Setting Levels of Ambition for the NHS Outcomes Framework

A technical annex to support *Developing our NHS care objectives: a consultation on the draft mandate to the NHS Commissioning Board*

Chapter 2: methodology

DH INFORMATION READER BOX

Policy	Clinical	Estates
HR / Workforce	Commissioner Development	IM & T
Management	Provider Development	Finance
Planning / Performance	Improvement and Efficiency	Social Care / Partnership Working

Document Purpose	For Information
Gateway Reference	17770
Title	Setting Levels of Ambition for the NHS Outcomes Framework
Author	Department of Health
Publication Date	**4 July 2012**
Target Audience	For those interested in measuring outcomes
Circulation List	
Description	Developing our NHS care objectives: A consultation on the draft mandate explains that the Government will hold the NHS Commissioning Board to account for delivering improvements in health outcomes. This technical annex outlines the proposed methodology for setting levels of ambition against the NHS Outcomes Framework
Cross Ref	Delivering our NHS care objectives: a consulation on the draft mandate
Superseded Docs	
Action Required	N/A
Timing	
Contact Details	NHS Outcomes Framework team 601 Richmond House 79 Whitehall London SW1A 2NS
For Recipient's Use	

First published July 2012
Published to DH website, in electronic PDF format only.
www.dh.gov.uk/publications

Contents

Methodological Overview

2.1 This chapter describes the methodology employed in the rest of the Technical Annex

- for establishing a baseline against which to monitor continuous improvement for each indicator, and
- for constructing Domain levels of ambition

Improvement for Each Indicator

2.2 In the draft mandate, the Government proposes objectives for each of the five Domains of the NHS Outcomes Framework. On this approach, no particular clinical conditions or patient groups are singled out, in order to avoid distorting clinical priorities. The Domain-level objectives are intended to allow flexibility for the NHS to decide where to focus efforts, based on local need and local circumstances and assessment of where most gain can be achieved. At the same time, the Government wishes to ensure improvement of health outcomes as measured by each of the indicators in the Framework, so that quality is increasing across the breadth of NHS service provision.

2.3 To maximise flexibility for the NHS, this constraint on outcomes for individual indicators is constructed differently according to whether the underlying trend in an indicator – the trend that would be observed were the quality of NHS contribution to stabilise at current levels (the “current practice projection”) is improving, flat or worsening:

- where the current practice projection is flat or improving, the baseline against which the NHS will be held to account for improvement in succeeding years is defined as the best estimate (at the time of assessment) of the underlying outcome level in 2012/13. (Where data are volatile and sufficient data are available, the underlying outcome level is estimated using a smoothing technique– see section ii, on current practice projections below.)
- where the current practice projection is worsening (e.g. consequential to an adverse trend in obesity), the baseline against which the NHS will be held to account for improvement for each indicator in succeeding years is defined as the best estimate of the level of outcome that would have been achieved had the quality of NHS service been maintained at the 2012/13 level. This is the level of the current practice projection (see section ii, below, and section vii) for the year of performance being assessed, according to the best estimate (at the time of assessment) of that current practice projection from 2012/13.

2.4 Where no data are available for 2012/13, even in retrospect, the continuous improvement obligation will be set ad hoc with respect to that outcome area, perhaps by

reference to a surrogate outcome indicator (e.g. a process measure reliable connected to outcomes).

2.5 (Note that in assessing **Domain level** performance, outcomes for all indicators will be assessed against current practice projections, irrespective of whether the outcome trend is adverse or otherwise. However, for individual indicator improvement accountability, insisting that improvement is achieved relative to a favourable current practice projection would be too restrictive, removing scope for prioritisation to maximise overall outcomes.)

2.6 Assessment of current underlying level of outcome, and in the case of deteriorating outcomes, the current practice projection also, thus serves as a lower level of acceptable outcome for each indicator (embodying the Secretary of State's commitment to improvement across the whole Framework). For that purpose, some assessment of the uncertainty attached to the identification of the underlying level of current practice is appropriate.

2.7 For this purpose, a **"tolerance interval"** is defined as one standard deviation of past annual data from trend, where sufficient data around a trend is available to allow a robust calculation of that statistic. Where historic data display no trend, this is the standard deviation of past differences from the assessed underlying level. Where insufficient data is available, assessment of the tolerance interval is necessarily subjective. The width of the tolerance interval is designed to balance the chances of falsely ascribing significance to random adverse movements of the indicator and the chances of missing significant developments.

2.8 As the projections are based upon our best informal estimate of the true model, and there is no reason in general to think that our estimate is worse with respect to future than with respect to the present, it is not appropriate to widen tolerance intervals for future projections. Rather, the worse-side tolerance around the most recent data point is projected forward.

2.9 Divergence of outcome outside the projection tolerance is to be seen as an event *prima facie* ascribable to a drop in the quality of NHS provision and thus requiring investigation and correction.

Domain levels of ambition

2.10 The rest of this chapter is concerned with the methodology for establishing Domain levels of ambition.

2.11 The proposed approach is to build Domain levels of ambition using a common Domain level metric for each of the outcome areas represented by the indicators within each Domain. The generic steps required for each indicator are: (i) appraisal of recent developments, (ii) current-practice projections, (iii) estimates of scope for NHS incremental improvements beyond the current-practice projections. The indicator-level scope for improvement is then (iv) aggregated using a common Domain level metric and appropriate weights to inform (v) the setting of Domain levels of ambition for the NHS' contribution to improvement of outcomes. Domain performance is also (vi) assessed from an inequalities perspective. Finally, (vii), a methodology for the review of NHS performance in retrospect is required based upon the extent to which performance against individual indicators exceeds that projected, taking account of any unexpected developments in external drivers and any improvements in our understanding of the way in which outcomes are determined – by NHS and non-NHS drivers.

2.12 This approach provides flexibility regarding how Domain improvements are achieved by the NHS in practice, whilst building the Domain level ambition carefully from the scope for improvement assessed both at a more granular level and from a more strategic perspective for each Domain.

2.13 The following seven sections set out the approach to constructing:

i. **Appraisal of recent outcome developments for each indicator:** presentation of data for each indicator with identification of important developments requiring explanation, and attribution of changes in outcome to NHS and non-NHS determinants;

ii. **Current-practice Projections for each indicator:** the trajectory of outcomes based upon past and expected developments of non-NHS drivers of outcome supported by current NHS practice (at constant quality) constrained by the resource envelope; and

iii. **Scope for Improvement for the outcome areas represented by each indicator in a domain:** assessment of the realistic but demanding scope for improvement in the NHS's contribution to outcomes through uptake of better practice within resource constraints, so to deliver outcomes beyond the current-practice projection for that indicator, including any projected progress in outcomes attributable to normal incremental improvements in effectiveness.

iv. **Aggregate scope for improvement for Domain indicators:** the scope for improvement in each outcome area combined to construct a domain level projection of incremental outcome using a domain-specific single currency or metric of achievement, including any projected systematic improvement in outcomes across the Domain or parts of a Domain attributable to normal incremental improvements in effectiveness. For assessment of medium or longer term scope for improvement, a strategic perspective of the Domain, encompassing for example the extent of mortality that is thought in principle affordably amenable, should be applied.

v. **Domain Level of Ambition:** Domain ambition derived from aggregated indicator-level and Domain level scope for improvement together with potential gains in allocative efficiency across different outcome areas; but moderated by consideration of what change is realistic in different timescales, bearing in mind complementarities and displacement in delivery of better performance.

vi. **Inequality metrics for each domain**: specification of appropriate metrics of inequality for each domain where possible, and consideration of scope for progress in improving outcomes of disadvantaged groups faster.

vii. Retrospective Performance Assessment: a methodology to allow the performance of the NHS to be assessed in retrospect against the level of ambition by reference to the development of individual outcome indicators relative to projections, to the extent that divergence can reasonably be attributed to the NHS.

i) Appraisal of recent outcome developments for each indicator

2.14 The purpose of this section (Section 2(a) for each Domain in Chapter 2) is to learn what can be learnt from the historical development of each indicator and outcome area to aid formulation of realistic expectation for that outcome – taking into account the respective contribution that the NHS and other determinants of outcome have had and may have in the future.

2.15 To gauge realistic but stretching aspirations for an outcome area, it is critical to understand recent developments:

- Are outcomes improving or deteriorating?
- To what extent can trends in indicators be explained by shifting composition of the groups affected not fully allowed for in indicator definitions, in particular different proportions of people with different conditions, co-morbidities, people in different age groups, age cohorts, etc (groupings that may be taken as likely to determine susceptibility of individuals to morbidity, and thus determining outcome beyond NHS control) ?

- How do levels and shifts in outcome vary across the country, between ethnic and socio-economic groups, and how do they compare with developments in comparable countries for similar groups, etc. (differences in outcome that are less likely to reflect differences in susceptibility to morbidity, and more likely to reflect difference in access or in the effectiveness of NHS care).?

2.16 Perspicuous presentation of data should enable the formulation of a set of questions for which answers are needed for the understanding of the determination of outcomes both recently and therefore prospectively. It is not sufficient to observe that outcomes are improving and expecting that such a trend should continue. The question must be asked: why are outcomes improving? If improvements are attributable to increased NHS funding feeding through into improved practice, extrapolations of improvements will need to reflect likely future levels of funding rather than past levels of funding. Likewise, if improvements are due to cohort robustness (due to an historic improvement in nutrition for example), then it would be unreasonable to expect such improvement to be sustained in the absence further improvement in cohort robustness. Conversely, where improvements are attributable to historic improvements in health behaviour that are still feeding through (e.g. due to continuing reductions in prevalence of smoking) or to improved NHS practice that is benefiting successive cohorts of individuals with chronic conditions or risk exposure (eg statin prescription) it is appropriate to extrapolate forward these improvements as current-practice projections, and to set ambitions relative to such trends (see sections ii - vii, below).

2.17 (Chapters 3-7 include ‘notes’ sections in the analysis of different indicators. These look to highlight salient points of the data. There may be established knowledge about these indicators, or equally suggest points that merit further exploration.)

2.18 Review of developments in the principal drivers of outcome, and associated lags in impact, inform the answers to the questions regarding recent developments. An initial listing of the public health, social care and external drivers of the outcomes in the outcomes framework was included in the Technical Annex to the Outcomes Framework refresh issued in December 2012. This has been refined, and trends in principal drivers have been reviewed. Outcome specific drivers are reviewed under each indicator; several drivers of wider import are discussed in Chapter 8, to avoid repetition.

2.19 Assessment of determinants of outcome include consideration of public health and social care variables and services. In this regard, it is important to differentiate contemporaneous effects, which may be susceptible to influence by the NHS, and should therefore be considered in assessing scope for improvement, from historic effects (e.g. the impact of earlier public health campaigns on smoking levels and thus upon incidence of disease in the forecast period), which are now fixed.

2.20 For instance, developments of liver mortality should be assessed on the basis of what is known about the history of alcohol abuse in different cohorts of the population as well as

what is understood regarding the scale of impact of current alcohol consumption, and the lags involved.

ii) Current practice projections

2.21 The second section in the presentation of each indicator (Section 2(b) in Chapters 3-7 for each Domain) attempts to understand what would happen to outcomes represented by each indicator within a domain based on current NHS practice in the absence of improvements in technical or allocative efficiency – in other words in the absence of adoption of better practice, but with the current quality of NHS service maintained (notwithstanding funding constraints). Shifts in outcomes driven by determinants beyond NHS control are included.

2.22 These **current-practice projections** explicitly allow for the fact that past outcomes may have been affected by varying resource constraints. These have recently become tighter, and it is necessary therefore to be cautious in projection of recent trends that may reflect past increases in resources. Trends are projected only where the determinants are identified and expected to be sustained.

2.23 Notwithstanding that funding restraint has recently and will continue to challenge the NHS, current practice projections are predicated upon **a quality-maintaining assumption**. This is the assumption that the same level of service quality (encompassing effectiveness, patient experience and safety) enjoyed by persons receiving NHS services in the base year (2012/13) will continue to be enjoyed by persons in contact with the service in subsequent years.

2.24 For the purposes of setting ambitions that extend beyond the current Spending Review period, the quality maintaining assumption is used (since funding levels will not be determined until the time of the next Spending Review). Levels of ambition for NHS performance relative to the current practice-projections will need to be reviewed in light of the settlement. See section v.

2.25 Projections will be subject to considerable uncertainty. Section vii below discusses how this uncertainty is addressed at the point of retrospective performance review. Transparency in the assumptions involved can ensure that the NHS is only to be held to account for its contribution.

2.26 Projections should start from the most recent observed underlying level of outcome for each indicator, where the underlying level of the outcome is the level that would be predicted by the true model, i.e. the model that correctly incorporates all the determinants of outcome (NHS and non-NHS, contemporaneous and lagged). The measured outcome for this period will differ from this underlying outcome due to a combination of measurement error and the stochastic nature of the outcome series. Some judgment is therefore required in order to assess this underlying level.

2.27 Where no trend is observed, the underlying position will in general be taken to be a weighted average of recent annual observations, using an exponentially smoothed mean (with a damping factor of 0.3) of those past observations that are taken to represent the current quality of provision by the NHS (that is, data post any structural breaks which can be attributed to changes in NHS performance).

2.28 Although the projections are subject to uncertainty, the purpose to which they are to be put makes use of confidence intervals inappropriate: the projections form the basis for assessing the collective deviation of Domain outcomes from current-practice projections as an estimate of what the NHS must have contributed. Although deviation of anyone indicator may reflect error in the current practice projection (amended in light of new information – see section vii), such errors should cancel one another in aggregation – so long as systematic bias is avoided.

2.29 Sensitivity analyses should identify possible systematic biases in these projections.

iii) Scope for Improvement for the outcome areas represented by each indicator

2.30 Levels of Ambition for the NHS' incremental contribution for each Domain, discussed in Section v, are needed to stretch the NHS to deliver more. These Domain ambitions are informed by assessment of what scope for improvement there is with respect to each of the outcome areas represented by the individual indicators and for the Domain as a whole. This section and the succeeding section discuss these prior tasks.

2.31 The scope of the NHS to improve in respect of a particular outcome area (represented by a particular indicator) should be assessed in light of:

- the evidence (weighted by its robustness) of what cost effective best practice can achieve in delivery of the relevant domain of quality, including in particular evidence relating to its deployment in the NHS context (including that referenced in National Service Frameworks, DH clinical strategies, NICE Clinical Guidelines and Quality Standards and other evidence of cost-effective best practice), based upon
    - evidence of the extent to which divergence from best practice may explain variations in outcomes sub-nationally

  - evidence of the extent to which divergence from best practice may explain the extent to which current practice in the NHS nationally falls short of cost-effective best practice deployed internationally

  - the extent to which better outcomes could be achieved by redeployment of resources between conditions, service lines and health economies within the outcome area

- where there is evidence of a secular improvement in the quality of NHS service, an assessment to the extent to which this attributable to continuous incremental gains in effectiveness (the conversion of outputs into outcomes) that should be projected forward.

- for each relevant outcome in the Domain, assessment of the obstacles to best practice adoption, including
  - the time and resources it might take to deliver improved practice, and the period of time within which cost-savings may be realised

  - time required to secure improvements in allocative efficiency

2.32 Where outcomes can be improved within resource envelopes through more effective public health or social care interventions, these should be considered within scope for determining the scope for improvement of each indicator and the Domain level of ambition - so long as the impacts are contemporaneous. This is true whether interventions are by the NHS acting directly (e.g. by making “Every contact count” to encourage healthier behaviour) or by contributing to co-ordinated health improvement efforts with Local Authority partners. (However, where the time frame in which outcomes will improve consequent to NHS public health contributions to reducing infant, child and adult mortality exceeds that for which Levels of Ambition are set, contributions should be monitored separately though mechanisms that match those developed to monitor progress made against the Public Health Outcomes Framework.)

2.33 Note that, although the level of ambition is constructed with reference to an estimate of scope for improvement in different areas, there is no intention to dictate how improvement is to be secured. By setting a level of ambition only at the Domain level, the Mandate would leave scope for the NHSCB and the local NHS to take into account local circumstances and aspirations in deciding upon which diseases, life stages and population groups to focus in order to improve outcomes overall and reduce inequalities.

iv) Aggregated Scope for Improvement for Domain Indicators

2.34 To aggregate across the assessed scope for improvement in the outcome areas represented by different indicators in a Domain requires the following additional steps:

- A **Domain currency or metric of incremental progress** that melds together the different aspects of outcome captured by the different indicators in each domain
- **Conversion of the scope for improvement attributed to each area of outcome,** (from Section iii, above) into the domain currency
- Inclusion of any projected systematic improvement in Outcomes across the Domain or parts of a Domain attributable to normal incremental improvements in effectiveness, that were not detectable at an indicator level.
- Considerable scope for improvement through gains in allocative efficiency for the Domain that might be achievable by reallocation of resources between conditions, service lines, clinical specialties and/or geographic areas and/or patient groups (which may be represented by different indicators), towards those areas exhibiting highest incremental value per additional unit of resource (e.g. lowest cost per QALY)
- Inclusion, particularly of assessment of medium and longer term scope for improvement, of a strategic perspective of the Domain, encompassing for example the extent of mortality that is thought in principle affordably amenable (Domain 1), or an assessment of a realistic ambition for reducing harm done (Domain 5).
- Top down assessment of scope for improvement based upon higher level outcomes in comparison with other countries, relative to resources and wider determinants of health – even where differences in implementation of good practice is not clearly implicated. This is appropriate because comparisons at a higher level of aggregation are more robust (as they are subject to differences in coding practices in different countries – e.g, in the attribution of deaths to particular causes), but conversely it is more difficult to isolate the influence of particular practice on such outcomes.
- Such strategic Domain level assessment should also consider sub-national variation that cannot be explained by external factors.
- Such assessment may also consider likely scope for improvement in areas for which indicators are still in development, but in which potential gain in the Domain currency can be estimated.
- **Derivation of a Domain scope for improvement**, by aggregation or application of weighting, but avoiding duplication.

2.35 The Domain-specific outcome concept is shown in the table below, together with the appropriate metric for measuring incremental NHS contribution year by year. Discussion in Chapter 2 for each Domain chapters (see Section 1 for chapters 3-7) shows how changes in individual indicators beyond that projected can be interpreted as contributing to the Domain outcome through gains in the NHS contribution metric.

NHS Outcomes Framework Domain	Domain Outcome Level metric	Metric of incremental NHS contributions
1. Preventing people from dying prematurely	Cohort Life Expectancy at Birth	Life years
2. Enhancing quality of life for people with long term conditions	Average quality of life (QoL) for those affected by long-term conditions	Quality Adjusted Life Years (QALYs)
3. Helping people to recover from episodes of ill health or following injury	QALYs saved per head following ill health episode or injury	QALYs
4. Ensuring that people have a positive experience of care	Weighted average quality of patient experience 0-100	Increments to weighted average patient experience
5. Treating and caring for people in a safe environment and protecting them from avoidable harm	QALYs lost through iatrogenic harm, per capita per annum	QALYs

2.36 NHS outcomes can be conceptualised either in aggregate – how many life years does the NHS add to the population overall consequent to its interventions each year, or relative to the size of the population. The latter approach is adopted in the middle column to facilitate international comparisons of outcome and to generate comparisons over time that are more meaningful at the level of individual citizens. It shows what progress means respectively at an individual level for:

- life expectancy
- quality of life for those suffering long term conditions

- aid in recovery from illness or injury per person
- patient experience of care
- citizen risk of suffering harm at the hands of the NHS.

2.37 Scope for improvement aggregated for each Domain and levels of ambition are better couched in the terms specified in the final column, as the NHS budget is set for the whole of the population served. These are gains attributable to the enhancement to the NHS quality of service in a particular year. They include not only the improvement in outcomes (measured by the change in the Domain Outcome Level) in that year but any also any consequential gain in outcomes in future years. In principle, where it is possible to measure improvement in Domain level outcomes, the NHS's incremental contribution can be derived by allowing for impacts of non-NHS drivers.

2.38 Partial assessments of aggregate scope for improvements using these domain metrics of NHS incremental contribution are presented in section (3)(a) for each Domain chapter.

2.39 For Domain 2 the relationship between incremental gains (measured in QALYs) and changes in the Domain Outcome Level is complicated by the following issue: If the NHS intervenes to improve the health related quality of life of an individual with a long term condition, that person may find they have higher quality of life not only in that year but also in a number of subsequent years: yet it is appropriate to attribute all that gain as an achievement of the NHS in the year of intervention. Thus the achievement attributed to the NHS performance in a particular year is the integral of the improvement in quality of life over the duration of impact, summed across all individuals affected (and thus measured in QALYs).

2.40 In Domain 1, as well as in Domains 3-5, the correspondence between the Domain Outcome Level and the measure of NHS incremental contribution is more straightforward: if the NHS intervenes to save someone's life, they will gain a number of life years (the currency of incremental NHS contribution), and their life expectancy will rise from zero to that typical of someone of their age, contributing to a gain in population life expectancy. An intervention (e.g. statins) that increases the life expectancy of someone who would not otherwise have died this year also gives an individual additional life years as their life expectancy is extended, and is appropriately attributed to the NHS as an outcome in the year of intervention. Although increased **period** life expectancy in such a case would not be registered until the year in which they would have died (at which point the mortality rate for that age group will drop relative to what it would have been), use of **cohort** life expectancy as the Domain outcome concept allows the gain to be registered at the year in which life expectancy rises. Of course, in practice, whether the measured cohort life expectancy will rise depends upon the thoroughness of the process by which statisticians survey the influences upon future

mortality affecting the current birth generation – and the evidential threshold that they employ.

2.41 NHS incremental contribution in each Domain may not match the change in Domain Outcome Level between base year and assessment year for another reason: population health may be driven up or down by factors outside the control of the NHS – to a greater or lesser extent than that expected in projecting current practice trends (section ii, above).

2.42 These two sources of difference - failure to measure progress timeously and shifts in external drivers of outcome - creates a challenge for the retrospective assessment of whether ambitions for incremental NHS contribution are achieved: see section vii.

v) Levels of ambition for each domain

2.43 To construct a Domain Level of Ambition (as discussed in the Domain Chapters 3-7 – see section (3)(b) for each Domain), requires in addition consideration of:

- the aggregate level of institutional and organisational change required of the NHS to deliver the improvements sought, taking into account whether outcome gains in different areas are complementary, and where they compete for scarce management or clinical time and attention
- how best to formulate levels of ambition so as to galvanise performance improvement.

2.44 These considerations should inform the judgment, for the Domain, of what is an appropriate level of ambition for the measure of incremental NHS contribution to domain outcomes.

2.45 Levels of Ambition across the five Domains must be set with recognition of the opportunities for and constraints upon improvement set by:

- complementarity of outcomes between Domains (for example: improved care of long term conditions should improve quality of life and mortality; better recovery services – Domain 3 - should reduce incidence of long term disability)
- the overall management challenge of achieving adoption of better practice simultaneously across different domains
- the resource envelope determined in the Spending Review, and in the allocation of resource to the NHS Commissioning Board and to bodies responsible for complementary public services. Levels of ambition will be subject to future Spending Review settlements.

2.46 Levels of ambition are not calculated in this technical annex. However, examples are given to illustrate the approach we are suggesting. Once the assessment of scope for improvement relating to individual indicators and the strategic Domain assessment discussed in the previous two sections are more developed, it will be possible to conduct additional assessments discussed in this section, so to derive Levels of Ambition.

2.47 It is proposed to present the Levels of Ambition in two ways, both employing the Metric of Incremental contribution (from the table in section iv, above):

- cumulative incremental NHS contribution over and above the current-practice projection. This presentation will show the additional health gain that would be attributable to adoption of improved NHS quality aggregated across the Domain. This is the gain attributable to improvements in the quality of NHS care over and above the contribution to good outcomes that the NHS is currently achieving (and that is projected forward in the current-practice projections).

- cumulative gain in outcomes relative to base year (2012/3) outcome levels. This presentation will show the extent to which the population is better off with regard to the Domain aspect of quality than it would have been had base year outcomes been maintained. This gain for the population will be partly attributable to historical factors (for example, that new cohorts benefit from having smoked less), partly to the maintenance of the quality of NHS care (notwithstanding resource constraints relative to underlying demand pressures) and partly to incremental good practice gains as captured in the first presentation. The gap between this presentation of Domain ambition and that in the first presentation will be the difference between flat and current practice projections aggregated across all indicators in a domain (including those for which projections are adverse.) If over time the current practice projections are revised (see section vii below) this presentation of the Level of Ambition will be revised accordingly.

2.48 In both cases, we expect the Level of Ambition will be cumulative rather than final year gains, over two, five or ten years, to ensure that the NHS is held to account for delivering incremental health gains in intermediate years.

vi) Inequality metrics for each Domain

2.49 For Domain Outcome Levels, or perhaps for salient individual indicators, appropriate metrics of inequality can be constructed. Domain aspiration for mitigation of inequality, using these metrics, can be set in a similar manner to that used to set ambitions for average outcome performance – by reviewing recent developments, projecting outcomes forward, assessing scope for improvement.

2.50 Detailed work is needed to determine the most appropriate metrics of inequality for each Domain.

2.51 One approach to measuring inequality with respect to an individual indicator of outcome is to assess the extent to which variation in outcome appears to be driven by social deprivation. This can be captured by what is known as a Slope Index of Inequality (SII).

2.52 The SII summarises the inequality in a specific outcome across England that is thought to be attributable to social inequality. It represents the gap in the outcome in question between the least and most deprived areas in England, to the extent that this reflects the relationship between the specific outcome and deprivation scores (the latter relationship being established by a statistical analysis of small area data for the whole population). It is assumed in general that the relationship is linear, so that linear regression is the appropriate estimation technique.

2.53 The use of the SII to measure inequality attributable to social circumstances relies upon an assumption that correlation with deprivation implicates deprivation as a causal factor behind inequality of outcome. It is precisely on this assumption that it is assumed that this inequality should be addressed, and that it should be amenable to improvement.

2.54 In Domain 1 and possibly in other Domains (if data allows), work will be undertaken to consider variation in outcome across the country, and the extent to which it correlates with deprivation (picked up for example by the SII) or with the equality characteristics. Such analysis may suggest that one or more other indicators of inequality is of particular concern, and ought to be given prominence in setting levels of ambition.

2.55 In general, the extent to which improvement can be achieved by NHS interventions (through ensuring access reflects need or through levelling up quality of care) or through public health interventions or through wider social interventions will vary from outcome to outcome, and requires detailed analysis in assessing NHS performance and in determining whether and at what level to set levels of ambition for different services.

2.56 Assessment of the scope for inequality reduction should take into account:

- the extent of variation in outcomes across the country and between specific groups, and any explanations for such variation,
- the extent to which progress for the domain can be achieved whilst reducing health-outcomes inequality cost –effectively (i.e. by improving outcomes for disadvantaged groups)
- the extent of any cost and performance trade-off between narrowing health inequalities and increasing overall improvements.

2.56 Based on analysis of the potential for improvement, the government would then have the option of setting specific ambitions for this dimension of NHS performance at the Domain level, taking into account these issues.

2.57 The levels of ambition set for overall Domain performance (described above) are to be built in part upon detailed assessment of scope for improvement in relation to individual outcome areas. The particular ways in which the scope for improvement can be realised have implications for inequality. These can be derived, enabling consideration to be given to setting inequalities ambitions in addition to overall or average improvements.

vii) Retrospective Performance Assessment

2.58 A methodology is required to allow the performance of the NHS to be assessed in retrospect both against the level of ambition for each Domain, and against the commitment to secure continuous improvement in each outcome area.

2.59 The first step is to review the current practice projections. The presumption that differences from the current practice projections are attributable to incremental NHS performance must be acknowledged as contestable: those projections must themselves be reviewed both in the light of improved understanding of the determinants of outcome (a better model), and in light of the best estimate of the path of the non-NHS determinants of outcome (the inputs to the model).

2.60 The *ex ante* development of current practice projections (described in section ii above) is necessarily tentative; it is conducted in the hope that the setting out and debating of the relative importance of various non-NHS factors in advance (informed by appraisal of recent developments) will best allow the eventual retrospective assessment to be conducted scientifically.

2.61 Once current practice projections are retrospectively revised, the path of individual indicators relative to projections can be reviewed, on the presumption that divergence can be attributed to the NHS, and that aggregated divergence, using the Domain metric

of improvement, will reflect overall NHS performance. In aggregate, outcomes across a Domain will exceed the current practice projections (using the common currency) to the extent that ambitions for the NHS contribution are realised.

2.62 The indicator current practice projection will be revised retrospectively in the light of

- revision of the informal model of what factors with what lags determine outcomes, perhaps through its formalisation
- divergence of outcome drivers from those assumed in making projections.

2.63 An additional challenge to retrospective assessment is the lag involved in the estimation of outcomes for individual indicators, and for some indicators the possibility of revisions. Retrospective assessment may have to rely upon provisional estimates for some outcomes.