

Report from the Steering Group for the National Review of the Hospital Standardised Mortality Ratio

Summary

Preservation of life and avoidance of unnecessary death are important objectives for health services in all countries. It matters to policy makers, clinicians, managers of hospitals, academics, and – above all – patients and their families. Unsurprisingly therefore, there has in recent years been a vigorous international debate as to whether, and if so, how, the performance of hospitals can be captured and assessed in regard to mortality rates. This is the question that this Steering Group has been asked to consider on behalf of the NHS in England.

This paper provides the recommendations from this Steering Group for onward submission to the National Quality Board for the adoption of an NHS-owned summary indicator for mortality – the Summary Hospital-Level Mortality Indicator (the SHMI).

The Steering Group’s recommendations are offered to the National Quality Board as a package of recommendations, which, taken collectively, provide a comprehensive and coherent framework for the introduction and handling of the SHMI. These recommendations are included in section 10 of this report and are:

- Founded on the need for standards-based information and indicators, and an annual assurance review process which will be the platform for continuous improvement;
- In line with the current thinking around the National Quality Indicator Development Group’s work on indicator assurance;
- Fit for alignment with the Government’s priorities for the NHS in England and the Information Strategy.

Subject to some statistical modelling, technical advice available to the Steering Group has enabled us to agree a methodology for a summary measure of mortality associated with hospitalisation. This is based on a ratio of observed to expected deaths. Its characteristics are summarised in Appendix 3. In summary the indicator:

- Covers deaths relating to all admitted patients that occur in all settings ie including those occurring in hospital and 30 days post-discharge, but with specific exceptions relating to data quality issues such as clinical coding variation;
- Adjusts as far as possible with HES data for factors outside of a hospital’s control that might impact on hospital mortality rates;
- Applies to all NHS acute trusts except specialist hospitals.

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The proposals for the next steps are included in section 10 of the report, and include:

- By April 2011 at the latest, the adoption of a methodology for a national mortality ratio for use across the NHS, to be known as the Summary Hospital-level Mortality Indicator (SHMI), and which will be owned and reviewed by the National Quality Indicator Development Group;
- The introduction of the SHMI will be conditional on additional empirical testing of that methodology to finalise the proposals;
- The use of companion indicators alongside the SHMI;
- The production of guidelines and documentation to support its use by all audiences,
- Further work on communications and stakeholder engagement;
- The production of advice and guidance on coding of palliative care;
- Arrangements for the routine publication of the indicator;
- Ongoing review and assurance aligned with the National Quality Indicator Development Group
- Recommendations for further work and development of the SHMI.

1. Introduction

1.1 Preservation of life and avoidance of unnecessary death are important objectives for health services in all countries. It matters to policy makers, clinicians, managers of hospitals, academics, and – above all – patients and their families. Unsurprisingly therefore, there has in recent years been a vigorous international debate as to whether, and if so, how, the performance of hospitals can be captured and assessed in regard to mortality rates. This is the question that this Steering Group has been asked to consider on behalf of the NHS in England.

1.2 This paper provides proposals for the National Quality Board in regard to the adoption of a single Summary Hospital-level Mortality Indicator (SHMI) for adoption across the NHS, to be used in conjunction with other relevant “companion” indicators. The SHMI is a generic mortality rate for NHS acute trusts. It is a hospital-level indicator, covering all diagnoses and specialties.

1.3 The three main objectives of this Review have been to:

- Design a single methodology that can be adopted on behalf of the NHS in England;
- Bring some clarity to the purpose and the appropriate use of the indicator, and
- Help guide perceptions about the relative primacy of mortality (or other) indicators.

1.4 These proposals have been developed under the auspices of a national steering group, established by Sir Bruce Keogh, and chaired by Ian Dalton, Chief Executive of NHS Northeast. Membership of the group reflected a wide range of the leading experts on mortality as well as representatives of key interests and stakeholders (clinical, academic and commercial and as well as different interests across the NHS). The terms of reference for the national Review are attached in Appendix 1, with details of the members of the Steering Group and its Technical and Presentation sub-groups in Appendix 2.

1.5 The Review and its outputs reflect three months of work from a number of people and organisations. While there is further work to be completed by the review, the Steering Group members commend this report to the NHS as a sound basis from which to proceed not only in regard to the collective ownership of the SHMI for the service, but also in regard to the new agenda for the development and use of indicators.

1.6 In view of the time available to the Review collaboration with stakeholders has necessarily been limited but has nonetheless been of great value in bringing together a wide range of perspectives and expertise on an issue as fundamental as death. This represents a significant amount of work devoted to a single indicator, and the outputs and the learning from this exercise are being shared with the National Quality Indicator Development Group, as the subgroup of the National Quality Board which oversees the indicator agenda. The approach that has been brought to this Review is consistent with the emerging indicator governance work being undertaken under the auspices of the National Quality Indicator Development Group.

1.7 Hospital mortality rates have been used in parts of the NHS for a number of years. There has however been no consistency in how they should – and indeed should not – be used. Recently, the way they have been used has been the subject of controversy, to the extent that doubts have been voiced about the NHS’s openness or otherwise to national and local scrutiny concerning mortality rates. This has eroded public confidence. The NHS now – rightly - operates in line with very high public expectations for openness, transparency and accountability. This means that the use of indicators comparing expected and observed trends in a range of NHS activity, and especially regarding

mortality, is a permanent and important part of the landscape. The Steering Group both recognises and welcomes this. While it is recognised that few indicators – including the indicators of mortality rates such as SHMI - are perfect and are still subject to debate and further development, in today's NHS they will continue to be used and made public. This reinforces the need for clarity of the purpose of the indicators, and their use by the NHS and by those commenting upon it.

1.8 The Steering Group believes that the monitoring of mortality is established as good practice in the context of local hospital accountability, clinical governance and reporting. Information is used at the level of diagnosis or specialty. The SHMI is a generic mortality indicator of a Trust's overall mortality. It is a ratio of observed deaths against a calculation of the number of deaths that might reasonably be deemed as 'expected' in the context of the population served and the casemix of the Trust.

1.9 There are a number of variations of such a generic indicator currently in use in the NHS which have been developed by different organisations. This has given rise to confusion about the measure itself and the relative status of the different variants used by different NHS organisations. This will be important in shaping the way the Review's recommendations are to be implemented, as one of the objectives for the Review was to seek to reduce this confusion through the adoption of a single accepted methodology across the NHS.

1.10 The work of the Review was progressed by two subgroups – one looked at the technical issues associated with the construction of the indicator. The other addressed the complex issues associated with the presentation and use of the indicator.

1.11 The groups' work has considered:

- The definition of the indicator, its purpose and audience, and any limitations for its use;
- The technical construction of the indicator – transparency of methodology
- The factors which affect the indicator's construction and outputs – risk adjustment variables, service configurations, operational behaviours, recording and coding practices, and data quality;
- The arrangements that are needed for the appropriate presentation, publication and practical dissemination of the indicator's results;
- The needs of different audiences in the relation to the interpretation, construction, use and context for its use.

1.12 The recommendations cover a range of actions associated with these issues which influence the development of the SHMI and its use in the NHS. Where appropriate, proposals are offered for longer term development and action, such as further research and the refinement of presentation methods which may support the use of indicators and information in regard to health and healthcare.

- 1.13 The methodology used by the SHMI to calculate expected deaths includes *all* patients except day cases and emergency admissions with 0 day length of stay; the observed deaths include *all* deaths, including deaths among day cases and emergency admissions with 0 day length of stay. Some methodological variants of hospital mortality rates adopt a different approach. For example, the method used by Imperial College on behalf of Dr Foster excludes a national average of 20% of deaths (which varies at Trust level from 12% to 31% of deaths).
- 1.14 The Technical Group advocates the adoption of an approach that gives a more complete picture of mortality associated with hospitalisation. There are also some differences between the SHMI and other methodological variants in the risk factors used for adjustment. Furthermore the proposed SHMI methodology advocates inclusion of deaths up to 30 days after discharge. The Technical Group advocates the adoption of this approach, because it gives a more complete picture of hospital mortality rates. This approach is consistent with the view that hospitals should be very interested in what happens to their patients in the period immediately following discharge. It acknowledges that deaths occur for a variety of reasons, and in different settings. If the SHMI is to be effective in 'shining a light' on issues that may require further investigation, it is appropriate that the light is not limited solely to deaths that occur in a hospital setting, but also includes deaths among those patients who have recently been discharged from hospital.
- 1.15 It is important that all potential users – professional and lay – understand that there is not a complete consensus on the validity or value of summary hospital mortality measures such as the SHMI. There has been much international debate, and there is no consensus amongst the experts about either the concept or the construction of such indicators. Opinions span the spectrum from those who hold that a summary mortality indicator is the sentinel indicator of quality of hospital care and can be seen routinely to be consistent with other assessments of performance or quality (such as inspections or assessments by regulators), to those who believe that a statistical average across all activity undertaken in a hospital is simply too blunt an instrument as many deaths in hospital are not preventable. There are also important debates about the appropriateness of using HES data, including its reliability and consistency, when compared with other data sources such as clinical audit. Other discussion points concern matters that go beyond the remit of this review, such as the use of any summary mortality indicator in the context of regulation and assurance.
- 1.16 Some of the more sceptical viewpoints were given prominence in the 25 April 2010 issue of the British Medical Journal¹, which has had a noticeable influence on clinical opinion. The viewpoints have provoked much debate amongst other academics and statistical experts. The articles and ensuing debate serve to illustrate the importance of clear communications and guidance about the appropriate use of the indicator, in order to ensure that it is presented and used only in rigorous and defensible ways, and its limitations clearly acknowledged. They also serve to highlight the dangers of placing undue focus on one indicator in isolation, and without adequate contextual supporting information.

¹ Hawkes, Nigel (2010) 'Patient coding and the ratings game'. British Medical Journal, 2010;340:c2153

Lilford, R & Pronovost, P (2010) 'Using hospital mortality rates to judge hospital performance: a bad idea that just won't go away' British Medical Journal 2010 340: c2016.

Black, N (2010) 'Assessing the quality of hospitals' British Medical Journal 2010 340: c2066.

1.17 Some of these viewpoints have been represented across the members of the Steering Group and its working groups. The more challenging views have been discussed in some detail, and the participants in the work of the Review collectively hold a range of views which broadly reflects the different perspectives. Ultimately the participants share the desire to have an SHMI which has been designed with a degree of rigour and openness, can be subject to a process of continuous review and improvement, is underpinned by a standards-based approach and is accompanied by guidelines which help inform appropriate use and interpretation of the indicator.

1.18 The scope of the Review was focussed specifically on the introduction of a single methodology. Inevitably, it touched a range of related issues which were beyond the scope of the Review. The Steering Group agreed that it was appropriate to capture any proposals for further development or review, where they relate specifically to the methodology or the use of the SHMI. Nonetheless, some issues remain beyond the scope of the Review. It is important to state at the outset that one such issue beyond the remit of the Review is the use of the SHMI by the regulator, in the context of regulatory activity. The Care Quality Commission has offered some commentary about its use of the SHMI and this is included for information in paragraph 6.10.

2. Strategic context

2.1 The work of this Review has been carried out during a period of strategic reflection and change. A number of factors are relevant in terms of the strategic context for this work. A White Paper is expected, which will set out the direction of travel for the Government. Early messages relevant to this Review's remit include:

- A patient-led NHS: strengthening patients' choice and management of their own care, and ensuring they have a strong voice in the NHS
- Delivering better health outcomes: shifting focus and resources towards better health outcomes, including national health outcome measures, patient-reported outcomes, and patient experience measures
- A more autonomous and accountable system: creating a long-term sustainable framework of institutions for the NHS, with greater autonomy from political interference and greater accountability to patients and the public, focused on outcomes
- Fewer high level measures but ability to drill-down in a coherent framework
- Outcomes orientated around key national themes which sit comfortably with: effectiveness, experience and safety, and also reflecting NHS 'value' / 'contribution'

2.2 Contextually, other factors relevant to this Review include:

- The National Quality Board has produced a Quality Information Strategy. That Strategy provides the opportunity to reflect on the wider issues associated with mortality indicators which are built from data gathered through processes which are essentially outdated. Some of the learning from that strategy, especially in regard to use and presentation, has been drawn into the work of this Review.
- The Department of Health is also now commencing work on an Information Strategy for Health which will be linked with the White Paper for Health. A more person-centred approach to the collection and use of data is at the heart of current thinking.

Early indications suggest that these pieces of work may give some strategic direction around the use of indicators in this way alongside more person-level information.

- Government continues to encourage the use of, and trust in, official information. The www.data.gov.uk website gives access to the raw data underlying that information. It is to be hoped that this will encourage innovation in the presentation and communication of information on health care quality. It is intended that the SHMI data will be made available through the website.
- New agencies (e.g. patientopinion.org.uk) are entering the field, collecting their own data and reporting on quality of care. It is not yet clear what, if any, influence these agencies may have in the area of indicators such as the SHMI.
- This is the first year of Quality Accounts for a set of healthcare providers in England. In addition to the mandatory inclusion of a limited set of quality indicators, providers are being encouraged to use Quality Accounts as an opportunity to be open and creative in the presentation of information about the quality of their services. This is consistent with the work of this Review, as the use of the SHMI has a key role to play in local accountability arrangements.

2.3 All health and social care organisations are reflecting on the implications of this. The Academy of Medical Royal Colleges is among them. Their views are important in the context of this Review as they reflect a strategic vision being developed amongst the clinical professions which challenges some of the orthodoxies associated with current arrangements. In particular, the Academy has expressed concern over the weakness of the current process whereby clinical data are extracted from patient records and coded. The current process usually requires data on diagnoses, co-morbidities and procedures to be extracted from unstandardised clinical entries recorded in unstructured handwritten form in paper records. They argue that coding is undertaken by (trained) coders but using statistical classifications (ICD-10 and OPCS-4) rather than a clinically rich terminology, and that central returns are made without medical review and validation. The Academy wishes to see a strategy put in place to modernise this process, based on patient-centred electronic records, in which structured, standardised data are captured by clinicians at the point of care. They believe that this presents a strategic opportunity to converge thinking and initiatives to establish a process that will yield high quality data to support not only mortality indicators, but also high quality data for national clinical audits, performance management, appraisal, revalidation, and research.

2.4 The Steering Group welcomes the opportunity to consider the use of information and indicators “in the round” taking account of the different perspectives, sources and uses of clinical and operational data at national and local level. The messages emerging around these strategies and from the Government all suggest an increased prioritisation of these issues, with proposals being considered for the inclusion in quality accounts and the potential mandating of a number of audits. These will all serve to improve the quality of data and its transparency to the public and patients.

2.5 The work of this Review has assessed the needs of different audiences and their use of information. We have been especially careful when considering the use of indicators such as the SHMI by the public. Our discussions have sought to bring clarity to the distinction between “publicly available information” (information that is placed in the public domain but has not been specifically tailored so as to be easily accessible for a patient or public audience) as opposed to “information for the public” (information that has been published with the primary purpose that it is accessed and used by NHS patients or the public).

2.6 The recommendations from this Review have been cast in the context of this changing landscape. The Review has been an invaluable opportunity to bring leading experts and stakeholders together to share their perspectives on the design and use of information in the context of quality and safety with due regard to openness and transparency.

3 The characteristics of the Summary Hospital-level Mortality Indicator

- 3.1 The routine monitoring of mortality rates is long established, understandably as death has a real and a symbolic importance for all – members of the public, clinicians, hospitals and their Boards.
- 3.2 About 460,000 people in England die each year. They die in a variety of places - in their own homes, or in care homes, hospices or hospitals. The majority of these deaths (about 60%) take place in hospital. This proportion has increased over time and according to data published by the National End-of-Life Care Intelligence Network, varies significantly across hospitals - from 44% to 78% across hospitals² reflecting differences in local circumstances such as the availability of alternatives to hospital for end of life care. Most deaths that occur in hospital (and that are therefore included in the SHMI) are neither unexpected nor a consequence of sub-optimal care but are the inevitable consequence of the patient's condition on admission or the biological progress of their disease during their stay in hospital.
- 3.3 The use of summary hospital mortality indicators has increased in recent years, reflecting the level of interest in this area. They are defined as the “ratio of the number of deaths in hospital within a given time period (observed deaths) to the number of deaths that might be expected if the hospital had the same death rates as some reference population”³. The aim of the SHMI is to assess whether the mortality rate at an individual hospital is within the expected range or not after taking into account the risk profile of patients served by that hospital. The SHMI for a hospital can be ‘below’, ‘within’, or ‘above’ the expected range.
- 3.4 The purpose of trying to establish whether a hospital's mortality rate is above its expected range is to signal when a hospital might need to investigate whether there have been deaths that could have been prevented through better care. Academic studies vary in their range of estimates of the proportion of potentially preventable deaths. The use of summary mortality indicators has been demonstrated in helping identify patterns in regard to the death rate associated with a hospital.
- 3.5 As indicated above, it is clear that current the state of medical science means that many deaths in hospital cannot be prevented through better care. It is important to note that a summary indicator such as the SHMI cannot directly distinguish between types of deaths (eg between inevitable and potentially preventable ones). While it is acknowledged that variation in quality of care is likely to have an adverse impact on the number of avoidable deaths, it cannot be assumed that a high SHMI – or of any other summary level indicator - of deaths is necessarily the result of poor quality of care. Consequently, the SHMI cannot be used on its own to extrapolate numbers of deaths which were potentially avoidable or preventable – whether at any individual hospital or across the country. The SHMI is an important tool for surveillance purposes when considered alongside other information and data which will help contextualise it for a particular hospital or community but it needs to be interpreted carefully. Caution must be exercised to avoid drawing conclusions from it that cannot be supported by its methodology. These same cautions apply to other summary level mortality indicators in current use in the NHS.
- 3.6 The Technical Group has considered a range of issues associated with the concept of a summary indicator of mortality, and the methodological approaches in use in variants currently available. The Group acknowledges the important contribution that the indicator

² http://www.endoflifecare-intelligence.org.uk/profiles/Place_of_Death/atlas.html

³ Association of Public Health Observatories briefing on monitoring hospital mortality, 2010

makes in routine surveillance and screening, in the context of local clinical governance, accountability and reporting arrangements.

3.7 A summary of the technical characteristics of the SHMI is included in Appendix 3. More detailed technical narrative and supporting information will be developed, to be made available with the indicator prior to its introduction into the NHS.

3.8 A detailed assessment of the different audiences and uses for the SHMI is included in Section 6 of this report. To inform that assessment, the Technical Group believes it is important to be clear about the key issues that affect its use. They are summarised here:

3.8.1 **Issue 1** There is no ‘gold standard’ or single indicator which can be deemed as having most power in discerning good or poor quality of care. Nor is there a “perfect” method for deriving such an indicator. A summary hospital-level mortality indicator is one of a number of indicators which can provide important information about a hospital and its quality and, in some circumstances, help shine a light on potential areas for further analysis or investigation.

3.8.2 **Issue 2** The SHMI *on its own* does not have face validity when considering it as a direct measure of quality of care. Views of individual members of the Technical Group differ about the level of confidence that can be placed on a summary level mortality indicator as an indicator of quality. All members agree that although it is not possible to say with complete confidence that a hospital with a high SHMI has worse quality of care than a hospital with a low SHMI, nonetheless the SHMI can and should be used as a trigger to ask hard questions, as described in detail in section 6 of this report. A high SHMI may reflect problems with may be a reflection of local circumstances concerning configuration and delivery of services or issues relating to data recording, coding or quality. Alternatively it may be a reflection of a real underlying problem in the quality of care that the hospital is delivering to its patients – and thus warrant further investigation as described elsewhere in this report. Notwithstanding this complexity associated with the SHMI, such difficulties of interpretation are common to most, if not all indicators of quality, including those derived from routine sources. Because of this, specific proposals for the use of the SHMI, for different audiences, are included in section 6.

3.8.3 **Issue 3** It is a complex indicator and is open to misunderstanding and misinterpretation. As with most indicators, its use for all audiences and purposes is subject to cautions and caveats. As a high level measure, it is a helpful indicator to have in the portfolio of screening and surveillance indicators and may help flag potential problems, but only if used in conjunction with and corroborated by other information. Whilst it may offer an indication that there may have been preventable deaths which would warrant investigation, a numeric extrapolation of preventable deaths in any individual hospital should always be avoided, as it is not a valid application of the method.

3.8.4 **Issue 4** Deaths following admission to hospital may fall into a number of distinct categories. They may be: inevitable due to the seriousness of the patient's condition at the time of admission; expected – for example if the patient is in hospital for end of life care; potentially avoidable and a result of poor quality of care in that institution; or not potentially preventable by the hospital and a result of aspects beyond the control of a hospital (for example if a patient dies in A & E before admission). Not all of these factors would be recorded in HES. It must be noted that summary measures of mortality such as the SHMI cannot not distinguish between these categories of death.

3.8.5 **Issue 5** Attributing deaths to specific Trusts is complex. As noted in paragraph 3.1, the Technical Group has agreed in principle that the new SHMI should be interpreted

in the context of deaths in all settings after an admission to hospital, and should include some deaths occurring in a defined period after discharge from hospital in the measure itself. However, there are possible bias effects which may affect the SHMI. This may make interpretation difficult, and so requires some further examination through the statistical modelling.

- 3.8.6 **Issue 6** Data quality and coding issues have a major impact on the SHMI as a measure of both comparative performance across organisations and trends over time. The accuracy and completeness of coded clinical data about diagnoses and comorbidities will affect the validity of the SHMI of any individual hospital. The Steering Group therefore believes that the SHMI therefore requires additional supporting information about or indicators on data quality and coding. Some of the methodological arguments (e.g. over adjustment for palliative care, depth of coding of comorbidities, and interpretation of the clinical heading of ‘impression’ applied by clinicians to diagnoses in source notes) could be resolved by simpler and more robust guidance on specific aspects of clinical coding which will help Trusts in their responsibilities associated with data quality, recording and coding practices. It is proposed that the handling of coding guidelines in future includes in the development phase an impact assessment of the changes that are being proposed, in order that the implications for the service and information systems can be assessed. Improving the level of and reducing variation in depth of coding and coding quality across the NHS will, of course, remain a long term challenge that goes beyond the remit of this Review, but which has a direct relevance to the outputs of this Review.

4. Technical issues associated with the adoption of a unified methodology for the SHMI

4.1 The Technical Group comprised a number of technical experts in the construction and use of indicators, from a range of different organisations. It has:

- ✓ Undertaken an extensive review of the literature currently available on those aspects of this indicator being considered by the Review;
- ✓ Used a formal option appraisal approach to compare the methodologies used by seven existing variants of a mortality indicator, to identify those components which would potentially work best for a single nationally-adopted SHMI;
- ✓ Assessed the way the existing mortality indicators are constructed, and the implications of different methodological approaches. The ability to deconstruct the SHMI is important for the dual purposes of transparency and continuous assurance and review. The factors considered include:
 - The way the indicator is constructed – the data content, its source, data extraction and cleansing processes;
 - Risk variables included in the statistical model;
 - Statistical methods used in production of the indicator;
 - Period and timeliness of analysis.
- ✓ Considered how coding and recording practices may affect the indicator, and offered recommendations for improvements;
- ✓ Considered the potential uses and limitations of the SHMI and identified those technical issues which are pertinent to the use and interpretation of the SHMI, to inform the deliberations of the Presentation Group;
- ✓ Identified a number of areas which would benefit from longer term research and development.

4.2 The Group adopted some guiding principles in their discussions about methodology, which are consistent with the indicator framework being discussed at the National Quality Indicator Development Group, namely:

- Clarity of construction, to enable a potential user or audience to understand the indicator, to the extent that a user could replicate the construction;
- Clarity of definition – its purpose, type of measure, scope, validity;
- A sufficient degree of confidence in its construction and calculation, for example in regard to any perverse incentives, or coding or data quality issues which may undermine it;
- Transparency of process for constructing and publishing the indicator.

4.3 Also underpinning these proposals is the expectation that the SHMI should be subject to ongoing review and assurance.

4.4 Following the option appraisal exercise, the Technical Group agreed on the key issues which need to be addressed and produced the desirable characteristics of the methodology required to address these. A summary of the resulting methodology, including the selection of risk adjustment variables that can be adopted in a single SHMI for use across the NHS, is provided in Appendix 3. These are currently provisional, as more work is needed by the Technical Group and from the statistical modelling exercise to finalise some aspects of the methodology. The Steering Group has agreed that this modelling is essential to deliver a fully tested, robust and transparent indicator which is open to scrutiny and review.

4.5 Taking account of the variability in the place of death, and in order to ensure that there is a complete count of all deaths following admission, the Technical Group recommends that it is necessary to include deaths that occur from admission and up to 30 days after discharge from hospital in the indicator. The Technical Group advocates the adoption of this approach, because it gives a more complete picture of mortality for a locality. This approach acknowledges that deaths occur for a variety of reasons, and in different settings. If the SHMI is to be effective in 'shining a light' on issues that may require further investigation, it is appropriate that the light is not limited solely to deaths that occur in the hospital setting.

4.6 This involves the linking of HES and ONS data (which has previously been used in the derivation of the post-operative mortality indicator used by the former Healthcare Commission). This service is already available⁴. The Technical Group has assessed the feasibility of this in terms of timeliness of the SHMI data, and details are included in Appendix 4. There are some issues which need further development prior to the roll out of the SHMI across the NHS. These are:

- The practicalities for testing the use of linked data, which will now be done as part of the planned modeling work, and will include an assessment of the relevant aspects of quality and coding and completeness of linkage (including quality and coding issues in HES which ONS can help rectify - such as death not coded or wrong date of death);
- The implications for the frequency of publication;
- The need for Trusts (and other users) to familiarise themselves with this new calculation;

⁴ <http://www.hesonline.nh.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=1299>

- Arrangements for giving Trusts access to the ONS data on deaths post-discharge, to ensure transparency in regard to the methodology used;
- The need to understand the way Trusts would be expected to track the SHMI result against local data in regard to numbers of deaths included in the calculation.

4.7 The Group recognised there is a trade-off between increasing the number of risk adjustment variables to get better predictive power, and introducing additional variables that may magnify data quality problems, and so potentially undermine the confidence in the indicator's predictive power. We have therefore included risk adjustment variables where:

- The variable has a plausible impact on mortality;
- It is reasonable to assume that the factor is not in the control of the hospital;
- The data is readily available from HES/SUS/ONS;
- Where there are no known coding or recording practices that might undermine the interpretation of the indicator beyond those that can be remedied by the trusts following clear and consistent guidelines;
- Its inclusion does not result in overadjustment where the inclusion of one variable serves to confound when used alongside other variables.

4.8 The Technical Group have produced a high-level description of the method for consideration by the National Quality Board, and are continuing to work on the detailed specification, including resolving some detail around the specification of the risk adjustment variables. The Technical Group are clear that their proposals should be seen as provisional until they are subjected to empirical testing. The modelling itself will not clarify issues relating to the specificity and sensitivity of the indicator. It is intended that the modelling work should take no more than 2-3 months prior to the formal introduction of the SHMI. Outline details are included in Appendix 5.

4.9 The SHMI would benefit from being accompanied by two other types of information and indicators:

- Firstly, other indicators relevant to mortality, including some facility to 'drill down' into the indicators. The Technical Group has drawn up a preliminary list of such indicators, which might be made available nationally alongside the SHMI. These early proposals are include in Appendix 6. As noted in the Appendix, more work is required with these proposals to determine the most appropriate way of surfacing them for potential users of the SHMI.
- The second category of relevant information is best described as more locally-focussed information. This would be determined locally, and might include indicators calculated from local data sources, aimed at reflecting or tracking progress on a particular initiative such as a local care pathway or clinical audit project, local contextual information from patient surveys or other sources. Publication of such information would be subject to local determination.

4.10 The SHMI will be subject to an annual assurance review, to be carried out by the NHS Information Centre for Health and Social Care on behalf of the National Quality Indicator Development Group, which will act as the collective owner or sponsor of the SHMI.

4.11 As noted in paragraph 1.14 above, it was agreed that during the work of the Review, we would capture any proposals for further development or research associated with the SHMI. The proposals identified to date are included in Appendix 7. It is expected that the statistical modelling will raise further proposals for development, and these will be added to the list of proposals, consideration of which will be included in the annual assurance review.

5. Recording, coding and data quality issues

5.1 Any indicator based upon administrative data (such as the SHMI) will inevitably be affected by the nature and quality of the coding of clinical data within source administrative systems. The Technical Group welcomes the opportunity to understand and address the issues relating to recording and coding of data, specifically in regard to the SHMI.

5.2 The Steering Group believes the contribution of clinical coding expertise to the Review has been a strength and has opened up a dialogue involving coding specialists, clinicians and technical experts which is entirely to the benefit of the indicator and data quality agenda, and which should be built on.

5.3 The Technical Group has considered a number of issues relating to the recording, coding and quality of data. Only one of those issues is considered in detail in this report, namely palliative care coding, as that raises the most urgent set of issues requiring action. It is proposed that the National Quality Indicator Development Group consider a wider review of coding issues, which will include depth of coding and other issues such as the coding of maternity, births and stillbirths, coding of 'present on admission' diagnoses, and the use of the clinical qualifier 'impression' when coding diagnoses.

5.4 The Steering Group therefore advocates that the work of the National Quality Indicator Development Group would benefit from closer engagement on these issues, across the overall indicator agenda. It is suggested that the National Quality Indicator Development Group consider sponsoring more scoping work in relation to coding and recording, and data quality, initially to identify any other variances in coding practice which impact on the SHMI and so require guidance.

5.5 The dialogue with clinicians about coding and definitions is important, as often components of coding guidelines are not owned or recognised by clinicians. It is proposed therefore that the SHMI annual assurance review should also include a review of guidance to clinicians, such as the *Hospital Activity Data: A Guide for Clinicians*⁵ developed by the Royal College of Physicians.

5.6 It is proposed that the National Clinical Classifications Service be requested to conduct an immediate review of coding issues that relate to the SHMI and provide recommendations to the National Quality Indicator Development Group for those changes to guidance and definitions which relate to these priority areas including palliative care, which should be implemented by April 2011. There will be other changes which will require more time to develop, and which may need to involve the Information Standards Board for Health and Social Care. For any coding change to be implemented, there is a need to address:

⁵ <http://www.rcplondon.ac.uk/clinical-standards/hiu/Pages/Hospital-data.aspx>

- The need for appropriate and robust engagement with clinicians about the right definitions to adopt;
- The need for guidance for clinical coders;
- The implications for the service arising from the guidance and definition.

5.7 It is proposed also that the requirements for coding guidelines relating to the SHMI should be reviewed annually, as part of the annual assurance review proposed in paragraph 4.10.

5.8 The National Quality Indicator Development Group should consider asking the national Data Quality Board to take an active role on the SHMI and HES data more generally.

5.9 Palliative care

5.9.1 Coding of and risk adjustment for patients receiving palliative care has been a particular source of contention around current summary mortality indicators. It would be helpful for guidance to recognise that palliative care and end of life care are not the same thing. But there is a level of clinical ambiguity associated with this, to the extent that it is not always easy for a clinical perspective to separate them. This has implications for the definitions which are to be developed.

5.9.2 As noted in paragraph 3.3.5, some deaths after admission to hospital will be expected if the patient is in hospital for end-of-life care. Variation between hospitals in proportions of such patients can be taken into account either by removing such patients from the calculations or by adjusting the indicator. Palliative care coding may be used for this purpose.

5.9.3 Coding practices associated with the delivery of palliative care have a material impact on the SHMI. It is clear that coding practices have developed locally which have resulted in considerable variation in coding practice, the cumulative impact of which cannot be gauged but which may well be significant. In recent years there has been strong representation for adjustment for palliative care. The view of the Technical Group is now that there is a need to address the coding variation in order to bring back a 'level playing field' between hospitals in regard to palliative care.

5.9.4 Proposals for addressing the palliative care coding issues are included in Appendix 8. Pending resolution of that work it is proposed that no adjustment is made on the SHMI for palliative care. This should be seen as a temporary expedient in order to remove the current disparity in terms of coding practice, as this has led to variation which is not appropriate. Once guidance is available and in use, proposals for adjustment to the SHMI can then be agreed.

5.9.5 It is acknowledged that there will be an adverse impact on the SHMI for a number of hospitals during the period that no adjustment is made. Guidance and supporting commentary should be made available with the SHMI to help explain the reason for this temporary arrangement. Proposals for handling this will be developed during July 2010.

5.9.6 The Steering Group considered the potential benefits of approaching the Department of Health and the Audit Commission to include assessment of the use of palliative care coding in 2011, as part of the Payment by Results quality audits. Whilst this would be consistent with the Payment by Results shift of focus around quality, the general view is that some caution is needed to ensure that such a move is fully aligned with the strategic direction of travel, and that any such engagement with hospitals was appropriate and informed. It is therefore suggested that the National

Quality Indicator Development Group consider this proposal before any final decision is taken.

6. Assessment of audiences and uses

6.1 Much of the debate and discussion around summary mortality indicators has focussed at a high level on the generic concept and variations in the method of construction of the indicator. Relatively little attention has been paid to the potential use of the indicator by different audiences. As a result, engagement work with the public, with clinicians and with the media has not been consistent. Recently, as interest in quality, safety and transparency has grown, there have been references to mortality indicators in which have not always been appropriate given the statistical methodologies on which they have been based. This has on occasion allowed overly simplistic conclusions or misleading impressions to be drawn and to enter public debate. This Review offered a valuable opportunity to address this. We have therefore considered the potential use of the SHMI for different audience groups and our guidelines are presented in this section.

6.2 This assessment should be taken in its entirety as the guidance which will be made available must seek to ensure that all the widely different stakeholder groups that have an interest in the quality of care in hospitals understand the broader picture. It is expected that all parts of the NHS 'system' should have fidelity to these proposals going forward.

6.3 It is helpful also for this section to be read in conjunction with section 7 on presentation, and with the guidance that is to be prepared by the Technical Group on control limits, outliers and interpretation alongside companion indicators.

6.4 Public/Patient

6.4.1 The term "public" is used to mean a citizen who may or may not be using the NHS. The term "patient" is used to refer to someone receiving NHS care. There are also groupings of interest which are relevant to the public/patient use of a summary-level indicator, for example, Patient Advice and Liaison Services (PALS) and Local Involvement Networks (LiNKs).

6.4.2 The SHMI is relevant to the patients and the public in regard to:

- Local accountability – the way a hospital uses the SHMI (and other indicators) can be taken as an indication of its arrangements for surveillance. Its ability to respond to and account for any identified deficiencies by instigating further investigation by use of other indicators, surveillance information etc to ascertain the root cause of any problem and so instigate remedial action, is evidence that a hospital is using information to understand its performance and deliver improvements;
- With other indicators or reports, as a means of assessing the effectiveness of arrangements within a hospital in regard to quality of care, surveillance and remedial actions, for instance in the context of clinical governance arrangements.

6.4.3 Presentations of the SHMI for the public should avoid:

- Portraying the SHMI as an isolated summary indication of quality of care for an organisation;

- Using SHMI scores to derive information about or compare performance across different hospitals (such as in league tables) in the absence of a consideration of other comparative measures of quality;
- Assessing the quality of care at specialty, team or procedure level;
- Giving misleading information about the quality of the source data. The use of clear caveats as advocated by the Technical Group, should explicitly identify problems with data quality

6.4.4 The use of the SHMI for the purpose of informing patient choice warrants a separate comment, as there are mixed views across the Technical and Presentation Groups as to the appropriateness of the SHMI for this purpose. The discussions have touched on a number of issues. A major consideration concerns the extent to which the SHMI as a summary, hospital-level indicator masks specialty or procedure-specific patterns, notably in regard to the kind of elective activity which is in fact subject to choice within the NHS. The fact that an SHMI should not be used in isolation means that it is important that the public has access to additional information to support their decisions. The fact that people make decisions based on a range of factors (subjective, qualitative, quantitative, formal and informal) is a cause for concern for some members of the Technical Group, in that there is an unquantifiable danger that people may make inappropriate decisions based on an SHMI. Issues outlined above, such as the complexity of interpreting the SHMI, coding, data quality issues and variations in the proportions of people dying in hospital, are also a source of concern. Members of the Group believe that in the modern NHS, transparency is a given and therefore people should have access to as full a range of information about the performance of NHS hospitals as possible – this would necessarily include the SHMI. Some members of the group go further and believe that the SHMI is one of a number of potentially useful indicators which should be available to the public to help them choose their care provider.

6.4.5 The Review recognises that a number of hospital-level summary mortality indicators are already available and will be used in the context of choice by some patients. So, although there are different views within the Steering Group as to the appropriateness or otherwise of using the SHMI in connection with patient choice, there is agreement about the need to include some proposals and caveats to help avoid misunderstanding of the SHMI in this regard. Where appropriate, proposals are included where presentation techniques might mitigate any potential risks of inappropriate use (see section 7 below).

6.4.6 Presentations of the SHMI and guidance to the public about its use should advise that any decisions about potential treatments or providers may benefit from being made in consultation with a GP or other healthcare professional. This highlights the need for guidance and training to be made available to healthcare professionals so that they can help a patient interpret the SHMI with other information, and so make rounded decisions about their care.

6.4.7 Ultimately, it is necessary to have a better understanding of how patients and the public make decisions. There is much research and literature already available to inform this. The next stage of the work on the SHMI should therefore consider:

- The messages and learning from the literature;
- The availability of data to use in this way;

- Statistical issues associated with the use of multiple indicators in this way, including the uncertainty relating to the small numbers for some of the drill down indicators;
- The provision of advice and guidance to support the presentation of this kind of information for public use.

6.4.8 It is recommended that the SHMI be made available to the public through the NHS Choices website, as this is the web resource for health-related information aimed at the public. It is suggested that NHS Choices may wish to review the way that the SHMI is made available to the public through the NHS Choices website to take account of the guidance offered through this Review in this section and in sections 7 and 8 (on presentation and publication).

6.5 NHS Hospital Boards and Chief Executives

- 6.5.1 The Steering Group was clear that the recommendations from this Review should be explicit about expectations in regard to hospital Board and Chief Executives' use of the SHMI.
- 6.5.2 The SHMI is a spur for investigation and the visibility of that investigation is important. The Steering Group recommends that all NHS hospitals monitor their mortality rates actively and seek to understand where performance may be falling short. It is not acceptable for a hospital Chief Executive and Board not to be interested in the SHMI. Clinical leaders and Board members must be satisfied that the issues identified through the use of the SHMI have been diagnosed, understood and dealt with appropriately and effectively.
- 6.5.3 The SHMI is intended to complement not replace local mortality monitoring.
- 6.5.4 An indicator can either be clear to the extent that you can act or make a decision on the basis of it, or it can be sufficiently clear as to cause some investigative action to take place – the SHMI is in the latter category. A poor SHMI would be a prima facie case for an investigation by the hospital Board. This should be conducted in order to understand the underlying local context, drivers and factors affecting the hospital's SHMI score. A balanced, neutral approach is appropriate, as the findings will determine what action, if any, is required.
- 6.5.5 Taking no investigative action is inappropriate and would be a signal of poor Board governance. Visibility and transparency of the investigation is essential too, to avoid a focus solely on the SHMI as a measure, or prejudging the findings of the investigation.
- 6.5.6 Boards and Chief Executives should use the SHMI routinely as:
- Context information for understanding the quality of care provided by the trust when looked at as part of a basket of more detailed indicators;
 - A potential highlighter of underlying problems which require further investigation.
- 6.5.7 The way a hospital board uses this and other indicators can be interpreted as evidence of the hospital's approach to local accountability and openness, and how they implement their responsibilities in understanding and improving the quality of care that their institution provides to its patients.

6.5.8 It is less useful for:

- Any investigation at specialty level to identify areas worthy of further investigation for which, if found to be deficient, quality improvement activities could be instigated. Other indicators (including diagnosis or specialty-level summary mortality indicators) and local sources of information will be important alongside the SHMI as they allow further drill-down of data and so help in the interpretation and analysis to the relevant level of detail.
- Any analysis of team and/or individual activity/performance.
- A target for commissioning purposes, along the lines outlined in section 7.5.

6.6 Medical Directors

6.6.1 The SHMI should be used by Medical Directors as:

- A potential highlighter of underlying problems which require further investigation, and of use in providing context for investigating possible poor quality care, when looked at as part of a basket of more detailed indicators.

6.6.2 The SHMI is not sufficiently sensitive a measure to allow judgement to be exercised in the following situations:

- Assessments such as individual consultant appraisals;
- Any investigation at specialty, team and/or individual level to identify areas worthy of further investigation for which, if found to be deficient, quality improvement activities could be instigated. Other local sources of information will be more useful, as they allow drill-down to the relevant level of detail.

6.7 Healthcare professionals

6.7.1 It is recommended that front line clinicians should be aware of and understand the SHMI for their Trust, as part of the clinical governance arrangements.

6.7.2 The SHMI is likely to be of limited use to front line clinicians in considering their own service or practice because the measure relates to the whole organisation, and as such does not provide information that goes to the level of speciality, team or individual clinician. Clinicians will use local clinical systems to record information, separate tools for clinical audit purposes and local management information systems. These other systems and tools are more likely to be used to drill-down to the relevant level of detail.

6.7.3 The SHMI is not sufficiently sensitive a measure to allow judgement to be exercised in the following situations:

- Assessments such as individual consultant appraisals
- Any investigation at specialty, team and/or individual level to identify areas worthy of further investigation for which, if found to be deficient, quality improvement activities could be instigated. Other local sources of information will be more useful, as they allow drill-down to the relevant level of detail.

6.7.4 There is a need to consider the need for additional guidance information, and any concomitant training needs for those healthcare professionals, such as GPs, who may routinely be approached by members of the public for advice concerning choice of hospital and which may require them to interpret the SHMI and other indicators.

6.8 Strategic Health Authorities

6.8.1 We expect that SHAs and their Quality Observatories will use the SHMI information for the local NHS organisations in their region on a time series basis, and discern trends over time to ask questions as to whether there are underlying issues that warrant further investigation.

6.8.2 The SHMI should not be used by SHAs:

- As an isolated summary indication of quality of care for an organisation;
- To derive information about or compare performance across different Trusts (such as in league tables) in the absence of a consideration of other comparative measures of quality;
- To assess the quality of care at specialty, team or procedure level;
- To compare surveillance arrangements across providers.

6.9 Commissioners

6.9.1 We expect that commissioners will use the SHMI to:

- Highlight underlying problems which require further investigation, when looked at as part of a basket of more detailed indicators;
- Signal potential trends over time within a hospital which may require investigation;
- Provide contextual information in support of the commissioning process, for example to support quality improvements in the delivery of care, or clinical coding, and data quality;
- Inform dialogue with hospitals about their corporate approach to quality and clinical governance;
- Provide context information for understanding the quality of care provided by the hospital when looked at as part of a basket of more detailed indicators, to help provide broad understanding of whether contracted obligations are being met.

6.9.2 It is not recommended for use in isolation as:

- A commissioning target for hospitals, especially where the target may cover specific services or organisation-wide performance, and including its use in Commissioning for Quality and Innovation (CQUIN) schemes (except where purely contextual);
- An indicator or proxy for information about performance across different hospitals.

6.10 The regulator

6.10.1 The Care Quality Commission has commented on its use of a single mortality indicator as part of a wider assessment process:

“They are not used for judging quality of care but to direct where we need to dig deeper: for example, by carrying out further analysis, requesting further information from an organisation or conducting an inspection. Further assessments would not just concentrate on mortality data but a range of other information such as surveys of patients and staff, infection rates and readmission rates.

The CQC approach is designed to initiate questions as a stand-alone measure of mortality may lack the detail of some of the other methods available. The ability to focus on different subsets of the data and other non-mortality information is crucial for the regulator since an overall standardised mortality ratio lacks focus and does not help us formulate the enquiries we need to make.”

6.11 Other considerations

6.11.1 Recent work sponsored by the Department of Health on the Quality Information Strategy confirms this long term commitment to the use of information to support quality improvement. The Quality Information Strategy recognises that the use and presentation of information about quality is complex. The blurring of the use of information for different purposes makes this piece of work on a national SHMI especially sensitive. The approach adopted by this Review of the SHMI is being conducted in the context of that Quality Information Strategy, and the learning from this work will in turn inform the implementation of that strategy, when it is adopted.

6.11.2 There will remain a risk that the public or commentators may continue to use the SHMI to draw invalid conclusions about the relative performance of hospitals. This will require careful presentation and potentially in-depth engagement with key interests and commercial information providers. We should recognise that achieving and maintaining full buy-in across all possible sources may be challenging.

7 Presentation and use of the SHMI

7.1 In considering the different audiences and their uses of the SHMI, the Presentation Group took account of advice from a range of sources including members of the Technical and the Presentation Groups, which introduced perspectives from, among others, NHS Choices, Dr Foster, CHKS, SHAs, NHS hospitals and the NHS IC. Other input has come from NICE and The Kings Fund.

7.2 Summary and specialty or procedure-specific mortality indicators are used routinely by different organisations, for different purposes. The presentation and interpretation of the SHMI needs to consider a range of potential scenarios as it is possible that good outcomes in some clinical areas can mask poor outcomes in others, and vice versa.

7.3 Local circumstances and data quality and coding issues have a major impact on the SHMI as a measure of comparative performance across organisations and trends over time. Whilst its use in the context of surveillance is entirely reasonable, it should be seen as a catalyst for investigation, as described in paragraphs 6.5.1 to 6.5.4.

7.4 Care should be used when publishing any interpretations of the SHMI. Public messages should explain the use of the SHMI in the context of local monitoring and more detailed investigation. Detaching mortality indicator scores from the underlying local context and analysis can be misleading. There is evidence from hospitals that ‘false alarms’ have had significant impact on perceptions of the organisations and the safety of care that they offer to their patients which then require sustained effort in handling responses.

7.5 The Technical Group has discussed the risk of unnecessary damage to a hospital’s reputation, staff morale and patient confidence. Guidance therefore intends to address the issue of how to identify ‘outliers’ and thresholds and to offer advice on interpretation.

7.6 The Kings Fund’s recent research aimed at understanding how the public use information to inform their decision making offers some valuable messages which are relevant to this Review. They note that choice clearly involves difficult trade offs, and often geographic location and convenience (rather than an assessment of “what is the best provider”) is considered to be the benchmark from which comparisons are made.

7.7 Headlines from this research were shared with the Presentation Group and include:

- One of the key messages concerns the format of presentation. Numeric presentation is often problematic, either because it makes assumptions about the numeracy of the audience, or because it is not always easy to assimilate and interpret (eg use of raw scores, percentages and ratios, etc; indicators use different scales; a ‘high’ score is not always a ‘good’ score);
- Although made specifically in the context of presentation to the public, it is relevant for all audience groups that only around 25% of the population have numeracy skills that are equivalent to the level of a good GCSE pass. The Kings Fund research therefore proposes making more use of symbols and evaluative labels;
- Initial understanding leaves a lasting impression – so the ordering of indicators is important;
- Less can mean more. Too much information runs the risk of overwhelming, confusing, or invoking the “paradox of choice” whereby too many choices makes it difficult to exercise genuine choice. The availability of drill down information was not considered helpful;
- People may be more likely to use an indicator looking at a particular treatment or specialty, or consultant, rather than a single hospital-wide indicator – but that itself can raise problems for the user as the relative quality or integrity of any such indicator is not always clear.

7.8 In addition, some key principles are outlined below, based on the discussions at the Presentation Group:

- Be clear about the target audiences – “who is it for”, “what is it measuring?” “What is a ‘good’ SHMI?”
- Be open and honest about its use and its limitations. Clarity and consensus as to the purpose of the SHMI will help improve its credibility and help restore trust in the use of information generally;
- Adopt good practice in regard to the use of standard conventions for presentation (eg clear labelling, use of timelines for trends, error bars);

- Make clear any caveats and/or health warnings about data quality, particularly where they might concern the completeness and accuracy of coding diagnoses, co-morbidities and palliative care;
- Consider the need for additional supporting information and narrative to support the SHMI and its use. We have already agreed that, in the context of SHMI this will include technical documents in order that its construction can be understood unambiguously, as well as a “layperson’s guide” to summary hospital-level mortality indicators, with clear recommendations about good practice. It might also include a “good practice” paper for hospital Boards and case studies illustrating use. Any guidance we issue needs to understand the way the SHMI is used alongside other information and tools. The SHMI will not, on its own, provide an answer;
- The annual review and assurance process should include a review of the guidance and supporting documentation.

7.9 NHS Choices is reviewing the learning from The Kings Fund research and the Quality Information Strategy to consider ways of improving the presentation to the public, and any plans will be factored into the SHMI publication.

7.10 Similarly, NHS hospitals and Strategic Health Authorities are reviewing their publication and communications processes. Some examples of reporting arrangements have been offered up to the Review as an example of good developmental thinking. This learning can be made more widely available to support other national and local developmental thinking, and it is proposed that the National Quality Indicator Development Group invite submissions of good practice, for wider dissemination.

8 Publication of the SHMI

8.1 It is recommended that the SHMI be published simultaneously by the NHS Information Centre through its website and by NHS Choices. This will allow for the publication of supporting documentation tailored for the relevant audiences.

8.2 A protocol for the publication of the SHMI will be agreed through the National Quality Indicator Development Group. NHS Choices already has a facility in use which allows for advance publication to NHS hospitals of ‘their’ indicators and this will be included in the protocol.

8.3 At this stage, pending the technical guidance to be produced by Technical Group on the use of the methodology to be adopted for the SHMI, it is not possible to finalise proposals for publication. Specifically, there is a need for the Technical Group to consider in the production of its technical guidance:

- Frequency of publication;
- Appropriate format(s) for presenting the indicators;
- Channel(s) of publication;
- A process for determining thresholds and trigger points for determining

8.4 Supporting documentation should be made available which:

- Explains the technical methodology used in the construction of the indicator in sufficient detail as to enable it to be reconstructed for example by any organisation with appropriate statistical expertise and access to the data;
- Provides clarifications, definitions and guidance which is pertinent to the SHMI – for example in regard to coding practice;
- Explains the impact of any data quality caveats which are relevant to the interpretation of the SHMI;
- Provides supplementary indicators and tables, based on the proposals included in Appendix 6;
- Where appropriate, guidance documents are tailored to specific audiences and uses;
- Explains the SHMI in plain English – what it is, what it measures;
- Offers guidance to the public for understanding the SHMI and using it locally.

8.5 The Steering Group has considered the potential benefits of including the SHMI routinely in future versions of the Quality Accounts. The benefits of this might include more ownership and engagement at local level, and encourage Trusts to adopt as routine practice the publishing of additional information and analysis which explains the SHMI score for local audiences. On the other hand, other indicators may be regarded as similarly high priority and it may not be appropriate to suggest mandation of one indicator over others. In recognition of the fact that there is still much ongoing discussion around the focus on quality and outcomes, it is proposed that the National Quality Indicator Development Group is asked to review this at the appropriate time in advance of future years' guidance on Quality Accounts.

8.6 Plans to increase the dissemination of information through www.data.gov.uk may affect future plans for publication of the SHMI, and therefore should be monitored by the National Quality Indicator Development Group to identify what may need to be done through this channel to support wider government transparency. Subject to any information governance considerations, the healthcare data which are used in the calculation of the SHMI will be made available through the MPDP initiative.

9. Stakeholder engagement and communications

9.1 The time allowed for the National Review precluded any extensive stakeholder engagement with the audience groups, beyond that carried out through the work of the working groups. Attention has focussed on the scoping and shaping of future engagement activities.

9.2 The work undertaken to produce these recommendations has included some limited consultation and engagement. The introduction of a new indicator such as the SHMI will require extensive consultation in regard to:

- The methodology used in the indicator, to ensure that NHS organisations are familiar with the construction;

- Proposals for handling the publication, in order that hospitals understand the arrangements for the advance notifications, so that they can identify any actions and agree any local communications or engagement plans;
- The ongoing assurance review process, so that there is wide understanding as to how to influence the ongoing development and use of the SHMI.

9.3 It is proposed that the National Quality Indicator Development Group should undertake some discussion on these matters with NHS organisations (SHAs, Quality Observatories, NHS hospitals, professional bodies) in regard to technical and assurance issues associated with the use and ongoing review of the SHMI.

9.4 Similarly, some early engagement with patient groups would be very beneficial in order to provide an early opportunity to gauge the expectations of these groups. Plans are already in train for opening up this dialogue, and early indications suggest this is welcomed by patient groups.

9.5 The Department of Health Communications Team has offered a high level plan for communications to NHS organisations, based on a three-phased approach:

Phase one – communicate the new NHS SHMI methodology, at the same time signalling intent to explore the best approach to its ongoing presentation and use and ongoing development

Phase two – scope the most appropriate approach to public presentation.

Phase three – begin routine, ongoing presentation of the data, with supporting communications informed by the publications protocol

9.6 This approach allows for some early and ongoing stakeholder management and engagement, and provides flexibility for the work to dovetail or be seen within the context of the wider proposals around measuring outcomes that are yet to be shared in the forthcoming White Paper.

9.7 It is proposed that the stakeholder engagement model adopted by NICE might be adapted for use with the SHMI specifically, and other quality indicators generally. This approach uses focus groups to develop and refine guidelines and definitions, and test out communications. It uses publicly recognised approaches, such as Plain English, and the Information Standard, to embed good practice in the communications with the public.

9.8 The plan will need to manage expectations in regard to the variants of the SHMI which will continue to be used by commercial organisations after the SHMI has been adopted, as it is unclear whether commercial providers will cease to produce their own variants of a hospital-level mortality indicator.

9.9 The work of the Review, and especially the assessment of audiences and uses in section 6, will help to advise the media as to what the SHMI can and cannot do. This will be addressed in more detail in the DH communications plan, and it is noted that there has been some consideration of the needs of the media in the context of the Quality Information Strategy.

10 Recommendations

10.1 The Steering Group's recommendations are offered to the National Quality Board as a package of recommendations, which, taken collectively, provide a comprehensive and

coherent framework for the introduction and handling of the SHMI. These recommendations:

- Are founded on the need for standards-based information and indicators, and an annual assurance review process which will be the platform for continuous improvement of the SHMI;
- Are in line with the current thinking around the National Quality Indicator Development Group's work on indicator assurance;
- Fit for alignment with the policy agenda to be addressed in the White Paper and the Information Strategy.

10.2 There remain some substantial pieces of work to be done, including:

- Completion of the detail underpinning the methodology;
- The statistical modelling exercise;
- Technical commentary and guidance;
- More extensive discussion with stakeholders, including a shadow run of the indicator with NHS hospitals to test out results and identify any discrepancies or concerns not previously addressed.

10.3 It is therefore not yet possible to state exactly when the SHMI should be formally introduced, but it is intended that this will be no later than April 2011.

10.4 Implementation of the SHMI

10.4.1 The National Quality Indicator Development Group should act as owner/sponsor of the indicator on behalf of the Department of Health, with responsibility for ongoing maintenance, review and publication delegated to the NHS Information Centre for Health and Social Care.

10.4.2 The Technical Group should conclude its work on the methodology and proposals for frequency of publication, appropriate format(s) for presenting the indicators, and the process for determining thresholds and trigger points for determining outliers.

10.4.3 Prior to the introduction of the SHMI, the Department of Health should commission the statistical modelling (as outlined in Appendix 4), which should be carried out during Summer 2010.

10.4.4 To ensure that the SHMI is not used in isolation, the introduction of the SHMI should include the use of 'companion' indicators and other supporting information, to aid appropriate interpretation. Further work should be done during Summer 2010 to finalise the proposals included in Appendix 6.

10.4.5 Before the formal launch of the SHMI, Trusts will need some time to familiarise themselves with the model and the SHMI outputs. It is proposed that at least one month's 'shadow run' of the SHMI should be undertaken to allow for a full test of processes and outputs.

10.5 Coding and data quality issues

10.5.1 The National Clinical Classifications Service should be requested to conduct an immediate review of coding issues that relate to the SHMI. This should start with the issues outlined in section 5 and provide recommendations to the National Quality Indicator Development Group for changes to guidance and definitions, which should be implemented by April 2011.

10.5.2 A protocol is agreed for handling any changes required to coding and classification, aimed at addressing

- The need for appropriate and robust engagement with clinicians about the right definitions to adopt;
- The need for guidance for clinical coders;
- The implications for the service arising from the guidance and definition.

10.5.3 The Department of Health should consider formal endorsement of the vision for structured, standardised, patient centred records from the Academy of Medical Royal Colleges in order to set the strategic direction for modernisation of the processes of clinical record keeping, coding and central return.

10.6 Stakeholder engagement and communications

10.6.1 This report should be shared as soon as possible with Strategic Health Authorities, Quality Observatories, Primary Care Trusts and hospitals.

10.6.2 The Department of Health Communications Team should draw up a comprehensive communications and engagement plan, based on the broad objectives included in section 9 of this report.

10.6.3 Some additional consultation is necessary with all key stakeholders, to ensure that they are fully apprised of the plans for implementing the SHMI, and the model to be adopted.

10.7 Publication of the SHMI

10.7.1 The SHMI should be published simultaneously by the NHS Information Centre through its website and by NHS Choices. This will allow for the publication of supporting documentation tailored for the relevant audiences.

10.7.2 A protocol for the publication of the SHMI should be agreed through the National Quality Indicator Development Group.

10.7.3 NHS Choices should consider reviewing the way that the SHMI is made available to the public through NHS Choices, to take account of the guidance offered through this Review.

10.8 Continuous review and ongoing development

10.8.1 The SHMI will be subject to an annual assurance review, to be carried out by the NHS Information Centre for Health and Social Care on behalf of the National Quality Indicator Development Group. The annual assurance review will address:

- The need for discussion with NHS organisations (SHAs, Quality Observatories, hospitals, professional bodies), in regard to technical and assurance issues associated with the use and ongoing review of the SHMI;
- Maintenance of the list of proposals for further research and development (the first version of which is include in Appendix 7);
- Requirements for coding guidelines;

- Any independent assurance, for example of statistical methodologies being considered for amendment or introduction.

10.8.2 The National Quality Indicator Development Group should consider:

- Commissioning more scoping work to identify other recording and coding issues that would benefit from guidance;
- Delegating responsibility to the National Data Quality Board to take an active role on the SHMI and HES data more generally;
- The need for additional guidance information, and any concomitant training needs for those healthcare professionals, such as GPs, who may routinely be approached by members of the public for advice, which may require them to interpret the SHMI and other indicators;
- Monitoring the strategic developments in regard to the development of the Government's policies for the NHS, the Information Strategy for Health, www.data.gov.uk , and other activities;
- Inviting hospitals, SHAs and Quality Observatories to submit examples of current or proposed reporting arrangements, to foster the dissemination of good practice;
- Whether there are benefits in future for linking the SHMI with the Quality Accounts;
- Future opportunities for engaging the Audit Commission to consider coding of palliative care, as part of their Payment by Results quality audits.

Appendix 1 –Terms of Reference for the Steering Group for the National Review of Hospital Standardised Mortality Ratio (HSMR)

The Objective:

To develop a consensus view on the key methodological requirements for a practical HSMR to be applied across the NHS that takes account of the need for openness and transparency relating to the main purposes for which HSMR may be used, namely:

- Corporate accountability of NHS organisations and their Boards;
- Public interest, including patient choice;
- To inform clinicians of areas of care that may need exploration.

To set out proposals for this in a report to the National Quality Indicators Development Group by June 2010. This will start specifically with the acute sector, but will also include proposals for longer term development needs.

By:

- a) Agreeing clear scope and the criteria for the adoption of an NHS HSMR;
- b) Identifying currently available methods for the construction of HSMRs and consider which are realistic and practical candidates for development as the NHS HSMR method;
- c) Reviewing key strengths and limitations of these current methods and reach consensus on the most appropriate refinements and improvements for use as an NHS HSMR;
- d) In concert with b) and c) above, considering the different situations for which an NHS HSMR could and should be used, and how this impacts on construction and / or presentation;
- e) Considering the most appropriate means of informing the NHS, patients and the public of the agreed HSMR methodologies, and of the routine publication of detailed HSMR construction methods;
- f) Considering arrangements for overseeing ongoing publication and of the agreed HSMR methodology, and the communication of these to the NHS, patients and the public;
- g) To identify requirements for longer term development or research which would benefit the development and/or use of an approved NHS HSMR.

The Technical Working Group

1. Review the literature and other available information on current methodologies used in HSMRs, with a view to identifying:
 - a. Strengths and weaknesses in delivering the agreed purpose
 - b. Technical methodological issues in their production (including statistical issues)

- c. “Real world” deployment issues which affect the production and the use of the HSMR (including depth of coding, coding exemptions, eg palliative care, data quality issues)
2. To submit a recommended option to the Steering Group for the adoption of an approved NHS HSMR methodology which can be created and presented in the timescales available to the national working group, with specific reference to the three audiences (Trust Boards, front line clinicians, and the public);.
3. To advise on the technical aspects of presentation and use of an approved NHS HSMR.
4. To advise on the requirements for technical commentary (eg publication of methodology, caveats and limitations) that should be provided to the relevant audiences to support its use.
5. To advise on arrangements for the ongoing review and management of the HSMR methodology.
6. To submit proposals for longer term development or research in regard to coding, data quality, ongoing review, benefits of empirical testing, etc, which would benefit the development and/or use of an approved NHS HSMR.

The Presentation Working Group

It is intended that the outputs from the Technical Working Group, aimed at generating a single open and transparent methodology for HSMR, will be passed to the Presentation Working Group for review and action. The objectives for the Presentation Working Group will be:

- To take account of the “real world deployment” of the HSMR – the context, linkages with other strategic programmes and activities, and caveats associated with its use.
- To determine the purpose and target audience for the HSMR.
- To agree a set of principles that govern the use of the HSMR.
- To offer proposals for the dissemination and distribution of the HSMR.
- To determine appropriate formats for presentation.
- To recommend how the ongoing management of the dissemination and presentation of HSMRs should be handled in the context of the existing governance arrangements for the National Quality Board.
- To recommend proposals for consulting on these recommendations with stakeholders;

Appendix 2 – Members of the HSMR Steering Group and its subgroups

Name	Organisation	Steering Group	Technical Group	Presentation Group
Ian Dalton	NHS Northeast	Chair		
Martin Hensher	Department of Health	✓	✓	
Murray Devine	Department of Health	✓	✓	✓
Arun Bhoopal	Department of Health		✓	
Susannah Cannon	DH Communications	✓	✓	✓
Paula Whitty	North East Quality Observatory	✓	Chair	✓
Julian Flowers	Eastern Region Public Health Observatory/ Member of National Quality Indicator Development Group		✓	
Sue Eve-Jones	Professional Association of Clinical Coders		✓	
Alastair Henderson	Academy of Medical Royal Colleges	✓		
John Williams	Academy of Medical Royal Colleges	✓		
Veena Raleigh	Kings Fund	✓	✓	
Richard Hamblin	CQC	✓	✓	✓
Chris Sherlaw Johnson	CQC		✓	
Toby Lambert	Monitor	✓	✓	✓
Robert Cleary	NHS Choices	✓		✓
Brian Derry	NHS Information Centre	✓		
Andrew Frith	NHS Information Centre			✓
John Varlow	NHS Information Centre		✓	
Azim Lakhani	NHS Information Centre		✓	
Linda Whalley	NHS Information Centre	✓	✓	✓
Sally Brearley	National Quality Board			✓
Robert Winter	Medical Director, East of England SHA	✓		
Chris Welsh	Medical Director, Yorks & Humber SHA	✓		✓
Hugo Mascie Taylor	Medical Director, NHS Confederation	✓		Chair
David Rosser	University Hospitals Birmingham	✓		
Daniel Ray	University Hospitals of Birmingham	✓		
Fiona Alexander	University Hospitals Birmingham			✓
Sajan Khosla	University Hospitals Birmingham		✓	

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Sarndrah Horsfall	NPSA	✓	✓	✓
Suzette Woodward	NPSA	✓	✓	✓
Paul Aylin	Dr Foster Imperial	✓	✓	
Alex Bottle	Dr Foster Imperial		✓	
Brian Jarman	Imperial College	✓	✓	
Roger Taylor	Dr Foster Intelligence	✓	✓	
Jim Coles	CHKS	✓	✓	
Phil James	CHKS	✓	✓	
Paul Robinson	CHKS	✓	✓	
David Shahian	Harvard	✓		

Appendix 3 – Summary of the proposals for the statistical model and risk adjustment variables to be adopted in the SHMI

This is a high level summary to inform the Steering Group of the proposals for the SHMI. The table below outlines variables to be included and excluded.

The Technical Group is proposing to undertake further work to finalise the model, which will include some statistical modelling, as outlined below in Appendix 5. The modelling may result in further changes to this method.

Once finalised by the Technical Group, a full specification document will be produced and maintained by the NHS IC which will cover all the areas of detail expected in a standard indicator definition, and this will be published with the SHMI.

Dimension	Options considered	Proposal
Numerator (observed deaths)	From 80% to 100% of deaths In-hospital only deaths or inclusion of deaths up to 30 days after discharge Exclusion of deaths coded as palliative care	100% of deaths in hospital and up to 30 days after discharge from hospital (excluding deaths on arrival; stillbirths ⁶) (Deaths will be counted only once, to the hospital where the patient died or from which discharged within 30 days of death. Except for 'superspells', where the death will be attributed to the last admitting hospital) ⁷ .
Denominator (expected deaths, and therefore referring here to the patients included in the model that produces the number of expected deaths)	Mirroring numerator discussions Discussion about whether counts of patients included in the model to be based on 'provider spells' (all contiguous episodes within one hospital) or 'superspells' (all contiguous episodes across all hospitals, including transfers) Also, discussion of attributing deaths at the end of a 'superspell' to: first admitting hospital; to last admitting hospital; or to each admitting hospital	100% of patients (deaths and survivors)(excluding zero length of stay emergency cases; day cases) Counts to be based on 'provider spells' (For 'superspells', deaths will be attributed to the last admitting hospital with any other spells contributing to (as survivors) other hospitals admitted to during the 'superspell'.) ²

⁶ Proposal to exclude babies overall until coding issues resolved.

⁷ This is a compromise position, agreed to enhance transparency and replicability of the method.

Dimension	Options considered	Proposal
Risk adjustment variables	Age Sex Admission method Diagnosis Co-morbidity Year of discharge Deprivation score (IMD and Carstairs) No. of emergency admissions in previous 12 months Month of admission Palliative care ⁸ Ethnicity Source of admission Procedure HRG Hospital type ⁹ Patient category: inpatient / day case / other No. & severity of prior morbidities <1 or <5 yrs Length of stay % of deaths in area of hospital that occur in hospital	Age ¹⁰ Sex Admission method ¹¹ Diagnosis Co-morbidity ¹² Year of discharge Deprivation score (IMD) No. of emergency admissions in previous 12 months (Month of admission if not providing a 12 month rolling average ¹³) To be discussed: Procedure

⁸ To be introduced following agreement on coding

⁹ No adjustment to be applied, but handling arrangements to be agreed for specialist trusts.

¹⁰ To decide on bandings and handling of small numbers

¹¹ Further consideration re exact specification and categories of admission method to be included

¹² Exact specification to be determined

¹³ Period of analysis to be confirmed

Appendix 4 – Summary of the current position in regard to the linking of data for use in the SHMI

- Provisional HES data for discharges up to end March 2010 are likely to be available for linkage by end June / July, with monthly updates thereafter
- *General completeness of deaths registration data:* out of 100 deaths (in hospital, after discharge or not hospitalised), around 46 are referred to a coroner (most have a decision soon, with or without a post-mortem, hence registration) and around 7 go to an inquest (taking up to 26 weeks for a decision). For around 3% of the latter, the inquest is adjourned, there is accelerated registration, and data are available for linkage with HES.
- The NHS IC gets deaths registration data monthly from ONS for linkage. Provisional ONS death registration data for deaths occurring up to end April 2010 (needed for 30 day mortality indicators) were made available to the IC for linkage by end May, with monthly updates thereafter. The ONS data at the end of June will contain around 96% of records on deaths occurring in April, and more for previous months. Information on fact and date of death for some of the missing records, for deaths in hospital up to end March, will be available from HES by June / July, so missing data on deaths in the linked file will be much less than 4% for months prior to April. In general, around 13% of deaths within 30 days of admission occur after discharge (previous NCHOD analyses), so overall missing data up to end March are likely to be less than 1%. In each monthly batch of ONS death registration data thereafter, some of the missing records of deaths in April will be available (99% complete by month 12). This applies retrospectively as well so that discharges during each month prior to the latest month will be more complete in terms of linked deaths data.

In summary, provisional linked HES / ONS deaths data for discharges up to end March 2010 are likely to be available for analysis of the Summary Hospital Mortality Indicator by end July 2010, including data on around 99% of all deaths occurring anywhere by end March 2010 and at least 96% of deaths after discharge in April 2010. Linked deaths data for discharges prior to March 2010 are likely to be more complete on an incremental monthly basis.

The IC could explore the possibility of obtaining 'occurrences' data for the latest month, on the fact and date of death for the coroner's inquests, if required, but the gain is likely to be marginal. The impact will be mostly on discharges in the latter part of the month under study, and matter only if there is substantial variation between Trusts in the % missing data.

In addition, it is noted that linkage with ONS death registration data enables correction for inaccuracies in coding of deaths in HES data (for example, where there is no HES record for a registered death, or where HES death records contain inaccurate date of death).

Appendix 5 - Draft specification for initial modelling of proposed NHS SHMI

Purpose of Modelling

Prior to the introduction of the SHMI in the NHS, there is a need to undertake rapid statistical modelling and analysis of the behaviour of the SHMI and of its key variables. This modelling will have three key objectives:

- To undertake sensitivity analysis of the impact / interaction of key variables
- To illustrate the characteristics and behaviour of the SHMI using historic data
- To ensure that the SHMI is fully replicable by different teams using a common method and data source

The modelling work will bring a degree of independent assurance of the SHMI method.

The modelling will not attempt to assess the sensitivity or specificity of the SHMI (relative to any “gold standard” e.g. case note data, or relative to existing HSMRs).

Sensitivity Analysis

A systematic sensitivity analysis of the proposed SHMI and the SHMI standardised for “core” variables (age/sex/method of admission) will be undertaken to:

1. Compare the output of the SHMI model (using funnel plot outlier status and correlation) including or excluding specific variables, variables to include [list to be added on finalisation of SHMI recommended methodology]
2. Comparison of direct vs. indirect standardisation
3. The testing of potential adjustments for procedure
4. Different specific approaches to comorbidity (using only one or two secondary diagnosis fields vs. using all)
5. Assessment of potential for confounding impact of including comorbidity and deprivation in the model
6. Assessment of interaction between variables (where relevant)
7. Assessment of multicollinearity between variables
8. Assessment and any adjustment for overdispersion
9. Produce report on key findings of sensitivity analysis and any specific recommendations on methodology and variables to be included and excluded.

The modelling work will offer an opportunity to undertake an analysis of the SHMI against at least two existing variants to try and understand the behaviour of the indicator over time, and how it compares with existing mortality indicator variants. This will also help address some of the challenges which have frequently been made of summary-level indicators in the past. This work could:

1. Compare the relative score and ranking of hospitals using all deaths (as per the SHMI) or in-hospital deaths only;
2. Illustrate and assess extent of secular variation in hospital score / ranking between periods;
3. Illustrate and assess behaviour of SHMI over shorter time periods (e.g. monthly) to inform decisions about frequency of refresh and publication;
4. Compare the relative scores and rankings of Trusts using the SHMI compared with the variants included in the modelling exercise, to inform the publication processes.

Appendix 6 – Provisional list of proposals for companion indicators and contextual information to be used alongside the SHMI

Notes – issues requiring further action

1. For each of these indicators, we need to consider how to make the information available. Some of these should be produced and published centrally; others will be published locally. Some may be published alongside the SHMI, others could be handled by links to other websites or sources.
2. Consider presentation by age band for relevant indicators?
3. Include in guidance documentation some narrative which explains the relevance/use of these indicators alongside the SHMI.

Companion SHMI (probably to be published centrally alongside the SHMI)

- Crude mortality – all admissions
- Full SHMI – all admissions
- Full SHMI – emergency admissions
- Age/sex/method of admission SHMI – all admissions

Drill down (some to be published centrally, others may be published locally according to areas of interest or relevance to local reporting)

- Specific SHMI (for selected primary diagnoses or procedure?)

Contextual

- Proportion of deaths per different settings (eg outside/inside hospital)
- % of deaths in hospital for the PCT in which the Trust resides
- Other contextual indicators which may be introduced in a national basket of safety indicators (eg; rate of incident reporting, etc)
- % long stay patients eg .30 days
- No of transfers in/out of the hospital
- Death rate of patients transferred out of hospital
- Death rate of patients transferred into the hospital
- Death rate of patients in hospital not transferred in/out
- Proportion of surgical patients with no procedures, single procedures, multiple procedures *Note – more discussion needed following the statistical modelling*
- Label indicating “Trust type”, markers for specialist centres within acute Trusts and cluster benchmarks. Should this include any details of Trust reorganisations (eg reflecting simple or complex mergers, etc) as this may also affect trends over time.

Data quality, coding

- Depth of coding
- Use of R codes
- Palliative care coding - % of admissions with palliative care, or % of deaths with palliative care coding
- Mean Charlson comorbidity score, or % with score >0
- HES Data Quality indicator
- HES data quality for each field used in the SHMI.

Appendix 7 - Proposals for longer term development and research

A number of issues may benefit from attention on a longer timescale as part of future research and development efforts. Some of these relate to statistical modelling; others may require specific pieces of research work. Those issues already identified:

Statistical model

- Alternative methods for adjusting for age
- Simulation of false alarm / false positive and positive predictive values based on published data
- Overhaul of the Charlson (or other) comorbidity index specifically for ICD10 in the UK
- Multi-level modelling of effects of clustering and/or hospital-level parameters
- Comparison of logistic regression and machine learning methods
- Developing a “gold standard” to assess the utility of an SHMI; e.g. a casenote audit in which a set of patients with predicted risks is derived from the candidate model(s) and their casenotes examined for quality of care issues and possibilities for learning and improvement (compared with a random sample)
- Use of national average vs ‘optimum’ or ‘best in class’
- Desirability of including year of discharge in list of risk adjustment variables
- Potential for including adjustments for diagnosis subgroup
- Potential for confounding impact of including comorbidity and deprivation in the model (included also in scoping for modelling).
- Potential for including number and severity of prior morbidities <1 and <5 years

Recording, coding, quality issues

- Introduction of “present on admission” flag
- Assessment of “present on admission” flags if they are added to the data
- Palliative care
- Births and babies

Scope

- Extension of SHMI to independent sector providers
- Palliative care
- Development/introduction of SHMI equivalent for individual diagnoses

Uses

- More research of how patients and the public makes decisions.

Appendix 8 –Coding for palliative care

Current guidance on coding for palliative care in the NHS (the use of Z51.5 Palliative Care) is based on a Coding Clinic issued by the NHS Connecting for Health Classification Service (CC Volume 4, Issue 2, March 2007).

In practice the guidance in this coding clinic has proved difficult to follow and has been subject to a variety of interpretations. This is evidenced by analysis of coded data that shows an extremely wide variation between Trusts in the assignment of Z51.5 on patients who have died (ranging from Trusts where no deaths have Z51.5 recorded to those where in excess of 50% of patient deaths have Z51.5 recorded).

The advice in the Coding Clinic is that any patient admitted under the care of a specialist palliative care consultant, *or* admitted to a palliative care unit, *or* in a designated palliative care programme *or* who is receiving specialist palliative care support should have the Z51.5 Palliative Care code assigned.

In practice it is relatively easy to identify patients either admitted to a palliative care facility or under the care of a specialist palliative care consultant. However, technically in these circumstances this means that it is the location of the patient as opposed to their condition or treatment that dictates the use of the code.

However, difficulty arises in accurately and consistently identifying patients who receive specialist care support as defined in the Coding Clinic as identifying that specialist palliative care team members have been involved in patient care is dependent on the quality of the source documentation available.

The current Coding Clinic definition / guidance does not differentiate between delivery of specialist palliative care during an episode of care as opposed to the involvement of a member of a specialist palliative care team member (e.g. bedside visit or interdisciplinary team meeting).

Guidelines recently introduced in Canada for coding palliative care cannot be adopted as a UK standard because they refer to code types (a concept that is not currently used in the UK in which codes are labelled by type: M = MRDx, 1 = Pre-admission comorbidity, 2 = Post-admission comorbidity, 3 = Secondary, W, X, Y = Service transfer diagnosis etc.) However, the guidance includes useful definitions with regard to what exactly constitutes palliative care.

It is recommended that UK guidance is reviewed specifically in relation to providing a clear definition for the term 'palliative care'. The Canadian guidance may prove helpful to this.

If the current UK guidance is to stand then the challenge will be to ensure that it can be consistently applied by improving the recording of palliative care involvement. There will also need to be a clear understanding of the fact that the use of the code cannot be considered to imply that the patient is terminally ill.

The alternative would be to provide updated advice which could include a specific definition of palliative care including (as per the Canadian model) a linkage between diagnosis and provision of care.

The advantage of updating the advice is that it would provide an opportunity to review the intended use of the Z51.5 code. From a practical point of view enabling coders to use the Z51.5 code consistently and in a meaningful manner is more likely to be achievable in the

short-term than an approach that relies on improvements to underlying source documentation.

Pending the adoption and use of new guidelines, it is proposed that no adjustment in the NHS SHMI is made for palliative care, but that a contextual indicator is used to show the proportion of deaths in a hospital setting.

A further Coding Clinic was issued by the NHS Connecting for Health Classification Service¹⁴. This is unlikely to resolve all of the existing problems but will undoubtedly result in another data shift as it specifically advises that patients on an End of Life Care Pathway should not automatically be assigned a palliative care code.

This highlights the difficulty of collecting data to try to serve both a financial and a patient information purpose. Patients on an End of Life Care Pathway and those receiving palliative care can equally be said to fall into the category of patients expected to die. However, it may only be appropriate for the additional tariff associated with palliative care to be allocated to those patients actually receiving specific palliative care (ie that provided by a palliative care specialist or team).

Patients on an End of Life Care Pathway, but not receiving palliative care should now be allocated a secondary diagnosis code of Z51.8 Other specified medical care. However, the use of this code is not limited to these circumstances so would not be reliable as a means of identifying all patients on an End of Life Care Pathway.

¹⁴Coding Clinic Volume 7, Issue 4, June 2010