Wind Turbine AM Review

PHASE 1 REPORT

CONFIDENTIAL

OCTOBER 2015

WSP | PARSONS BRINCKERHOFF

WIND TURBINE AM REVIEW

PHASE 1 REPORT

Department of Energy & Climate Change

Issue 1
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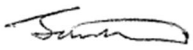
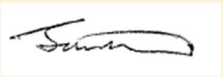
Signature				
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DEPARTMENT OF ENERGY AND CLIMATE CHANGE

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WSP | PARSONS BRINCKERHOFF

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1 INTRODUCTION

1.1 GENERAL

1.1.1 WSP | Parsons Brinckerhoff has been commissioned by the Department of Energy and Climate Change (DECC) to undertake a review of research into the effects of and response to the acoustic character of wind turbine noise known as Amplitude Modulation (AM), or more specifically an increased level of modulation of aerodynamic noise as perceived at neighbouring residential dwellings.

1.1.2 Concern about AM has been growing over recent years with the reported increase in complaints about wind turbine noise, however, the extent of the problem is unclear due to a lack of an agreed definition of AM (that could lead to complaints), and much of complaint evidence has not been reported through Local Authorities.

1.1.3 The Institute of Acoustics (IOA) formed an AM working group (AMWG) in the summer of 2014. The work of the group has been to undertake a review of the current knowledge of AM, to agree a definition of AM which is consistent with the likelihood of complaints, and to define a robust metric and methodology to quantify AM when it is present within wind turbine noise. A proposal for three metrics was consulted on earlier in 2015, and at the time of writing, one metric is emerging as providing the most robust method to quantify AM.

1.1.4 The objective of this project is to review the current evidence on the human response to AM, the factors that contribute to human response (such as level, intermittency, frequency of occurrence, time of day, etc.), and make a recommendation to Government on how to decide what AM controls could be implemented, and the likely impact of that decision in relation to current Government planning policy, and potential health effects.

1.2 STUDY AIMS

In order to achieve the project objectives, the aim of this study is:

1. To review the evidence on the effects of, and response to, AM in relation to wind turbines, including but not limited to the research commissioned and published by RenewableUK in December 2013.
2. To work closely with the Institute of Acoustics' AM Working Group, who are expected to recommend a preferred metric and methodology for quantifying and assessing the level of AM in a sample of wind turbine noise data.
3. To review the robustness of relevant dose-response relationships, including the one developed by the University of Salford as part of the RenewableUK study.
4. To consider how, in a policy context, the level(s) of AM in a sample of noise data should be interpreted.
5. To recommend how excessive AM might be controlled through the use of an appropriate planning condition, which includes a penalty scheme.
6. To consider the engineering/cost trade-offs of possible mitigation measures.

2 METHODOLOGY

2.1 PROPOSED APPROACH

2.1.1 The project work is split into two Phases, and will involve the following steps:

Phase 1

- Attend a Kick Off Meeting
- compile a list of search terms for the collation of relevant papers
- Propose an approach and methodology
- Define evidence needs
- Prepare a detailed work plan
- Attend a meeting with the Steering Group
- Submit a summary of the above activities for approval

Phase 2

- Undertake the search for relevant papers; Obtain copies of all relevant evidence, including the RUK work
- Critically review the robustness of the relevant studies into the subjective response to AM, and any penalty schemes
- Critically review the RUK proposed planning condition in the context of ETSU-R-97 and the six tests for a planning condition in NPPF[1]
- Summarise (for a non-technical audience) main findings of the review
- Recommend an appropriate penalty scheme (or alternative) for use in a planning condition, compatible with the IOA AM Working Group's preferred metric
- Prepare a draft report summarising the main findings and setting out clear recommendations, in a form suitable for publication by DECC.
- Amend the report in light of peer review comments, and produce a final report.
- Present the main findings and recommendations to the IOA's AM Working Group and, separately, to DECC's Steering Group.

[1] English National Planning Policy Framework, or equivalent in Wales, Scotland and Northern Ireland

2.2 PHASE 1 PROGRESS

2.2.1 Phase 1 commenced with a kick off meeting, where project protocols and communication channels with the Stakeholders were agreed. A one day workshop for all team members was then held on 7th September (including representatives from DECC and Public Health England). The workshop included a brainstorming session on the review criteria for the AM metric, the existing dose-response studies, and a discussion on the evidence needs for the project. The Chair of the IOA AMWG also attended the workshop and provided a briefing to the team on the consultation document, the three proposed AM metrics, and the considerations made so far by the AMWG on how the metric would interact with the existing dose-response studies.

2.2.2 During the workshop, it emerged that the literature review should not limit itself to wind turbines, and that it should be widened to include other sources of industrial noise and sound quality. Details for the literature searches to be made are set out in Section 2.3. Where parallels are drawn from other areas, this will be made clear.

2.2.3 Part of the evidence collection review requires consultation with interested Stakeholders. The contact letter is included in Appendix B, which will be sent by email. An initial list of Stakeholders is included in Section 2.4. Where new evidence is identified in the responses, follow-up contact will be made by email and / or phone.

2.2.4 This report forms the output from Phase 1 of this project. It includes:

- the approach to the review.
- the proposed assessment method / criteria for the review.
- a list of search words to be used.

2.3 PHASE 2 – EVIDENCE COLLECTION

2.3.1 The proposed approach and methodology for the review was discussed during the workshop. The following steps were agreed:

1. Identify the evidence sources to be searched
2. Define the search criteria to be used
3. Identify additional resources through contacting stakeholders
4. Define the method to filter the evidence collected
5. Define the review method to be applied

2.3.2 An initial list of relevant research and evidence has been compiled, as follows:

Table 1: Conference Proceedings to be searched
Euronoise (2000* - Date)
INCE Europe Wind Turbine Noise Conferences (I – VI)
INCE Europe Low Frequency Noise and Vibration Conferences (2000* - Present)
IOA Acoustics 2015
RenewableUK (RUK) research into Wind Turbine Amplitude Modulation (2010 – 2013)
International Commission on Biological Effects of Noise (ICBEN) (2000* – Date)
Inter-Noise Congress (2000* – Date)

* The year 2000 has been chosen as there is no relevant research prior to this date that we are aware of.

2.3.3 A range of literary databases will be searched in order to add to the current list of relevant research and evidence (with no date limit), as follows:

Table 2: Literary Databases to be searched
Pubmed (**http://www.ncbi.nlm.nih.gov/pubmed**)
Web of Science (**http://wok.mimas.ac.uk/**)
Noise & Health Journal (**http://www.noiseandhealth.org/**)

2.3.4 The search will be split into two, 'Wind Turbine Noise' and 'Other areas'. This will allow for research into AM which is not associated with Wind Turbine noise, such as other industrial noise. The keywords that will be utilised for the literature search for 'Wind Turbine Noise' and for other areas of AM are set out in Table 3. Words will be combined in multiple combinations for the searches.

Table 3: Keywords for Literature Search		
a)	**Wind Turbine Noise**	
	NOISE	QUALITY OF LIFE
	WT	SOUND QUALITY
	WIND TURBINE	JUDGEMENT
	AMPLITUDE	FLUCTUATION
	MODULATION	FLUCTUATING
	WIND FARM	FLUCTUATE
	WTG	WIND TURBINE GENERATOR
	DOSE	NUISANCE
	RESPONSE	COMPLAINTS
	DOSE-RESPONSE	EXPOSURE
	ANNOYANCE	ACCEPTABILITY RATING
	ANNOYING	THRESHOLD
	SLEEP	PENALTY
	HEALTH	SWISH
	WELLBEING	THUMP
	AM	MENTAL HEALTH
	RHYTHMIC	NOISE SENSITIVITY
	FLUTTER	EXPERIENCE
	SWOOSH	EXPERIENTIAL
	WHOOSH	LOW FREQUENCY
b)	**Other Areas**	
	NOISE	QUALITY OF LIFE
	AMPLITUDE	SOUND QUALITY
	MODULATION	PRODUCT SOUND QUALITY
	AM	JUDGEMENT
	DOSE	FLUCTUATION
	RESPONSE	FLUCTUATING
	DOSE-RESPONSE	FLUCTUATE
	ANNOYANCE	NUISANCE
	ANNOYING	COMPLAINTS
	SLEEP	EXPOSURE
	HEALTH	ACCEPTABILITY RATING
	WELLBEING	HELICOPTER BLADE SLAP
	THRESHOLD	HELICOPTER NOISE
	PENALTY	SWISH
	FLUTTER	MENTAL HEALTH
	RHYTHMIC	NOISE SENSITIVITY
	THUMP	LOW FREQUENCY

2.4 PHASE 2 – STAKEHOLDER CONTACT

2.4.1 A list of potential Stakeholders to be contacted has been compiled. This list represents those Stakeholders initially contacted, following feedback from the Government Steering Group. Any additional Stakeholders engaged after the initial contact will be reported in the final report. Stakeholders represent a wide range of Local Authorities, Trade Bodies, Residents Groups and Universities involved in research in the field. It has been assumed that since the Steering Group have representatives of all relevant departments across all of the Devolved Authorities, liaison with Government will be made through the Steering Group.

The list of Stakeholders is shown in Table 4.

Table 4: Stakeholder List

No	Body	Name
1	Anglesey / Ynys Mon Council	Huw Thomas
2	Armagh, Banbridge and Craigavon Council	Paul McCullough
3	Cardiff University Psychology Dept	Prof. Nick Pidgeon
4	Carmarthenshire County Council	Richard Jones
5	Chartered Institute of Environmental Health	Howard Price
6	Friends of the Earth / (Cymru)	The Director
7	Harrogate Borough Council	Chief Env Protection Officer
8	Highland Council	Ken Mccorquodale
9	Huntingdonshire District Council	Chief Env Protection Officer
10	Institute of Acoustics AM Working Group	Gavin Irvine
11	Institute of Acoustics Scottish Branch	Alistair Somerville
12	Local Government Association	Chief Executive Officer
13	Midlothian Council	Lilianne Lauder
14	Montgomeryshire Against Pylons	Jonathon Wilkinson
15	Planning Scotland	Robert Gray
16	Planning Scotland	Trevor Moffat
17	Powys County Council	Chief Env Protection Officer
18	Powys Wind Farm Supporters	to whom it may concern
19	Renewable UK	Gemma Grimes
20	Scotland Against Spin	Linda Holt
21	Scottish Borders Council	Ian Aikman
22	Scottish Government Inquiry Reporters Unit	David Henderson
23	Scottish Industry Policy	Joss Blamire
24	South Cambridgeshire District Council	Chief Env Protection Officer
25	The Independent Noise Working Group	Richard Cox
26	The Planning Inspectorate	Ben Linscott
27	Waveney District Council	Chief Env Protection Officer
28	Welsh Local Government Association	Lorraine Dagnilli
29	West Lothian Council	Brian Carmichael
	Research Bodies:	
30	The University of Salford	Dr Andy Moorhouse
31	The University of Tokyo	Prof Hideki Tachibana

2.4.2 A generic version of the letter that will be sent out to the Stakeholders has been included in Appendix A.

2.5 PHASE 2 - PROPOSED METHODOLOGY FOR REVIEW

2.5.1 The purpose of the literature review is to establish the current level of knowledge of AM, and the extent to which the human response to AM is understood. Where papers do not contain dose-response studies, these will be catalogued, reviewed, and where relevant, summarised in a write up of the literature searches.

2.5.2 Where papers do contain dose-response studies, these will be catalogued, reviewed, and subjected to two checklists. One is the Newcastle – Ottawa checklist for Cohort Studies, and the other the Government Social Research (GSR) checklist, which are contained in Appendix B and C respectively. The resulting outputs will be recorded and each study ranked accordingly.

2.5.3 A review of systematic review methods[2] published in 2007 identified 86 different methods in existence at the time. Although no 'tool' was concluded to be the best, the Newcastle-Ottawa Scale (NOS) was highlighted as a strong performer and has been frequently used in similar settings. It is the considered view of the project team that this method is appropriate for the purposes of the project in conjunction with the GSR checklist.

2.5.4 The review will also look at the following aspects (this list may be added to as the review progresses):

- Method of data collection (with regards to GSR Ethical principles)
- Sample size
- AM metric used
- Assessment method of health effects to AM stimuli
- Laboratory vs. field trials
- Data analysis
- Objective assessment of the outcome (the relationship between dose and response)
- Level of peer review
- The objective of the study under review

2.5.5 The output of the literature reviews will consist of:

- A spreadsheet list of all papers initially screened, catalogued into relevant categories (to be defined).
- The Newcastle-Ottawa ranking (for dose-response studies)
- A written summary of key papers (those which meet the eligibility criteria), highlighting their strengths & weaknesses
- Completed Newcastle-Ottawa & GSR checklists where relevant.
- The expert panels considered view on the robustness of each dose-response study

[2] Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: a systematic review and annotated bibliography Simon Sanderson, Iain D Tatt, and Julian PT Higgins

2.6 PHASE 2 – FURTHER CONSIDERATIONS

2.6.1 Following the literature reviews, a number of additional considerations will be made. The project team will set out the parameters considered to be relevant to the setting of a control mechanism for AM, and set them into the context with the chosen AM metric, in accordance with Government policy. It is recognised that renewable energy and noise policies are a devolved matter, and therefore all relevant policies from England, Wales, Northern Ireland and Scotland will be considered in the final report.

2.6.2 It may be possible to define the AM penalty range in terms of the effect levels defined in the Noise Policy Statement for England for the:

- No Observed Effect Level (NOEL)
- Lowest Observed Adverse Effect Level (LOAEL)
- Significant Observed Adverse Effect level (SOAEL)

2.6.3 Consideration will then be given to elements which could affect the 'dose'. As well as the metric which will define the modulation depth and frequency of occurrence, the penalty scheme will also have to consider how often and at what level the AM needs to occur before it becomes unacceptable.

2.6.4 The format for a suitable planning condition would then be considered. This will start with a review of the RUK proposed planning condition in conjunction with any more recent conditions to control AM (from the UK and abroad), the IOA preferred metric, and the outcome of the research reviews. The condition will be compared with ETSU-R-97 and to the six tests in the NPPF of:

1. necessary;
2. relevant to planning and;
3. to the development to be permitted;
4. enforceable;
5. precise and;
6. reasonable in all other respects

2.6.5 A penalty scheme will be proposed based on the robustness of the available evidence. Where no clear evidence is found on where the onset of significant effects (in the context of Government policy) starts, a range of values will be proposed, highlighting the potential impacts of the decision within the range, and linking the range to current Government policy.

2.6.6 To assist the decision making process, the final task is to consider the engineering/cost trade-offs of possible mitigation measures. The last work package in the RUK study is an investigation on the likely cause of AM, and the suggested methods of mitigation. These include pitch control on the blades, reprogramming the power curve of the turbine to avoid stall conditions, and ultimately curtailment of the turbine completely in the wind conditions where it occurs. Whilst typical mitigation measures will be discussed, the results will vary from one site to the next due to different turbine models, and different wind regimes.

2.7 PHASE 2 OUTPUT

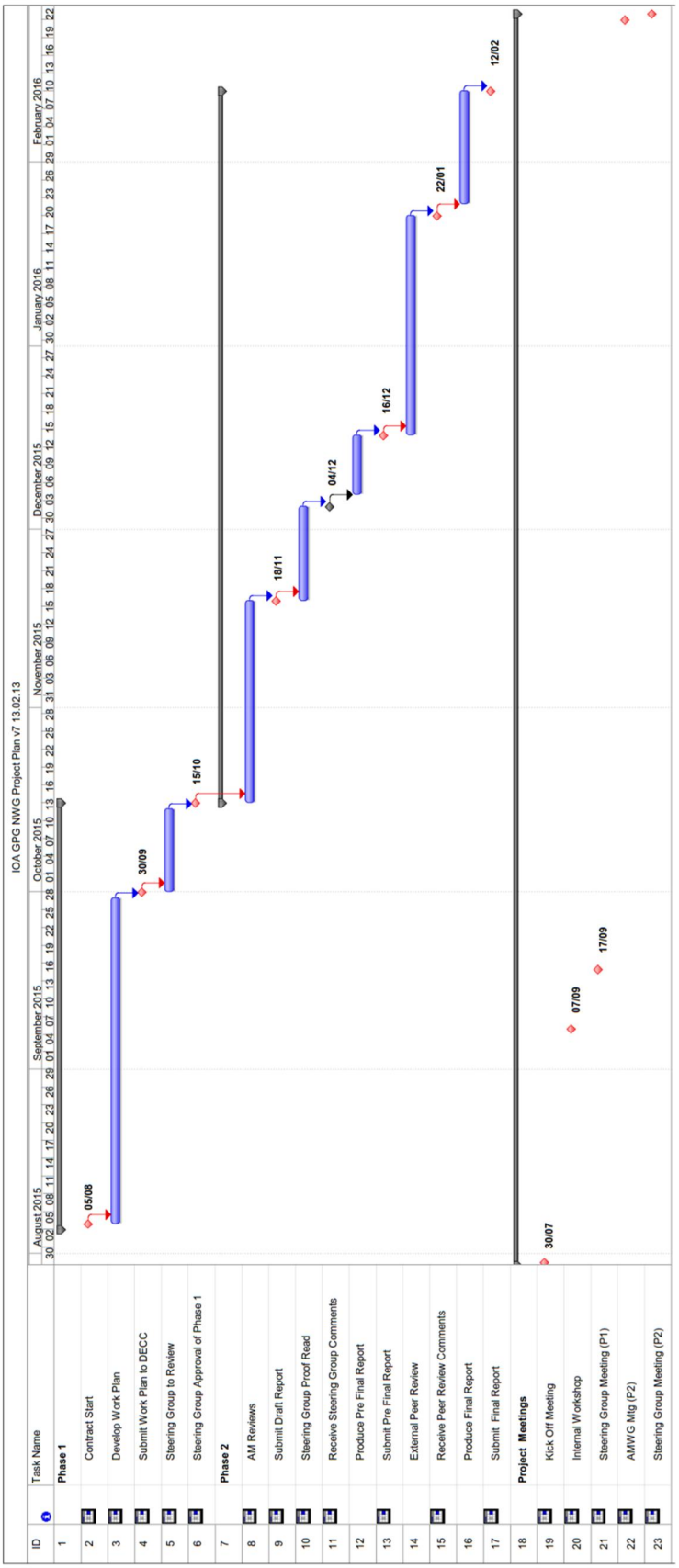
2.7.1 The final report will be provided in draft including:

- an executive summary (suitable for a non-technical audience)
- the results of the review
- the robustness of the available AM dose-response evidence
- the limitations of the available evidence
- a suggested planning condition incorporating the IOA AM metric
- Recommendations on the appropriate penalty scheme, and the range for a suitable threshold, linked where possible to Government policy.

2.7.2 It is understood that the Government Steering Group will appoint independent peer reviewers, who will provide comments on the draft report. Our team will consider all the responses, amend the report as appropriate, and produce a final report, which will be suitable for publication by DECC.

2.8 PROJECT TIMELINE

2.8.1 An updated project program is shown below.



Appendix A

STAKEHOLDER CONTACT LETTER

Our Ref: 3514482A

23 October 2015

BY EMAIL ONLY

Name
Address

WSP | Parsons Brinckerhoff
Kings Orchard
1 Queen St
Bristol BS2 0HQ

Tel: +44 (0) 1179 306355

www.wspgroup.com
www.pbworld.com

Dear Howard,

Subject: Department of Energy and Climate Change (DECC) Amplitude Modulation (AM) from Wind Turbines Review

WSP | Parsons Brinckerhoff has been awarded a contract by the UK Government Department of Energy and Climate Change (DECC) to undertake a review of published research into the human response to Amplitude Modulation (AM) from wind turbines, with a view to recommending how excessive AM might be controlled through the use of a planning condition.

The project's aims as set out in the Invitation to Tender are:

- To review the evidence on the effects of and response to Amplitude Modulation (AM) in relation to wind turbines, including but not limited to the research commissioned and published by RenewableUK in December 2013.
- To work closely with the Institute of Acoustics' AM Working Group, who are expected to recommend a preferred metric and methodology for quantifying and assessing the level of AM in a sample of wind turbine noise data.
- To review the robustness of relevant dose-response relationships, including the one developed by the University of Salford as part of the RenewableUK study, on which the correction (or penalty) for amplitude modulation proposed as part of its template planning condition is based.
- To consider how, in a policy context, the level(s) of AM in a sample of noise data should be interpreted, in particular determining at what point it causes a significant adverse impact.
- To recommend how excessive AM might be controlled through the use of an appropriate planning condition.
- To consider the engineering/cost trade-offs of possible mitigation measures.

One of the first project tasks is to build a database of relevant research publications on the human response to AM from wind turbines (and other anthropogenic sound sources that may exhibit AM, e.g. industrial) and to review and analyse this published research. This includes social surveys, laboratory studies, case studies and previous review material.

We are contacting you, as an interested stakeholder, to invite you to make the research team aware of any relevant publications (already published or due to be published in the coming months, as these are more difficult for us to locate). Any information you could provide would be welcome.

We would be most grateful for your responses by 6th November 2015 to enable us to include them in the study. We will acknowledge your contribution. Responses could either be emailed to perkinsr@pbworld.com, or posted to the above address. Thank you for your consideration.

Yours sincerely,

Richard Perkins
Technical Director & Project Manager

Appendix B

NEWCASTLE OTTAWA CHECKLIST

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE
COHORT STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability

Selection

1) Representativeness of the exposed cohort
   a) truly representative of the average _____ (describe) in the community □
   b) somewhat representative of the average _____ in the community □
   c) selected group of users e.g. nurses, volunteers
   d) no description of the derivation of the cohort

2) Selection of the non exposed cohort
   a) drawn from the same community as the exposed cohort □
   b) drawn from a different source
   c) no description of the derivation of the non-exposed cohort

3) Ascertainment of exposure
   a) secure record (e.g. surgical records) □
   b) structured interview □
   c) written self report
   d) no description

4) Demonstration that outcome of interest was not present at start of study
   a) yes □
   b) no

Comparability

1) Comparability of cohorts on the basis of the design or analysis
   a) study controls for _____ (select the most important factor) □
   b) study controls for any additional factor □ (This criteria could be modified to indicate specific control for a second important factor.)

Outcome

1) Assessment of outcome
   a) independent blind assessment □
   b) record linkage □
   c) self report
   d) no description

2) Was follow-up long enough for outcomes to occur
   a) yes (select an adequate follow up period for outcome of interest) □
   b) no

3) Adequacy of follow up of cohorts
   a) complete follow up - all subjects accounted for □
   b) subjects lost to follow up unlikely to introduce bias - small number lost - > ____ % (select an adequate %) follow up, or description provided of those lost) □
   c) follow up rate < ____% (select an adequate %) and no description of those lost
   d) no statement

CODING MANUAL FOR COHORT STUDIES

SELECTION

1) Representativeness of the Exposed Cohort

Item is assessing the representativeness of exposed individuals in the community, not the representativeness of the sample of women from some general population. For example, subjects derived from groups likely to contain middle class, better educated, health oriented women are likely to be representative of postmenopausal estrogen users while they are not representative of all women (e.g. members of a health maintenance organisation (HMO) will be a representative sample of estrogen users. While the HMO may have an under-representation of ethnic groups, the poor, and poorly educated, these excluded groups are not the predominant users users of estrogen).

Allocation of stars as per rating sheet

2) Selection of the Non-Exposed Cohort

Allocation of stars as per rating sheet

3) Ascertainment of Exposure

Allocation of stars as per rating sheet

4) Demonstration That Outcome of Interest Was Not Present at Start of Study

In the case of mortality studies, outcome of interest is still the presence of a disease/ incident, rather than death. That is to say that a statement of no history of disease or incident earns a star.

COMPARABILITY

1) Comparability of Cohorts on the Basis of the Design or Analysis

A maximum of 2 stars can be allotted in this category
Either exposed and non-exposed individuals must be matched in the design and/or confounders must be adjusted for in the analysis. Statements of no differences between groups or that differences were not statistically significant are not sufficient for establishing comparability. Note: If the relative risk for the exposure of interest is adjusted for the confounders listed, then the groups will be considered to be comparable on each variable used in the adjustment.
There may be multiple ratings for this item for different categories of exposure (e.g. ever vs. never, current vs. previous or never)
Age = ☆ , Other controlled factors = ☆

OUTCOME

1) Assessment of Outcome

For some outcomes (e.g. fractured hip), reference to the medical record is sufficient to satisfy the requirement for confirmation of the fracture. This would not be adequate for vertebral fracture outcomes where reference to x-rays would be required.

a) Independent or blind assessment stated in the paper, or confirmation of the outcome by reference to secure records (x-rays, medical records, etc.)
b) Record linkage (e.g. identified through ICD codes on database records)
c) Self-report (i.e. no reference to original medical records or x-rays to confirm the outcome)
d) No description.

2) Was Follow-Up Long Enough for Outcomes to Occur

An acceptable length of time should be decided before quality assessment begins (e.g. 5 yrs. for exposure to breast implants)

3) Adequacy of Follow Up of Cohorts

This item assesses the follow-up of the exposed and non-exposed cohorts to ensure that losses are not related to either the exposure or the outcome.

Allocation of stars as per rating sheet

Appendix C

GSR CHECKLIST

GSR Ethics Checklist

Purpose of the checklist

This checklist has been designed to improve consistency and thoroughness in the ethical scrutiny of social research in government. It is recommended that the checklist be completed as part of the commissioning process and should be referred to, and ideally updated, throughout the research management process.

Government Social Research (GSR) issued professional guidance for use by all those managing and commissioning government social research GSR Ethical Assurance for Social Research in Government and includes a requirement to put in place suitable systems and processes to ensure that appropriate ethical standards are met (the use of this guidance was formalised through the GSR Code). The guidance aims to ensure that all research is conducted in line with five key ethical principles. The checklist has been developed to help meet this aim.

It is up to individual departments/devolved administrations to put systems in place to manage the ethical issues that arise from the checklist. This may include setting up an Ethical Advisory Group to which identified ethical issues can be escalated or obtaining additional sign off for ethically sensitive projects.

Instructions for use

The checklist is structured under the five key principles of the GSR guidance:

- Principle 1: Sound application and conduct of social research methods and appropriate dissemination and utilisation of the findings
- Principle 2: Participation based on valid informed consent
- Principle 3: Enabling participation
- Principle 4: Avoidance of personal harm
- Principle 5: Non-disclosure of identity and personal information

For each of the sections you should describe the relevant **ethical** sensitivities and risks and the appropriate action that will be taken to manage the issues identified. The grey text in the template provides example questions for each component of the principles to highlight what issues might be considered.

Please complete the checklist with as much detail as possible. If a component of a principle is not relevant to your project you should mark it as not applicable and move on. It may also be that a component is not relevant at all stages of a project it is therefore advisable to return to the checklist throughout the life of a project to ensure all ethical issues are identified.

Some projects may also fall under the ethical procedures of external ethics committees. This may include interviews with NHS patients and/or staff, and to participants who may lack the mental capacity to provide informed consent. The expectation of external ethical procedures applying to a particular project does not replace the need to complete the ethics checklist on the commissioning of a new project.

Assessing Ethical Sensitivity

The checklist requires you to make a judgement about the level of sensitivity for each issue that is identified. This should take into account the inherent sensitivity of the issue itself and the steps that can be taken to manage the issue appropriately.

A guide to the sensitivity ratings is as follows:

- **Red** – Highly Sensitive: The issue will need to be closely monitored and managed with remedial action likely to evolve throughout the project.

- **Amber** – Sensitive: The issue will require to be managed throughout the project but initial identification of remedial action should ensure sensitivities are appropriately managed.

- **Green** – Not Sensitive: The issue has been assessed adequately as not being sensitive, and this has been documented in the checklist

In addition to rating each issue, the project also needs to be given an 'overall' sensitivity rating. In most cases, this should be the same as the most sensitively rated part of the project. However, this is a guide rather than a rigid rule.

Project Title:
Project Manager:
Department/Division/Branch:

GSR Principle 1: Sound application and conduct of social research methods and appropriate dissemination and utilisation of findings		
Principle components	**Issues**	**Sensitivity Rating**
a) Scope out existing/similar research *- Are you content that this research is not duplicating already existing work?* *- Does a new piece of primary or secondary research need to be done?* *- Is other research already taking place with the same groups, which could be amalgamated to prevent over-researching small populations?*		**Red** **Amber** **Green**
b) Proposed methodology *- Is the research design appropriate to the groups being interviewed?* *- Is this level of respondent burden appropriate for the groups of people involved in the research?* *- How will the research consider the diverse perspectives of people according to their gender, disability, ethnicity, religion, sexual orientation, socio-economic status and age?*		**Red** **Amber** **Green**
c) External ethical scrutiny *- Are you interviewing NHS staff or patients? If so – the successful contractor will be required to obtain clearance from the National Research Ethics Service (NRES): http://www.nres.npsa.nhs.uk/* *- Are you interviewing participants who may lack the mental capacity to provide informed consent? If so the successful contractor may be required to obtain clearance from NRES: http://www.nres.npsa.nhs.uk/news-and-publications/news/mental-capacity-act-2005/* *- Are Academics likely to tender? If so, they will be required to go through their ethics committees?*		**Red** **Amber** **Green**
d) Dissemination strategy *- What is our role/responsibility to different stakeholders and research participants around dissemination?* *- Are there any accessibility or equality issues about how findings are made available or presented?*		**Red** **Amber** **Green**

GSR Principle 2: Participation based on valid informed consent		
Principle components	**Issues**	**Sensitivity Rating**
a) Consent to take part in primary research *- What processes are in place to ensure that participants are informed and understand about the project, the purpose, the client, topics and that their participation is voluntary?* *- What can you do to ensure that participant agreement is made before the interview is conducted?* *- If you intend to follow up participants with further research, has this been made clear and consent given?*		**Red** **Amber** **Green**
b) Consent via gatekeepers or proxy *- Is this required? If so, what processes need to be in place?* *- What steps can be taken to ensure representativeness, i.e. to ensure that participants are not "hand-picked" by gatekeepers or that there is a minority view promoted?*		**Red** **Amber** **Green**
c) Children and young people (aged 15 and under) *- Consent from a parent or legal guardian is required for children aged under 16 to participate in research, what processes are in place to ensure this is done?* *- How can you ensure that the children are also adequately informed about the work?* *- It is sometimes recommended that an adult accompanies children and young people during and interview. What processes are in place to ensure this is in place when required? Who is best to accompany the child(ren)?*		**Red** **Amber** **Green**
d) Vulnerable adults *- Are there any groups that might have difficulty giving informed consent themselves?* *e) How can you ensure that participants are adequately informed about the work?*		**Red** **Amber** **Green**
f) Access protocols *- Are there any particular access protocols for certain groups, does this*		**Red** **Amber** **Green**

apply to your respondent group? Access protocols could apply to: Courts, Police, Prisons, Schools		

GSR Principle 3: Enabling participation		
Principle components	**Issues**	**Sensitivity Rating**
a) Reducing the barriers to participation *- What steps can be taken to encourage and widen participation? (e.g. travel costs, childcare, varying times and locations of interviews, accessibility of venues, advance letters in different languages etc)* *- Do you need interviewer assistance such as offering help with the completion or a translator?*		**Red** **Amber** **Green**
b) Ensuring that hard to reach groups are included *- Is the research and sample design appropriate?* *- Might the data collection method exclude some groups of people?* *- Do you need to consult with others so that barriers to participation for certain groups are reduced?*		**Red** **Amber** **Green**

GSR Principle 4: Avoidance of personal harm		
Principle components	**Issues**	**Sensitivity Rating**
a) Research participants *- Might some of the research questions cover stressful or culturally sensitive subjects? If so, how will stress and sensitivities be minimised?* *- How can interview length be kept to the minimum?* *- Do you need to ensure that there is post-interview support?*		**Red** **Amber** **Green**
b) Interviewers/ researchers *- What procedures are in place to ensure interviewers are properly trained and vettted (e.g. criminal record checks or disclosure Scotland)? This must be done if interviewing/ involving children.* *- What procedures are in place for disclosure of abuse?* *- What procedures are in place to ensure the safety of the interviewer/researcher?* *-Have the interviewer/researchers*		**Red** **Amber** **Green**

demonstrated awareness of equality issues and an ability to work inclusively?		

GSR Principle 5: Non-disclosure of identity and personal information		
Principle components	**Issues**	**Sensitivity Rating**
a) Data Protection *- What procedures are in place to ensure adherence to the Data Protection Act and other government data security requirements?*		**Red** **Amber** **Green**
b) Research findings *- How can you ensure that the data collected during the research is not going to be used for any other than its original purpose?* *- Reporting should not allow the identification of any individual. What checks are in place to ensure that no one can be identified? (for both quantitative and qualitative work)*		**Red** **Amber** **Green**

Summary	**Overall Sensitivity Rating**
What are the key sensitivities? How are you addressing them?	**Red** **Amber** **Green**