) appraisal altered type of educational activity undertaken - 49.6% (324/653) influenced their PDP learning - 39% (257/664) prompted new practice policies, procedures and guidelines - 22.4% (148/662) changed feelings on their practice - 22.6% (150/663) changed how they related to colleagues, resulting in improved team working, better awareness, communication, cohesion, and a greater appreciation and understanding of their peers
Finlay and McLaren[18]	276	- 47.5% (131) appraisal enhanced their learning - 40.2% (111) appraisal had improved their practice - 55.38%(154) appraisal had encouraged their CPD Qualitative findings: - prioritisation of learning - improved confidence in practice - focused learning on practice needs - incentive for CPD - benefits of providing a written PDP
Lewis and Evans[19]	330 (2003/04) 690 (2004/05) 372 (2005)	2003/04 - 100% – allows reflection on previous years CPD - 94% – allows to plan CPD for next year 2004/05 - 99% – allows reflection on previous years CPD - 95% – allows to plan CPD for next year Qualitative responses - 87.6% felt positive. The process was positive: constructive, encouraging, non-threatening, formative, less apprehensive, put at ease, less worried about future appraisal - enabled reflection on learning, educational development, CPD - understanding , insight positive about aims of process and principles of appraisal - beneficial for work, improve, practice, inspired/empowered to make decisions and improve practice External findings: - 96% of doctors rated appraisers positively - 20% of doctors were unclear on the purpose of appraisal - 70% of doctors described appraisal as for personal development - 49% of doctors felt more motivated after their appraisal and only 2% felt less motivated
Conlon, Sweeney,	115	- 100% (10) GP appraisal leads, 96% (48) appraisers and 56% (28) doctors rated themselves as ‘motivated’ or ‘highly motivated’ for

[17] Coltart I, Cameron N, Mckinstry B and Blaney D (2008) What do doctors really think about the relevance and impact of GP appraisal three years on. A survey of Scottish GPs. British Journal of General Practice xx: 82–90.
[18] Finlay K and McLaren S (2009) Does appraisal enhance learning, improve practice and encourage continuing professional development? A survey of general practitioners’ experiences of appraisal. Quality in Primary Care 17: 387–95.
[19] Lewis M, Evans K. Quality assurance of GP appraisal: a two-year study. Education for Primary Care 2006; 17 : 319-33

Lyons et al[20]		taking part in the appraisal process - 22% (11) doctors rated themselves as 'unmotivated' or 'highly unmotivated' - 70% (7) GP appraisal leads, 56% (28) appraisers and 40% (20) felt that appraisal had a positive impact on the doctor's: relationship with patients and peers; provision of medical care; fitness to practice; sense of probity and management ability; and health and well-being - 40% of GP appraisal leads disagreed with the view that appraisal had a positive impact on a GP's relationship with peers Possible negative aspects of the appraisal process: - both appraisers and doctors reported that appraisal was a time-consuming process - the appraisal paperwork may be cumbersome and repetitive - lack of a full picture of the GP's practice

14. The literature review confirms the general trend of benefits identified in the surveys, with strong positive responses from appraisers and RO-level practitioners, and about 50-60% of doctors shown to respond positively to appraisal.

15. While the above literature review looked at perception of appraisal, a study by West, Borrill and Dawson et al[21] looked at the relationship between good management practice, including appraisal, and health outcomes of organisations. Some of the limitations of the study in its applicability to appraisal may be the small sample size (36) of organisations, as well as the fact that management practices were explored for all health professionals rather than just doctors. Furthermore, as it is a cross-sectional correlation study, it does not necessarily identify the causality between good human resource management and health outcomes. There may, for example, be a third factor that causes both these factors. Although the authors try to control for these variables (such as size), other factors such as financial resources or regional demographic and socio-economic variation are not controlled for. Correlation may also be caused by conditions that are only partially related to appraisal. For example, it may be that organisations with good appraisal and overall HR policies attract better doctors.

16. Despite these limitations, the study finds a strong relationship between good human resource management policies and health outcomes. The report cites that the measure of appraisal quality "has the strongest relationship with patient mortality, accounting for over a quarter of variance when entered alone" (p. 16). Appraisal quality was measured in terms of a combined index of percentage of staff who had conducted an appraisal in the last 12 months in each occupational group, percentage of staff trained in conducting appraisal and the methods of monitoring and evaluation of appraisal. The study reports that, for the strongest association found, ie between sophistication of the appraisal system and deaths following admissions for hip fractures "for hospitals of equal size and local population health needs, an improvement of one standard deviation in the extensiveness/sophistication of the appraisal system is associated with, on average, a drop of 0.494 standard deviations in deaths after hip fractures. This is equivalent to 1090 fewer deaths per 100,000 admissions (age standardised) – more than 1% of all admissions, or 12.3% of the mean number of deaths".

17. However, as we have already emphasised, other factors and indicators of human resource management beyond appraisal, such as team working and sophistication of training policies, also have significant relationships with patient mortality.

[20] Conlon M, Sweeney G, Lyons N, Shelly M: Appraisal: experiences, attitudes and impact. An evaluation of the appraisal process for general practitioners in England. Clinician in Management (2006) 14: 5–22

[21] West, M.A., Borrill C., Dawson, J, Scully, J., Carter, M., Anelay, S., Patterson, M., Waring, J. (2002). The link between the management of employees and patient mortality in acute hospitals. The International Journal of Human Resource Management, 13, 8, 1299-1310

18. A third existing study on the possible benefits of revalidation looks at the potential concerns that have been raised about the performance of doctors in various literature, and to see if revalidation has a role in addressing these concerns. One such study is the report by The King's Fund on Improving the Quality of Care in General Practice[22]. The report highlights academic research which points towards potential benefits that better appraisal can have on GPs.

19. The King's Fund study is clear in acknowledging that measuring the quality of medical performance, both by doctors and by institutions as a whole, is a complex and multi-dimensional affair, with no single indicator that can address all aspects of care. While there are national datasets available, more locally based methods of harnessing data for quality measurement would be welcomed. Establishing and improving clinical governance structures that result from widespread implementation of appraisal would be a positive step in this direction.

20. In terms of GP referral, the report highlights that "the evidence suggests that a significant proportion of referrals made in general practice may not be clinically necessary" " (The Kings Fund 2011 p. 2). Examples of this include findings by Patel et al (2000) that 28% of urgent referrals and 37% of non-urgent cancer referrals are unnecessary[23]. Similarly the report also highlights that timeliness of referrals, the quality of referral letters, getting patients to the right destinations and involving patients in decisions about referral options has 'scope for improvement'.

21. The report also highlights potential savings in prescribing behaviour of GPs. It cites studies that show estimated drug wastage costs to the NHS of at least £300 million in 2009, and medication errors in up to 11 per cent of prescriptions. There is also evidence that standardising prescribing practices for certain treatments, such as prescription of low-cost statins, can save the NHS £200 million (pp 3).

22. Other areas that the report highlights for improvement in GP care include appropriate and effective diagnosis and management of acute illnesses, improvements in long-term conditions, and overall health promotion. In addition, greater level of engagement with the patient and carers in decision-making about their health and greater clarity on end-of-life care are further areas that can be improved.

23. Overall, the study finds the quality of GP care in the UK to be good by a number of measures. However, it also notes wide variations in performance that can and must be urgently addressed through a number of means. While it must be stressed once again that revalidation and appraisal cannot be singularly responsible for addressing these concerns, it can still play an important role, being designed as it is, to act as a lever for improving appraisal and governance processes.

Sources of evidence 3: Consultation with specialists - discussion

Workshops and meetings

24. Workshops with stakeholders to identify costs and benefits were conducted in July 2009 with a mixed event involving employers (SHAs), the British Medical Association (BMA), the Independent Healthcare Advisory Service (IHAS), RST, DH, Welsh Assembly, Scottish Government, and the Academy of Medical Royal Colleges. These were followed up with specific events with the Academy, including members from all of its colleges (October 2009) and the BMA (December 2009).

[22] http://www.kingsfund.org.uk/publications/gp_inquiry_report.html
[23] Quoted in King's Fund 2011 pp 49

25. Further policy development work was also undertaken with these partners via numerous Board level and operational level meetings, including the Revalidation Supporting Projects Board and Strengthened Medical Appraisal Steering Group meetings.

Pilots and other experimental work

Early pilots, 2009

26. A number of early pilots ('first stage projects') were conducted by Department of Health partners in 2008 and 2009. These were the first test beds for early approaches to improving appraisal processes.

27. These pilots were carried out in primary and secondary care and considered how supporting information could be collected and used to inform the appraisal of doctors.

Pathfinder Pilots, 2010-11

28. The RST Pathfinder Pilot project opened in January 2010 and closed on 31 March 2011, having delivered 3,022 Strengthened Medical Appraisals. Over 3,000 doctors from primary and secondary NHS healthcare settings participated across ten pilot sites in England. The objectives of the Pathfinder Pilots project were:

    a) to test the practicality and efficiency of the proposed options for revalidation;
    b) to estimate the costs and benefits of the proposed options for revalidation; and
    c) to provide proof of concept and build understanding and support within the medical profession.

29. The Department of Health and RST commissioned an independent evaluation of the pilots, in order to better understand the processes that are needed to deliver an effective medical appraisal and to identify where we needed to focus resources for the next phase of piloting work. The report, produced by Frontline Consultants in partnership with the University of Durham, is available on the RST website[24]. The results were used to inform the costs and benefits of the options. However, the results made available by the initial pathfinder project were only partially successful in answering the questions posed, prompting additional testing and piloting work.

Testing and Piloting (TAP) work, 2011-12

30. The TAP work was carried out by RST in 2011 and early 2012, following learning obtained from the Pathfinder Pilots. The work consisted of individual studies using qualitative and quantitative methods to address issues arising from the Pathfinder Pilots. The Medical Appraisal Guide proposed a more streamlined model for medical appraisal, responding to a finding of the Pathfinder Pilots. This was tested on over 1,200 doctors to ensure that the proposals were appropriate. The model was tested in a range of sectors:
    - Primary and Secondary Care NHS Trusts;
    - different grades of doctors;
    - locums working in primary and secondary care;
    - Independent sector doctors, including those working in more isolated environments

31. The studies and pilots showed that MAG was simpler to use than SMA and that doctors welcomed this simplification. There was an increase in perceived benefit for the majority of doctors and results also showed that the process was able to identify concerns and allow performance issues to be addressed.

Consultations

[24] http://www.revalidationsupport.nhs.uk/about_the_rst/Pathfinder_Pilots.php

32. The emerging findings from the TAP work and economic modelling were tested with the RST's Expert Development Group between January and March 2012. Largely composed of clinicians from across primary and secondary care, the groups included representatives of ROs, appraisers, patients, the Royal Colleges, the independent sector, HR and training leads. The groups provided external validation of the data sources used to feed the economic modelling and where further work was needed to refine the assumptions.

Annex B – Modelling assumptions

1. GMC figures show that there are 177,000 doctors with a registered address in England. However, GMC figures may provide a misleading figure for modelling costs and benefits, as they include those doctors who are not currently practising, as well as those who have a registered address in England but do not practise in England.

2. Therefore, we have estimated the number of doctors working in England by looking at official statistics published by the NHS Information Centre and other sources, including data collected in the ORSA exercise. From this, we have identified that 157,000 doctors were practising in England in September 2011. Of these, we estimate that 7,800 – or around 1 in 20 doctors – work solely in the private sector employed either directly by private healthcare organisations or as locums. Of the total doctor population, roughly 43,000 are trainee doctors, which we exclude from our modelling of the marginal costs of appraisal on the assumption that, as part of their trainee schemes in deaneries, all trainee doctors are currently being routinely evaluated and appraised. While trainees will be required to revalidate, we have no evidence to suggest that the appraisal and evaluation process of these doctors would be significantly different to that which they currently undertake, and would therefore have significantly different costs and benefits, as a result of revalidation.

3. Based on Department of Health workforce modelling assumptions in May 2012, future numbers of doctors are modelled assuming that, over the next ten years, an average of 4.4% of new doctors will join the register each year and 3.1% of existing doctors will leave, a net growth rate of 1.3% per year. The sensitivity of this growth rate and its impact on costs is tested in annex E, based on alternative assumptions of 0% and 2%.

4. Option 2 assumes that in the first cycle of revalidation, all existing doctors would be up for revalidation in the first three years[25]. Option 3 assumes an equal proportion of doctors will be revalidated in each of the first five years, ie 20% of doctors per year.

5. As outlined in the BC2 surveys, it is expected that it will take five years for the complete realisation of benefits from revalidation. We have assumed that this applies to the three-year roll-out model and that, by the end of year 1, the impact of revalidation will have been felt by half of the 20% (ie 10%) of doctors who will have been revalidated, and similarly for years two and three, with a linear profile up to 100% from year five onwards. Similar assumptions are applied for the five-year model, where it is assumed that it will take an additional two years to reach 100%. The assumed schedule of benefits realisation for each model is shown in Table 1.

Table 1: Benefits realisation timeline - % of steady state benefits realised

Year	Option 2: 3-year rollout	Option 3: 5-year rollout
1	10%	10%
2	25%	20%
3	50%	30%
4	75%	40%
5	100%	60%
6	100%	80%
7	100%	100%
8	100%	100%
9	100%	100%

[25] Note: at the time the analysis was undertaken, a rollout profile of 20%-30%-50% in years 1-3 was assumed. The more recent assumption is that a 20%-40%-40% profile will be achieved. The impact of using this alternative profile is *de minimis*.

10	100%	100%

6. The average hourly cost of a doctor is estimated using the most recent Personal Social Services Research Unit (PSSRU) estimates of the average unit costs of health and social care for 2010/11[26]. This equates to £108 per hour for all doctors, £133 per hour when excluding trainees, and £162 per hour when looking at 'senior' doctors only (based on the average hourly cost of a consultant). These costs include the annuitised cost of qualification for the doctor.

7. A discount factor of 3.5% is used for all costs and non-quality adjusted life year (QALY) benefits, with a factor of 1.5% for QALY benefits, as per the Department of Health modelling guidelines.

[26] http://www.pssru.ac.uk/project-pages/unit-costs/2011/index.php

Annex C – Modelling costs

1. The potential costs of revalidation fall into six broad categories:

   a) The direct costs of undertaking appraisal (for (i) doctors and (ii) appraisers)
   b) The costs of making revalidation recommendations (for ROs)
   c) The costs of setting up or improving administrative and clinical governance systems where none or few exist (for employers and organisations)
   d) The costs to the regulators of running the system (most notably for the GMC)
   e) The increased costs of remediation for doctors identified due to improvements in appraisal and clinical governance
   f) The costs of undertaking patient and colleague feedback ('multi-source feedback') exercises

2. The available evidence for each cost is examined in the sections that follow.

   a) (i) The direct costs of undertaking appraisal – doctors

3. Conducting annual appraisals will incur direct costs on doctors and appraisers. The MAG pilot and BC2 exercises provide key evidence for this (Annex A, table 1).

4. The estimated time spent by doctors on appraisal activities is shown in Table 1.

Table 1: Average (median) time per year spent on own appraisal activities by doctors

Data source	Time spent collecting information (hours)	Time spent completing forms (hours)	Time spent in appraisal discussion (hours)	Total time (hours)
MAG pilot (MAG, relating to all doctors)	4	3	2	**9**
BC2 (based on appraisers' own appraisal)	6	2	2	**10**

5. The MAG pilot data gives an indication of the average time to complete the appraisal process using the MAG approach, which as previously noted provides the benchmark for the expected time to undertake appraisal following the introduction of revalidation. BC2 provides an indication of past time requirements for appraisal, ie prior to revalidation. Both datasets reveal very similar findings: according to the MAG pilot, doctors took an average (median) of 9 hours to complete the appraisal process, compared to 10 hours reported in BC2. However, as the MAG pilot data provided a more comprehensive dataset with more observations around a wider sectoral distribution, we use the estimate of 9 hours in our base case analysis. Our estimate of the weighted average hourly cost of a doctor's time (excluding trainees) is £133, thereby putting the annual opportunity cost of appraisal to the doctor at around £1,200 per doctor.

6. An important caveat to the comparisons of the MAG pilot findings and the BC2 results above is that, whilst the MAG pilot is representative of all doctors and relates to application of the MAG model, the BC2 data relates to appraisers only and relates to their most recent experience as a doctor being appraised. Since this is not a perfect like-for-like comparison, the difference between the MAG pilot and BC2 is not taken to represent a significant cost saving.

7. While there may be no net cost increase for doctors who are already completing appraisals, a proportion of doctors who do not currently undertake appraisal will have to do so for revalidation, which will present a new cost to the system. This is estimated at 9 hours per doctor, based on the MAG pilot findings regarding the expected time to complete appraisal using MAG.

8. Further costs are anticipated to result from the need to train doctors in the requirements for undertaking revalidation. It is assumed that each doctor will need to receive one hour of training, to be delivered in groups of 30 by a senior doctor from within the organisation, at a total estimated cost of around £16 million over the first three years of implementation.

a) (ii) The direct costs of undertaking appraisal – appraisers

9. The marginal costs of the additional appraisal activity that will result from the introduction of revalidation will also incur a cost on appraisers. The respective results from the MAG pilot and BC2 are shown in Table 2.

Table 2: Average (median) time per year spent on appraisal activities by appraisers

Data source	Time spent collecting information (hours)	Time spent completing pre-appraisal forms (hours)	Time spent in appraisal discussion (hours)	Time spent completing post-appraisal forms (hours)	Total time (hours)
MAG pilot	1.5	0.5	1.2	1	**4.2**
BC2 (pre-MAG)	2	1	2	2	**7**

10. The MAG pilot showed that the average time commitment per appraisal for appraisers using MAG was 4.2 hours. The average cost of a senior doctor, who is more likely to undertake the role of an appraiser, is £162 per hour.

11. Unlike the time for appraisees, the estimates for this indicator can be compared on a like-for-like basis, given both of the datasets relate to appraisers. There is stronger evidence here that, for appraisers, MAG is a more time-efficient process, taking on average 4.2 hours per appraisal to complete, compared to existing local processes, which take on average 7 hours per appraisal. This is likely to be due to the fact that MAG, for the first time, provides a standardised approach to appraisal that is based on a well-tested and piloted methodology, with clear supporting guidance. For the 73% of doctors who are already engaging in appraisal, an efficiency saving will result for appraisers, which is discussed further in the benefits section below.

12. While there may be a reduction in time cost for appraisers in relation to appraisals already being completed, there will be a cost impact for the proportion of doctors who do not currently undertake appraisal and who will have to do so for revalidation. This will present a new cost to the system estimated at 4.2 hours per appraisal for 27% of doctors.

13. The assumptions about the marginal time costs for doctors and appraisers are conservative in that, for the 27% of doctors identified in the ORSA findings as not undertaking regular and effective appraisal, some level of appraisal activity may have been taking place. In the absence of more detailed data, it is assumed that the full additional cost of appraisal will be incurred for these doctors.

14. Further costs are anticipated to result from the need to train appraisers in the requirements for undertaking revalidation. It is assumed, based on testing and piloting led by the RST, that each appraiser will need to receive 3.5 hours of top-up training, to be delivered in groups of 20 by a senior doctor from within the organisation across the first two years of implementation. Ongoing

training will also be required, but it is assumed that this will be met within organisations' existing training provision.

b) The costs of making revalidation recommendations (for ROs)

15. This category concerns the time imposition for ROs of making revalidation recommendations. The assumed RO costs are taken from the MAG pilot, which shows the average (median) time spent by an RO per doctor to be one hour per revalidation cycle. Further testing and piloting (TAP) work, in which ROs were required to undertake an exercise to make mock revalidation recommendations, showed that ROs did not spend any additional time on doctors for whom they were unable to provide a positive recommendation. Taking the same per hour cost of a senior doctor, a marginal cost of £162 per doctor per revalidation cycle has been assumed.

16. It is assumed that there will be no additional training costs for ROs, as these will be costs which have already been met as a result of the introduction of the RO role.

c) The costs of setting up or improving administrative and clinical governance systems

17. Administrative resources will be required within organisations to support the delivery of revalidation. These will include salary costs and payments to administrative and support staff to support both the appraisal process and the work of ROs. The RST undertook an exercise to estimate the admin costs across 15 sites, including a range of NHS, independent sector and locum organisations. DH analysis of this data estimated the marginal cost at £27 per doctor per year.

d) The costs to the regulators of running the system (most notably for the GMC)

18. These refer to the costs to the regulator in setting up and delivering revalidation. According to figures from the GMC, these costs are expected to be approximately £3.4 million and £2.7 million in the first two years of revalidation, followed by an approximate average figure of £950,000 per year. The GMC intends to meet these costs through existing organisational resources.

e) The increased costs of remediation for doctors identified due to improvements in appraisal and clinical governance

19. Remediation is defined as the overall process agreed with a practitioner to redress aspects of underperformance. Remediation is a broad concept including informal agreements addressing reskilling, as well as more formal supervised programmes of remediation or rehabilitation.

20. There are two components to estimating the costs of remediation: estimating the likely percentage of doctors who would be identified for remedial activity, and estimating the likely average cost per doctor.

21. As part of both the BC2 and MAG pilot studies, appraisers and ROs were asked what the likely outcome of a revalidation exercise would be in terms of the numbers of doctors getting revalidated, deferred and for whom serious concerns would be raised. The two exercises approached the subject in slightly different ways. In the BC2 survey, appraisers and ROs were asked to estimate the likely percentages of doctors that would be categorised according to four possible revalidation outcomes, with the following results:

- Revalidated directly: 95%
- Revalidated following remediation: 3%
- Referred to the GMC following remediation: 1%
- Referred to the GMC directly: 1%

22. In the MAG pilot studies, a more 'real-life' approach was taken whereby the ROs were asked to consider the information generated from testing and piloting appraisal results and make mock recommendations on the basis of this data. Four responses were possible here, the results of which are shown in Table 3.

Table 3: RO recommendations in TAP mock exercise, 2011

Recommend revalidation	Defer	Express concerns about the doctor's level of engagement	Refer the doctor for Fitness to Practise proceedings
83%	**13%**	**3%**	**0%**

Note: Figures may not sum to 100% due to rounding

23. Deferral is one possible outcome of an initial revalidation assessment, for example if there is insufficient information to allow a decision to revalidate to be made. It must be noted that the high rate of deferral in the above exercise did not necessarily imply that these doctors would not be revalidated or require remediation. Rather, for the 13% of cases for which deferral was suggested, lack of sufficient information from the appraisal process was most commonly cited, and for 71% of these cases the ROs wanted to consult other information or discuss with other colleagues. It is expected that with more years of appraisal information, as opposed to the one year of data looked at here, ROs would have greater certainty over both the data provided as well as the concerns on doctors' level of engagement.

24. From the above results, it is estimated that approximately 5% of all doctors would be identified for remedial activity. Remediation can range from low-level interventions such as careers guidance through to high-level action such as clinical supervision. Research by the RST shows that the large majority of remediation activity involves low-level interventions. The research, based on responses covering over half of the designated bodies in England (320 organisations), estimates that currently, there are concerns for 4.1% of doctors, of which 2.4% are low level, 1.0% are medium level and 0.7% are high level. It is therefore estimated that an additional 1% of doctors will be subject to remediation following the introduction of revalidation.

25. Using a weighted average approach, the average unit cost of remediation is estimated at £3,600 per doctor, including opportunity costs.

26. While it is quite possible that the amount of remediation intervention needed will at first increase before reducing in the longer term as revalidation beds in, the model conservatively assumes that the additional marginal cost will remain constant in future years.

f) The costs of undertaking multi-source feedback exercises

27. Previously termed 360 degree feedback, multi-source feedback (MSF) is a component of clinical governance that allows organisations and doctors to obtain an independent view of their performance from patients and colleagues. It is estimated that feedback from 34 patients and 15 colleagues will be required, once per revalidation cycle, to inform the appraisal process. The GMC has developed a standardised set of patient and colleague questionnaires that are available for use in the process. It is estimated that each questionnaire will take 5 to 10 minutes to complete, so we assume that each response will take 10 minutes.

28. There will be further costs associated with delivering the results of MSF to doctors, which will potentially impact on both the doctor and the appraiser. There are a number of potential methods of delivering MSF findings, which the testing and piloting work showed could take anywhere between five minutes and an hour on average. In our modelling, we have assumed an average marginal time cost of an additional 30 minutes of doctor and appraiser time.

29. In addition to the doctor opportunity costs, it is also estimated that an average financial cost of £105 per doctor will be required to administer MSF exercises, made up of £75 per doctor for the

collection and analysis of the questionnaire data and £30 per doctor for organisational support to administer the process. In the absence of any data on current uptake of MSF, the cost is modelled for all doctors, which in effect provides a conservative estimate as it does not exclude costs for those doctors who already engage in MSF.

Annex D – Modelling benefits

1. The anticipated benefits of revalidation are:

   - increased public trust and confidence in doctors;
   - improved patient safety, outcomes and quality of care;
   - a reduction in the costs of support for the minority of doctors whose medical practice is poor, through earlier identification of performance issues;
   - reduced malpractice and litigation costs;
   - improvement in the quality of information about medical care; and
   - supporting positive cultural change in the medical profession.

2. As discussed in the main document, paragraph 1.30, quantification is not possible for all of these benefits. Furthermore, identifying a single causal link between revalidation and these benefits is neither realistic nor accurate. The proposed mechanism for implementation of revalidation will result in more appraisal of better quality, leading to better doctor performance and ultimately to better health outcomes. However, a number of other factors – including other organisational, doctor and patient-specific factors – are likely to be influential.

3. Despite these constraints, benefits have been quantified where possible in the analysis that follows based on the available evidence and, where appropriate, by applying conservative modelling assumptions.

   Patient safety

4. In order to quantify the patient safety improvements that may result from appraisal, this business case takes as its baseline figure the number of deaths and cases of severe harm in incidents reported to the National Patient Safety Authority. Between July 2010 and June 2011, there were 2,851 deaths, 7,627 instances of severe harm and 74,098 instances of moderate harm.

5. The monetary value of each incident of death avoided due to revalidation is calculated using a Quality Adjusted Life Year (QALY) measure. We have used a weighted average based on the distribution of hospital deaths[27] and life expectancy by age group, as summarised in Table 1. This analysis provides a weighted average of approximately 10 QALYs for each death avoided. We also use a ratio of QALYs due to death and harm of 30:5 in order to estimate the QALY gain due to avoided cases of severe harm at 1.7 QALYs. For avoided cases of moderate harm, this estimate is halved to 0.8 QALYs.

[27] Hospital admissions, age, and death: retrospective cohort study - Tracy Dixon, Mary Shaw, Stephen Frankel, Shah Ebrahim BMJ, doi:10.1136/bmj.38072.481933.EE (published 16 April 2004)

Table 1: Distribution of hospital deaths and life expectancy by age

Age	% of hospital deaths	QALY Gained[28]
Less than 40	3%	63
40-49	2%	38
50-59	6%	28
60-69	13%	18
70-79	32%	8
80-89	34%	3
90 and above	11%	1

6. BC2 showed that an estimated 7.5% of avoidable deaths and severe harm in medical care were due to an action of a doctor that could have been avoided, 10% of which may be avoided following the introduction of revalidation. When combining these two variables, the BC2 analysis showed that 0.75% of all current avoidable deaths and severe harm could potentially be avoided due to revalidation.

7. Applying the above assumptions may provide conservative estimates of the potential benefit on patient safety for the following reasons:
   - The BC2 evidence, on which the calculation is based, provides a subjective assessment of the current level of doctor error and the potential reduction that can be achieved due to revalidation. Given that BC2 was a survey of doctors, there may be pessimism bias – ie an under-estimation of the potential level of death and harm that could be avoided – in the responses provided;
   - Incidents of death and severe harm are not the only barometer of patient safety. All incidents of harm matter to patients, and the avoidance of more minor incidents would carry further benefit, which is not estimated here;
   - There is evidence of under-reporting of incidents of avoidable mistakes in the medical field. The National Audit Office has concluded that up to 20% of such incidents go unreported, while the National Trainee Survey conducted by the GMC[29] found that up to 26% of serious medical errors went unreported in certain institutions;
   - There is evidence to suggest that more deaths and severe harm can be avoided. An analysis by the NPSA[30] of data relating to 1,804 acutely ill patients who were reported in 2005 to have died following shortcomings in their care identified 31% of these deaths to be potentially avoidable and related to patient safety issues, with up to 4% due to diagnosis error alone; and
   - A study by the University of York of serious incidents in one large hospital in London[31] found that accidents, mishaps and errors affected up to 10% of inpatients. Other research[32] (Annex 1) suggests a much stronger link between good appraisal and decreased mortality rates for certain medical incidents.

Efficiency

8. In terms of efficiency gains to the system, the major quantifiable benefit comes from avoiding suspension of doctors due to performance concerns. If doctors with performance concerns are not identified early and proactively, the likelihood increases that in addition to the harm this may cause, suspension will be required while these concerns are investigated and addressed.

[28] For ages below 80 years, QALY gained is calculated by subtracting the mid-point of the age range from a life expectancy of 83 years (life expectancy at age 50). For patients aged 80-89 and 90 years and above, we expect 3 and 1 QALY gains respectively per death avoided.
[29] GMC State of Medical Education Report 2011 pp 59
[30] http://www.nrls.npsa.nhs.uk/resources/?EntryId45=59828
[31] http://qualitysafety.bmj.com/content/16/6/434.full?sid=a73466fa-00d6-45b9-8c09-9442903ccb32
[32] West, M.A., Borrill C., Dawson, J, Scully, J., Carter, M., Anelay, S., Patterson, M., Waring, J. (2002). The link between the management of employees and patient mortality in acute hospitals. The International Journal of Human Resource Management, 13, 8, 1299-1310

9. According to the BC2 dataset, it is estimated that, of the 27% of doctors who had previously not undertaken appraisal, 5% will require remediation per revalidation cycle. Further, using BC2 and other NHS data, we estimate that 10% of doctors in such cases could avoid suspension due to the introduction of revalidation and subsequent early remedial activity undertaken, with the average annual cost of suspension estimated at £100,000.

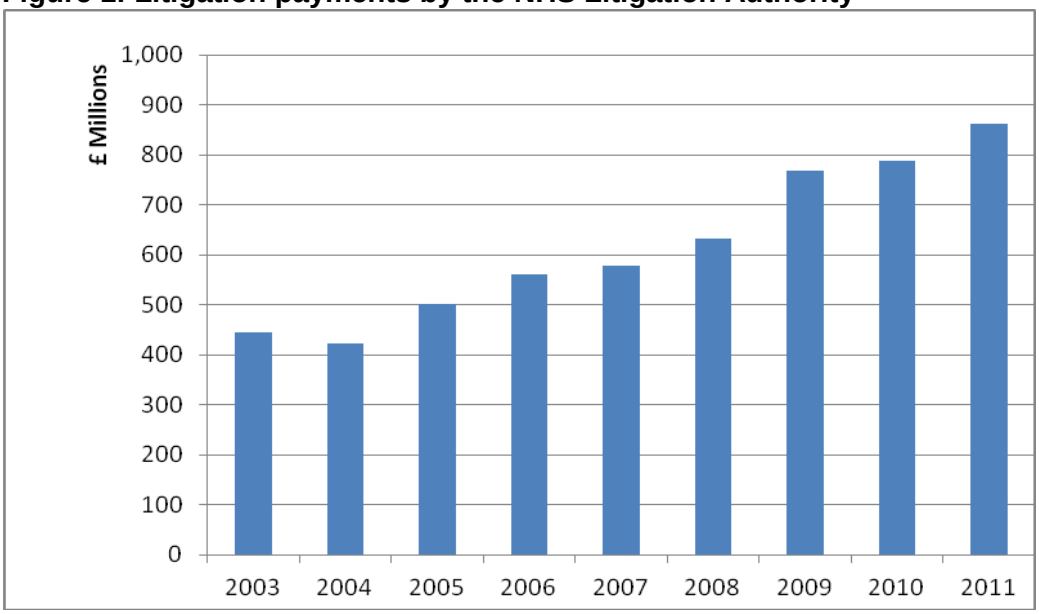
10. Comparison of the BC2 and MAG pilot findings also indicated that a potential time saving would result from the use of the new appraisal system (MAG) over existing systems of appraisal. This has to do with the more streamlined clinical governance systems that organisations are now putting in place, the more simplified aspects of appraisal using MAG, as well as the readiness that the introduction of revalidation is instilling in organisations. For doctors, the difference is not considered significant, but for appraisers this represents an opportunity cost saving of 2.8 hours per appraisal at an estimated unit cost of £162 per hour.

Litigation

11. Savings in litigation payouts are likely to result following the introduction of better appraisal. However, it is important to note that such payouts constitute 'transfer payments', ie payments for which no goods or service is received, and which change the distribution of income but do not incur any direct economic cost. However, they are important from an affordability perspective.

12. Figure 1 shows the increase in litigation payouts made on behalf of the NHS related to clinical errors.

Figure 1: Litigation payments by the NHS Litigation Authority[33]



13. There has been an approximate 5.6% increase year-on-year since 2003 from approximately £400 million to £860 million in 2011. The prevention of deaths and incidents of harm, as well as the introduction of a stronger culture of accountability, is expected to result in fewer incidents that would lead to litigation payouts. The BC2 data showed that a 3% reduction in future payouts as a result of revalidation can be anticipated.

[33] http://www.nhsla.com/Claims - Factsheet 2,3,5 March 2012

Quality of care

14. Potentially the most significant benefits of revalidation will come from the improvements in quality of care that result from the increased uptake of appraisal among doctors and improvements in clinical governance. The MAG pilot results showed that doctors generally felt the appraisal process to be a positive experience, with a majority of doctors surveyed saying it will have an impact on their practice. Our literature review also outlined a number of positive responses to appraisal in numerous surveys and tests. However, quantifying the magnitude of the increase in quality of care is difficult and inevitably tentative. This is partly because of the multiple causal factors involved in improving the quality of care, of which the ability of the doctor is just one of the first order variables, and the fact that increased positive and negative reinforcement through revalidation and appraisal is just one of a potential set of second order variables.

15. The analysis that follows estimates the potential magnitude of the economic benefits by applying conservative estimates and looking only at marginal improvements in the quality of care provided by doctors. A QALY method is used once again to measure the impact of appraisal and revalidation on the quality of care. This is done as follows:
    - categorise doctors according to the magnitude of improvement in quality of care they are likely to deliver following the introduction of revalidation;
    - estimate the percentage of doctors within each category that are expected to deliver an improved quality of care;
    - estimate the number of patient contacts per doctor that are likely to benefit from the improved quality of care; and
    - estimate the resulting benefit in terms of the QALYs gained for each of the patient contacts identified above.

16. **Categorisation of doctors:** We start by dividing doctors into three categories, each of which we expect to make differing levels of improvement of quality of care:
    i. doctors who were previously undertaking appraisal, but are experiencing a better standard of appraisal due to improvements in revalidation such as multi-source feedback;
    ii. doctors who were previously not undertaking an appraisal; and
    iii. doctors for whom performance issues are identified through the process of revalidation and subsequently undertake remediation.

17. We expect the third category of doctors to achieve the greatest improvements, as the current level of quality of care is assumed to be lowest for this group. Conversely, given that the first category of doctors are already undertaking some appraisal, we expect their marginal benefits over the 'do nothing' scenario to be relatively small. The middle category of doctors will experience a productivity benefit somewhere in between.

18. **Impact for each category of doctor**: Next, we estimate the proportion of doctors in each category that will deliver improved quality of care. Our academic studies, as well as the results of BC2 and the MAG pilot, indicate that 40% of doctors reported they would bring about positive changes to their behaviour as a result of a better appraisal process. We apply this proportion to the second category of doctors above, ie the 27% who have not previously been appraised. We assume that this proportion will be lower for the 73% of doctors in the first category above, ie those who previously underwent some form of appraisal. We therefore assume that 20% of these doctors would experience a gain from the more comprehensive appraisal system of revalidation. We assume that doctors in the third category, ie those who undergo remediation, would be most likely to change their behaviour as a result of remediation and that 80% of these doctors would improve their quality of care.

19. **Number of patient contacts experiencing improvements**: Next, we estimate the average number of patient contacts per doctor that will benefit from improved quality of care. In light of the large number of patient contact episodes that doctors have, it is reasonable to assume that, on average, doctors who make positive changes to their practice as a result of the appraisal and revalidation process will provide an improvement in the level of quality of care for at least 100 patients. When combining this figure with the assumptions in the previous paragraph, we are assuming that the impact will be felt in approximately 3.7 million patient contacts. To put this in context, there are roughly 300 million GP consultations and 17 million finished consultant episodes per year, so our assumptions are conservative in that they represent a small improvement in quality of care for only a small proportion of all patient contacts.

20. **QALY gains due to improved quality**: Finally, while noting that revalidation is one of many factors that affect the quality of care, we assign very small improvements in QALY gains to each of the patient contacts that benefits from improved quality of care. We assume, for each contact for which an improved level of quality of care is delivered, a QALY gain equivalent to 50% of one additional ‘healthy day’ results, ie 0.5 of a QALY for one day (or approximately 0.001 of a QALY).

Annex E – Sensitivity Analysis

1. The most significant components of the cost and benefits of revalidation are highlighted in table 1.

Table 1: Most significant components of cost and benefit

Costs	Benefits
Cost of full appraisal for doctor – 40%	Gains from improved quality of care by all doctors – 20%
Cost of full appraisal for appraiser – 23%	Time cost savings of appraisers – 19%
	Deaths and harm avoided – 16%
	Quality of Improvements for doctors who do appraisals due to revalidation – 15%

Sensitivity of cost estimates

2. As can be seen above, the most important cost component of revalidation is the cost of appraisal for those who currently do not undertake this activity. This is expected to require 9 hours for doctors and 4.2 hours for appraisers. The overall costs of revalidation are therefore most sensitive to assumptions about these time inputs from doctors.

3. The first sensitivity analysis we conduct is to check on substituting the median times used for appraisal for doctors (9 hours) to the mean times observed in the MAG studies. This is shown in the table below.

Table 2: Substituting median appraisal times with mean

Indicator	Number of Observations	Mean time for full appraisal	Total Annual Average Costs (Undiscounted)	Difference with median estimates
All observations	1,276	14	£119m	= £22m
Minus 1% outliers	1,263	13	£114m	= £17m
Minus 5% outliers	1,208	11.5	£108m	= £11m

4. An increase of one hour in the estimated time for appraisal leads to an increase in cost of around £4.4m per year. Hence, if using the mean for all observations of the MAG study, we can see that the total cost estimate will rise by £22million a year for revalidation. However, we feel that it would be more appropriate to exclude outliers in the 1% and 5% range. As such, the upper end estimate of the cost of appraisal leads to a total cost of between approximately £108 and £114 million per year.

5. There are, however, reasons to expect this to be a relatively contained risk:
   - First, the number of guidelines and assisting documentation already delivered by the RST, and the additional year of testing and piloting has allowed organisations to train and get ready for revalidation. To this effect, the development of the MAG is seen as generally a very positive development by those taking part, with noted savings in the time taken by many compared to existing methods of appraisal;
   - Second, we expect that with time, appraisals will become quicker as doctors get more familiar with the process and systems become more efficient; and

- Third, the GMC have been undertaking their own consultation processes with ROs and organisations so as to identify the most cost and time-effective processes for revalidation. This process is also expected to make revalidation quicker and easier.

6. For appraisers, each additional hour of appraisal time increases the overall estimate of cost by around £5.3m. For the reasons noted above, the risk of this is likely to be low.

7. The next two largest components of costs are MSF costs and remediation costs. However, the overall cost conditions are not strongly sensitive to changes in these costs. In terms of MSF costs, we expect these costs to be relatively stable as organisations and doctors establish procedures and become more familiar with collecting feedback. Further, our modelling assumptions on MSF are already conservative, in that they do not take account of any doctors who already undertake MSF. And while it is possible that remediation costs may increase, remediation would also be followed by subsequent benefits, and as such, it is unlikely to have a negative impact on the overall net present value (NPV) case.

8. The modelling assumes that the doctor workforce will grow by 1.3% per year, based on DH workforce modelling assumptions as set out in annex B. Assuming 0% growth reduces the overall cost estimate by an average of £5 million per year, while increasing the assumption to 2% leads to an increase of £2.6 million per year.

Sensitivity of benefit estimates

9. Almost half of the estimated benefits are due to quality of care improvements. Given the lack of an evidence base in this area, benefits have been estimated by applying conservative estimates of the potential QALY gains that could result due to the introduction of revalidation. Our sensitivity analysis shows that small changes here can have a large effect on the NPV. For example, if we assume that an additional 10% of doctors who undertake appraisal as a result of revalidation would have a positive impact of 0.001 QALY for 100 of their patients per year, we see that the NPV goes up by £80 million.

10. The next biggest area of benefit is the time savings by appraisers over previous appraisal processes. However, it is unlikely that significant reductions could be made to this, as a minimum level of time spent by appraisers is required in order to carry out an appraisal of sufficient quality. Assuming, however, that we have over-estimated the savings by an hour, we see that the total benefit falls by around £230m.

11. The third largest component of the benefits is due to deaths and harm avoided. As outlined in annex D, it is expected that our estimate of 0.75% of deaths and harm avoided is conservative and may therefore be under-estimating the true impact of revalidation and effective appraisal on better safety standards. All other things being equal, if this value were to double to 1.5%, £147m of benefits would be added.

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